THE ROLE OF REGULATION IN A COMPETITIVE TELECOM ENVIRONMENT:

How Smart Regulation of Essential Wholesale Facilities Stimulates Investment and Promotes Competition

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prepared for

MTS Allstream, Inc.

March 2009

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Preface | THE ROLE OF REGULATION IN A COMPETITIVE TELECOM ENVIRONMENT

The evolution of the US and Canadian telecommunications industries has generally followed parallel tracks with respect to technology, competition, and industry structure. Telecom regulation in both countries has numerous similarities as well, along with several rather important differences. During the 1990s, regulators and other policymakers in both countries adopted measures designed to afford legacy telecom monopolies limited flexibility with respect to prices and earnings, while pursuing policies intended to affirmatively encourage and facilitate the introduction and development of competition where none had previously existed. In particular, the incumbent carriers were required, as a *quid pro quo* for earnings and pricing flexibility (and, in the US, as a condition for relief from certain antitrust measures that had been imposed in connection with the 1984 break-up of the former Bell System), to "open their networks" to unbundled access by rival firms so as to jump-start competitive entry, to recognize economies of scale and scope uniquely available to incumbents, as well as to avoid costly and wasteful duplication of incumbent carrier infrastructure. Rules specifying the services and "network elements" required to be unbundled and mandating a cost-based wholesale pricing regime were established. These devices were embodied in telecom reforms in both the US and Canada, and achieved their intended purpose of fostering large-scale competitive entry and investment.

But 2001 saw an abrupt change in US telecom policy under which much of the earlier wholesale unbundling and pricing regime would ultimately be dismantled. In Canada, however, regulation of wholesale services and prices persisted until 2008, when a ruling by the CRTC in its "Essential Facilities" proceeding called for phasing out some of the previously-mandated wholesale services that incumbent carriers had been required to provide to rivals.

This report compares the effects on competition and investment of each of these two alternative regulatory philosophies. For the US, we compare the pre-2001 and post-2001 regimes, and then compare the post-2001 deregulatory regime in the US with the corresponding period in Canada under continued wholesale price regulation. And what we find is that competition and investment – both by incumbents and competitors – fared far better while effective wholesale regulation was in place than when incumbents were permitted to determine which, if any, wholesale services they would provide to rivals and at what price these would be offered. In our companion report, *The Non-duplicability of Wholesale Ethernet Services*, we explore the matter of "duplicability" in detail, focusing upon the economic considerations that control investment decisionmaking with respect to construction of competitor-owned networks. This report was prepared by Dr. Lee L. Selwyn, President of ETI, Susan M. Gately, Senior Vice President, Helen E. Golding, Vice President, and Colin B. Weir, Senior Consultant. The views expressed in this report are those of the authors.

Boston, Massachusetts
March 2009

Executive Summary

THE ROLE OF REGULATION IN A COMPETITIVE TELECOM ENVIRONMENT

During the Bush administration, US regulators began to abandon the regulatory safeguards that had, up to that point, assured competitor access to last-mile broadband facilities and services at cost-based rates. The justification for this major policy shift was the purported existence of sufficient competition in the wholesale services market to obviate the need for continued regulation. Unfortunately, the analytical approach that US regulators used to assess the extent of competition and its effectiveness in constraining incumbent prices to "competitive levels" was seriously flawed, relying upon a combination of anecdotal evidence and the "spot" existence of competitors irrespective of their size or true presence in the market. In reality, the deployment of last-mile broadband facilities by providers other than incumbent local exchange carriers ("ILECs") was (in 2001) and continues today to be extremely limited, especially to the vast majority of locations where customers require broadband connections. As detailed in this report, the "reality gap" between US regulators' policies and actual competitive conditions has led to higher prices and a marked decline in both incumbent and competitor investment.

The damage to the US economy from these misguided regulatory policies has not been limited to the telecommunications sector. Businesses in every sector of the economy make significant, non-discretionary expenditures for voice and data telecommunications services that are transmitted over last-mile facilities. Moreover, although Internet access and wireless services are perceived as freeing residential consumers from their dependence upon traditional ILEC wireline services, providers of these services are in many cases ILEC affiliates themselves, and must in any event rely extensively upon ILEC last-mile broadband for their own network connections. As a result, where US ILECs have been given and have exploited the opportunity to overprice their last-mile services, the cost to the US economy – in GDP and in jobs – has been very high. ETI has estimated that, for the three-year period spanning 2007 through 2009, the persistent overpricing and the FCC's failure to address it has cost the US economy some 234,000 jobs and a cumulative loss in GDP in the range of $66-billion.

The FCC also made the mistake of accepting ILEC claims that mandated access weakened the incentives for both incumbents and competitors to invest in new facilities. A comparison of the US and Canada over the 2001-2007 period confirms the fallacy of this assumption. With mandated access and rates for essential services limited to 15% over long run incremental cost, investment in Canada, both by competitors and by incumbents, has held steady or increased, while in the US, neither incumbents nor competitors have maintained the level of investment that they were making prior to the

FCC's deregulatory actions. As the US experience confirms, making it more difficult for competitors to supply ubiquitous coverage (by denying them the ability to offer services over a combination of owned and leased facilities) is more likely to hamper than to promote new investment by competitors. And, when competitors are not investing, the competitive pressure that motivates ILECs to upgrade their network facilities is also undercut.

All of this is highly relevant to the CRTC's recent decision to deregulate Ethernet services (along with aggregated ADSL and other "next-generation" services) as a result of finding that these services do not meet the criteria for "essential" services. There is nothing about the conditions in Canada that would suggest a different outcome under deregulation from what has happened in the US. The Commission's decision repeats the mistakes of US regulators in a number of key respects.

Enterprise customers typically require broadband telecom connectivity such as Ethernet at multiple locations, ranging in size from their primary national and regional headquarters to small, often isolated branch offices spread across urban, suburban and rural areas. Notably, in assessing competitive conditions with respect to the facilities that support Ethernet and other next-generation services, the CRTC ignores both the barriers to entry and the network effects that inhibit competitors from broad-based facility deployment. Deployment decisions are made on a building-by-building basis, driven by the anticipated revenues relative to the costs involved, yet in order to attract a customer's business (i.e., revenues), a competitor needs to be able to serve the customer's overall requirements – typically to provide service to all, or at least most, of the customer's locations. Typically, the majority of those individual locations (from bank ATMs and point-of-sale terminals to branch offices and even major operational units) are unlikely individually to require levels of service capable of generating sufficient revenue to justify the deployment of a new facility. Without mandated access to ILEC last-mile broadband, these conditions create a death spiral for competition – competitors cannot expand coverage without leasing, and cannot generate the revenues necessary to expand investment without coverage.

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Regulatory actions whose effect is to increase prices of "last mile" telecom connections to excessive levels will have severe negative impact upon the overall national economy.

The telecommunications services provided over last-mile broadband[1] facilities are to today's information economy what highways, railroads and other transportation infrastructure are to manufacturing industries. As the "last mile" link between user locations and voice/data networks, these dedicated connections – generally referred to in the US as "special access" services[2] – are the building blocks of corporate networks that interconnect hundreds or thousands of individual company locations, and that provide connectivity for businesses and governments to the rest of world. The last-mile broadband that incumbent local telephone exchange carriers ("ILECs") have ubiquitously deployed is also essential to the operation of wireless telecommunications networks, because ILEC wireline broadband facilities are used to connect more than 90% of all wireless transceiver (cell) sites to the wireless carriers' switches.[3] Indeed, without last-mile broadband facilities, there would be no Internet or any of the economic activity that rides on it. Banking, credit card, ATM, and most other financial and sales transactions that drive the national economy would grind to a halt without the reliable and secure telecommunications capabilities that dedicated broadband access provides.

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1. For purposes of this discussion, "broadband" facilities and services are defined as those with a bandwidth of 1.544 megabits per second (mbps), generally referred to as DS-1, or higher.

2. The term "Special Access" generally refers to dedicated connections provided by incumbent local exchange carriers ("ILECs") mostly to other local and long distance carriers, and as such are considered "wholesale" services. Special access last-mile connections from the serving ILEC wire center to the customer's premises (both end user premises and purchasing carrier premises) are referred to as "Channel Terminations" and correspond to the local loop. The other main component of a special access service is interoffice transport, which is the facility that runs from the wire center serving the end user premises to the competitive carrier's point of presence. Special access service was a creation of the 1984 Bell System break-up, and pre-dates the 1996 federal *Telecommunications Act*.

3. Comments of Sprint Nextel, filed in WC Docket 05-25,/RM-10593, *Special Access Rates for Price Cap Local Exchange Carriers; AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services* ("Special Access Rulemaking"), filed August 8, 2007 ("Sprint Comment"), at 30-31.

Competition has made very limited inroads into the "last mile," yet such "last mile" connections are critical elements of *any* telecommunications service. Absent regulatory constraints on the pricing of last mile services, the persistence of the ILEC dominance of these connections creates the opportunity for substantial pricing excesses that will ripple across all segments of the telecommunications industry and, for that matter, throughout all sectors of the national economy. Thus, when any telecom service offered over dedicated last-mile facilities is sold at highly inflated prices, the negative impact on the economy goes far beyond the unjust enrichment of the ILECs. Rather, the entire economy loses productivity and efficiency so long as these excessive prices persist:

- Telecommunications applications that would be economically efficient at cost-based last-mile prices are forgone at the higher price points;

- Because last-mile services are incorporated into other telecom services offered by competitive telecommunications service providers ("TSPs"), those TSPs are frequently confronted with a price squeeze imposed by the incumbent carrier, often forcing the competitor out of the market and leading to reduced competition and higher prices across all telecommunications sectors.

- Payments by businesses of the excessive prices charged by TSPs operate to divert funds that would otherwise be used productively in support of other business activities;

- Prices of non-telecommunications products and services are increased so as to recover the inflated price of special access (or any telecommunications service that involves the use of special access) as an input. This, in turn, suppresses the demand for these final products. Consumers lose in two ways: they are able to purchase less and they pay more than they should for what they buy. In economic terms, this is termed a decrease in consumer surplus. ;

- The inflated prices of special access also force producers throughout the national economy to reduce their use of these services and/or to substitute less efficient production methods. These impacts ripple throughout the economy – price levels increase, consumption is suppressed, jobs are eliminated, and exports are reduced. The loss of profits attributable to the curtailment of an efficient input and the loss of efficiency resulting from the utilization of a less efficient mix of inputs (due to overpriced special access services) result in a decrease in producer surplus.

- Excessive telecom prices lead to reduced profits in all economic sectors that depend upon telecom as an essential input to their own production activities, thereby suppressing output, investment and employment in these other sectors.

It is thus critical that government policy recognize the broader economic impact of supracompetitive prices that inevitably arise when dominant providers of dedicated last-mile services are permitted to set prices without the constraints of either effective competition or responsible regulation, or deny their rivals access to these services altogether.

Excessive pricing of last-mile services – a direct result of deregulation in advance of competition – has a profound adverse impact upon the overall national economy, as measured in terms of national output (GDP) and employment.

In the US in 2007, the regional Bell Operating Companies'[4] ("RBOC") revenues from dedicated last-mile broadband special access services topped $17-billion and represented more than 50% of all of the RBOCs' interstate business. More than one-third of those revenues – some $6-billion – represented excess profits[5] made possible by the absence of any significant competition for these services and by FCC policies that disregard the RBOCs' monopoly status and permit them to price these services outside of a regulatory framework intended to ensure just, reasonable and nondiscriminatory rates.[6] This sustained overpricing of special access results in a "deadweight loss" that undermines the efficiency and competitiveness of the US economy overall. While each individual impact discussed above, viewed in isolation, may be small, in aggregate the economywide impact is many multiples of the excessive monopoly profit levels that the incumbent carriers are generating though their monopoly control of the special access market.

