

ATTACHMENT A



VIEWS AND NEWS

ECONOMICS AND TECHNOLOGY, INC.

July 2010

IN THIS ISSUE

- Wireless Markets: No Longer "Effectively Competitive?"
- FCC denial of Qwest's Phoenix Forbearance Petition highlights new focus on carrier market power
- ETI champions the use of a quantitative market-power based analysis of the special access market at FCC

Wireless Markets: No Longer "Effectively Competitive?"

The FCC recently released its 14th annual report on Commercial Mobile Radio Service (CMRS) competition – an annual summary of the wireless marketplace and report to Congress. This new edition is similar to past CMRS reports, providing coverage maps, industry statistics, and narratives about the industry. But one aspect of the current report represents a major departure from any of the previous releases in this series: The Commission having repeatedly *declared* the US wireless market to be "effectively competitive" in each of the first thirteen *CMRS Reports*, that pronouncement is nowhere to be found in the 2010 version.

To be fair, the Commission doesn't expressly reverse its previous conclusion by declaring that effective competition is absent from the wireless marketplace. Rather, the *Report* simply acknowledges that there is a lot of data out there, and a very comprehensive review will be required in order for it to make definitive determinations as to the actual level of competition. While the *Report* does not explain what would need to be shown to demonstrate that the CMRS market is "effective competition" it does contain specific data that sheds light on the status and direction of competition in the wireless industry. Indicia such as market share, profitability and contract terms and conditions all suggest that the FCC is on the right track in refusing to declare victory – i.e., that widespread "effective competition" is not present in all sectors of the wireless industry.

Market shares

Despite the breakneck pace of adoption of wireless services in the US, competitive entrants have generally had a difficult time establishing themselves. Smaller companies have either folded, or more often, have been acquired by a larger carrier. At the outset of the 2000 decade, the wireless market was made up of six nationwide competitors and a mix of strong regional carriers (often the only ones serving rural areas). Although the national carriers unsurprisingly held the lion's share of total US subscribers, market shares were reasonably distributed, both among multiple competitors and as between RBOC-affiliated and independent wireless companies.

At the beginning of 2000, there were eleven major wireless carriers each serving more than one million subscribers, and dozens of others offering service in regional footprints. Now, at the end of that first decade of the 21st century, the complexion of the wireless market looks very different. The mergers of Bell Atlantic and GTE and their partnership with Vodafone's US properties combined to

create the largest nationwide carrier – Verizon Wireless. In 2001, SBC and BellSouth quickly partnered to form Cingular Wireless, then the second largest US carrier.

Despite these consolidations, the marketplace still seemed capable of supporting numerous competitors. By the end of 2003 Verizon Wireless served 24.8% of US wireless phones, while the top four companies together held a 65.7% market share. The two RBOC-affiliated companies (Cingular and Verizon) combined had a lower market share than the independent companies (AT&T Wireless, Sprint, T-Mobile, and Nextel). Regional carriers Alltel and US Cellular had respectable shares of the total US market at 5.3% and 2.9% respectively, and of course higher shares within their specific regions.

However, the mergers and acquisitions did not stop in 2003, and the market dynamics have shifted dramatically. The latest *CMRS Report*, providing data as of 2008, reveals that on a *pro forma* basis (reflecting Verizon's January 9, 2009 acquisition of Alltel) concentration in the US wireless market, as reflected in the market shares held by the largest firms, has risen sharply. Verizon, together with Alltel, served nearly 32% of all US wireless subscribers. AT&T Mobility (the combination of Cingular and AT&T Wireless) was a close second at just under 30%. Together, these top-two carriers, both RBOC-affiliated, controlled 61% of the US market. The top-four companies (Verizon, AT&T, Sprint, and T-Mobile) together controlled a whopping 89% share – even with Sprint's loss of 3% share from the prior year. The largest regional player, US Cellular, also lost share relative to its 2007 level. The rumored combination of T-Mobile and Sprint would further reduce the number of active wireless competitors serving US customers.

