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Office of Secretary

In the Matter of

AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Special Access Services	)	RM No. 10593
Unbundled Access to Network Elements	)	WC Docket No. 04-313
Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers	)	CC Docket No. 01-338
Implementation of the Non-Accounting Safeguards of Sections 271 and 272	)	CC Docket No. 96-149
Performance Measurements and Standards for Interstate Special Access Services	)	CC Docket No. 01-321
Section 272(f)(1) Sunset of BOC Separate Affiliate and Related Requirements	)	WC Docket No. 02-112

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NERA Economic Consulting

On Behalf of

BellSouth Corporation

November 8, 2004

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Economic Consulting

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EXECUTIVE SUMMARY

A. Purpose of Declaration

This Declaration responds to a recent report sponsored by the Ad Hoc Telecommunications Users Committee ("Ad Hoc") regarding competition for, and regulation of, switched and special access services provided by incumbent local exchange carriers ("ILECs").[1] We address the central contentions of the *ETI Report* about (1) the alleged ILEC abuse of special access pricing flexibility through "excessive monopoly prices" and (2) the necessity for re-regulation of special access services under the guise of a "self-executing regulatory paradigm." We demonstrate that the *ETI Report* fails to properly measure competition for ILEC-supplied special access services and relies on several spurious measures of ILECs' special access performance to support Ad Hoc's allegation of excessive pricing. We also establish that the prices paid for BellSouth's special access services have declined more rapidly after it obtained pricing flexibility than before, whether analyzed on a voice-grade equivalent basis or at the DS-1 level. We conclude that Ad Hoc's suggested solution—including, initially, re-prescribing prices for ILECs' special access services so as not to generate annual returns greater than 11.25%—is entirely unwarranted and, if implemented, would destroy the efficiency incentives in the ILECs' price cap regulation plans. That outcome would not only be unnecessarily punitive for ILECs but also detrimental for both consumers of telecommunications services and the state of telecommunications competition itself. Ad Hoc's purported solution must, therefore, be rejected.

B. ILEC-Supplied Special Access is Subject to Both Intramodal and Intermodal Competition

Ad Hoc claims that competitive local exchange carriers ("CLECs") that serve large businesses through special access connections have little or no competitive alternatives to special access services provided by ILECs. It also claims that, when it comes to serving large business customers, intermodal competitors or technologies do not provide feasible substitutes for ILEC-supplied special access. We show that these claims have no basis in fact. Moreover, even if they are true (which is certainly not the case), neither claim has any bearing whatsoever on whether (1) the ILEC pricing flexibility is somehow responsible for the paucity of competitive alternatives or (2) the ILECs have used pricing flexibility to gain an unfair advantage. Nothing in Ad Hoc's analysis could possibly implicate ILECs for having raised barriers to entry by would-be CLEC suppliers of special access (such as through anti-competitive pricing, exclusive dealing, strategic capacity investments, or outright interference in CLEC operations). Furthermore, as we show in our Declaration, BellSouth's special access effective prices (whether for all special access services or specifically for DS-1 services) have

[1] Economics and Technology, Inc., "Competition in Access Markets: Reality or Illusion," prepared for the Ad Hoc Telecommunications Users Committee ("*ETI Report*"), August 2004.

actually declined substantially since 1996 and, in particular, since BellSouth was granted pricing flexibility in 2000. Given that this trend in special access prices is very likely to be true for the other ILECs as well, those ILECs can hardly be accused of having exploited "captive" users through supra-competitive prices.

C. Ad Hoc's Claims of Excessive ILEC Earnings from Special Access are Economically and Factually Meaningless

Central to Ad Hoc's complaint is the assertion that the year 2003 earnings of the Regional Bell Operating Companies ("RBOCs") collectively from special access alone ranged from 23% to 69% (with an average of 43.7%). This claim is economically and factually meaningless at multiple levels. First, Ad Hoc's characterization of an accounting rate of return (based on fully distributed, embedded cost) as "profit" is economically meaningless. It is even worse that Ad Hoc should try to measure earnings in that manner at a service-specific level (for ILEC-supplied special access). Its manipulation of ARMIS data to create large accounting rates of return and to pass them off as excessive earnings is nothing short of disingenuous. Those earnings would mean nothing unless they represented true economic profits, which they do not.

Second, under price cap regulation, there was never any "authorized return level." Thus, it is specious for Ad Hoc to propose 11.25% (that served as the authorized return level in the days of interstate rate of return regulation) as the proper basis for re-prescribing prices for ILEC-supplied special access services. By conflating an authorized return level from the rate of return regulation era with returns achieved under price cap regulation (under which no specific rate of return was "authorized" as such), Ad Hoc creates the misleading impression of significant "over-earnings" by RBOCs when, in fact, there was no restriction on RBOC earnings in 2003.

Third, Ad Hoc attempts to minimize the impact of arbitrary cost allocations (which are an inherent feature of embedded cost measurement) on the calculation of earnings from ARMIS data, arguing instead that trends in the data are more important than cost misallocations at the margin. The fact remains that, effective July 2001, the FCC froze its separations allocation factors at their 2000 levels. Hence, changes in traffic, demand, or relative use (including shifts towards more intensive use of data facilities) no longer affect the assignment of costs or investment to ARMIS categories. Consequently, rates of return calculated for special access services in recent years are likely to be both economically meaningless and exaggerated.

Finally, by trying to tell a highly contrived story about the RBOCs' alleged excessive earnings, Ad Hoc diverts attention from the issues that should really be of concern to the FCC and society at large. These concern whether (1) competition of sufficient quality and quantity is occurring for the services in question and (2) prices of those services are being set and sustained at supra-competitive levels. Since the answer is "yes" to the first question and "no" to the second, it does *not* matter in the least that an ILEC's accounting rate of return—even one contrived for a specific service—exceeds some imagined level of acceptability.

D. ILECs' Effective Special Access Prices Have Declined During the Pricing Flexibility Period and There is No Evidence of Market Power

Ad Hoc's assertion that the sheer ability of ILECs to raise their special access service prices amounts to an exercise of market power is false. As we demonstrate in this Declaration, (1) the special access market is unambiguously competitive and (2) special access prices, whether measured in nominal or real terms, have declined faster after the grant of pricing flexibility than even that in the price cap regulation period. Moreover, thanks to the widespread ILEC practice of offering discounted special access services through volume and term contracts, the prices that purchasers of special access services *effectively* pay have trended down, regardless of the levels of tariffed prices.

More fundamentally, the ability to raise prices profitably above competitive levels (without effective retaliation from competitors) only constitutes market power if those initial prices were set at least at competitive levels to begin with. Historically, both before and after the advent of price cap regulation, prices of ILEC-supplied special access services were *not* set—nor could they be made to be set—at levels expected to prevail in unregulated, competitive markets. Therefore, it simply cannot be presumed that ILECs have raised their special access prices from the efficient levels expected in competitive, unregulated markets. Furthermore, no exercise of market power can be inferred purely from any increase in tariffed special access prices in the post-pricing flexibility era.

E. Ad Hoc's Proposed Plan for ILECs' Special Access Services is Flawed and Should be Rejected

Because competition in the markets for special access services is working as intended and prices are falling, there is no justification for Ad Hoc's proposed rollback of pricing flexibility. The four-point plan of action proposed by Ad Hoc as a "remedy" for the alleged excessive pricing by ILECs of their access services is flawed in several important respects and must be rejected. Ostensibly, that plan is a "self-executing regulatory paradigm" that would only be needed as long as the market for access services did not, in Ad Hoc's view, behave competitively. In reality, it is a plan designed to hamstring the ILECs' ability to compete by saddling them with new layers of unneeded and ultimately harmful regulation, principally in the form of a rollback of the pricing flexibility granted to ILECs for special access services.

At a time that ILECs face increasing competition for both retail and wholesale services, the restoration of a particularly onerous form of price cap regulation that Ad Hoc's plan envisions would be both asymmetric and regressive. ILECs have lowered special access prices progressively over time faster than even the most stringent target rates set by the FCC in the past through its choice of the *X* factor. If returns have increased to ILECs, as Ad Hoc contends, then they have done so in an environment in which special access prices have *fallen*, but ILECs' costs have fallen *even faster*. Consumers have benefited on account of both of these developments, and competitors purchasing special access from ILECs have certainly not been compromised (particularly when even lower-priced unbundled network elements have been

readily available alongside). In light of these facts, nothing could be more reactionary and regressive than a plan that re-prescribes ILEC's special access service prices, calculates contrived service-specific rates of return based on embedded costs, and imposes service-specific *X* factors and earnings sharing requirements. Ad Hoc's "self-executing regulatory paradigm" should be rejected.

AD HOC'S COMPLAINT IS UNFOUNDED AND PROPOSED ACTIONS ARE UNJUSTIFIED

A. The market for special access services is effectively competitive and competition has increased under RBOC pricing flexibility

1. The foundation for Ad Hoc's complaint[2] is provided by the *ETI Report*'s discussion of the competitive landscape, specifically with respect to special access services.[3] Ad Hoc's analysis of competition for ILEC-supplied special access is two-pronged and rests on the following claims:

   1. CLECs that serve large businesses through special access connections have little or no competitive alternatives to special access services provided by ILECs.

   2. For serving large business customers, intermodal competitors or technologies cannot feasibly substitute for ILEC-supplied special access.

   Neither of these claims has merit, as discussed in greater detail below.

1. CLEC access to competitive alternatives for ILEC-supplied special access

2. Dedicated and high-capacity connectivity is a prerequisite for serving large business (or "enterprise market") customers. Special access facilities at the DS-1 level and up are frequently required for that purpose. The FCC has already noted that CLECs are not impaired with respect to their access to OC(n) facilities and, even assuming there were

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[2] Economics and Technology, Inc., "Competition in Access Markets: Reality or Illusion," prepared for the Ad Hoc Telecommunications Users Committee ("*ETI Report*"), August 2004.