It is possible to model the macroeconomic effects of such overpricing, which is precisely what AT&T, prior to its acquisition by SBC, had done.[7] AT&T prepared a detailed macroeconomic study demonstrating that restoring prices for enterprise broadband last-mile facilities to competitive levels

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4. The Regional Bell Operating Companies were created at the time of the Bell System break-up in 1984. There were originally seven RBOCs, but as a result of several mergers and renamings, there are currently three – AT&T Inc. (consisting of the former AT&T Corp., SBC Communications, Ameritech, Pacific Telesis, BellSouth and Southern New England Telephone), Verizon (consisting of NYNEX, Bell Atlantic, GTE, and MCI), and Qwest (formerly US West). The RBOCs are parent holding companies whose subsidiaries include incumbent local exchange carriers (ILECs), wireless service providers, interexchange (long distance) carriers, and various other affiliates and subsidiaries. In the US, there are also numerous "independent" ILECs that are not owned by or affiliated with any of the RBOCs. In this report, our use of the term "ILEC" is intended to include all such entities, both independent and RBOC-owned.

5. "Excess profits" as used here refers to earnings in excess of the last-authorized 11.25% interstate rate of return. That "authorized return" level was established by the FCC some twenty years ago – in 1989 – when market interest rates were several basis points greater than they are today. If the same criteria for defining the "authorized rate of return" were applied under today's market conditions, the level would likely be several percentage points lower than 11.25%, and the amount of "excess profits" would be several billion dollars higher than the $6-billion estimate given here.

6. Lee L. Selwyn and Helen E. Golding, *Avoiding the Missteps Made South of the Border: Learning from the US Experience with Competitive Telecom Policy*, August 2006 (Appendix A to August 16, 2006 Comments of MTS Allstream Inc. in response to Canada Gazette Part I, *Government's Proposed Order under Section 8 of the Telecommunications Act – Policy Direction to the Canadian Radio-television and Telecommunications Commission*. Also submitted as Appendix A, Attachment 2 to the Evidence of MTS Allstream Inc., filed March 15, 2007, in response to Telecom Public Notice CRTC 2006-14.

7. Paul N. Rappoport et al, *Macroeconomic Benefits from a Reduction in Special Access Prices*, June 12, 2003 ("AT&T Study"). *Ex parte* Submission of the Special Access Reform Coalition (SPARC) in *AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates For Interstate Special Access Services*, RM Docket No. 10593 ("AT&T Study").

would, over three years, result in $14.5-billion in economic growth and the creation of 132,000 jobs across the US economy. Updating the AT&T Study in 2007, ETI projected that in that year alone, the benefit to the US economy from eliminating the $5-billion in excess special access prices that businesses economywide paid to the RBOCs would have produced an additional 95,000 jobs and $17.2-billion in GDP.[8] Looking out two additional years (through 2009, inclusive), reversing the inefficiency inflicted on the national economy by supracompetitive special access rates would have translated to

1. 234,000 new jobs across all sectors of the economy, and

2. the opportunity for GDP growth in the range of $66-billion.

As we shall address in the remainder of this report and based upon experience in the US, withdrawal of price-limited wholesale services is far more likely to discourage investment in competitive telecom ventures than to stimulate it and, as a direct consequence, to create substantial deadweight economic losses for the overall Canadian economy.

Relevance of US broadband analysis to next-generation broadband in Canada.

In the US, Ethernet services have not been widely offered on either a retail or wholesale basis and the prevailing broadband service platform continues to be legacy TDM services (equivalent to CDN in Canada). This is in direct contrast to the Canadian telecom market, where the deployment of next generation networking services is accelerating the obsolescence of legacy TDM services. For both TDM and Ethernet services, there is a service hierarchy that is based upon capacity (transmission speed). Channel capacity is measured in bandwidth – although it is sometimes described in terms of "data rate" or "speed" – with high bandwidths permitting the simultaneous transmission of larger quantities of data. The standard capacities of TDM-based channels are DS-1 (1.544 Mbps), DS-3 (45 Mbps) and OC-n (service offered at the OC-3 level, for example, provides 155 Mbps of capacity). Ethernet is currently offered at data rates of 10, 100, and 1000 megabits per second (Mbps)[9]. Because the analysis presented in this paper is based upon the prevailing last-mile broadband services sold in the US, last-mile broadband capacity is denominated in TDM units, i.e., DS-1 and DS-3-level services. But none of the underlying competitive conditions would be altered by stating the service tiers in

8. Lee L. Selwyn, Susan M. Gately, Helen E. Golding, Colin B. Weir, *Special Access Overpricing and the US Economy: How Unchecked RBOC Market Power is Costing US Jobs and Impairing US Competitiveness,* August 2007, submitted by the Ad Hoc Telecommunications Users Committee in WC Docket No. 05-25, Special Access Rulemaking ("ETI 2007 Special Access Report").

9. A useful table comparing CDN to Ethernet transmission speeds is contained in MTS Allstream's May 21, 2008 Application to Review and Vary Telecom Decision CRTC Decision 2008-17 (Table 1, p. 16). Unlike TDM-based services, Ethernet is fully scalable to permit the service provider to offer it in 1 Mbps increments. The flexibility inherent in Ethernet service provisioning is an advantage to customers with relatively low bandwidth requirements.

terms of standard Ethernet capacities. As an economic matter, what is most important is that, whether designated as TDM or as Ethernet, the vast majority of last-mile broadband demand falls at the lower capacity service tiers and this demand is spread throughout all segments of the national economy. Thus, the competitive conditions described in this report – and the implications of deregulating prices for dedicated last-mile broadband – apply equally to next-generation services in Canada.

The critical role of broadband telecommunications in the national economy.

Enterprise broadband last-mile facilities support a broad range of economic activities, both within and beyond the telecommunications industry. These services are used by small, medium and large businesses, institutions and governments at all levels as the principal "last mile" connection for local and long distance, voice and data communications. Every business, regardless of its size, requires connectivity among all of its own business locations and to the public telecommunications network. In today's technology-dependent world, any location with more than a handful of employees – and even the smallest locations of technology-centered businesses – will use some form of broadband facilities as their "last-mile" connection:

- *Small and Medium Business Users*: Although frequently thought of as a service for only the largest corporations and governmental units, broadband last-mile facilities and the services provided over them are now commonly used by businesses of all sizes. Small law firms, grocery stores, insurance agents, physicians' offices, hospitals, and even local public schools and libraries are all increasingly connected to the world via special access facilities. The lowest-capacity of the TDM-provisioned broadband offerings, known as DS-1, can provide up to 24 voice-grade equivalent circuits, but it is frequently economical for businesses needing as few as 5 or 6 lines to purchase a DS-1 rather than individual access lines and to dedicate a portion of its capacity for access to the Internet. In an increasingly information-based economy, even the smallest businesses are often candidates for services provided over dedicated last-mile broadband facilities.

- *Satellite and Branch Operations of Large Enterprise and Government Users*: Few large companies confine their entire operations to a single headquarters location, and their branch and satellite operations utilize dedicated broadband to connect both to headquarters and to the world. When the teller at a local branch records a transaction, it is most likely transmitted over a dedicated broadband facility. When a department store checks its inventory or a consumer withdraws funds from her bank ATM, a dedicated broadband facility is usually involved. Virtually every interaction that consumers have with major corporate entities involves the transmission of data over special access type facilities – ATM machines, automobile dealerships, retail operations, the airline gate agent at the airport, credit card swipe machines – all are frequently connected via the dedicated special access connections. Individual corporate users can have many thousands of individual locations nationwide that are connected via ILEC DS-1s or, in an Ethernet environment, by 10 Mbps Ethernet service).

How important are facilities sold to customers with low bandwidth last-mile broadband requirements (as compared with the OCn or 100/1000 Mbps Ethernet services)? With respect to individual locations, the demand is overwhelming concentrated at the DS-1 or, in an Ethernet environment, at the 10 Mbps level. In a recent report,[10] the US Government Accountability Office ("GAO") surveyed the roughly 183,000 individual buildings in sixteen metropolitan statistical areas ("MSAs") that had telecommunications demand at DS-1 or above. GAO found that at 97% of these locations, customer requirements were at the DS-1 level – i.e., 24 or fewer voice-grade channels. By expanding the "low (bandwidth) demand" segment to include the additional locations served by a single DS-3 (equivalent to 672 voice channels or 45 mpbs), the percentage rose to 99.2% – that is, only 0.8% of the 183,000 commercial locations had a demand for service at a capacity level greater than one DS-3.[11]

In addition to businesses throughout the overall economy, there are businesses operating within the telecommunications and information sectors – sometimes referred to as "competitors" of the incumbent carriers – that are, in fact, extremely dependent upon ILEC-provided last-mile dedicated broadband. These include:

- *Internet access providers*: Dedicated broadband access – whether on TDM-based or packet-protocol-based services – is also essential to the provisioning of Internet access services. US rural ILECs who seek to provide Internet access services have complained to the FCC about the unsustainable burden of special access overpricing by large ILECs in areas where they are no longer subject to price cap constraints .[12] Time Warner Telecom, a pioneer in the US with respect to the offering of "next-generation" services, has likewise complained that "ILECs are exploiting their control over bottleneck end user connections to control the pace at which competitors roll out next-generation facilities." As the importance of electronic commerce continues to expand in every nation's economy, the cost of putting Internet access in place becomes an increasingly potent economic driver.[13]

- *Wireless providers*: While the last leg of the transmission to a customer's wireless handset occurs over the airwaves, most frequently, the transmission between each of the roughly 185,000 wireless transceiver cell sites in the US and the wireless carriers' local mobile telephone switching

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10. U.S. Government Accountability Office, *FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services*, Report to the Chairman, Committee on Government Reform, House of Representatives, GAO-07-08, November 2006 ("GAO Report"). The GAO is a research unit of the United States Congress, and reports its results to the Congress.

11. *Id.* at 20 (GAO Report, Table 2); our analysis derived from this table is presented in Table 4 below.

12. Comments of OPASTCO filed May 16, 2007, GN Docket No. 07-45, *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996* ("Broadband Deployment Inquiry"), at 10-11.

13. Time Warner Telecom Comments filed May 16, 2007 in Broadband Deployment Inquiry, at 11-12.

office ("MTSO") uses a dedicated broadband facility usually obtained from the ILEC. Sprint Nextel, the largest US wireless carrier not affiliated with a major US ILEC, reported to the FCC that it relied upon incumbent LECs' special access services for 96.4% of all DS1 and DS3 customer terminating circuits (including circuits terminating at cell sites) in the top 50 MSAs in 2006."[14] According to Sprint Nextel, special access costs account, on average, for *one-third* of the total costs of operating each of its over 52,000 cell sites.[15] While precise data is not generally available, in aggregate, US wireless carriers likely spend from $1- to as much as $2.5-billion annually on special access services.

Lack of competition confirmed by deployment, price evidence.

In the US, the extremely sparse deployment of competitor facilities, particularly to the vast number of locations requiring DS-1 and DS-3 capacity services – combined with the FCC's premature deregulation of such services – has permitted US ILECs to increase prices far beyond the levels that could be achieved or sustained in a competitive market or that, in its absence, regulation should tolerate. When dedicated last-mile broadband facilities are priced inefficiently, the economic harm is not confined to the telecommunications sector of the national economy. Because of the role of broadband last-mile facilities as essential inputs to a broad spectrum of economic activity nationwide, the sustained overpricing of these services results in an economic "deadweight loss" with far-reaching negative impacts upon the efficiency and competitiveness of the economy overall.

The evidence that effective competition has not developed for special access service is compelling. Before they were acquired by large ILECs in 2006, AT&T and MCI had regularly proffered evidence of the economic barriers to deploying last-mile broadband facilities, and their contentions were borne out by evidence produced in connection with the merger review proceedings.[16] Since their elimination, several reliable surveys have confirmed that, particularly for locations requiring DS-1 and DS-3 level services, the ILECs own the vast majority of the last-mile broadband in the US, including in densely populated urban areas.