Profitability

It should come as no surprise that wireless profitability has been on the rise consistently during the 2000s as market concentration increased over the decade. Profit can be measured in many useful and interesting ways, although the data necessary to examine wireless profitability on, for example, a service-by-service basis is generally not available in the public realm. The FCC examines overall profitability as measured by EBITDA margin (earnings before interest, taxes, depreciation and amortization). While comparing year-over-year EBITDA data can be tricky (as accounting rules can cause fluctuations in earnings unrelated to actual profits), long term trends in EBITDA make the growth in profitability abundantly clear. From 2002 to 2009, Verizon Wireless increased its EBITDA margin from 39.5% to 46.3%. T-Mobile grew its margins from 9.1% in 2002 to 33.1% in 2009. AT&T Mobility

moved from 31.1% in 2005 (the earliest data point available from the FCC) to 38.3% in 2009. Upstart MetroPCS grew its EBITDA margins from 28.9% in 2005 to 30.5% in 2009.

MetroPCS's entry, as it turns out, serves to demonstrate the limited role small firms play in constraining the market power of the dominant incumbents. According to the *CMRS Report*, MetroPCS's market share (as of the end of 2008) was only 2.05%. The carrier has introduced several very aggressive pricing plans – for example, it currently offers a \$40 plan providing unlimited voice, texting and data, with the \$40 monthly charge *inclusive of taxes, surcharges and fees*. This price point is substantially below the corresponding unlimited voice/data/texting plans offered by Verizon, AT&T, and Sprint, which vary between \$99.99 and \$119.99 *plus taxes and fees*. Notably, the major carriers apparently have not felt compelled to match or otherwise respond to MetroPCS's pricing initiative, suggesting that they view the small, single-digit share loss to MetroPCS as having a much lower financial impact than an across-the-board price cut to match MetroPCS's \$40 price point. The growing profit levels coupled with the lack of corresponding price reductions on the part of the dominant incumbents demonstrates the ever-decreasing level of competition in the wireless marketplace as concentration and consolidation escalate.

Contract Terms: Two Year Contracts and Early Termination Fees

Landmark class action lawsuits were brought against Sprint, T-Mobile, AT&T and Verizon, in each instance alleging that flat rate Early Termination Fees ("ETFs"), assessed when a subscriber terminated a long-term contract prior to its fulfillment, constituted unlawful liquidated damages penalties. T-Mobile, AT&T and Verizon all settled these cases (while a California jury awarded plaintiffs \$299-million against Sprint) resulting in the carriers ending the practice of charging flat rate ETFs. The lawsuits did not address the fundamental anticompetitive nature of locking subscribers into long-term contracts that would likely be difficult or impossible to impose in a robustly competitive marketplace.

Despite this outcome, the carriers continue to lock subscribers into long term contracts and charge ETFs when the contract term is not fulfilled. The FCC notes that the current (post-settlement) ETF regime imposes a pro-rated charge that declines over the life of the subscriber's contract. Although this change of practice is undoubtedly a step in the right direction, analysis of the current ETFs, along with new increased ETFs for advanced devices, casts further doubt as to the level of competition actually present.

Both AT&T and Verizon now charge \$350 pro-rated ETFs for smartphones, a move that Verizon describes in a letter to the FCC as reflecting the higher costs of providing these more expensive devices at "attractive prices" as well as what Verizon characterizes as the added risks associated with broadband network build out. The specific linkage that Verizon seeks to draw as between ETFs and its overall broadband build-out are indirect at best.

First, so-called "handset subsidies," to the extent they actually exist for any specific wireless phone, turn out to be considerably smaller than the major wireless carriers claim as the basis for their ETFs, when properly viewed in terms of the carrier's out-of-pocket wholesale cost rather than its often-inflated "retail price." Moreover, much of the "subsidy" is recovered immediately via up-front "activation fees" and by the nominal purchase price collected at the point of sale. During the ETF litigation, ETI calculated the average

handset subsidy for 2006 at only \$14.33.