[3] *Id.*, at 11-26. Ad Hoc's *ETI Report* is one among a number of recent attempts by competitive local exchange carrier ("CLEC") groups to roll back the special access pricing flexibility for ILECs that was approved by the Federal Communications Commission ("FCC") (in CC Docket Nos. 96-262 and 94-1, CCB/CPD File No. 98-63, and CC Docket No. 98-157, Fifth Report and Order and Further Notice of Proposed Rulemaking, August 27, 1999) and granted to specific ILECs subsequently. The others include (1) Declaration of Lee L. Selwyn, on behalf of AT&T Corp. and (2) Mayo/MiCRA/Bates White Economic Impairment Analysis, both in FCC, *In the Matter of Unbundled Network Elements, Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, WC Docket No. 04-313 and CC Docket No. 01-338 ("*TRO Remand Proceeding*"), October 4, 2004. Furthermore, following a petition for rulemaking to the FCC by AT&T Corp in October 2002 (asking the FCC to revisit its pricing flexibility rules), a coalition of CLECs filed a writ of mandamus before the D.C. Circuit Court of Appeals (*In re AT&T Corp., the CompTel/ASCENT Alliance, eCommerce and Telecommunications Users Group, and the Information Technology Association of America, Petitioners*, On Petition for a Writ of Mandamus Directing Action by the Federal Communications Commission, November 6, 2003).

legitimate concerns about any impairment at all, they would be limited to high capacity facilities at the DS-1 level and, to some extent, the DS-3 level.[4] Even then, CLECs that deploy OC(n) facilities can, with some additional electronic equipment, channelize those facilities down to serve customers at lower capacity levels (such as DS-3 or DS-1).[5]

3. Ad Hoc contends that "[ILECs] remain the sole source of special access connectivity at roughly 98% of all business premises nationwide and that this condition affects even the largest corporate users."[6] While this statement is intended to show that the special access market is skewed in favor of ILECs, it is very misleading. Ad Hoc estimates that there are about 3 million commercial buildings in the country.[7] It further estimates that only about 2% of these buildings are presently being served by non-ILEC special access and intermodal alternatives such as cable and fixed wireless.[8] Even assuming *arguendo* that Ad Hoc's estimate in this regard is correct, to turn that around and claim that the remaining

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[4] *In the Matter of the Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 01-338, 96-98, 98-147, Report and Order and Order on Remand and Notice of Proposed Rulemaking ("*Triennial Review Order*"), released August 21, 2003, at ¶298.

[5] The *UNE Fact Report 2004* (filed jointly in the *TRO Remand Proceeding* by BellSouth, SBC, Qwest, and Verizon) explains this matter as follows:

> [F]iber-optic capacity is routinely "channelized" – SONET-based "add/drop" multiplexers and demultiplexers at each end of the glass simply carve virtual dedicated circuits of varying bandwidths out of the single physical whole. This hardware is supplied in competitive markets and is relatively cheap compared to the cost of laying the cable; the price of the hardware continues to drop rapidly; and some customers provide their own add/drop multiplexers. Many competitive carriers routinely deploy multiplexing equipment capable of providing services from DS1 on up as part of their typical set-up in a collocation arrangement in an ILEC's central office. *See* Table 7. Wherever competitive fiber itself is at hand, therefore, high-capacity services can be provided competitively too, in every standard increment.

See *UNE Fact Report 2004*, at III-10 and III-11 and accompanying footnotes, some of which cite AT&T sources describing how channelization is an economical way to separate and transmit lower-capacity signals.

[6] *ETI Report*, at 12.

[7] *Id.*, at 16. The accuracy of this estimate is questionable. Ad Hoc cites the *Triennial Review Order* at fn. 856, which states that the 30,000 commercial office buildings that are served by competitor-owned fiber loops constitute "between 3% to 5% of the nation's commercial office buildings." This implies that the number of commercial office buildings in the nation lies between 600,000 and 1 million. However, fn. 856 goes on to cite WorldCom Comments in Docket No. 96-98, filed June 11, 2001, which, in turn, refers to "CityNet Wins $275 Million in Funding," Washington Post, April 10, 2001, which does not cite a source but refers to 3 million commercial *high-rise* buildings.

[8] *Id.*

98% of the commercial buildings in the nation are dependent on ILEC-supplied special access connectivity is simply a gross exaggeration.[9]

4. First, Ad Hoc provides no evidence that those buildings are, indeed, being served by ILEC-supplied special access, or even by any special access at all. Many commercial buildings are "small" by any standard, and they do not generate enough spending on telecommunications services to warrant economically feasible deployment of high capacity facilities, whether by ILECs or other carriers.[10] Second, and more importantly, we show below that actual special access prices paid by the highest-volume customers (such as Ad Hoc's members) have actually declined over time at an impressive rate. Whether or not those customers actually use non-ILEC sources for special access connectivity, they have benefited from competition and ILEC pricing flexibility in the prices they pay for service.

5. A related argument advanced by Ad Hoc is that interexchange carriers ("IXCs") would step up their use of special access from alternative sources, *if only* such special access were available.[11] Ad Hoc cites AT&T as reporting that, of the approximately 186,000 commercial buildings that it serves using special access, in only 5% of those buildings can it rely on special access service from non-ILEC sources.[12] Ad Hoc also cites Sprint as claiming to depend on ILEC-supplied special access in 93% of the buildings it serves.[13] The explanation, according to Ad Hoc, for this relatively limited use of non-ILEC special access is that CLECs (1) cannot always be relied upon to meet various service quality,

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[9] That "dependence" is a clear concern to Ad Hoc is evident from its assertion that "[e]vidence recently submitted to the FCC by Verizon confirms the extent of enterprise customers' *extreme and utter dependence* upon BOC-provided special access services ...." *Id*, at 13 (emphasis added). As if to back up this statement (and the connotation that enterprise customers have no option but to receive "overpriced" service from ILECs), Ad Hoc attaches two maps showing locations within the New York and Washington DC metropolitan areas in which CLECs use Verizon-supplied special access to deliver local service. *Id*, at 14-15. It is unclear what, if anything, can be gleaned from these maps to support Ad Hoc's claim about its customers' dependence on overpriced ILEC-supplied special access.

[10] Noting this very fact, the FCC stated recently: "The enterprise market is a business customer market of typically medium to large businesses with a high demand for a variety of sophisticated telecommunications services. . . . The record reflects that high-capacity loops, DS1 to OC(n), are generally provisioned to enterprise customers." *Triennial Review Order*, at ¶197, fn. 624.

[11] *ETI Report*, at 17.

[12] *Id.*

[13] *Id.*

performance, and cost-effectiveness criteria, (2) are vulnerable to bankruptcy and cannot deliver service with any certainty, and (3) are not always able to gain access to all end users within buildings to which they deploy their facilities.[14]

6. The line of reasoning that leads Ad Hoc from this lament about the structural conditions plaguing CLECs (as suppliers of special access) to a virtual indictment of ILECs for having allegedly cornered the supply of special access is simply specious. Even if the claimed limitations on reliable and efficient supply of special access services by CLECs are true and even if many users of special access have no alternative for ILEC sources (neither of which is the case), neither has any bearing whatsoever on whether (1) the ILEC pricing flexibility is somehow responsible for the paucity of competitive alternatives or (2) the ILECs have used pricing flexibility to gain an unfair advantage. Nothing in Ad Hoc's analysis could possibly implicate ILECs for having raised barriers to entry by would-be CLEC suppliers of special access (such as through anti-competitive pricing, exclusive dealing, strategic capacity investments, or outright interference in CLEC operations). Furthermore, as shown below, with their special access prices actually declining substantially since 1996, ILECs can hardly be accused of having exploited "captive" users through supra-competitive prices.

7. There is almost no accounting at all in Ad Hoc's analysis for the relevant market facts about special access supply. Those facts are as follows.

   1. Enterprise customers (such as members of Ad Hoc) represent $50 billion in annual telecommunications spending, mainly on long distance and data services. They account disproportionately for the retail demand for high capacity services (e.g., more than 85% of Verizon's retail sales). These customers are served mainly by IXCs (more than 50% of these customers are served by AT&T, MCI, and Sprint, and 73% of them have one of those IXCs as the "primary" service provider).[15]

   2. IXCs have traditionally—and without any apparent difficulty—served enterprise customers (particularly for their long distance needs) over either their own facilities or special access purchased from other carriers (including CLECs). They rely very little on unbundled network elements ("UNEs") to serve enterprise customers with local,

[14] *Id.*, at 18.

[15] *UNE Fact Report 2004*, at III-32 and fns. 97-101.

long distance, or data services. Some of them operate their own high capacity local access and transport facilities.[16]

3. The major IXCs and CLECs have built up competitive fiber networks that, among them, are conservatively estimated to serve over 62,000 local route miles and almost 324,000 total route miles and connect directly to over 31,600 buildings. Moreover, several CLECs are themselves wholesalers that supply capacity to other carriers, with AT&T doing so in as many as 70 MSAs.[17]

4. CLECs now provide a significant share of the special access services delivered to end users. Conservative estimates that do not account for self-provisioning by the major IXCs put the CLEC share of special access revenues at over 36%; with revenues from IXC self-provisioning included, that share may be near 50%.[18]

5. When it comes to data services purchased by enterprise customers, the competitors are in the driver's seat. As if the fact that the three major IXCs (AT&T, MCI, and Sprint) provide 80%-90% of long distance services purchased by enterprise customers were not enough, they also provide approximately 75% of the packet-switched data services (e.g., ATM and Frame Relay) purchased by those customers. Other specialized high-speed data services (such as IP VPN) are also mostly provided by those IXC-CLECs.[19]

6. CLECs currently use special access circuits to serve approximately 60 million voice grade equivalent lines. Interestingly, most CLEC purchases of high capacity loops are in the form of special access rather than UNEs. 93% of DS-1 and 98% of DS-3 loops sold by Verizon to CLECs are in the form of special access. For SBC, those figures are 77% and 97%, respectively, and for BellSouth, they are 70% and 97%, respectively. Time Warner is a facilities-based CLEC that relies exclusively on special access to serve its customers, while US LEC and Pac-West are examples of CLECs that rely primarily on special access high capacity loops (as opposed to UNEs) to serve their customers.[20]

8. These facts provide a thumbnail sketch of the competitive landscape in which the CLECs operate and, in particular, the successes they have had in serving large business customers (including members of Ad Hoc) with voice, data, and special access services. Coupled

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[16] *Id.*, at III-34 and Table 18 in Chapter III.

[17] *Id.*, Tables 1 and 11 in Chapter III. Independently, the New Paradigm Resources Group estimates the total route miles of CLEC networks at 346,759 in 2003, up 6.1% from the previous year (showing strong forward progress). *CLEC Report 2004*™, Table 15.

[18] *Id.*, at III-35.

[19] *Id.*, at III-33.

[20] *UNE Fact Report 2004*, at III-39 and fns. 129-133.

with the fact that CLECs today enjoy far more stability than in years past (with fewer bankruptcies, many CLECs emerging from bankruptcy stronger than before, and some prominent non-IXC CLECs also posting positive EBITDA or net income),[21] it is hard to recognize the distressing picture painted by Ad Hoc.