Independent Study Conducted by Regulators: The most recent addition to the independent studies of special access competition is a January 2009 report prepared by the National Regulatory Research

14. Sprint Comments, at 30. This near-total dependency was every bit as high in alleged competitive pricing flexibility (i.e., deregulated) areas. *Id.*

15. *Id*. at 33.

16. *In the Matter of SBC Communications Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, WC Docket No. 05-65, *Memorandum Opinion and Order*, 20 FCC Rcd 18290 (2005)("SBC-AT&T Merger Order"); *In the Matter of Verizon Communications Inc. and MCI, Inc. Applications for Approval of Transfer of Control*, WC Docket No. 05-75, *Memorandum Opinion and Order*, 20 FCC Rcd 18433 (2005) ("Verizon-MCI Merger Order"); see also, e.g., U.S. Department of Justice, Antitrust Division, Complaint, *U.S. v. SBC and AT&T Corp.*, U.S. District Court for the District of Columbia, No. 1:05CV02102 (filed October 27, 2005) at paras. 15-16.

Insititute (NRRI) for the National Association of Regulatory Utility Commissioners (NARUC). In its report, *Competitive Issues in Special Access Markets*, NRRI concluded that the US ILECs continued to have "strong market power" for last mile services at the DS-1 level. The ambitious report attempted a broad-based analysis that involved surveying both buyers and sellers of access services and analyzing pricing, earnings and deployment data (notably hampered by a lack of cooperation on the part of the largest US ILECs). While we would take exception to some aspects of NRRI's analysis, the bottom line conclusions of the report are entirely consistent with the results of the GAO Study, ETI's 2007 Special Access Report, and the evidence produced by CLECs in the recent FCC forbearance dockets (discussed in more detail below). Given that the report was commissioned and executed by a neutral third party that is neither a purchaser nor a provider of special access services, its conclusions – affirming continuing ILEC dominance in the provision of the most commonly used last-mile access facilities – is an important addition to earlier studies that have documented this same result.

Table 1

Evidence Demonstrates That Even in Major US Metropolitan Areas, Service From a Provider Other Than the ILEC is Rarely Available

	Total Number of Commercial Buildings in MSA per GeoResults	% of Buildings Identified as Having CLEC Facilities	Calculation of # of Buildings (1)
Boston	192,227	0.10%	192
New York	446,122	0.10%	446
Norfolk / Virginia Beach	72,229	2.00%	1,445
Philadelphia	271,725	0.15%	408
Pittsburgh	85,694	0.19%	163
Providence	56,927	0.40%	228
Denver	104,385	0.24%	251
Minneapolis / St. Paul	124,740	0.26%	324
Phoenix	127,763	0.17%	217
Seattle	127,880	0.18%	230
Total	1,609,692	0.24% (1)	3,903

(1) Calculated from other data on the table.

SOURCE: GeoResults data presented in an *ex parte* submissions filed October 1, 2007 by Covad Communications Group, NuVox Communications and XO Communications LLC (the "Joint CLECs") in FCC WC Dockets 06-172, 07-97, 06-125, 06-147 and 04-440 and on July 17, 2008 in FCC WC Docket 07-97.

CLEC evidence in post-merger forbearance proceedings: Shortly after its merger with MCI, Verizon petitioned the FCC to forbear from regulating special access in six East-Coast MSAs (Boston, Providence, New York, Philadelphia, Pittsburgh, and Norfolk/Virginia Beach). Using data obtained from a commercially available source (GeoResults) and that had been used by Verizon itself in other

contexts, a coalition of competitive carriers submitted evidence showing that even in markets hand-picked by Verizon as the most competitive in its operating areas, competitor-owned facilities were connected to less than one percent of the commercial buildings in these markets.[17] Several months later, Qwest filed similar petitions covering four of its major MSAs (Denver, Minneapolis/St. Paul, Phoenix and Seattle). Again, the GeoResults data showed competitor facilities at less than one percent of the commercial building locations within the MSA's that Qwest had identified as highly competitive.[18] Table 1 above contains the details the percentage of buildings identified as having CLEC facilities available as reported in the GeoResults data filed in response to both the Verizon and Qwest Petitions.

Table 2

US ILECs Face No CLEC Facilities-Based Competition at Any of the Buildings in Most of Their Local Serving Offices

	Total Number of Wire Centers in MSA per GeoResults	Total Number of Wire Centers in MSA w/ no Building Served by a CLEC per GeoResults	% of Wire Centers in MSA w/ no Building Served by a CLEC per GeoResults (1)
Boston	131	69	53%
New York	115	52	45%
Norfolk / Virginia Beach	156	78	50%
Philadelphia	149	114	77%
Pittsburgh	33	11	33%
Providence	58	16	28%
Denver	47	20	43%
Minneapolis / St. Paul	140	84	60%
Phoenix	76	39	51%
Seattle	69	30	43%
Total	974	513	53%

(1) Calculated from other data on table.

SOURCE: GeoResults data presented in an ex parte submissions filed October 1, 2007 by Covad Communications Group, NuVox Communications and XO Communications LLC, (the "Joint CLECs"), in FCC WC Dockets 06-172, 07-97, 06-125, 06-147 and 04-440 and on July 17, 2008 in FCC WC Docket 07-97.

17. GeoResults data presented in an *ex parte* submission filed October 1, 2007 in FCC WC Dockets 06-172, 07-97, 06-125, 06-147 and 04-440 by Covad Communications Group, NuVox Communications and XO Communications LLC, (the "Joint CLECs"). See Table 1 above.

18. *Ex Parte* Letter filed by Joint CLECs, July 17, 2008, in WC Docket 07-72. See Table 1 above.

The same group of competitive carriers also provided data on the number of wire centers (local ILEC serving offices) within each of the ten metropolitan areas covered by the Verizon and Qwest forbearance petitions that had even a single CLEC-lit building within its service area. The data (shown on Table 2 above) reveals that in more than 50% of the wire centers in these ten purportedly highly competitive MSAs, there was not even one facilities-based competitor providing special access type service to any building within the wire center serving area. Moreover, even for the one wire center in each metropolitan area with the highest percentage of commercial buildings with competitor facilities in place, the evidence (detailed on Table 3) showed the ILEC as the sole provider of last-mile broadband at between 95% and 99% of the business locations.

Table 3

Evidence Demonstrates That Even in the Wire Centers With the Highest CLEC Penetration, Only a Small Fraction of Buildings Have CLEC Service

	Wire Center (ILEC Service Office) w/ Highest % of CLEC Served Buildings	Total Number of Commercial Buildings in MSA per GeoResults	% of Buildings Identified as Having CLEC Facilities	Number of Buildings with CLEC Facilities in Place (1)
Boston	WLHMMAWE	1,007	1.49%	15
New York	NYCMNYBS	4,008	1.07%	43
Norfolk / Virginia Beach	NRFLVABL	1,654	4.29%	71
Philadelphia	PHLAPALO	4,676	0.68%	32
Pittsburgh	PITBPADT	4,137	1.09%	45
Providence	PRVDRIWA	8,129	0.97%	79
Denver	ENWDCOMA	2,433	2.28%	55
Minneapolis / St. Paul	MPLSMNDT	1,574	3.63%	57
Phoenix	PHNXAZSE	1,095	1.46%	16
Seattle	STTLWAEL	666	3.12%	21
Total		29,379	1.48% (1)	434

(1) Calculated from other data on table.

SOURCE: GeoResults data presented in an *ex parte* submissions filed October 1, 2007 by Covad Communications Group, NuVox Communications and XO Communications LLC, (the "Joint CLECs"), in FCC WC Dockets 06-172, 07-97, 06-125, 06-147 and 04-440 and on July 17, 2008 in FCC WC Docket 07-97.

Government Accountability Office (GAO) Report: In November 2006, the GAO issued a report entitled *FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services*. GAO's findings are entirely consistent with the previously described CLEC coalition data. The GAO found that competitive alternatives to ILEC special access services do not exist at the vast majority of commercial locations where customers need to buy those services. As shown in Table 4, service demand at DS-1 and DS-3 levels is what is required at 99% of all buildings

within the sixteen MSAs surveyed by GSA and no competitive alternatives exist at 94% of those locations. Importantly, the GAO also found that the presence of one or more competitors offering facilities at specific buildings in no way translates into a competitive marketplace for services at other locations – including locations in close geographic proximity to the places where competitive services are being offered.

Table 4

Percentage of US Commercial Buildings with Demand at or above DS-1 Where a Fibre-Based Competitive Alternative is Available (July 2006)

Service level (demand)	Total number of buildings in segment	% of Total buildings with demand	Number of buildings with a "lit" CLEC competitor	Percent of buildings with a "lit" CLEC competitor
DS-1	177,571	97%	10,322	5.8%
DS-3	3,916	2%	599	15.3%
2 or more DS-3s	1,510	1%	375	24.8%
Total no. of Buildings	182,997		11,296	6.2%

Source: GAO Report, Table 2.

Urban myth dispelled (fibre in street vs. connections to buildings): US ILECs have persisted in arguing that a CLEC's deployment of fibre in urban areas makes it economically feasible for the CLEC to provide service to any customer in the vicinity of its fibre. The evidence also shows this conclusion to be false. The map below (Figure 1), submitted to the FCC by SBC in 2003 (before the elimination of legacy AT&T and MCI as independent companies), illustrates competitor fibre deployed along streets in the San Francisco financial district as well as the locations at which SBC supplied special access services to CLEC customers. An analysis of this map reveals more than 436 instances where SBC special access services were being provided to CLEC customers located on streets where competitive fibre was in place.[19]

19. Attachment A of SBC Communications *ex parte*, filed August 18, 2004 in CC Docket No. 01-338, *Unbundling Obligations for Incumbent Local Exchange Carriers*. The San Francisco results are not atypical; ETI analyzed data for other SBC and found similar results.