Second, any handset subsidies being offered are a part of the carrier's marketing plan to induce customers to subscribe to the wireless service and thus result in a stream of recurring revenue to the carrier. Evidence introduced in the ETF lawsuits demonstrated that the average revenue over the service life of a customer was many multiples of any up-front "subsidies," even when early terminations are included in such average revenue calculations. Firms in any number of industries have adopted a strategy of sacrificing profits on sales of a "platform" product in order to stimulate demand for an aftermarket product whose ongoing purchase results in a recurring revenue stream. Examples of such practices include razors (which create sales of blades), ink-jet printers (which create sales of proprietary ink cartridges), and Polaroid cameras (which created sales of Polaroid film). In none of these cases was the purchaser of the "platform" product required to make any specific commitment to a minimum purchase of the secondary product.

The FCC acknowledges that the ETF is "...probably the largest quantifiable cost to consumers who wish to switch service providers." Term contracts and termination penalties unquestionably increase switching costs for consumers, which makes them less available to rival wireless providers. The persistence of term contracts with termination penalties is itself evidence of a less-than-competitive market – particularly in light of the fact that the large established carriers continue to require contracts and impose penalties even though many smaller entrants, such as MetroPCS, do not.

All of this is not to suggest that there are no competitive forces acting in the wireless market. The FCC seems to correctly acknowledge that some areas have become more competitive, while competition elsewhere has diminished. But with concentration on the rise and additional consolidations in the offing, it may still be quite some time, if ever, until the Commission can truly declare victory in its ongoing efforts to foster competition in this key telecom sector.

For more information on this subject, please contact Colin B. Weir at cweir@econotech.com.

FCC denial of Qwest's Phoenix Forbearance Petition highlights new focus on carrier market power

Earlier this summer the FCC released what many hope is a precedent-setting Order denying a Qwest Petition for regulatory forbearance from most of the Commission's remaining Title II regulations in the Phoenix metropolitan statistical area (MSA). This was Qwest's second attempt at gaining full deregulation in Phoenix and for the second time it was unable to make a viable case for deregulation. More noteworthy than the Commission's rejection of what can most charitably be described as an over-aggressive deregulatory Petition was the FCC's analysis underlying the denial: the June 22, 2010 *Qwest Phoenix II Order* represents a dramatic departure from the competitive analyses the

FCC has been employing for the last decade. Earlier forbearance rulings had been premised upon a theoretical and factual foundation that "predicted" competitive growth, drawing upon anecdotal competitive evidence, rather than any formal quantitative analysis of the carrier's market power. In the *Qwest Phoenix II Order*, however, the FCC has now laid out and applied an antitrust type of "analytical framework" involving a comprehensive market power analysis with a strong emphasis upon market definition, market share, and other quantitative indicia of actual competition. This rigorous approach can be expected to form the basis for review of future ILEC Forbearance Petitions as well as for other regulatory reviews – most notably the FCC's ongoing Special Access investigation.

Shoring up prior Orders denying forbearance

In crafting the *Qwest Phoenix II Order*, the FCC was clearly mindful of the outstanding DC Circuit Court of Appeals remand of its earlier denials of Verizon's Forbearance Petitions for broad deregulation in six MSAs (Boston, Providence, Philadelphia, Pittsburgh, Baltimore and Norfolk/Virginia Beach) and Qwest's original Petition for Forbearance in four MSAs (including Phoenix as well as Minneapolis, Denver and Seattle). The Court had questioned why the FCC had not evaluated the impact of "potential competition" (the market disciplining effect that the threat of competitive entry would have upon a service provider) in the Verizon and Qwest MSAs (a criterion it had employed in approving earlier Forbearance Petitions in Omaha, Anchorage and Terry, Montana), and remanded the decisions back to the FCC on that narrow issue. In the *Qwest Phoenix II Order*, the FCC addresses the issue of potential competition head-on, finding that in order for "potential competition" to reduce an incumbent's market power the "potential" needs to have a realistic and probable basis.

Using a supply-side analysis of the ability of competitors to respond to Qwest throughout the Phoenix MSA, the FCC concluded that "potential competition" did not diminish Qwest's market power in the Phoenix MSA and that earlier FCC decisions that had included the impact of "potential competition" substituted "predictions" of future competition for a rigorous analysis of the "potential" for competition, noting that the *Qwest Phoenix II Order* corrects that error. It would be surprising if this same quantitative justification does not form the basis for analysis in the outstanding remand orders in response to the DC Circuit Court of Appeals.