2. Intermodal competition for ILEC-supplied special access

9. Ad Hoc contends that intermodal competitive alternatives (such as cable and fixed wireless platforms) do not offer "realistic alternatives" to large business customers.[22] Ad Hoc explains that cable cannot be a serious contender because "networks constructed by cable companies are largely designed to reach residential dwellings, not business locations,"[23] and "because cable companies are primarily oriented towards a mass-market customer base, their telephony and data (i.e., cable modem) offerings generally fall short of ILEC offerings in the areas of service reliability and security."[24] Similarly, Ad Hoc believes that fixed wireless suffers from problems concerning security, service quality, and quality of connections (particularly since that platform requires line-of-sight transmission).[25]

10. The facts, again, do not support Ad Hoc's claims. Despite its early technical shortcomings, fixed wireless has now become a viable alternative to special access, and cable companies are actively pursuing business customers. Consider the following facts:

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[21] *CLEC Report 2004*™, at 1-7.

[22] *ETI Report*, at 22-24.

[23] *Id.*, at 22.

[24] *Id.*, at 23.

[25] *Id.*, at 24. At least some in the broadband wireless industry believe that these concerns may be exaggerated or otherwise fed by a lack of information. Quality of service issues are frequently addressed by fixed wireless providers through Service Level Agreements that guarantee a certain level of quality (such as that expected from a DS-1 line). Security is more of an issue for service providers than for customers because wireless signals can be encrypted like any network traffic. Interference is a real issue but service providers have resorted to various modulation techniques and network management software to minimize it. Robert Hoskins, "Reasons for Optimism: Broadband Wireless ISP's Proving The Business Case," *Broadband Wireless Online*, October 28, 2001. Exciting recent developments on the Wi-Fi (802.11b) front and new business models introduced by Boingo, Gric and iPass (all Internet traffic aggregators) presage new possibilities for serving business customers, especially those with mobility and roaming needs. Tim Sanders, "What Does the Future Hold for Fixed Wireless ISPs that Want to Provide Roaming Services to Their Customer Base?" *Broadband Wireless Exchange Magazine*, 2004.

1. In their pursuit of business customers, all of the nation's major cable operators[26] have either deployed fiber in urban areas or extended their hybrid fiber/coaxial networks to provide cable modem services in urban, suburban, and rural areas. Thus far, cable companies appear to be serving business customers in at least 90 MSAs. Research reported by In-Stat/MDR in December 2003 showed that 41% of business customers with 1,000+ employees (i.e., enterprise customers), 32% of business customers with 100-999 employees, and 44% of business customers with 5-99 employees use cable modem service to receive certain high capacity services. Another independent study has confirmed that business customers are increasingly using cable modem service in place of traditional special access and private line services.[27]

2. The advent of Voice over Internet Protocol ("VoIP") technology has given cable operators an important cost-effective means to provide voice and data services to business customers. For example, [Cablevision] Lightpath reports providing a suite of voice, data, and Internet communications services over its fiber-optic network to business customers in New York, New Jersey, and Connecticut that collectively account for over 140,000 access lines and 18,000 Internet circuits. Similarly, Cox Business Services provides voice, data, and transport services to over 100,000 customers. Cox sees a "significant opportunity" in the fact that over 320,000 businesses are located within 100 feet of its network. Finally, Time Warner claims to have created network infrastructure that passes 1.2 million business locations.[28]

3. FCC statistics demonstrate significant growth in in-service coaxial cables (whether "high-speed lines" with speeds of over 200 kbps in *at least* one direction or "advanced services lines" with speeds of over 200 kbps in *both* directions)[29] between 1999 and 2003. For *all* customers, the compound annual growth rate ("CAGR") for coaxial high-speed lines was nearly 85% and that for coaxial advanced services lines was over 104%. For *residential and small business* customers alone, those CAGRs were almost identical at 85% and nearly 105%, respectively. For *all other* (comprising medium and large business, institutional, and government)[30] customers, those CAGRs were lower but still impressive at 33% and 53%, respectively. The FCC notes that large business customers are most likely to use the advanced services lines,[31] and FCC statistics show that,

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[26] These include Cablevision, Time Warner, Charter, Comcast, Cox, and RCN.

[27] *UNE Fact Report 2004*, at III-36 and III-37 and fns. 123-128.

[28] "Cablevision Systems Corp.: Lightpath Offers Next Generation Services Using DWDM Solution," *Market News Publishing*, December 2, 2003. "Enterprise Presents Even 'Bigger' Opportunity for Cox Business Service in 2004," *Cox Communications News Releases*, March 29, 2004. Andrea Figler, "Turning Business Into Customers," *Cable World*, December 9, 2002.

[29] Thus, advanced services lines are a subset of high-speed lines.

[30] See definitional note for Table 11 in FCC, Industry Analysis and Technology Division, *High-Speed Services for Internet Access: Status as of December 31, 2003* ("*FCC High-Speed Report*"), June 2004.

[31] *FCC High-Speed Report*, at 3, fn. 8.

between December 2002 and December 2003, almost 9,900 such lines were added for those customers.[32]

4. The FCC has licensed a substantial amount of spectrum (collectively, about 2.9 GHz) for use by fixed wireless operators, and there is no imminent danger of exhaustion of that spectrum. Unlicensed spectrum is also available for the deployment of the fast-growing Wi-Fi technology using the 802.11 platform. Research by In-Stat/MDR has also shown that 40% of business customers with 1,000+ employees, 29% of business customers with 100-999 employees, and 23% of business customers with 5-99 employees set up plans to use fixed wireless during the course of 2004.[33]

5. A competing provider of local and long distance voice, data access, and Internet access providers that has made headway with fixed wireless technology is XO Communications. Having successfully completed trials in California in late 2003, XO announced plans to roll out its LMDS fixed wireless service, at first in San Diego and Irvine and eventually in some or all of the top 30 cities, for 95% of which it already holds fixed wireless spectrum licenses. XO claims to be able to provide three times more bandwidth than a conventional T-1 line (a feature certain to appeal to large business customers) and high-speed Internet and Ethernet services as well.[34]

11. There is no question that intermodal alternatives are becoming increasingly available even for serving large business customers. Both technological and economic solutions are being found to overcome early obstacles that impeded the progress of these alternative technologies, particularly fixed wireless. However, some observers are convinced that fixed wireless is marking a return, in even stronger shape than before.[35] In the meantime, the lower-cost VoIP platform has helped cable companies offering broadband access along

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[32] This can be calculated from Tables 2 and 4 of the *FCC High-Speed Report*. Curiously, the *ETI Report*, at fn. 42, claims that "approximately 3,400 new coaxial cable connections were added that served large business subscribers, with the total number of connections to high speed cable connections to large business users still less than 30,000 in total." Although the phrasing is difficult to follow at first, it is clear that Ad Hoc is claiming that coaxial connections used by large business customers increased by only around 3,400 when, in fact, the FCC's own statistics show that the gain was almost three times higher at just under 9,900. Not only does Ad Hoc get that count wrong, it implies that a total of 30,000 connections is not a large number. Even though cable companies have sold considerably more high-speed or advanced lines to residential and small business customers than to large business customers, 30,000 is *not* a trivial fraction of the number of business establishments that would be considered "large."

[33] *UNE Fact Report 2004*, at III-36 and fns. 120-122.

[34] Kurt Mackie, "XO Cites Success in California LMDS Trials," *Broadband Wireless Business*, January 14, 2004.

[35] Dan O'Shea, "The Second Coming of Fixed Wireless," *Telephony*, April 7, 2003. Tim Sanders, *op cit.*, fn. 25 *supra*.

with other services pull ahead of ILECs whose DSL offerings have not enjoyed comparable economies of scale.[36]

B. Embedded, fully-distributed accounting costs for a single service—and associated earnings—cannot be used as a reasonable measure of forward-looking incremental cost or economic profit

12. Central to Ad Hoc's complaint is the assertion that the year 2003 earnings of RBOCs collectively from special access alone ranged from 23% to 69% and "averaged a jaw-dropping 43.7% … i.e., close to four times the most recently authorized return level."[37] This claim is economically and factually meaningless at multiple levels.

13. First, it is extraordinary that Ad Hoc should characterize an accounting rate of return (based on fully distributed, embedded cost) as "profit." Even assuming that such a rate of return can be meaningfully calculated at a service-specific level—which it certainly cannot—Ad Hoc's manipulation of ARMIS data to create large accounting rates of return and to pass them off as excessive earnings is nothing short of disingenuous. Those earnings would mean nothing unless they represented true economic profits. For example, Ad Hoc's statement that "[r]eturns of this level simply could not be sustained over a multi-year period in a mature market (such as the market for local telecommunications service) if even a modest amount of *bona fide* competition were present"[38] reveals a disdain for the proper use of meaningful economic measures. Ad Hoc's attempts to *defend* the use of accounting returns[39] calculated from manipulated ARMIS data are just as objectionable.[40]

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[36] Jane Black, "Saving the Bells' Broadband Bacon," *Business Week Online*, April 21, 2003.

[37] *ETI Report*, at 28. Specifically, BellSouth is alleged to have earned 69.1% on special access services in 2003.

[38] *Id.*, at 29.

[39] *Id.*, at 29-32.

[40] The economists that wrote the *ETI Report* should legitimately be expected to adhere to a higher standard of analysis and to be scrupulously faithful to the proper use of economic measures. It is particularly disappointing that they should defend their misuse and manipulation of ARMIS data and accounting returns by arguing that "the ILECs themselves have had as large or larger a role in the development of [costing and accounting] rules as any other party." Those rules were created for the specific purpose of calculating firm-level earnings under a rate of return regulatory regime, and the fact that they do not lead to measures of *economic* profitability has been appreciated for a long time. Moreover, to the best of our knowledge, ILECs have never sought to use those rules for ratemaking purposes or for assessing the competitiveness of their prices. It is simply not legitimate for

14. Second, under price cap regulation, there was no "authorized return level." The 11.25% that Ad Hoc considers the authorized return level was *never* set as a parameter of any interstate price cap plan for ILECs at any time since the inception of price cap regulation. Rather, as Ad Hoc itself recognizes,[41] it was the authorized rate of return that the FCC had authorized in 1990 for interstate *rate of return* regulation of the RBOCs. By conflating an authorized return level from the rate of return regulation era with returns achieved under price cap regulation (under which no specific rate of return was "authorized" as such), Ad Hoc creates the misleading impression of significant "over-earnings" by RBOCs when, in fact, there was no restriction on RBOC earnings in 2003. Ad Hoc attempts to find fault with precisely the outcome that price cap regulation envisions, namely, the regulated firm's ability to exceed the normal risk-weighted return on capital (i.e., its true opportunity cost) through cost-cutting, greater efficiency, and productivity growth. By seeking to artificially restrain the RBOC's ability to reap the fruits of its superior performance—indeed, by characterizing it in pejorative terms such as "jaw-dropping," "whopping," and "dizzying heights"[42]—Ad Hoc is making a naked attempt to roll regulation back to the rate of return regulation era. Such an attempt must be rejected.