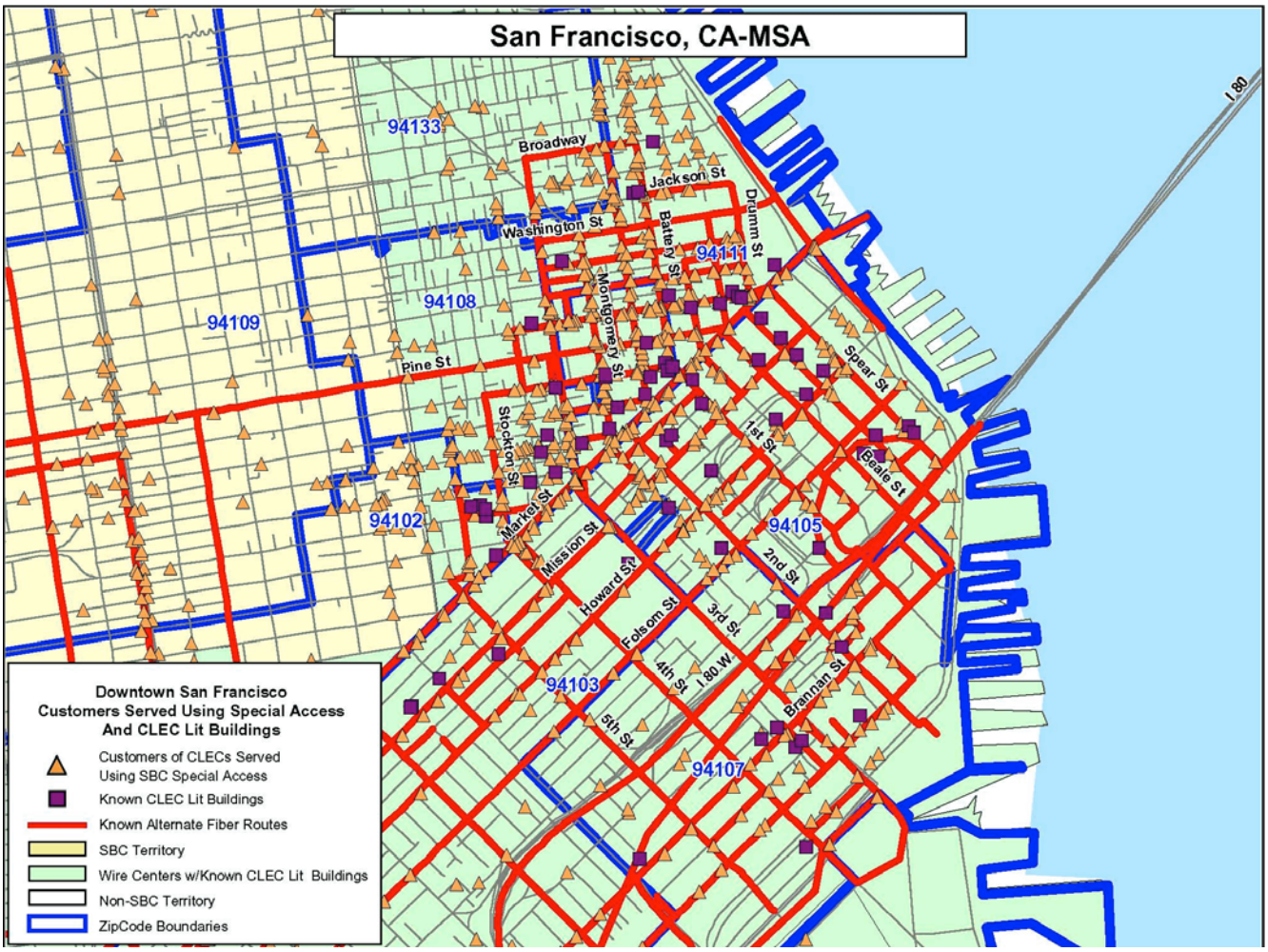

Figure 1. Competitive fibre optic cable deployment and use in the San Francisco financial district showing CLEC enterprise customers being served using Special Access even where CLEC fibre routes are adjacent to the customer's building.

The price evidence is equally compelling. Over the past seven years, ETI has conducted numerous analyses of special access pricing and has repeatedly found that the large ILECs have consistently increased (or at least held steady), not decreased, their prices for high capacity services in those putatively competitive areas where they have been granted pricing flexibility.[20] In fact, in most cases, those prices are now higher than the prices for the identical services in areas still regulated under price caps – i.e., offered by the same companies in the same states, and falling within the same density zones.[21]

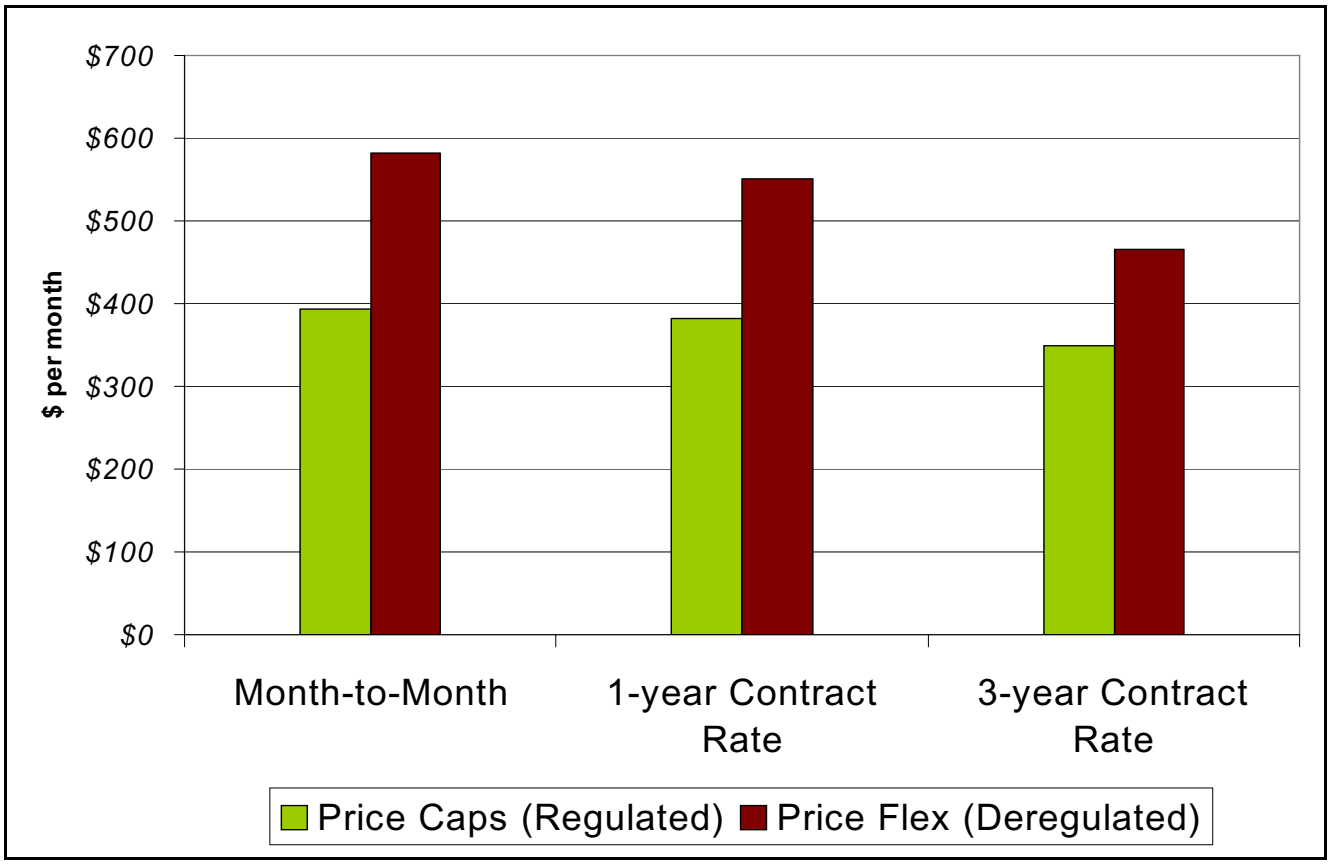

Figure 2. Qwest's prices for DS1 last mile special access facilities are higher in areas that have been deregulated than in areas that remain subject to the FCC's price cap rules.

20. See, e.g., Economics and Technology, Inc., *Competition in Access Markets: Reality or Illusion. A Proposal for Regulating Uncertain Markets* (August 2004), Attachment A to Comments of Ad Hoc Telecommunications Users Committee, filed May 13, 2005 in WC Docket No. 05-25, Special Access Rulemaking; see also, ETI 2007 Special Access Report.

21. For example, Verizon's price for a ten-mile DS1 special access circuit (using two channel terminations and ten miles of interoffice mileage) in downtown Providence, RI (a city that had been granted full pricing flexibility) had risen to $914.82 per month – 30% higher than the price that would be in effect under price cap constraints.

For Verizon and AT&T, this trend has been mitigated somewhat as a result of temporary price freezes that had been imposed by the FCC as a condition of its approval of the Verizon/MCI and AT&T/SBC/BellSouth mergers.[22] Additionally, as a condition of the AT&T/BellSouth merger, the AT&T operating companies were required to "roll back" prices in pricing flexibility areas to the levels found under price caps for a three year period (ending July 1, 2010). When these conditions expire, however, it is predictable that these largest US ILECs will resume their practice of imposing significant price increases for such services. Meanwhile, the special access pricing practices of Qwest – the largest ILEC unaffected by merger conditions – have continued to reflect the pattern previously observed with respect to AT&T and Verizon. As Figure 2 demonstrates, Qwest's prices for a DS1 last mile special access circuit in areas where the FCC has granted pricing flexibility are much higher than in those areas still subject to the nominal pricing regulation found in the FCC's price caps plan.

Very similar conclusions about special access pricing were also reached by the GAO in its 2006 Report. The GAO made direct service-to-service price comparisons of services sold on a monthly basis and under various term contracts. For each type of service, prevailing prices for DS-1 and DS-3 channel components were compared with the price levels in effect before the implementation of pricing flexibility. These comparisons revealed a consistent pattern across all density cells and all term commitment levels: Prices in areas subject to pricing flexibility had increased, whereas prices in areas still subject to price caps had fallen.[23] The GAO focused particular attention upon areas with the highest building density, since competitive fibre, where it exists, is largely concentrated in areas of high density, i.e., in the central business districts of an MSA (typically designated as Zone 1).[24] As the summary GAO data in Table 5 below confirms, even in areas that are presumably the most likely to attract competitive entry, the ILEC had raised rates more in areas subject to pricing flexibility than in those (putatively less competitive) areas where price caps had remained in effect.

22. Merger conditions are set forth in SBC-AT&T Merger Order at Appendix F; Verizon-MCI Merger Order at Appendix G; and *In the Matter of AT&T Inc. and BellSouth Corporation, Application for Transfer of Control*, WC Docket No. 06-74, *Memorandum Opinion and Order*, 22 FCC Rcd 5662 (2007) ("AT&T-BellSouth Merger Order") at Appendix F.

23. GAO Report, at 28.

24. Special access rates are generally deaveraged into three "density zones," with Zone 1 representing the highest density areas and Zone 3 the lowest. See, *In the Matter of Expanded Interconnection with Local Telephone Company Facilities; Amendment of the Part 69 Allocation of General Support Facility Costs*, CC Docket No. 91-141; CC Docket No. 92-222; 7 FCC Rcd 7369 (1992); *see also, e.g., In the Matter of Bell Atlantic Telephone Companies; Centel Telephone Company; Southwestern Bell Telephone Company; United Telephone Companies, Zone Density Pricing Plans*, 8 FCC Rcd 5529 (1993).

Table 5

Changes in Special Access Prices for Like Services Since the Onset of Pricing Flexibility (Highest Density Zones)

	Density Zone 1	
Special Access Component Prices	**Pricing flexibility areas**	**Price cap areas**
DS-1 Channel Termination, Monthly	▲ $17.76	▼ $1.20
DS-1 Channel Termination, 3-year term	▲ $ 0.87	▼ $9.80
DS-1 Fixed Transport, Monthly	▲ $ 3.60	▼ $4.11
DS-1 Fixed Transport, 3-year term	▲ $ 0.07	▼ $6.11
DS-1 Variable Transport, Monthly	▲ $ 1.28	▼ $1.91
DS-1 Variable Transport, 3-year term	▲ $ 0.51	▼ $2.39
DS-3 Channel Termination, Monthly	▲ $ 127.88	▼ $112.81
DS-3 Channel Termination, 3-year term	▲ $ 82.17	▼ $114.37
DS-3 Fixed Transport, Monthly	▲ $ 21.72	▼ß $52.32
DS-3 Fixed Transport, 3-year term	▲ $ 3.12	▼ $66.19
DS-3 Variable Transport, Monthly	▲ $ 3.51	▼ $11.83
DS-3 Variable Transport, 3-year term	▲ $ 2.05	▼ $12.30

Source: GAO Report, Appendix II, Tables 11, 12, at pp. 67-70.

Despite the FCC's reluctance to address the economic dysfunction that has resulted from failing to reimpose pricing constraints on noncompetitive special access services, it cannot have been unaware of these conditions. In a paper published in 2004 (based largely on 2002 data), two FCC staff economists observed that:

> The question that has arisen is whether the price cap LECs have market power in supplying special access service and whether they have taken advantage of this. The data clearly show that this is the case. One significant indicator of market power is the ability to raise prices without losing customers. The foregoing analysis clearly indicates this to be the situation.
>
> There is nothing wrong with wanting to deregulate a market. The benefits to consumers from competitive interaction can be quite substantial. The market, however, needs to be conditioned so that effective competition can actually occur. The Federal Communications Commission made an error in its definition of just what constitutes potential competition.