Repudiation of the careless results-driven deregulatory decision-making of the past

In some of its earlier forbearance and other deregulatory orders, the FCC mixed and matched market evidence from the enterprise and residential, retail and wholesale markets (just as the carriers requesting the elimination of regulatory constraints had done in their filings), only nominally defining separate product markets. Using the analytical framework it now lays out, the Commission here separately examines each of the various product markets (enterprise and residential, retail and wholesale), and concludes that effective competition does not exist in any of them in Phoenix.

The FCC also openly criticizes some of its own earlier prediction-driven deregulatory decisions. In a discussion of the ILECs' failure to continue to provide competitors with wholesale inputs at fair and reasonable prices (after the Commission had forbore from requiring them to do so), the Commission now concedes that this result should

not have been surprising, noting that "assuming that Qwest is profit-maximizing, we would expect it to exploit its monopoly position as a wholesaler and charge supracompetitive rates, especially given that (absent regulation) Qwest may have the incentive to foreclose competitors from the market altogether."

Renewed recognition of the importance of wholesale markets for enterprise services

The FCC's analysis of the enterprise services product market placed particular emphasis upon competition at the wholesale level. Examination of the data filed by a variety of parties in the proceeding led to a finding that wholesale competition for the kinds of services utilized by enterprise (large business) customers is almost nonexistent. The finding of a lack of competitive alternatives at the wholesale level is of particular importance here because, in addition to its adoption of a quantitative analysis, the FCC re-embraces its earlier interpretation of the 1996 Federal Telecommunications Act as supporting the development of local competition through both facilities- and non-facilities-based entry.

To emphasize its findings that competitors rely upon Qwest's wholesale services to compete, the FCC quotes extensively from orders that pre-date the Powell and Martin FCCs, in which the FCC identified formidable entry barriers. The Commission reinforces its theoretical analysis with empirical findings regarding the status of competition, including the finding that even the largest CLECs rely upon ILEC last-mile facilities to connect to the vast majority of their enterprise customers; that ILECs have not continued to provide competitors with wholesale inputs at fair and reasonable prices; and that intermodal competitive services (such as fixed microwave for enterprise customers) have not emerged or are not available to near the level necessary to constrain the ILECs' market power.

Use of the Qwest Phoenix II Order "analytical framework" in ongoing and future FCC proceedings

In a concurrently issued *Public Notice*, the FCC has indicated its intention to apply the same "analytical framework" to other forbearance proceedings. Not specifically addressed is the range of ongoing and future proceedings in which the FCC is examining the status of competition and the consequences of its deregulatory policies of the past decade, such as its long-running Special Access Investigation (CC Docket No. 05-25). ETI's own Dr. Lee Selwyn, invited by the FCC to participate at an "economists workshop" on the appropriate "analytical framework" to use in evaluating the special access market on behalf of large enterprise customers, members of the Ad Hoc Telecommunications Users Committee, recommended that the *Qwest Phoenix* framework be directly applied to special access. (See article below.)

A wide range of findings with far reaching implications

Many of the *Qwest Phoenix II Order's* findings relative to market power and competition clearly have implications far wider than the Phoenix MSA. Of particular note, the FCC found that the expansion of facilities by cable companies to mass market customers is not predictive of new entry by other competitors that lack cable's existing infrastructure platform, thus supporting a conclusion that a "duopoly" market structure is likely for many local telecom markets. Further, the FCC also found that "the move

from monopoly to duopoly is not alone necessarily sufficient to justify forbearance" and "economic theory holds that firms operating in a market with two or a few firms (i.e., an oligopoly) are likely to recognize their mutual interdependence and, unless certain conditions are met, in many cases may engage in strategic behavior, resulting in prices above competitive levels." It would seem that the FCC now understands that there is indeed a continued role for regulation.

For more information on this subject, please contact Susan M. Gately at sgately@econotech.com.