15. Third, Ad Hoc asserts that "ARMIS…cost-misallocations at the margins [do] not affect the overall integrity of *trends* in the data, *since those (arguably) mis-allocations do not change from period to period*."[43] On the contrary, one important recent change in ARMIS accounting does affect the change from period to period in relationships among ARMIS categories. Effective July 2001, the FCC froze its separations allocation factors at their 2000 levels. Hence, changes in traffic, demand, or relative use (including shifts towards

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Ad Hoc's economists to use accounting returns to make statements about "excessive earnings," particularly in a regulatory environment that *allows* the regulated firm to earn positive economic profit and places no restrictions on the size of that profit.

[41] *ETI Report*, at v.

[42] *Id.*, at 28, 29, and 32.

[43] *Id.*, at 29. Emphasis in original.

more intensive use of data facilities) no longer affect the assignment of costs or investment to ARMIS categories.[44]

16. Finally, by trying to tell a highly contrived story about the RBOCs' alleged excessive earnings, Ad Hoc diverts attention from the issues that should really be of concern to the FCC and society at large. What should matter most in any investigation of ILEC performance with respect to their access services is whether (1) competition of sufficient quality and quantity is occurring for the services in question and (2) prices of those services are being set and sustained at supra-competitive levels. Since the answer is "yes" to the first question and "no" to the second, it does *not* matter in the least that an ILEC's accounting rate of return—even one contrived for a specific service—exceeds some imagined level of acceptability. Indeed, the *entire* discussion in the *ETI Report* of excessive ILEC earnings on special access services is a grand diversion from issues of any substance.

17. Indeed, it is disturbing that Ad Hoc's ploy of holding up contrived accounting returns as examples of supposed ILEC excess has now been espoused by other CLEC-sponsored economists as well.[45] Not only is such "analysis" flawed, it also runs counter to the positions that AT&T's economists have themselves taken in the past. As Professor Alfred Kahn and one of us pointed out nearly two years ago:[46]

> This is a truly outrageous claim, relying as it does on measures of fully allocated book costs of services whose production in common with others entails a very high proportion of fixed and common costs and significant economies of scope—all the more so coming from a company and specific witnesses who have consistently and correctly decried the basis for such claims in economic terms for many decades. …

[44] FCC, *In the Matter of Jurisdictional Separations and Referral to the Federal-State Joint Board*, CC Docket No. 80-286, Report and Order, released May 22, 2001.

[45] See, e.g., Mayo/MiCRA/Bates White Economic Impairment Analysis, *op cit.*, at ¶116.

[46] Declaration of Alfred E. Kahn and William E. Taylor, on behalf of BellSouth Corporation, Qwest Corporation, SBC Communications, Inc., and Verizon, in FCC, *In the Matter of AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM No. 10593, December 2, 2002, at 7-9.

> High or increasing rates of return calculated using regulatory cost assignments for interstate special access services do not in themselves indicate excessive economic earnings reflecting the exercise of market power. Indeed, regulatory rates of return for geographic subsets of single services in multi-product, multi-geographic firms bear no relationship with economic profits and thus can serve no useful purpose in determining whether pricing flexibility has or has not been excessively permissive. ILECs are integrated multi-regional firms and rely on an integrated regional management structure employing the regional physical and human resources to provide a multiplicity of services. The cost allocations required render such a calculation meaningless. ...
>
> The regulatory expedient of assigning fixed costs among categories (e.g., between regulated and unregulated or between interstate and intrastate jurisdictions), in proportion to variable costs or demand volumes, though "reasonable," is not cost-causative, and the resulting costs are not economic costs. It might be equally reasonable to allocate railroad overhead costs to services by volume, weight or value, but shippers of feathers, coal and diamonds would undoubtedly disagree about the results. In Dr. Willig's prophetic words some 15 years ago,
>
>> Fully allocated cost figures and the corresponding rate of return numbers simply have zero economic content. They cannot pretend to constitute approximations to *anything*. The "reasonableness" of the basis of allocation selected makes absolutely no difference except to the success of the advocates of the figures in deluding others (and perhaps themselves) about the defensibility of the numbers. There just can be no excuse for continued use of such an essentially random, or, rather, fully manipulable calculation process as a basis for vital economic decisions by regulators.[47]

18. Ironically, AT&T presented this very argument to regulators in Massachusetts when requesting regulatory relief for its intrastate long distance services:

> AT&T is an integrated, multijurisdictional company providing telecommunications services worldwide using an integrated national management structure and employing the same physical and human resources to provide international, interstate and intrastate services. Because AT&T's services used the same network, computers and other facilities whatever the jurisdiction, determining a cost basis for calculating an economically meaningful rate of return is impossible. Rationally determining the cost basis for purposes of pricing individual state subsets of those services is also an economically

[47] W. J. Baumol, M. F. Koehn and R.D. Willig, "How Arbitrary is 'Arbitrary'? – or, Toward the Deserved Demise of Full Cost Allocation," *Public Utilities Fortnightly*, 120(5), September 3, 1987, at 21.

> impossible task. Yet, Massachusetts ROR regulation requires that a fully-allocated cost basis be established and that the prices for AT&T's intrastate services be modified to reflect such cost allocations. Allocating AT&T's multistate costs to determine AT&T's Massachusetts costs, further allocating those costs between interstate and intrastate services, and yet further allocating the intrastate costs among numerous intrastate services is economically irrational as a basis for setting prices. There is no rational basis for believing that rates based on fully allocated costs are either fair or economically justified.[48]

19. It is just as "economically irrational" to use accounting earnings and fully distributed costs to assess an ILEC's special access prices as it was to assess AT&T's long distance prices in Massachusetts. No allocation of ILEC accounting costs between regulated and unregulated intrastate and interstate services can be cost-causative. Among interstate services, the allocation of costs to special access services requires additional arbitrary assumptions. This is hardly surprising because fixed and shared and common costs represent a significant fraction of an ILEC's total costs. When a multiproduct firm like an ILEC uses one network to provide interstate and intrastate services, carrier services (special and switched access), and retail services (local and long distance), there is no non-arbitrary or cost-causative way to allocate costs that are not directly attributable to individual services.[49]

20. Were Ad Hoc to succeed in having ILEC-supplied special access prices "re-targeted to competitive levels," i.e., reset so as not to permit a return greater than 11.25% for special access services, the financial consequences alone of such a move would be immense. In June 2003, a group called the Special Access Reform Coalition ("SPARC") that represents CLEC interests submitted a study that purported to show that re-targeting special access prices in that manner would add $14.5 billion to the Gross Domestic Product and 132,000

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[48] Initial Brief of AT&T Communications of New England, Inc., dated April 23, 1992, in the Commonwealth of Massachusetts Department of Public Utilities proceeding DPU 91-79, at 42-43. Citations omitted.

[49] Ad Hoc attempts to minimize the problems with cost allocation by arguing that "mis-allocations at the margins" have little adverse effects on trends in data because those "mis-allocations do not change from period to period." *ETI Report*, at 29. We disagree with that premise. When fixed and shared and common costs are a fraction of the ILEC's total cost, misallocations are unlikely to be minor, in and of themselves, or have benign consequences for pricing services. Therefore, almost universally, economists reject allocated (or distributed) costs as the basis for efficient pricing, regardless of whether the misallocations are small "at the margin" or invariant over time.

new jobs to the economy in two years. In December 2003, the ILECs countered with their own study that exposed flaws in the SPARC study and the very idea of constraining ILECs to earning no more than 11.25% on their special access services. The seriousness of this criticism was not lost on the FCC. In fact, it cited that criticism as one of the factors behind its decision to delay acting on AT&T's petition regarding ILEC-supplied special access and, subsequently, to oppose AT&T's (and other petitioners') petition to the D.C. Circuit Court of Appeals for a writ of mandamus compelling the FCC to revisit its pricing flexibility rules for ILEC-supplied special access.[50]

21. The redistributive effects of any re-prescription of ILEC-supplied special access service prices are clearly likely to be enormous, as the FCC has correctly recognized. Although our position is—and consistently has been—that accounting rates of return calculated by one means or another for specific subsets of an ILEC's services are meaningless, it is evident that Ad Hoc (like the SPARC before it) are attempting to secure enormous bounties for its members and CLECs generally, at the long run expense of consumers and the state of market competition. More importantly, from our point of view, any direct loss in special access revenue that the suggested roll back in special access pricing flexibility would bring about would only represent the leading edge of the enormous loss of productivity (and efficiency incentives generally) and the incentive to invest that BellSouth (along with other ILECs) would suffer. Ad Hoc's proposal would mark a complete retreat from a decade and a half of more enlightened regulation designed for an increasingly competitive telecommunications market. A return to unbridled rate of return regulation is *not* in the economic interests of the telecommunications industry, a fact that the FCC well appreciates.

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[50] D.C. Circuit Court of Appeals, *In re Petition of AT&T Corp. et al., Petitioners*, No. 03-1397, Opposition of the Federal Communications Commission to Petition for Writ of Mandamus ("*FCC Opposition*"), January 9, 2004. In opposing the petition, the FCC remarked (*FCC Opposition*, at 26):

> In fact, petitioners' interim relief request is even more extraordinary than their rulemaking request, because it presumes the correctness of their position, and because it goes far beyond seeking to restore the status quo that existed before the implementation of pricing flexibility. However, petitioners plainly are not entitled to interim relief where the result they seek – a complete reworking of the agency's special access rules, after they were upheld by this Court – is not "preordained."