> The metrics chosen simply are not adequate in this regard. Given the prevailing situation, there is a clear need to revisit the pricing flexibility order.[25]

This analysis *predated* the AT&T/SBC and MCI/Verizon mergers. Those mergers eliminated the two largest purchasers of special access services from SBC and Verizon. The mergers also eliminated the two largest non-ILEC suppliers of special access type services then in competition with SBC and Verizon. Not surprisingly, the ILEC earnings levels that had caused the FCC's own staff to recommend, in 2004, that pricing flexibility be revisited were modest when compared to today's ILEC special access earnings levels, now in the high double-digit and even triple-digit range. There is no possibility that such extraordinary earnings levels could be sustained in a market in which meaningful competition was present.

25. Noel D. Uri and Paul R. Zimmerman, "Market Power and the Deregulation of Special Access by the Federal Communications Commission," *Information and Technology Law*, v. 13, no. 2, 2004.

2 | US TELECOM POLICY: LESSONS FOR SUCCESS AND FOR FAILURE

The assured availability of competitor access to unbundled ILEC "last mile" services at regulated, cost-based wholesale rates as mandated by the US *Telecommunications Act of 1996* stimulated massive innovation and investment by entrants and incumbents alike.

Efforts to introduce competition in the US telecommunications industry can be traced back to the late 1960s, when the FCC initiated regulatory actions aimed at removing several legal barriers to the interconnection of non-telco premises equipment (e.g., handsets, private branch exchange (PBX) systems, and modems) and non-telco long distance transport facilities (e.g., private microwave, "specialized" common carrier networks) to the public telephone network In a series of market-opening initiatives, US regulators, state and federal legislatures, and the federal courts adopted affirmative measures that not only eliminated legal barriers to entry, but sought to affirmatively facilitate the introduction and development of competition across all telecom sectors. The common thread and theme underlying all of these measures – FCC orders requiring premises equipment and long distance network interconnections, the seminal break-up of the Bell System in 1984, and ultimately the Telecommunications Act of 1996 ("TA96") was the imposition of rules *mandating that incumbent local carriers open their networks to their competitors so as to enable and facilitate their entry*.[26] Regulation of competitor access to incumbent networks was thus seen as an *engine* of competition, catalyzing entry, investment, and innovation.

TA96 – with its assurances of competitive access to wholesale ILEC facilities at prices based upon long run incremental costs – prompted a period of unprecedented competitive market entry and capital investment in telecom plant and equipment both by US ILECs and by US competitive TSPs. Resisting persistent efforts by incumbents to be relieved of these regulatory obligations, the FCC and state regulatory commissions strictly enforced and implemented the rules and regulations as required by the 1996 Act. These market-opening regulations spurred the most competitive market entry and the largest competitive capital investments in US telecom history.

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26. The TA96 framework established three separate, but not mutually exclusive, entry paths by which a CLEC could serve a local market: facilities-based entry, unbundled network elements, and total service resale. The 1996 Act also contained provisions intended to safeguard the quality of wholesale service, prevent discrimination by ILECs in favor of their own competitive services and affiliates, and encourage the deployment of advanced services.

Despite RBOC claims that the regulations imposed by the 1996 Act were onerous, induced uneconomic market entry, and provided an extreme *disincentive* for incumbents to make capital investments, the period of regulatory enforcement immediately following the legislation was a high point for the Regional Bells as well. In the six-year period between 1996 and 2001, the RBOCs invested some $150-billion in their networks, and publicly traded competitive TSPs invested some $160-billion in their competitive ventures. At the same time that competitive TSP market valuations reached nearly $430-billion, the four RBOCs achieved their maximum stock market valuations, peaking at over $500-billion. ILECs made massive capital investments in spite of the regulatory environment. Verizon invested some $56.6-billion in new Telephone Plant in Service ("TPIS") over the period 1996-2001, while the predecessor companies of AT&T Inc. (SBC, Pacific Telesis, Ameritech, BellSouth and SNET) invested a combined $73.7-billion over that same time frame. There is no indication that the stringent regulation of wholesale services that was taking place from the date of enactment of the 1996 legislation until the abrupt change in FCC policy – which began in 2001 – in any way acted to deter ILEC investments or discourage investors from purchasing RBOC stock.

When the process of eliminating mandated, cost-based competitor access to unbundled incumbent last-mile facilities was begun starting in 2001, competitive and incumbent carriers alike scaled back their investment programs and competition dwindled.

Almost immediately after TA96 became law, the Regional Bells and other US ILECs began an aggressive campaign to extricate themselves from the market opening and wholesale network access mandates of the new law, arguing (1) that the requirement to "share" their facilities with competitors acted as a disincentive to the RBOCs' own investment in broadband facilities, and (2) that without the 'crutch' of cost-based wholesale elements available to them, competitive TSPs would be incented to invest in their own last mile facilities. The RBOCs, in particular, also made numerous promises that they would make substantial additional investments if the FCC were to relieved them of various regulatory burdens and earnings limitations. Most notable were commitments – some dating as far back as 1992[27]– for a widescale RBOC "broadband" deployment that, nearly a decade later, still

27. For example, in 1992 Verizon (then Bell Atlantic or "BA-NJ") proposed an accelerated network modernization program entitled *Opportunity New Jersey* ("ONJ") as an integral part of a 5-year plan for alternative regulation. [*See, Application of New Jersey Bell Telephone Company for Approval of its Plan for an Alternative Form of Regulation*, New Jersey BPU Docket No. TO92030358, *Decision and Order*, May 6, 1993 at 1; 73-75, 87-98.] Under the terms of the ONJ plan, BA-NJ committed to accelerate its planned deployment of advanced network technologies and services, in exchange for the adoption of its proposed alternative form of regulation. While BA-NJ reaped significant financial benefits from the ONJ plan it did not reinvest those returns in its infrastructure, BA-NJ actually *disinvested* some $76-million between 1993 and 1995. [See, Economics and Technology, Inc., *A New Opportunity: Cost Based Pricing of Bell Atlantic – New Jersey Access Services*, March 1999, at 6.] In 1997, the New Jersey Ratepayer Advocate reported that BA-NJ actually invested $545-million less in New Jersey than the level that had been forecasted under the ONJ, and in capital-dollar terms, overall capital expenditures had *decreased* under ONJ. [*The Board's Inquiry into Bell Atlantic-New Jersey, Inc.'s Progress and Compliance with Opportunity New Jersey, its Network Modernization Program*, NJ BPU Docket No. TX96100707, *Order Approving Stipulation*, June 10, 1997, at 5, citing Division of Ratepayer Advocate Brief, at 15-16.] Several other jurisdictions also documented the US Bell companies' failure to live up to their capital investment promises. In 2002, the Pennsyl-

reaches fewer than 25% of all US households with total adoption encompassing only slightly more than 3% of US households.[28]

The RBOCs' efforts were generally not successful until after the change in US administration in 2001, when the FCC, like many other federal government agencies, began pursuing a deregulatory agenda. From that point on, US regulators at both the federal and state levels have acceded to most of the ILECs' deregulatory demands. The RBOCs began applying for pricing flexibility in 2000 and, by 2006, ILEC obligations to provide several key wholesale network elements that had formed the basis for widescale competitive entry into the residential and small business market had been withdrawn. Indeed, many of TA96's pro-competitive requirements have by now been eroded or eliminated altogether. Accepting the ILECs' arguments and assurances, the FCC largely acceded to their demands. From 2001 on through the closing days of the Bush administration, the Commission

- eliminated price constraints on most special access services;

- withdrew mandated availability of several key "unbundled network elements," including the "unbundled network element platform" ("UNE-P") – the primary driver of (pre-merger) AT&T Corp's and MCI's residential/small business local competition model, and "line sharing" by which third-party providers of residential/small business ADSL could obtain access to the DSL channel derived from exchange access lines being provided to ILEC residential and small business customers.

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vania Public Utility Commission found that Verizon had not fulfilled commitments it had made there [*Re: Verizon Pennsylvania, Inc., Petition and Plan for Alternative Form of Regulation Under Chapter 30; 2000 Biennial Update to Network Modernization Plan*, P-00930715, *Order*, March 28, 2002] In 1999, the Indiana Utility Regulatory Commission concluded that Ameritech (now part of AT&T) had reneged on an infrastructure investment commitment made in connection with the 1994 "Opportunity Indiana" price cap regulation program. [*Petition of Indiana Bell Telephone Company, Incorporated d/b/a Ameritech Indiana, for the Commission to Decline to Exercise in Whole or in Part its Jurisdiction Over, and to Utilize Alternative Regulatory Procedures for, Ameritech's Provision of Retail and Carrier Access Services Pursuant to I.C. 8-1-2.6 et. seq.*, Indiana Utility Regulatory Commission Cause No. 40849, Approved April 28, 1999, at 2. In 2004, after reviewing Qwest's compliance with capital expenditure commitments that had been made as part of a regulatory barging, the New Mexico Public Regulation Commission concluded that Qwest's level of investment was "significantly below its obligation." [New Mexico Public Regulation Commission Media Release, "Public Regulation Commission Orders Qwest to Invest," March 8, 2005, available at: http://www.nmprc.state.nm.us/pdf/qwestafor.pdf]

28. Of the three surviving RBOCs, only Verizon and AT&T are currently pursuing broadband construction programs; Qwest's effort is confined to expansion of the same level of ADSL service that has been around since the late 1990s. Verizon's *FiOS* initiative is the most ambitious, offering data rates of 10, 20 and even as much as 50 mbps in both directions via a fibre-to-the-home ("FTTH") architecture. AT&T's *U-verse*, formerly known as Project Lightspeed, brings fibre only to the neighborhood, with the final link (in the range of 500 to 1000 feet) being provided over existing copper loop segments and drops. As of year-end 2008, *FiOS* internet service was available to about 10-million households and was being furnished to only 2.5-million. For AT&T's *U-verse*, the service was available to about 17-million households, and was being purchased by less than 1-million. (See, Verizon Full-Year 2008 Investor email from January 27, 2009; AT&T Inc. News Release, "AT&T Reports Fourth-Quarter and Full-Year Results Highlighted by Robust Wireless Data Growth, Accelerated *U-verse* TV Ramp, Continued Double-Digit Growth in IP Data Services," released January 28, 2009).

- Agreed to forbear from regulation of most broadband services

- Classified many broadband services as "information services," thereby exempting them from many common carrier type regulations that otherwise apply to "telecommunications services"

- Agreed to forbear from requiring AT&T and Verizon to file detailed financial and operations reports that, among other things, disclosed their excessive earnings on special access services

- Declined to act on numerous petitions and complaints from competitors and from enterprise customers regarding excessive prices of, and premature pricing flexibility afforded to, special access services.

These deregulatory moves were premised upon the notion that effective competition for the incumbents' last-mile services had developed to the point where mandated wholesale access was no longer necessary to assure their availability to competitive carriers. That premise was, of course, seriously wrong. As we demonstrate in Section 3 below, the outcome of the FCC's withdrawal of regulatory mandates and price constraints on wholesale services has been to dismantle competition, to create increased market concentration and vertical integration as a result of the withdrawal of the two largest competitive carriers – AT&T Corp. and MCI – from the local and long distance markets and their respective mergers into the two largest incumbent carriers – SBC and Verizon, and a large-scale cutback in investment both by ILECs and competitive carriers alike.

3 THE FALLACY THAT "DEREGULATION BRINGS INVESTMENT"

A comparison of the differing regulatory climates in the US prior to and post-2001, and in the US and Canada after 2001, confirms the economic and competitive benefits of mandated wholesale access by entrants to incumbent network facilities whose duplication is impractical or inefficient.