ETI urges FCC to extend its use of quantitative market-power based analysis to the special access market at FCC economists workshop

More than a decade after introducing "pricing flexibility" into the ILECs' special access market, the FCC appears to have re-engaged in its investigation of the impact that this deregulatory policy has had over this period. In support of this effort, the FCC is currently in the midst of an investigation of the proper "Analytical Framework" for evaluating the functioning of the special access market as part of its long-running Investigation (CC Docket No. 05-25) into the effectiveness (or, as many believe, the harmfulness) of its deregulatory initiatives. Dr. Lee Selwyn, ETI's president, was asked to participate in an "economists workshop" on this issue, which was held at the FCC on July 19. Dr. Selwyn's participation was on behalf of some of the country's largest enterprise customers that comprise the Ad Hoc Telecommunications Users Committee. In keeping with positions long advocated by ETI in a number of expert submissions and white papers presented at the FCC, at the Canadian Radio-Television and Telecommunications Commission, and at many state public utility regulatory agencies, Dr. Selwyn urged the FCC to forego its past reliance upon "predictive judgments" and often superficial anecdotal evidence of isolated instances of competitive entry in favor of a formal antitrust type of quantitative analysis of the incumbent carriers' market power with respect to special access services. Dr. Selwyn noted that this was precisely what the Commission had done in its recent action rejecting Qwest's Phoenix MSA forbearance petition (see companion article above), and stressed the importance of applying this same approach to special access.

Dr. Selwyn also explained why the Commission could not rely upon its use of price cap regulation as a backstop means for limiting pricing excesses in pricing flexibility areas. He noted that most of the protections against excessive ILEC pricing and profits that had been engineered into the FCC's original ILEC price cap plan – adopted back in 1990 – have long since been abandoned by the Commission. These measures had included periodic reviews intended to evaluate both the ongoing workings of price caps as well as a determination as to whether its specific price adjustment elements had been correctly specified. In the original price cap plan, realized rates of return were relied upon as indicia of a properly functioning regulatory system, and excessive earnings were subject to "sharing" with consumers (to assure that any efficiency gains realized under incentive regulation would be flowed through in lower prices) and, if earnings exceeded a specified upper bound, downward adjustments

in rates would be automatically implemented. With each and all of these features now gone, what remains of price caps is incapable of assuring just and reasonable rate levels without additional regulatory involvement.

Dr. Selwyn defended the use of rate of return analysis in evaluating price levels against RBOC critiques and FCC uncertainty – citing AT&T's own use of the identical type of earnings and regulatory accounting data in its recent complaint regarding NECA switched access price levels. While maintaining his long held view as to the usefulness of regulatory accounting and rate of return data as a valid basis for identifying the presence of excessive ILEC prices, Dr. Selwyn also supported the use of alternate benchmarks, such as the use of UNE prices or TELRIC-based costs in place of one based upon realized earnings.

Dr. Selwyn also explained that the collocation-based triggers that form the basis of the FCC's pricing flexibility rules were flawed from the outset and never offered any useful insight as to the actual level of competition extant in the special access market – particularly the market for last mile channel terminations. Introducing the only empirical evidence to make its way into the debate, Dr. Selwyn presented data showing that even if, *arguendo*, the triggers were useful at the time they were implemented, the FCC rules did not provide any mechanism for reviewing and reversing pricing flexibility if the trigger status changed. Citing Verizon data from a 2001 New Jersey regulatory proceeding, Dr. Selwyn demonstrated that in the year following the FCC's initial grant of pricing flexibility to Verizon in certain New Jersey MSAs, the number of collocations declined by more than 60%, and further noted that some portion of the remaining 40% likely belonged to MCI before it was absorbed into Verizon in 2006.

The workshop was conducted as a facilitated debate led by Dr. Jonathan Baker, the FCC's Chief Economist, with questions also asked by Dr. Donald Stockdale, Deputy Bureau Chief/Chief Economist of the FCC's Wireline Competition Bureau. Two of the four economists invited to participate in the workshop represented enterprise customer and competitive carrier interests (Dr. Selwyn and Dr. Bridger Mitchell of CRA International). The other two supported RBOC positions relating to Special Access pricing (Dennis Carlton of Compass Lexecon and William Taylor of NERA).