C. Ad Hoc's analysis is flawed in all respects

1. Costs

22. Ad Hoc alleges that ILEC's access services continue to be priced so as to generate revenues that "substantially" exceed embedded costs—special access even more than switched access—and subsidize local exchange services.[51] Claims that prices exceed embedded costs have little economic merit. Indeed, Ad Hoc fails to apply the proper test of cross-subsidy. For a service to *provide* a subsidy, it must generate revenue in excess of its "stand-alone" cost. Conversely, for it to *receive* a subsidy, it must fail to generate revenue that recovers at least the incremental costs (both variable and fixed) that are directly attributable to it. The proper cost standard for the latter is total service long run incremental cost ("TSLRIC"). A price that exceeds embedded cost does not automatically mean that it provides a subsidy; that price must be shown to exceed the stand-alone cost per unit of service. Ad Hoc makes no such showing.

23. Commenting on ILEC access service prices, Ad Hoc contends:

> Now that the [Bell Operating Companies] and most other ILECs have entered the interLATA market, perpetuation of this access charge policy creates formidable market distortions and inappropriately benefits BOCs and other LECs—which do not pay the excessive access charges to themselves—while competitively disadvantaging interexchange carriers that remain subject to such excessive local access fees. Indeed, the use of access charges as a source of implicit subsidy to local service *is not allowable by law*. More to the point, there is no indication that any of the excess profits *currently being generated by the overpriced access services* are actually being used to support or subsidize basic local phone service.[52]

These comments contain several erroneous allegations.

24. First, Ad Hoc implies that the application of access charges is asymmetric: while ILECs incur only the underlying incremental cost of access services when they use those services themselves, their retail-stage competitors (such as IXCs) are obliged to pay the full prices

[51] *ETI Report*, at 6.

[52] *Id.* Emphasis in original.

of those services. Therefore, in Ad Hoc's view, since the access service prices exceed their costs, an unfair competitive benefit is derived by the ILECs at the expense of IXCs with whom they compete. If true, this argument can form the basis of a legitimate claim of price squeeze; however, that is simply not the case for several reasons.

1. Section 272(e)(3) of the Telecommunications Act of 1996 ("1996 Act") prevents an ILEC from providing access service to itself (or to its own structural affiliate) on terms and conditions that differ from those it offers to competitors like IXCs.

2. Imputation, either explicit (that requires the ILEC to charge itself the *price* of the access service) or implicit (that obliges the ILEC to account for the full opportunity cost of failing to sell an interexchange service when it provides access service to an IXC instead) prevent the ILEC from conducting any price squeeze.

3. A vertical price squeeze is only possible if access service is an essential facility for which feasible competitive alternatives are not economically available from other sources. As was seen earlier in this Declaration, the special access market is sufficiently competitive and special access service is decidedly not an essential facility.

25. Second, Ad Hoc implies that there is something inherently excessive or anti-competitive about the *level* of an access service price when it exceeds the underlying cost—the embedded cost in Ad Hoc's formulation. Even if the price floor is properly selected as incremental cost (say, TSLRIC), the worst that can be said about a price that exceeds that price floor is that it is likely to constrict the *absolute* level of demand for access service (and the downstream retail service for which it is an input) below the level that would be observed if all prices were set at TSLRIC. No *relative* competitive advantage accrues to the ILEC from an access service price in excess of its true price floor.

26. Third, Ad Hoc doubts whether any of the excess revenues allegedly being earned by ILEC access services is even being used to subsidize local exchange services. This doubt is expressed without any empirical support but, in any event, it is besides the point. ILECs customarily use markups in service prices (including those of access services) to recover their fixed and shared and common costs. Whether or not some of those markups are currently being directed towards the subsidy for local exchange services is largely irrelevant.

27. Finally, Ad Hoc claims that any provision of a subsidy to local exchange services from marked-up prices for ILEC-supplied access services is precluded by current law. Indeed, Section 254 of the 1996 Act requires that all implicit (price-based) subsidies be converted into explicit support from a competitively neutral universal service fund into which *all* carriers must contribute equitably. However, the current reality is that only some states have completed the transition to universal service funds for the *intra*state segment of ILECs' operations. In the interim, price-based contribution to the recovery of the intrastate portion of the ILEC's universal service costs remains necessary.

2. Revenues and volumes

28. A constant refrain of the *ETI Report* is that ILECs' access (and, in particular, special access) "profits" have grown without bounds ever since the grant of pricing flexibility. Ad Hoc proposes a plan of action to eliminate "excess revenues," suggesting thereby that "profit" growth has been driven primarily by revenue growth, which, in turn, has been sustained by "excessive prices."[53] Ad Hoc pays little attention, however, to the contribution of cost reductions to any perceived growth of accounting returns. Be that as it may, it is appropriate to ask whether Ad Hoc has correctly identified the most important source of revenue growth.

29. As is commonly known, revenue growth can occur when either prices or sales volumes rise.[54] Higher prices can cause revenues to be higher (other things being equal) only if demand for the service in question is price-inelastic. For special access services, particularly at DS-3 and higher capacity levels, the available evidence suggests that demand is actually quite price-elastic.[55] Therefore, contrary to Ad Hoc's contention,

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[53] *Id.* at 7.

[54] Revenue is simply the price multiplied by the volume of sales. According to the law of demand, other things being equal, a price increase (reduction) should reduce (increase) the volume of sales. However, if a price increase also causes revenue to increase, then that must mean that the *percent* increase in price has *overcome* the *percent* reduction in sales volume that followed the price increase. On the other hand, if it is sales volume growth that drives revenue up, then that must mean that the *percent* increase in sales volume has *overcome* the *percent* reduction in price that triggered the growth of sales.

[55] Ironically, the best recent evidence that demand for special access (particularly at the DS-1 level and up) was produced in a study sponsored by CompTel/ASCENT, the same organization that lists the *ETI Report* among its "position papers" (dated August 25, 2004). See Paul N. Rappaport, Lester D. Taylor, Arthur S. Menko, and

higher prices are unlikely to be the primary source of any revenue growth for ILEC-supplied special access services.

30. The alternate possibility—that special access sales volumes rose in response to *lower* special access unit prices (such as when expressed on a voice grade equivalent basis)—has far more credence. It is more consistent with (1) the fact that, at current prices, special access demand is generally price-*elastic*, (2) the FCC's observation that significant competitive alternatives exist for ILEC-supplied special access (particularly at higher capacity levels), and (3) the empirical evidence on special access demand growth in recent years. As we explain below, regardless of the level of tariffed special access prices, *actual* prices paid for special access services have trended downward in both nominal and real terms because of the significant discounts available through volume and term contracts.

31. The *ETI Report* relies on special access revenue data taken from ARMIS records. As first noted in the *Kahn-Taylor Declaration* two years ago, ARMIS special access revenues include DSL revenues, but the ARMIS special access lines do *not* include DSL lines (the high-frequency components of ordinary switched access lines). The presence of DSL revenues thus causes ARMIS to *over*state actual special access revenues.[56] Moreover, DSL revenues have been growing rapidly, both in absolute terms and relative to special access revenues. Thus, any (average) revenue per special access lines calculated from ARMIS data, without any adjustment for DSL revenues, would overstate both the level and the growth of special access prices (as measured by special access revenue per special access line). As one of us demonstrated recently, first subtracting out DSL revenues from ARMIS special access revenues and then dividing the difference by voice grade equivalent ("VGE") or DS-0 lines revealed a general pattern of decline since 1996 in the average

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Thomas L. Brand, *Macroeconomic Benefits from a Reduction in Special Access Prices*, June 12, 2003, especially Section 3.3 and Appendix 5. The authors estimated the own-price elasticity for DS-1 to be –1.31 and for DS-3 to be –1.91 (both in the elastic range) and concluded that "[t]hese results indicate that a drop in special access prices will result in an equivalent or greater response in demand, especially for the higher bandwidth services."

[56] Correcting for the presence of DSL revenues in special access reduces the accounting rates of return based on those revenues and by far more than the "couple of percentage points" Ad Hoc claims (*ETI Report*, at fn. 55).

special access revenue (per VGE).[57] In fact, that decline (whether in nominal or inflation-adjusted real terms) occurred at a faster rate *since* the grant of pricing flexibility in 2001 than before.

3. Prices

32. For this Declaration, we used the same methodology to examine trends in special access prices charged by BellSouth over the 1996-2003 period. This period has two sub-periods: 1996-2001 (the "price cap period") and 2001-2003 (the "pricing flexibility period").[58] We first assembled data from ARMIS sources on interstate special access revenues (ARMIS Report 43-04, row 4012) and special access (analog and digital) lines in service expressed on a VGE basis (ARMIS Report 43-08, row 910). Next, we used DSL revenues (commencing from 1999) available from BellSouth sources to calculate BellSouth's interstate special access revenues *net* of the DSL revenues. We then divided that net revenue by the number of special access lines in service to obtain BellSouth's average interstate special access revenue (on a per VGE basis), expressed in nominal (or current) dollars. We also created an alternate series of average interstate special access revenue, expressed in real (or constant 1982-84) dollars by deflating the nominal dollar series by the consumer price index-urban ("CPI-U") available from the Bureau of Labor Statistics.

33. Figure 1 displays BellSouth's special access revenue (per VGE) for the period 1996-2003, in both nominal and real terms. There is no mistaking the general downward trend in both series, including during the all-important post-pricing flexibility sub-period. Table 1 displays the CAGR for BellSouth's special access price—again expressed by its special access revenue (per VGE)—for the full 1996-2003 period and for the two sub-periods within it.

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[57] Reply Declaration of William E. Taylor, on behalf of Verizon, in the *TRO Remand Proceeding*, October 19, 2004. Revenue per special access VGE was calculated for Verizon in that instance.

[58] The FCC authorized special access pricing flexibility for BellSouth in December 2000. *See* FCC, *In the Matter of BellSouth Petition for Pricing Flexibility for Special Access and Dedicated Transport Services*, CCB/CPD No. 00-20, Memorandum Opinion and Order, released December 15, 2000. Therefore, we take 2001 as the start of the pricing flexibility sub-period.