The thirteen years since the US *Telecommunications Act of 1996* became law can be divided into two distinctly different regulatory policy regimes. TA96 strongly encouraged the development of competition and did not attempt to second-guess competitors' business judgments about the viability of particular facilities-based investments. The FCC initially adopted a framework that supported this policy – encouraging facilities-based investment, while continuing to mandate access to wholesale network components at cost-based prices. From the start, however, the large ILECs challenged the TA96 unbundling requirements with claims that mandated wholesale access (with regulated cost-ased prices) created disincentives to investment by both competitors and incumbents. These challenges were ultimately successful such that, beginning in 2001, the FCC largely abandoned its wholesale access and pricing mandates and replaced them with deregulation.

Although the US FCC began in 2001 dismantling regulation of wholesale services, the CRTC continued to prescribe services that incumbents were required to make available to rival carriers and continued to impose a cost-based pricing regime. As such, in addition to comparing pre- and post-2001 conditions under the alternate regulatory regimes in the US, it is also instructive to compare the effects of the post-2001 deregulatory regime in the US with the ongoing CRTC regulatory paradigm.

ETI has analyzed the entry and investment conditions under each of these two policy regimes. Our analysis reveals that there has been no dramatic jump in RBOC investment since deregulatory concessions have been implemented. Indeed, the level of investment that the RBOCs committed to and spent in this latter period is neither extraordinary nor particularly risky. The Bell broadband investments of recent years represent modest steps in their networks' ongoing evolution. As to the remaining publicly traded US CLECs, investments since the onset of the FCC's deregulatory period are also far lower than they had been during the first six years following passage of the 1996 Act, when wholesale rates and access were regulated. The evidence confirms why "commitments" to change investment behavior in exchange for deregulation must be viewed with skepticism. Like any

business, ILECs and CLECs will invest in new technologies (in this case rolling out broadband) only where there is business case to support such an investment – i.e., increased revenue opportunities, response to competition, and/or improved operational efficiencies.

Despite persistent claims by US RBOCs that deregulation is necessary to induce them to invest in broadband, in reality their post-deregulation investment levels are actually *less* than when price caps were in effect for wholesale last-mile services.

The RBOCs have two fundamentally contradictory stories to tell with respect to broadband investment. To policymakers in Washington, they insist that for them to economically justify investment in a ubiquitous broadband network, they must be exempted from any obligations to make those new facilities available to competitors *and* exempted from all regulatory constraints on pricing and earnings. Yet, in reports to Wall Street investors, the RBOCs portray their expenditures for broadband deployment as being justified based upon the combination of improved revenue streams and operational cost savings. The utter incongruity of these two versions of the broadband deployment story seem largely to have been overlooked by US regulators. If broadband is profitable – the Wall Street version – then sufficient investment capital will be forthcoming without the need for regulatory concessions. As to the RBOCs' *quid pro quo* of deregulation in exchange for broadband investment – the Washington version – after the regulatory concessions have been made, the RBOCs have exploited the dergulatory incentive to build next-generation facilities only where the greatest profit opportunities exist (and certainly not ubiquitously) and to exploit the lack of competition and regulation to the fullest.

Despite have achieved virtually all of their deregulatory goals, the RBOCs' investment levels since 2001 do not represent anything extraordinary or particularly risky. Major RBOC broadband investments have targeted residential, rather than enterprise, customers and services, and even residential investment initiatives have been more targeted than ubiquitous. As the data below demonstrate, recent years' RBOC wireline network investments have actually been less than in the past, and the investments that they are making are more evolutionary than revolutionary – there is no evidence of any extraordinary investment programs spurred by the broad regulatory relief that the RBOCs have been granted. In fact, as the data reveal, capital investment by the RBOCs in the US has slowed as regulation has decreased.

Although there has been extensive press coverage of Verizon's *FiOS*, and AT&T's *U-verse* rollouts, actual investment is unimpressive. The RBOCs today are only investing about half as much in their networks as the were at the start of this decade. Figure 3 demonstrates this. Looking back over the period from 1996 through the end of 2007 (the most recent year for which financial data is available, RBOC capital investments peaked in the 2000-2001 time frame at approximately $30-billion per year, and dropped off significantly after that. Total capital investments made during 2006 and 2007 was almost half of that amount – approximately $17.5-billion per year.

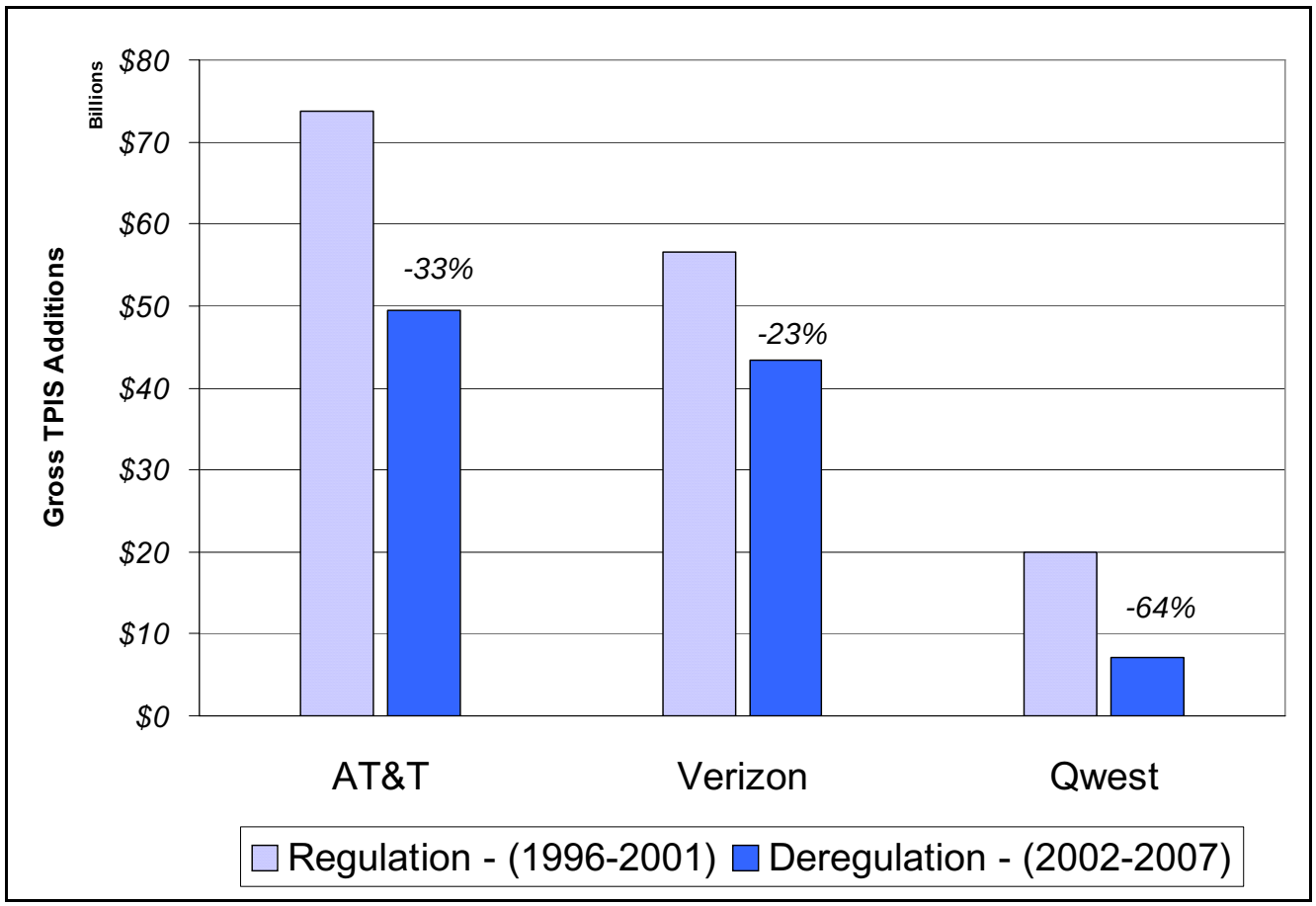

Figure 3. US Regional Bell ILEC capital expenditures (Gross Plant Additions) were greater during the first six years following TA96, while wholesale rate regulation remained in effect, than in the 2002-2007 period, when many regulatory constraints and mandates regarding ILEC wholesale services were relaxed or removed.

In fact, as shown in Figure 4 below, in each of the years since 2001, the largest local carriers in the US have *disinvested* in their networks – with the result that the net book value of plant in place at the end of 2007 is *less* than it was in 2001, and even less than it had been in 1996 when the Act was passed. Network *disinvestment* occurs when the depreciation charge in any given year is greater than the amount of new capital investment in the network. The combined net book value of telecom plant for AT&T, Qwest and Verizon was $142-billion in 1996, it increased to $155-billion in 2001 and had dropped by a third to $101-billion in 2007.[29]

29. Federal Communications Commission, ARMIS Report 43-02, USOA Report: Table B-1.B, Years ending 1996-2007; ARMIS Report 43-02, USOA Report: Table B-5, Years ending 1996-2007. Available at http://www.fcc.gov/wcb/eafs (accessed March 4, 2009).

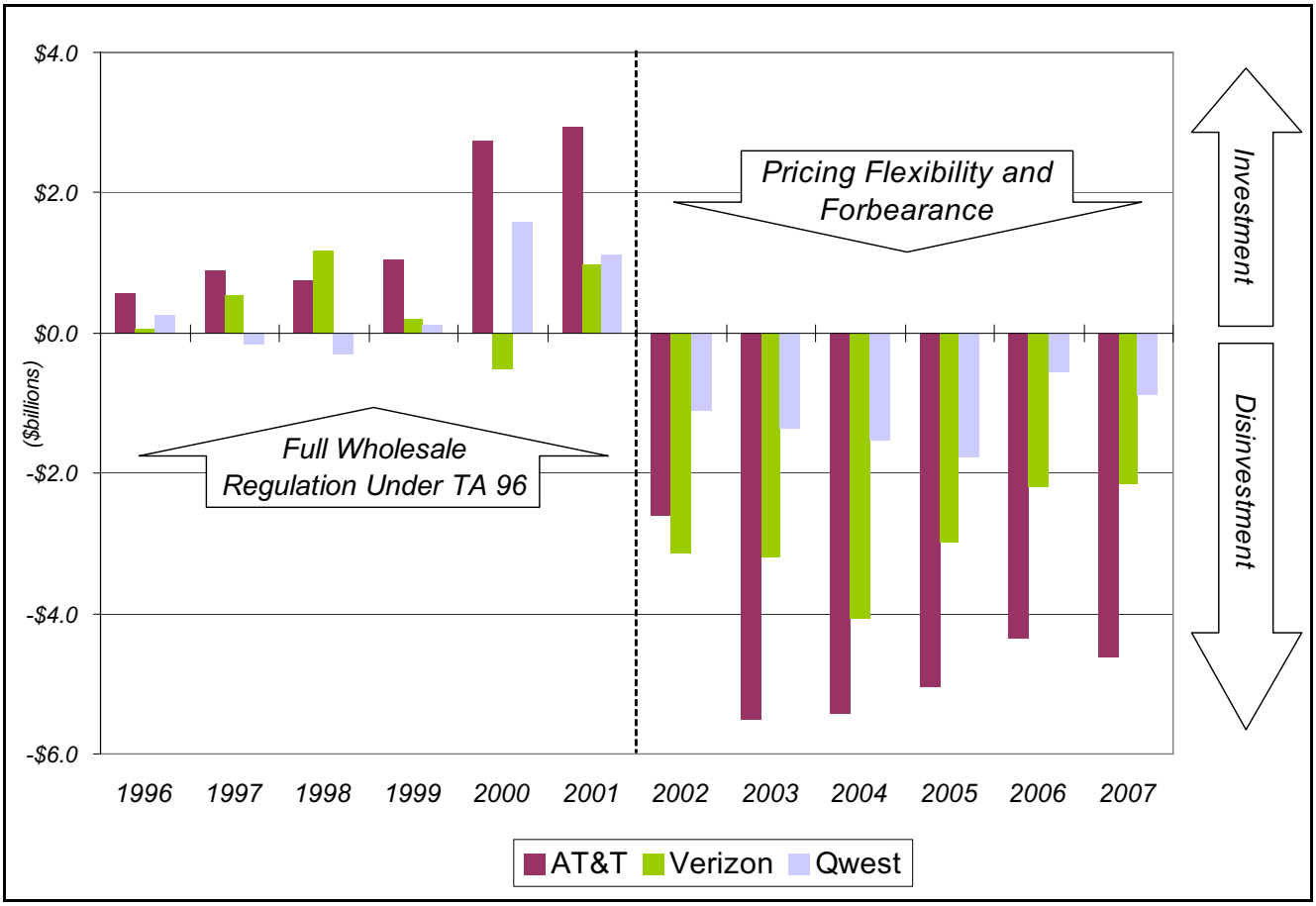

Figure 4. Positive Net Investment in RBOC plant became negative after 2001, when the RBOCs began *disinvesting* in their core ILEC networks.