A video link to the FCC debate will be available on the ETI website as soon as the FCC makes the feed available.

For more information on this subject, please contact Dr. Lee Selwyn directly at lswyn@econotech.com.

© 2010 Economics and Technology, Inc. All rights reserved.

About ETI. Founded in 1972, Economics and Technology, Inc. is a leading research and consulting firm specializing in telecommunications regulation and policy, litigation support, taxation, service procurement, and negotiation. ETI serves a wide range of telecom industry stakeholders in the US and abroad, including telecommunications carriers, attorneys and their clients, consumer advocates, state and local governments, regulatory agencies, and large corporate, institutional and government purchasers of telecom services.

ATTACHMENT B

**THE ROLE OF REGULATION IN A
COMPETITIVE TELECOM ENVIRONMENT:**

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

Lee L. Selwyn
Susan M. Gately
Helen E. Golding
Colin B. Weir

prepared for

MTS Allstream, Inc.

March 2009



ECONOMICS AND TECHNOLOGY, INC.

ONE WASHINGTON MALL, 15TH FLOOR • BOSTON, MASSACHUSETTS 02108 • (617)-598-2200

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.

Table of Contents

THE ROLE OF REGULATION IN A COMPETITIVE TELECOM ENVIRONMENT

PREFACE	i
EXECUTIVE SUMMARY	ii
1 THE “LAST MILE” TELECOMMUNICATIONS BOTTLENECK	1
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.	1
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.	3
Relevance of US broadband analysis to next generation broadband in Canada.	4
The critical role of next-generation broadband telecommunications in the national economy.	5
Lack of competition confirmed by deployment, price evidence.	7
2 US TELECOM POLICY: LESSONS FOR SUCCESS AND FOR FAILURE	17
The assured availability of competitor access to unbundled ILEC “last mile” services at regulated, cost-based wholesale rates as mandated by the US <i>Telecommunications Act of 1996</i> stimulated massive innovation and investment by entrants and incumbents alike.	17
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.	18

3	THE FALLACY OF “DEREGULATION BRINGS INVESTMENT”	21
	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.	21
	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.	22
	Analysis of RBOC-specific investment data – 1996 to 2007	24
	A contraction in competitive capital investment levels followed the elimination of cost-based wholesale rates.	26
	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.	28
4	CONCLUSION	31

Tables

1	Evidence Demonstrates That Even in Major US Metropolitan Areas, Service From a Provider Other Than the ILEC is Rarely Available	8
2	US ILECs Face No CLEC Facilities-Based Competition at Any of the Buildings in Most of Their Local Serving Offices	9
3	Evidence Demonstrates That Even in the Wire Centers With the Highest CLEC Penetration, Only a Small Fraction of Buildings Have CLEC Service	10
4	Percentage of US Commercial Buildings with Demand at or above DS-1 Where a Fiber-Based Competitive Alternative is Available (July 2006)	11
5	Changes in Special Access Prices for Like Services Since the Onset of Pricing Flexibility (Highest Density Zones)	15
6	Changes in US CLEC Market Capitalization (1999-2006)	30

Figures

The Role of Regulation in a Competitive Telecom Environment

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	12
2	Qwest's prices for DS-1 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	13
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.	23
4.	Positive net investment in RBOC plant became negative after 2001, when the RBOCs began <i>disinvesting</i> in their core ILEC networks.	24
5	US ILEC and Competitive TSP capital expenditures, 1996-2007.	27
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.	29

1

THE “LAST MILE” TELECOMMUNICATIONS BOTTLENECK

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 broadband¹ 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” services² – 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.

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.

The “Last Mile” Telecommunications Bottleneck

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 profits⁵ 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 through 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

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).

The “Last Mile” Telecommunications Bottleneck

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

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.