Figure 1. BellSouth's Special Access Revenue (per VGE Special Access Line), 1996-2003

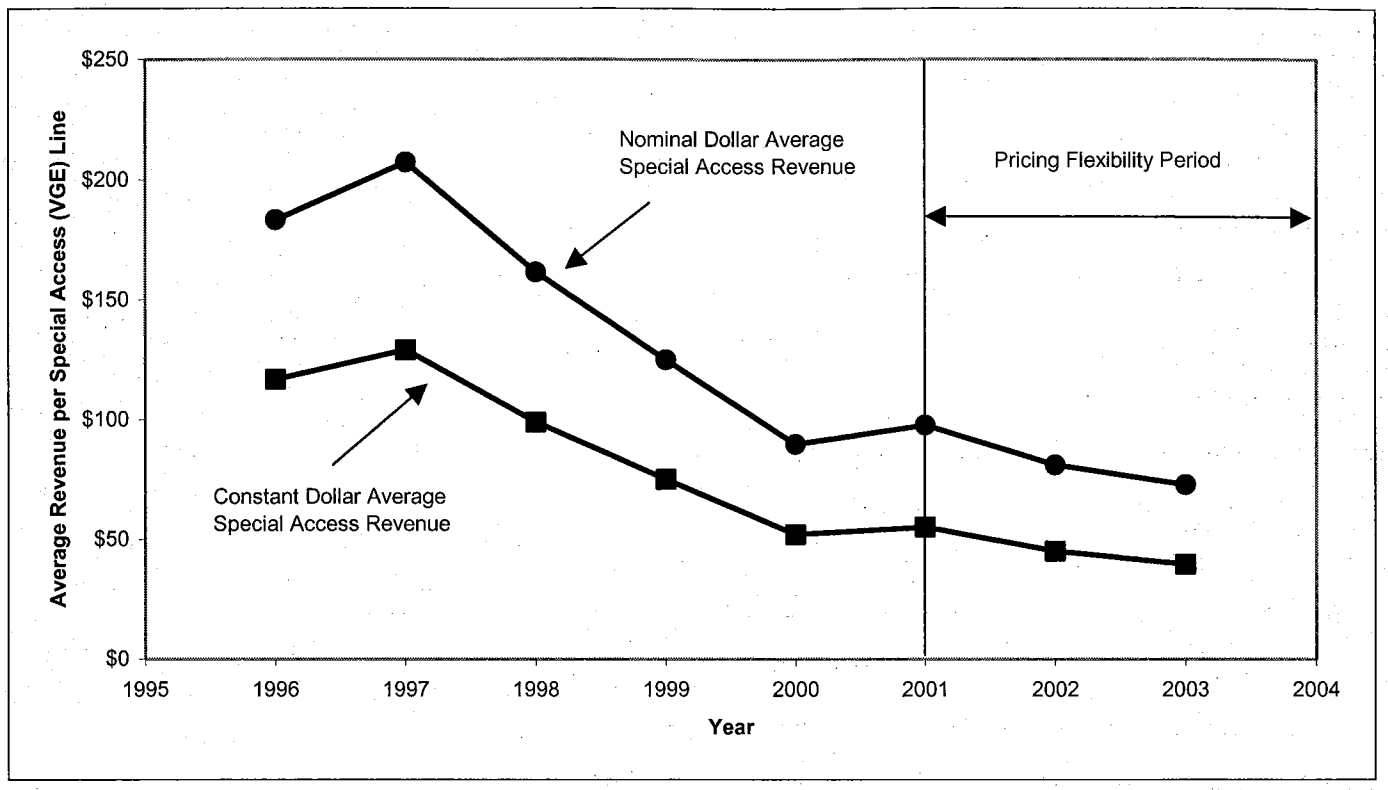

Table 1. CAGR of BellSouth's Revenue per Special Access (VGE) Line

Period	Nominal CAGR	Real CAGR
Full Period (1996-2003)	-12.36%	-14.33%
Price Caps (1996-2001)	-11.84%	-13.95%
Pricing Flexibility (2001-2003)	-13.65%	-15.29%

34. Table 1 (representing the growth rate of BellSouth's special access price on a VGE basis) is remarkably similar to that reported for Verizon.[59] Once again, there is clear evidence that special access prices of RBOCs (and ILECs, generally) have trended down at double-digit rates over time. More importantly, the decline in prices has been faster since the grant of special access pricing flexibility by the FCC. Finally, it is worth noting that

[59] Compare with Table 1 in Reply Declaration of William E. Taylor, on behalf of Verizon, in the *TRO Remand Proceeding*, October 19, 2004.

BellSouth's special access prices declined during the price cap period at an annual rate that far exceeded the maximum real rate of reduction imposed by price cap regulation (6.5% at the end of the period).[60]

35. A demonstration of this type has sometimes drawn the critique that measuring average special access revenue at the VGE level obscures the differences in unit prices that are charged for special access facilities at different capacity levels.[61] Suppose that DS-1 service has a higher unit price (on a VGE basis) than DS-3 service, and DS-3 service has a higher unit price (on a VGE basis) than OC(n) service. Next, suppose that rising demand for high-capacity services causes a special access customer to "migrate up," i.e., use relatively more DS-3 in place of DS-1 (or OC(n) in place of DS-3). Even *without* any change in the unit price of any of these services, the pure shift in the composition of purchases of special access at different capacity levels would produce an apparent reduction in price, when measured by the revenue per VGE. Hence, the critique goes, a chart like Figure 1 may reflect merely a shift in special access purchases toward higher capacity facilities with lower unit prices (that produce less revenue per VGE), rather than a genuine downward trend in special access prices over time.

36. The best way to determine whether, in fact, that is true is to study the trend in BellSouth's revenue per circuit for special access at a *specific capacity level.* Since DS-1 tends to be the most expensive on a VGE basis, and a shift away from DS-1 toward higher capacity special access would likely contribute the most to the spurious price change effect to which critics often allude, it is important to focus purely on the trend in revenue per circuit for BellSouth's DS-1 service. Figure 2 and Table 2 provide the necessary information, based on data provided by BellSouth.

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[60] In light of this fact, Ad Hoc's contention that "the 6.5% X-factor was insufficient, and without further increase, excessive prices and returns would result" (*ETI Report*, at 5) simply has no credibility.

[61] See, e.g., Reply Declaration of Michael Pelcovits and Chris Frentrup, on behalf of a coalition of 27 CLECs, in the *TRO Remand Proceeding*, October 19, 2004, at 3-5.

Figure 2. BellSouth's DS-1 Revenue per Local Channel, 1997-2003

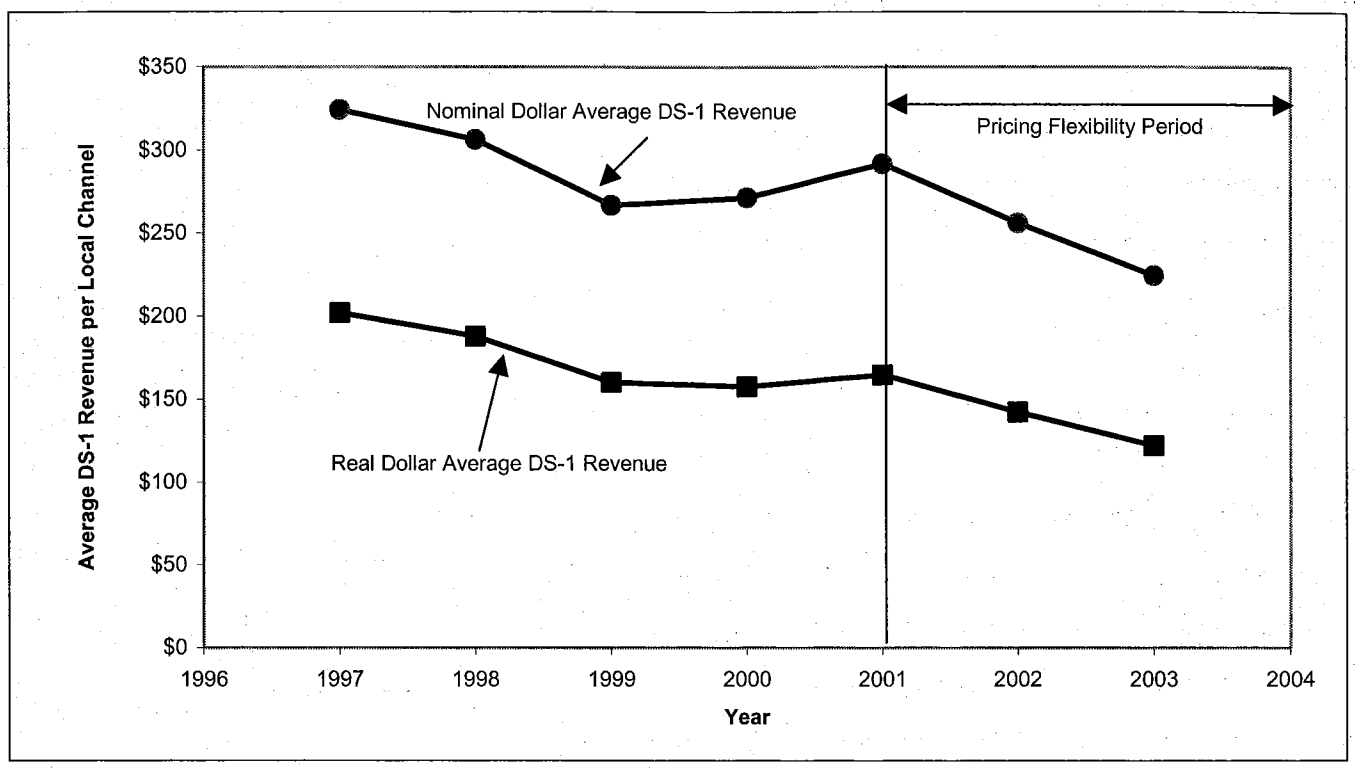

Table 2. CAGR of BellSouth's Revenue per DS-1 Local Channel

Period	Nominal CAGR	Real CAGR
Full Period (1997-2003)	-5.94%	-8.06%
Price Caps (1997-2001)	-2.59%	-4.96%
Pricing Flexibility (2001-2003)	-12.30%	-13.96%

37. Figure 2 and Table 2 show one incontrovertible fact. Even if the alleged shift in purchases of BellSouth's high-capacity services over time caused an appearance of declining prices (measured by revenue per VGE) to some degree, there is no question that DS-1 service did, in fact, experience genuine reductions in price (measured by revenue per circuit) since 1997. In fact, those price reductions (whether measured in nominal or real dollars) occurred in a far more impressive fashion *after* pricing flexibility was granted than before when BellSouth was under price cap regulation.

38. In light of these findings, Ad Hoc's claim that the *tariffed* prices of ILEC-supplied special access services have risen in MSAs in which ILECs have been granted Phase II pricing flexibility rings hollow.[62] Under competitive conditions, it is not unusual for tariffed prices to rise even as prices *actually* paid (represented, for example, by the revenue per special access (VGE) line) decline. The customers represented by Ad Hoc are all large-volume purchasers of special access services, and are most likely to make those purchases under term or volume contracts that offer deep discounts.[63]

39. It is worth recalling a significant parallel to this situation—one that has long characterized the (competitive) market for long distance services. For years, AT&T has argued that reductions in its average revenue *per minute* constituted price reductions for its long distance services. It pressed this claim, in particular, for the purposes of (1) assessing competition to support its non-dominance petition[64] and (2) asserting that it had passed through switched access charge reductions by lowering prices to end users.