Analysis of RBOC-specific investment data – 1996 to 2007

A detailed review of each of the carriers' capital additions during the last dozen years for which data is available (the 1996 to 2007 time frame discussed above) reveals the same result.

Verizon: During the six year period 1996 to 2001while regulation of wholesale services was still in effect, Verizon increased its gross Telephone Plant in Service ("TPIS") by $56.5-billion. For the subsequent six-year period (2002-2007) – the deregulatory period – Verizon's gross TPIS additions were substantially lower – at $39.8-billion. Verizon spent 42% more on telecommunications plant during the six year period during which regulation of wholesale rates was in effect than during the subsequent six year period of deregulation.[30] That means that even including its highly publicized *FiOS* investment – Verizon's forray into fibre-to-the-home and the TV market – Verizon spent about 30% less than it had been spending while subject to price regulation.

30. The data includes Verizon's predecessor ILEC companies: Bell Atlantic and non-RBOC GTE.

While it is not possible to definitively isolate Verizon's capital investments in the residential market (where it is racing to compete with cable TV companies for the "triple-play" phone/Internet/video bundle) from its capital investments in enterprise service broadband facilities – there is considerable evidence that the bulk of its recent capital spending has been directed mainly at the residential markets – not at business broadband. Verizon began investing in *FiOS* in 2004, and projected that it would spend approximately $23-billion by the end of 2010.[31] According to data filed with the FCC, Verizon's ILEC operations invested a total of $25.8-billion in Verizon's entire network over the first four years of that 7-year deployment period (compared to single-year network investments of $30-billion for each of 2000 and 2001), and $11.2-billion of that was investment was in Cable and Wire Facilities (CWF). The CWF category contains both the last mile transport facilities being upgraded for residential *FiOS*, last mile business special access facilities, and interoffice transport facilities. Since Verizon reported to its investors that $8- to $10-billion or more of that was for *FiOS*, that leaves only about $2-billion (or $500-million per year) for all other interoffice transport and enterprise and wholesale last mile facilities combined. This $0.5-billion per year is considerably less than Verizon had been spending on (non-*FiOS*) CWF facilities for the preceding period (for purposes of our analysis – 1996 to 2003) during which Verizon's annual CWF plant additions averaged $2.4-billion.

AT&T Inc.: During the same 1996-2001 period, the RBOCs that now comprise AT&T Inc. increased their total TPIS by $73.7-billion. For the subsequent six-year period 2002-2007, AT&T Inc.'s (and its legacy RBOCs') TPIS additions were, like Verizon's, substantially lower – at $49.4-billion. Facing the same regulatory environment as Verizon, AT&T Inc.'s investment patterns were similar – spending almost 50% more on telecom plant during the six years when price regulation was in effect than over the subsequent six-year period of deregulation.[32] That means that even including its mass-market *U-verse* Internet and video deployment, AT&T Inc. spent about one-third less during the post-regulation time frame than when wholesale services prices and access were still being regulated.

Qwest: The drop-off in Qwest's gross capital additions to its network is even more striking than either Verizon's or AT&T's. For the 1996-2001 period, Qwest increased its gross TPIS by $20-billion. But in the 2002-2007 period under pricing flexibility and other deregulatory measures that Qwest had actively sought, the Company's gross TPIS additions had dropped by almost two-thirds, to a little over $7-billion for the entire six years. *Qwest spent almost three times as much* on telecommunications plant during the six year period when wholesale regulation was in effect than the subsequent six years when most of its wholesale services and rates had been deregulated.

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31. *Verizon Provides New Financial and Operational Details on its Fiber Network as Deployment Gains Momentum,* Verizon Investor Relations, "News-at-a-glance", September 27, 2006.

32. The data includes AT&T's predecessor ILEC companies: SBC, SNET, Ameritch, Pacific Bell and BellSouth.

A contraction in competitive capital investment levels followed the elimination of cost-based wholesale rates.

The actions and inactions by the FCC and state regulators described in Chapter 2 amounted to *de facto* deregulation across a broad range of wholesale services the availability of which had, up to that point, been key components of most CLEC business models. The results of these measures and actions did not produce the outcome that their proponents had promised. On-the-ground evidence compels precisely the opposite conclusion: Deregulation *did not lead to increased competition or to increased investment*. As noted above, both ILEC and competitor capex had been growing through 2001. But that was soon to change.

By 2002, the FCC had established its new deregulatory agenda, and the large ILECs had obtained pricing flexibility for special access (DS-n, OC-n) in most major markets. Although the markets that were eligible for pricing flexibility were presumed to have the greatest level of competitive activity, the effect of special access pricing flexibility was a succession of large price increases. In 2004, the FCC eliminated mandated CLEC access to several key unbundled network elements (UNEs);[33] replacements for *some* of these services were "voluntarily" offered by ILECs, but at prices that were in some cases nearly double those that had been set by regulation.[34]

ILEC and competitor investments had been growing, but when these regulatory changes took effect, both groups significantly scaled back their respective capital outlays. Figure 5 below compares the growth of ILEC and competitor capital expenditures in the high-regulation period immediately after the 1996 legislation, followed by a significant contraction of investment under the post-2001 FCC deregulatory regime.[35]

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33. *In the Matter of Unbundled Access to Network Elements; Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, WC Docket No. 04-313; CC Docket No. 01-338, *Order on Remand*, 20 FCC Rcd 2533 (2005) (adopted December 15, 2004; released February 4, 2005).

34. For example, prior to its elimination, then-SBC's UNE-P rates in Illinois varied from $9.27 (in the most densely populated areas) to $18.60, whereas SBC's (now AT&T's) replacement product for UNE-P, "Local Wholesale Complete," was initially offered at a statewide rate of $27.50, some 48% above the $18.60 UNE-P rate, and just shy of triple the $9.27 urban rate. AT&T's LWC rate was in some cases also slated to increase by $1.00 per year in each of the next several years.

35. ILEC data is drawn from FCC ARMIS Report 43-02, USOA Report: Table B-1.B, Years ending 2001-2007. Available at http://www.fcc.gov/wcb/eafs (accessed March 4, 2009). CLEC data is drawn from company 10-K annual reports filed with the SEC, available at http://www.sec.gov/edgar/searchedgar/webusers.htm (accessed February 2009).

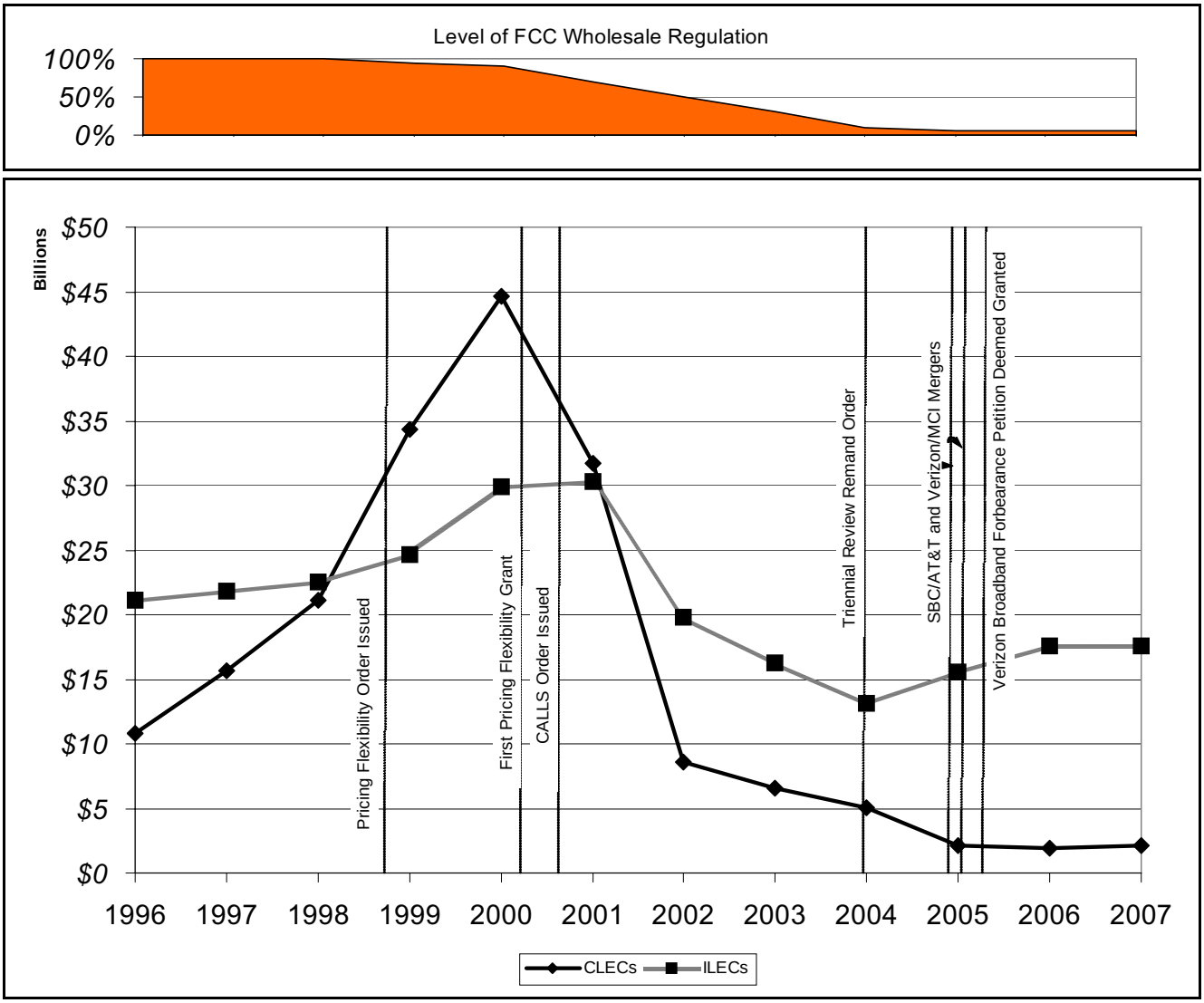

Figure 5. US ILEC and Competitive TSP Capital Expenditures, 1996-2007.

Despite achieving most of their deregulatory wish list, the ILECs have not increased their levels of capital spending, and their forecasts of increased competition and Competitive investment have not come even close to materializing. Many of the CLECs in existence when TA96 was enacted or that were formed shortly thereafter have since gone out of business or been acquired following deregulation of ILEC wholesale services, leaving billions of dollars of pre-deregulation CLEC investment for the financial rubbish heap. Those CLECs that have not gone out of business have either been acquired by others – often at bargain basement prices – or have significantly curtailed their capital spending and business ambitions. Table 6 below shows the decline in CLEC market capitalization as CLEC companies went bankrupt, were bought by their ILEC competitors, or were consolidated. Moreover, those few surviving competitive TSPs have not dramatically increased their capital expenditures as had been predicted by the ILECs. In fact, current competitive TSP capex levels are not even close to their historic highs at the peak of FCC regulation. Figure 6 compares the

historic level of competitor investment over the period 1996-2001 with the competitive TSP investment level for the period 2002-2007. As can be seen, levels of investment have done anything but climb in the wake of widespread deregulation.