40. Surely, if reductions in average revenue per minute in the long distance market imply that prices have decreased, then a more dramatic drop in average revenue per VGE line in the special access market must do the same. In the long distance market, competition led to increases in base rates, similar to those of which Ad Hoc complains today in the special access market. However, in special access—as in long distance—those base rate increases were offset by a proliferation of volume and term discount plans that had the effect of reducing IXCs' average revenue per minute. The fact that some special access tariff rates have risen while term and volume discount plans have caused average revenue per VGE to fall is not an unprecedented event.

41. In any event, lower average revenue per VGE line represents a lower price that the special access customer pays for the VGE line whether or not (1) the ILEC has actually reduced

[62] *ETI Report*, at 36.

[63] See Reply Affidavit of Nancy Starcher, on behalf of BellSouth Telecommunications, Inc., in the *TRO Remand Proceeding*, filed October 19, 2004, for several examples of such discount plans offered by BellSouth.

[64] FCC, *In re Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier*, Order, released October 23, 1995.

the price of some service or introduced a new term and volume discount plan or (2) the customer has chosen a higher capacity service at a lower price per VGE line. If competition or additional consumer choice brings about lower average revenue per VGE line for any of these reasons, consumers are better off.

4. Investment

42. Ad Hoc claims that, if anything, ARMIS understates actual rates of return because ARMIS methods overallocate investment to the special access category.[65] As evidence, Ad Hoc offers a calculation that purports to show that the proportion of total investment that is assigned to special access is much higher than the proportion of access lines that are special access. There are problems with both the line and the investment portions of this demonstration.

43. First, for lines, Figure 3.3 shows the ratio of 4 million "special access loops and associated interoffice transport facilities" to the 158 million "Common Line local service loops" in the RBOCs' serving territories. Ad Hoc implies that investment should be assigned in proportion to circuits so that, if ARMIS were assigning costs correctly, we would expect about 2.5 percent of total investment to be assigned to special access services. On the contrary, if investment were actually made in proportion to the *capacity* of those circuits, we would expect about 44 percent of investment to be assigned to special access services.[66] While investment in special access facilities is surely not directly proportional to capacity, it is also not directly proportional to the number of circuits. The additional equipment needed to provision an additional DS1 circuit on an RBOC fiber ring, for example, is entirely electronic capacity, and investment to serve that kind of demand is unrelated to the number of circuits. On the other hand, equipment to supply a new point-to-point DS1 circuit consists of both circuit-related equipment (cable and support structures) and capacity-related equipment (electronics). Thus, it is not surprising to find that special access investment is more than 2.5 percent of total investment in the ARMIS accounts.

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[65] *ETI Report*, at 33-34.

[66] For the RBOCs and BellSouth specifically, the proportions of special access VGEs to total VGEs in 2003 were 44 and 50 percent, respectively, based on ARMIS Report 43-08, Row 910, col. fj + col. fk and col. fl.

44. Second, Ad Hoc purports to calculate the special access proportion of total investment to compare with the special access proportion of total lines. However, what is shown in Figure 3.3 is the ratio of *interstate* special access net investment to *interstate* total net investment. Virtually all special access services are jurisdictionally interstate services, but the bulk of the costs of end user common lines are jurisdictionally *intrastate*.[67] Comparing interstate special access net investment to total interstate plus intrastate net investment, we find that special access comprises 7.7 percent of total net investment for BellSouth and 11.0 percent for the RBOCs, based on 2003 ARMIS data from Report 43-01 (Row 1910, cols. f and s).

45. In conclusion, Ad Hoc's comparison of the assignment of net investment to special access with the proportion of special access lines is entirely misleading. If the cost driver for special access investment were capacity instead of lines, the special access proportion of investment would be close to 44 percent. Moreover, one cannot gauge the proportion of investment allocated to special access as opposed to switched access services by looking exclusively at interstate data. Looking at total (intrastate plus interstate) data shows that 11 percent of investment is allocated to special access.

D. Price increases over their current regulated levels do not signify the possession of market power

46. Ad Hoc avers that:

> The ability of a firm to charge higher prices without losing so much business to competitors as to make those higher prices unprofitable—the classic evidence of market power—should not be possible in a market in which actual and effective competition is present. ILECs should not *be able* to raise prices where competition is present, and thus have no legitimate need for pricing flexibility in the upward direction.[68]

The implication, however, that the sheer ability of ILECs to raise their special access service prices amounts to an exercise of market power is false. As we demonstrated

[67] 75 percent of non-traffic sensitive common line loop investment is allocated to the intrastate jurisdiction.

[68] *ETI Report*, at 4. Footnote omitted, emphasis in original.

earlier, (1) the special access market is unambiguously competitive and (2) special access prices, whether measured in nominal or real terms, have declined faster after the grant of pricing flexibility than in the price cap regulation period. Moreover, the prices that purchasers of special access services *effectively* pay have trended down, regardless of the levels of tariffed prices. The widespread ILEC practice of offering discounted special access services through volume and term contracts hardly supports a scenario with rampant exercise of market power.

47. A more fundamental point that is completely missed by the Ad Hoc analysis is that the ability to raise prices profitably above competitive levels (without effective retaliation from competitors) only constitutes market power if those initial prices were set at least at competitive levels to begin with. Historically, both before and after the advent of price cap regulation, prices of ILEC-supplied special access services were *not* set at levels expected to prevail in unregulated, competitive markets. Years of rate-of-return regulation of ILECs led to access service prices that were anchored firmly on embedded, fully-distributed costs, and price cap regulation was ushered in without any effort to first reset those prices to efficient, forward-looking incremental costs. When price cap regulation broke the link between prices and underlying costs, it became almost impossible for service prices to be made to reflect those incremental costs.[69] Therefore, it simply cannot be presumed that ILECs have raised their special access prices from the efficient levels expected in competitive, unregulated markets. Furthermore, no exercise of market power can be inferred purely from any increase in special access prices in the post-pricing flexibility era.

48. Although the authors of the *ETI Report* refrain from pressing their belief that a single, unified inter-carrier compensation regime should apply to UNEs and access services alike,[70] they make no secret of their view that total element long run incremental cost ("TELRIC") is the proper cost standard for pricing ILEC-supplied access services. We

[69] Price cap regulation forced annual access price reductions formulaically through a combination of an inflation rate and productivity offset factor. However, this could ensure neither that prices would be based on incremental costs (as would be expected in competitive markets) nor that price *changes* would reflect changes in underlying incremental costs.

[70] See, e.g., *ETI Report*, at fn. 10.

disagree with that view of how market prices of *services*—such as special access services—should be determined. Service prices in competitive markets may fairly be expected to reflect underlying incremental costs (such as TELRIC or even TSLRIC). In the presence of economies of scale and scope, however, service prices may contain market-determined markups over incremental costs that enable ILECs to recover their fixed and shared and common costs. In these circumstances, *efficient* prices under competition would not be constrained to equal underlying incremental costs; rather, they may lie somewhere in the range between their respective incremental costs (price floor) and stand-alone costs (price ceiling). Therefore, the sheer fact that special access prices exceed the appropriate measure of incremental cost is *not* sufficient to conclude that those prices are inefficient, supra-competitive, or excessive.

49. Finally, the empirical evidence on the ILECs' revenue per special access (VGE) line offers the clearest rebuttal to Ad Hoc's claim about ILEC market power. As demonstrated earlier, ARMIS data for BellSouth clearly indicate a trend of falling special access prices over time—a trend that is particularly pronounced in the post-pricing flexibility era.

E. Ad Hoc's proposed plan for corrective action does not merit serious consideration

50. Because competition in the markets for special access services is working as intended and prices are falling, there is no justification for Ad Hoc's proposed rollback of pricing flexibility. In addition, however, the four-point plan of action proposed by Ad Hoc as a "remedy" for the alleged excessive pricing by ILECs of their access services is flawed in several important respects and must be rejected. Ostensibly, that plan is a "self-executing regulatory paradigm" that would only be needed as long as the market for access services did not, in Ad Hoc's view, behave competitively. In reality, it is a plan designed to hamstring the ILECs' ability to compete by saddling them with new layers of unneeded and ultimately harmful regulation, principally in the form of a rollback of the pricing flexibility granted to ILECs for special access services.

51. The restoration of a particularly onerous form of price cap regulation that Ad Hoc's plan envisions would be both asymmetric and regressive. At a time that ILECs face increasing competition for both retail and wholesale services, and have won several regulatory concessions as a result, a reversion back to the price cap regulations for access services that preceded the pricing flexibility era would amount to an unjustifiably asymmetric treatment of the ILECs. The effects of asymmetric price regulation are definitely not benign in a competitive market. Not only do those effects artificially tilt the competitive playing field in favor of unregulated competitors, they also distort competition among wireline telecommunications carriers and between alternative technologies and platforms.

52. Accepting Ad Hoc's plan would also be regressive and nullify the extensive record created since 1999 in the process of granting pricing flexibility for interstate access services. To receive Phase I and Phase II pricing flexibility, ILECs were required to satisfy progressively demanding competitive thresholds (i.e., volume and revenue triggers at the wire center level within individual metropolitan statistical areas). The FCC did not take lightly the task of ascertaining that those thresholds had indeed been met. For example, rather than rely merely on the level of tariffed special access prices as evidence of competition, the FCC actually sought out data on market structural factors, such as supply conditions within specified geographic markets. The presence of *actual* competitive options, as signified by competitor collocations and the use of competitive transport, became the primary basis for ILECs to qualify for pricing flexibility. Ad Hoc has not provided any evidence to overturn the record so meticulously built up by the FCC on those indicators of actual competition. For reasons noted above, complaints about the level of tariffed special access prices do *not* constitute sufficient grounds for re-imposing asymmetric and regressive regulation on the ILECs. Nor do meaningless calculations of single-service accounting rates of return provide any evidence of anti-competitive conduct on the part of the ILECs.

53. The specifics of Ad Hoc's proposed plan also inspire no confidence at all about that plan's purported goal. Re-initializing ILEC special access prices to earn no more than 11.25% on embedded costs would manifestly be an economically vacuous policy. If the desired goal

is to ensure that those special access prices reflect true underlying incremental costs *and* contain efficient contribution towards the recovery of fixed and shared and common costs, then that certainly cannot be achieved by any arbitrary re-initialization of prices based on historical embedded costs. No efficiency or competitive fairness goal can be advanced through that course of action.

54. It would make even less sense to subject specific services, such as special access, to individualized, service-specific price caps. The general price cap formula that limits how much prices can be adjusted annually by the rate of inflation less a productivity offset factor relies on a measurement of total factor productivity ("TFP") that is made at the level of the *entire* firm. Ad Hoc's argument that the "extreme disparity between switched and special access with respect to earnings requires that separate, service-specific X-factors be established for each"[71] is impractical and meaningless. This flies in the face of the crucial assumption of price cap theory that the *entire* firm is regulated, not just some subset of its services. The TFP, on which the productivity offset ("*X* factor") is based, is calculated for the regulated firm as a whole; designing service-specific *X* factors, as in Ad Hoc's scheme, would presuppose an ability to conduct TFP studies at the service-specific level. This, of course, is an outlandish idea that appears to be driven by Ad Hoc's preoccupation with its calculations of service-specific accounting rates of return. For a multiproduct firm like an ILEC that uses both dedicated and shared and common resources, such earnings calculations are meaningless indeed.[72]

55. Perhaps Ad Hoc's most regressive and reactionary recommendation is the reinstatement of an earnings sharing requirement. The thinking underlying Ad Hoc's recommendation appears not to have evolved since the days of rate-of-return regulation when earnings were pegged within "authorized" levels solely because the concern was more with controlling monopoly behavior than with inducing more dynamic and efficiency-enhancing behavior

[71] *Id.*, at 8.

[72] It *is* possible to apply firm-level TFP growth measures to regulated services when some fast-growing services are unregulated. For such a mechanism, see J.K. Bernstein and D.E.M. Sappington, "Setting the *X* Factor in Price Cap Regulation Plans," *Journal of Regulatory Economics*, 16, 1999, 5-25. That is very different, however, from what Ad Hoc has in mind.

through suitable incentives. The raison d'être for price regulation was to free up a regulated firm in a more competitive market to seek productivity enhancements and innovation (that would clearly benefit consumers and improve the quality of competition). Except in years of unusually high inflation, price cap formulas usually forced ILECs to lower their prices for regulated services. In order to prevent this from eroding their profits, ILECs had every incentive to lower their costs at an even faster pace through innovation and productivity enhancements. The absence of any earnings sharing requirement meant that the ILECs could benefit their bottom line even more by becoming increasingly efficient and sharing that productivity growth with consumers.[73] No harm to competitors or the competitive process could conceivably result from this because the price cap regulated ILEC was still prevented from being able to cross-subsidize its more competitive services or set prices below appropriate price floors. The lifting of the earnings sharing requirement proved, therefore, to be a powerful force for good in the telecommunications market that overcame some of the worst features of outmoded rate-of-return regulation (such as theoretical incentives for rate-base padding and goldplating, otherwise known as the Averch-Johnson effect).

56. A more essential truth that clearly eludes Ad Hoc is that, as shown earlier, ILECs have lowered special access prices progressively over time faster than even the most stringent target rates set by the FCC in the past through its choice of the X factor. If returns have increased to ILECs, as Ad Hoc contends, then they have done so in an environment in which special access prices have *fallen*, but ILECs' costs have fallen *even faster*. Consumers have benefited on account of both of these developments, and competitors purchasing special access from ILECs have certainly not been compromised (particularly when even lower-priced UNEs have been readily available alongside). Given these facts, Ad Hoc's real agenda would appear to be to make it impossible for ILECs to earn more than 11.25%, no matter how efficient they became or how much benefit was flowed

[73] For an explanation of why an earnings sharing requirement under price regulation dilutes incentives for *both* enhancing efficiency (by reducing operating costs) and making new investments, see David E.M. Sappington, "Price Regulation," in Martin E. Cave, Sumit K. Majumdar, and I. Vogelsang (eds.), *Handbook of Telecommunications Economics*, Vol 1, Amsterdam: Elsevier, 2002, at 268-270.

through to consumers. Unmistakably, this is a call for reverting back to discredited and anachronistic rate of return regulation. It *must* be seen for what it is and, quite properly, rejected.

57. The *ETI Report* cites approvingly the fact that the FCC, in its very first formulation of price cap regulation for major ILECs, had retained earnings sharing as a "backstop" to protect consumers against "excessive ILEC earnings." We believe that the FCC's adoption of such a policy was done in an abundance of caution, even though that went against the efficiency-enhancing incentives envisioned by price cap theory. The fact that the FCC dispensed with that policy eventually in its subsequent formulations of price cap regulation for ILECs is significant. Ad Hoc not only fails to appreciate the reasons for the FCC's revised thinking on the matter, it makes the preposterous claim that

> 20/20 hindsight and more than a decade of actual experience under price caps confirms that the X-factor had been misspecified. In fact, on multiple occasions the [FCC] had determined that the X-factor needed to be increased. Even with those increases, RBOC earnings have continued to escalate to dizzying heights. Whatever efficiency gains the RBOCs may have achieved were not passed on to consumers in the form of lower prices.[74]

58. There are several sweeping generalizations in this claim. First, Ad Hoc does not mention that just about every price cap plan—whether interstate or intrastate—that still exists today has no earnings sharing requirement in it.[75] It is simply not conceivable that the "error" of not requiring earnings sharing has been committed over and over again by different regulatory authorities pursuing regulatory policies independently of each other. It is far more likely that the efficiency-enhancing incentives of *not* having an earnings sharing requirement has been properly appreciated by regulators all along.

59. Second, Ad Hoc appears to suggest that the FCC has progressively raised the *X* factor in recognition of ILEC earnings that it characterizes as being excessive. That is false. In

[74] *ETI Report*, at 9.

[75] C. Ai, S. Martinez, and D.E.M. Sappington, "Incentive Regulation and Telecommunications Service Quality," University of Florida Working Paper, January 2004, Table 1.

fact, as the history of interstate price cap regulation shows,[76] changes in the *X* factor have frequently been driven by considerations other than the TFP. For example, on various occasions in the 1990s, the FCC allowed regulated ILECs to choose among two or three *X* factors, coupling a lower earnings sharing requirement with the higher *X* factors. Such a regime was surely not based on just a single-valued measure of TFP. Following a successful court challenge by ILECs to the FCC's 1997 prescription of a 6.5% *X* factor, an industry consensus price regulation plan was adopted in 2000. Under this plan (called the "*CALLS* Proposal"), the 6.5% *X* factor was retained but, as the FCC explained, it was not based on TFP at all, but rather designed "to reduce local switching and switched transport rates to specified target rate levels, and to reduce special access rates over a set period of time."[77]

60. Third, it makes no sense at all to assert that ILECs have never passed on efficiency gains to consumers. The fact is that, except in years of unusually high inflation, price caps for ILECs' interstate services have forced category-specific price caps down. This has led to lower prices despite the fact that those prices were never initialized to efficient levels to begin with. It is disingenuous to suggest that prices faced by end users have always been directly determined by the prices charged by price cap ILECs for their services. In many instances, such as for switched and special access used by competing carriers to provide retail local and long distance services, the prices paid by end users have been, arguably, a function of how much of the ILEC-initiated price reductions for the access services have been passed on to end users by the competing carriers.

61. Finally, as noted earlier, Ad Hoc labors under the supposition that earnings can be measured for a single service, such as special access. Not only is that supposition

[76] See, e.g., FCC, *In the Matter of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Low-Volume Long Distance Users, Federal-State Joint Board on Federal Universal Service*, CC Docket Nos. 96-262, 94-1, 99-249, 96-45, Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249, and Eleventh Report and Order in CC Docket No. 96-45 ("*CALLS Order*"), released May 31, 2000, at ¶¶135-137.

[77] *CALLS Order*, at ¶140. The FCC acknowledged that this "transforms the X-factor from a productivity factor into a transitional mechanism that operates to reduce rates at a certain pace, and it would not be linked to a specific measure of productivity."

spurious, it also makes no economic sense to share earnings at a service-specific level, as Ad Hoc suggests. Such sharing could only be achieved by making arbitrary cost allocations across regulated and unregulated services, an exercise further complicated by the presence of shared and common costs (i.e., costs not directly attributable to specific services). In that sense, earnings for the subset of special access services are essentially a figment of regulatory cost allocations.

62. That concludes our Declaration.

STATEMENT OF QUALIFICATIONS

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My name is William E. Taylor. I am Senior Vice President of NERA Economic Consulting ("NERA"), head of its Communications Practice, and head of its Boston office located at 200 Clarendon Street, 35th Floor, Boston, Massachusetts 02116.

I have been an economist for 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 thirty years, I have taught and published research in the areas of microeconomics, theoretical and applied econometrics, and telecommunications policy at academic and research institutions. Specifically, I have taught at the Economics Departments of Cornell University, the Catholic University of Louvain in Belgium, and the Massachusetts Institute of Technology. I have also conducted research at Bell Laboratories and Bell Communications Research, Inc.

I have appeared before state and federal legislatures, testified in state and federal courts, and participated in telecommunications regulatory proceedings before state public utility commissions, as well as the Federal Communications Commission ("FCC"), the Canadian Radio-television Telecommunications Commission, the Mexican Federal Telecommunications Commission, and the New Zealand Commerce Commission.

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My name is Aniruddha Banerjee. I am a Vice President with the Communications Practice at NERA Economic Consulting, 200 Clarendon Street, 35th Floor, Boston, MA 02116.

I earned a Bachelor of Arts (with Honors) and a Master of Arts degree in Economics from the University of Delhi, India, in 1975 and 1977, respectively. I received a Ph.D. in Agricultural Economics from the Pennsylvania State University in 1985, and served there subsequently as an Assistant Professor of Economics. I have over eight years of experience teaching undergraduate and graduate courses in various fields of economics and econometrics,

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I have filed expert testimony before the Federal Communications Commission and state regulatory commissions on a variety of issues, including depreciation requirements of incumbent local exchange carriers, interLATA long distance entry by Regional Bell Operating Companies, efficient inter-carrier compensation for Internet-bound traffic, unbundling, competition and entry policy and reform of the TELRIC methodology, interconnection arrangements and imputation analysis, price regulation reform, local service rate rebalancing, potential deployment analysis for unbundled transport and high capacity loops, universal service, and demand analysis for intraLATA long distance service. I have published articles on telecommunications and finance in academic and industry journals and presented research findings periodically at industry and academic conferences.