The evidence is clear. Regulated access to ILEC wholesale facilities stimulates competitive carrier investment by making competitors more viable and responsive competitors, offering customers geographic scope comparable to that available from ILECs. It also stimulates ILEC investment responsive to competitive TSP innovations. Deregulation of wholesale ILEC services operates to insulate ILECs from competitive inroads and pressures, confining the remaining competitors to a role of marginal, fringe players incapable of offering a competitive challenge to the ILECs. The result is restoration of *de facto* ILEC monopoly much as it had existed throughout the last century – except with a seriously scaled back regulatory infrastructure that lacks the tools to assure that ILEC services will continue to be offered at just and reasonable rates and in the public interest.

A comparison of different approaches to regulation of wholesale services in the US and in Canada confirms that regulation of wholesale stimulates investment and competitive growth.

The stark difference in regulatory treatment of incumbent carrier wholesale services that has prevailed in the US vs. in Canada since 2001 provides yet another means for comparing the effectiveness of these two alternate regulatory philosophies in stimulating investment and competition. To accomplish this, we have plotted index values for all four gross investment series (i.e., US ILECs, US CLECs, Canada ILECs, Canada CLECs) using 2001 as a base year. This approach overcomes the difference in magnitude between the US and Canada and also between ILECs and CLECs, and shows the change in capintal expenditures for each category relative to their respective 2001 levels.

The conclusion is particularly compelling. Under the US FCC deregulatory approach, capinal expenditures decreased sharply both for ILECs and for CLECs. By 2007, US ILEC capital expenditures had dropped to around 60% of their 2001 level, whereas CLEC capintal expenditures had fallen to less than 10% of their 2001 level. For Canada, on the other hand, with the CRTC continuing to regulate wholesale service prices, both ILEC and CLEC investment remained relatively high over the period, and by 2007 CLEC capital expenditures were actually higher than they had been in 2001. While both CLEC and ILEC capital investment declined for several years beginning in 2001, this was more likely due to the post-Internet bubble, post-9/11 stock market slump rather than to regulatory policy, since ILECs and CLECs in both the US and Canada curtailed their capital spending. However, in Canada, where price regulation of ILEC wholesale last-mile services remained in effect, CLEC (and, to a lesser extent, ILEC) capital expenditures began to skyrocket after 2004, whereas in the US, under the then-in-effect deregulatory culture pervading the FCC, CLEC capital spending continued to decline, while ILEC capex remained steady and increased only slightly through 2007.

Whether we look to different treatments at different points in time in the US or as between the US and Canada during a corresponding period of time, the result is the same and in quite compellint: Regulatory policies that work to assure competitor access to the incumbent's network at reasonable,

cost-based prices facilitate competition and stimulate investments both by incumbents and by competitive TSPs. The repeated contentions by incumbents – that rivals will forgo investment in their own facilities if their use can be obtained from the cincumbents, is simply not borne out by factual evidence, and is little more than speculative – and highly inaccurate – rhetoric.

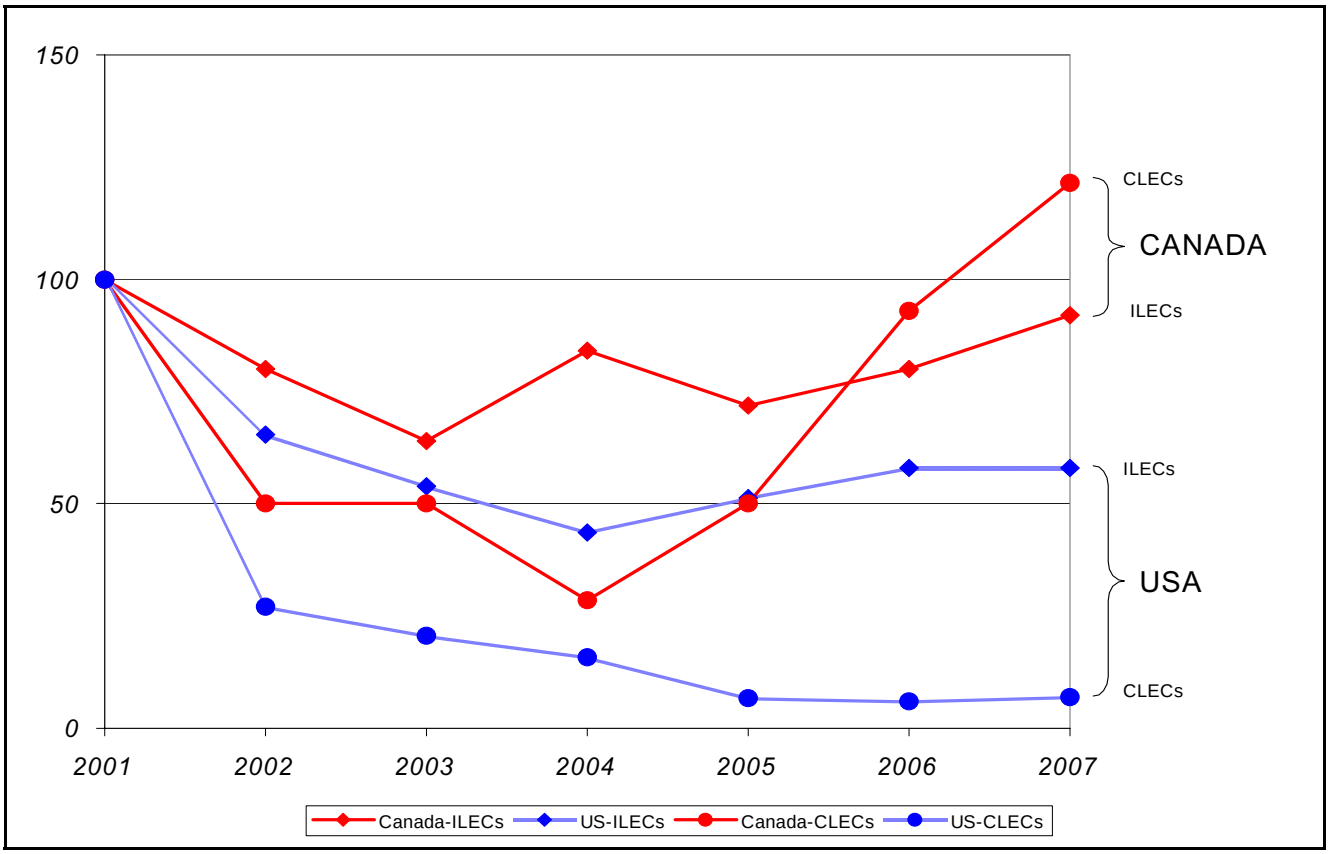

Figure 6. Canadian ILECs and CLECs increased their capital spending between 2001 and 2007 under a regime in which wholesale ILEC last-mile services remained subject to rate regulation, whereas in the US, ILECs and CLECs scaled back their investment outlays once regulation of wholesale services had been eliminated.

SOURCES: US ILEC data is drawn from the Federal Communications Commission, ARMIS Report 43-02, USOA Report: Table B-1.B, Years ending 2001-2007. Available at http://www.fcc.gov/wcb/eafs (accessed March 4, 2009).
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Canadian ILEC and CLEC data was obtained from the *CRTC Telecommunications Monitoring Reports* for 2006 (Table 4.1.4, at p. 22) and 2008 (Table 5.1.5, at p. 188).

Table 6

Changes In US CLEC Market Capitalization (1999-2006)

	September 30, 1999			July 2006			
		In Millions			In Millions		
Company	**Stock Price**	**Shares out-standing**	**Market Cap**	**Stock Price**	**Shares out-standing**	**Market Cap**	**% change from 9/30/99 to 2006[1]**
Adelphia	$ 28.00	51.42	$ 1,439.67	—	—	—	—
Allegiance	$ 63.00	64.86	$ 4,086.48	—	—	—	—
AT&T Corp	$ 47.44	3,195.63	$ 151,592.86	Acquired	—	—	—
Commonwealth Tele	$ 44.00	22.11	$ 972.77	32.71	21.41	$700.32	-28.01%
CoreCom	$ 37.19	72.05	$ 2,679.43	—	—	—	—
CTC Communications	$ 16.44	14.55	$ 239.24	—	—	—	—
CTCI	$ 47.00	19.93	$ 936.49	23.95	19.22	$460.32	-50.85%
Intermedia	$ 25.00	50.99	$ 1,274.64	—	—	—	—
Focal	$ 23.94	60.65	$ 1,451.72	—	—	—	—
Global Crossing	$ 26.50	794.77	$ 21,061.42	—	—	—	—
GST Telecomm Inc	$ 7.03	37.71	$ 265.18	—	—	—	—
McLeodUSA[2]	$ 41.06	155.30	$ 6,376.62	Bankrupt, relisted, taken private			—
Northpoint	$ 24.31	125.24	$ 3,044.88	—	—	—	—
ICG Communications	$ 15.56	47.34	$ 736.77	Bankrupt, acquired by Level3			—
Level 3 Communications	$ 52.22	341.08	$ 17,810.58	4.23	846.84	3,582.13	-79.89%
Worldcom (MCI)	$ 76.88	1,880.22	$ 144,541.84	Bankrupt, acquired		—	—
RCN	$ 49.69	76.18	$ 3,785.42	Bankrupt, relisted		—	—
Sprint	$ 54.25	785.21	$ 42,597.39	19.54	2980.00	58,229.20	36.70%
Time Warner Telecom	$ 20.88	104.54	$ 2,182.75	13.86	119.88	1,661.54	-23.88%
Winstar Comm Inc	$ 39.06	54.93	$ 2,145.89	—	—	—	—
XO Comm/Nextel	$ 61.38	315.45	$ 19,360.84	Bankrupt, relisted without Nextel			—

Source: carrier 10Q reports, www.thedigest.com/stocks/, finance.yahoo.com

Notes:

— Indicates that the company has filed Chapter 11 or has been delisted from public exchanges

[1] All data is current through July 2006.

[2] Stock price for 1999 is as of March 22, 1999

4 CONCLUSION

The distinction that the CRTC has drawn as between Ethernet and certain other next-generation services, on the one hand, and most other services and the underlying facilities from which they are provided, on the other hand, fails to give proper recognition to the economic conditions of demand and supply that characterize all types of telecommunications networks. These "network effects" are common to most network-based industries. On the demand side, network effects create greater exponentially greater value to each service point on a larger network – one with more service points or "nodes" – than on a small one. Competitors cannot realistically expect to replicate an incumbent carrier's near-ubiquitous network, not would such replication be economically prudent or in the public interest. This inherent competitive and economic disadvantage of small networks can be largely overcome by requiring that the large incumbents – whose core infrastructures were built out under government-protected monopoly status – make their facilities, together with their economies of scale and scope – available to entrants.

These network effects apply with equal force to legacy and next-generation services and to the facilities that are used to produce them. The temporal distinction that the CRTC has drawn – based solely upon the date at which the incumbents' investments had been made, is arbitrary and without any economic merit, since "now" is by its very nature a shifting moment in time – what is "tomorrow" will soon become "yesterday," blurring any distinction between "old" and "new" technology that the Commission has sought to establish.

Experience in both the US and Canada demonstrates that all telecom stakeholders – incumbent carriers, competitive telecommunications service providers, consumers (residential, small business, enterprise and government), and the national economy overall, will all benefit when entrants are assured, on an ongoing and permanent basis, economic access to the incumbent carrier networks. Failure of the Government to require that incumbent carriers make *all* last mile services – including Ethernet and other next-generation services and facilities – available to competitors at reasonable wholesale rates will result in less competition overall, less investment in Canada's telecom infrastructure, higher retail telecom prices, and substantial economic harm to Canadian business and the Canadian economy overall.

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