Institute (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 “Last Mile” Telecommunications Bottleneck

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 <i>ex parte</i> 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

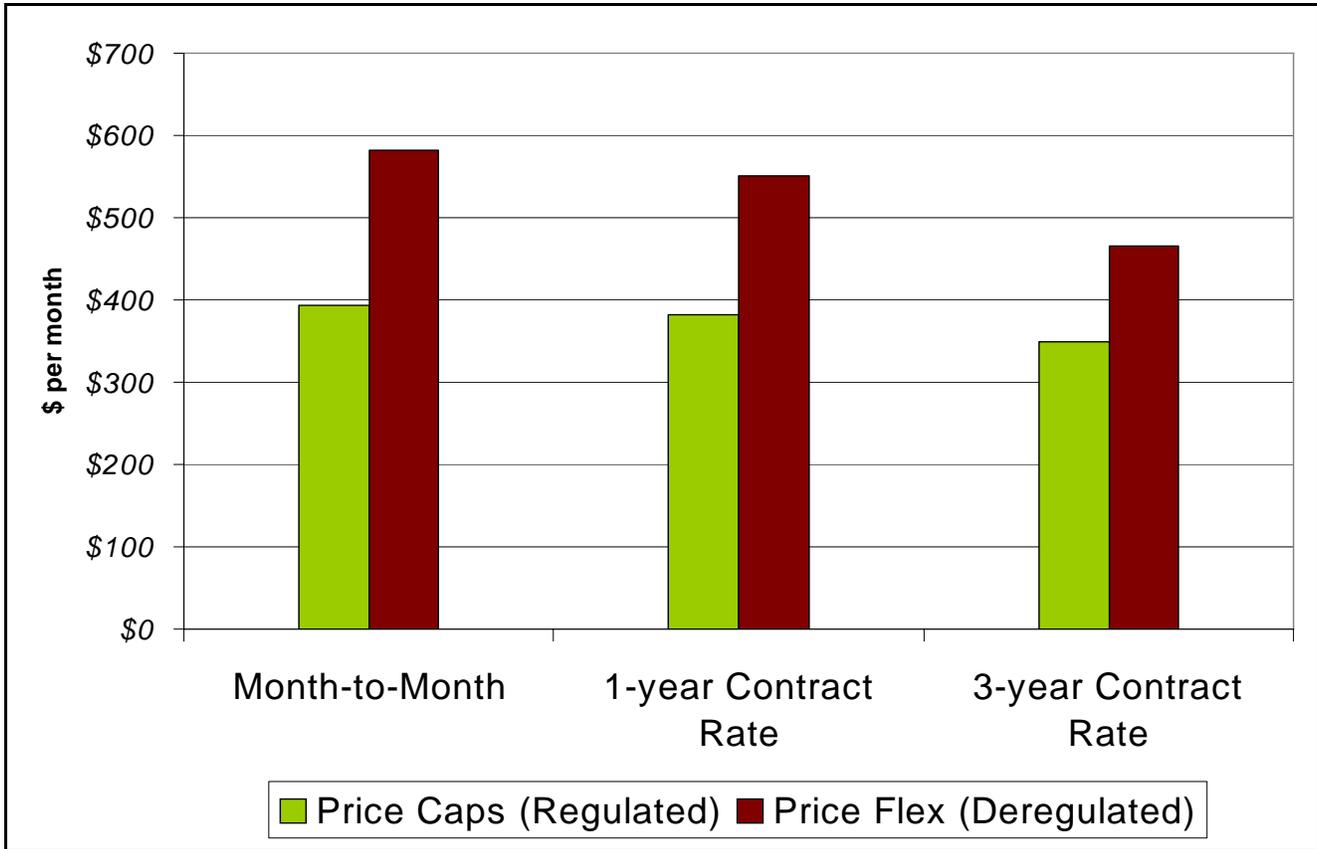


Figure 2. Qwest’s prices for DS1 last mile special access facilities are higher in areas that have been deregulated than in areas that remain subject to the FCC’s price cap rules.

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)

Special Access Component Prices	Density Zone 1	
	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	▼ ^B \$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 “Last Mile” Telecommunications Bottleneck

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.

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 relieve them of various regulatory burdens and earnings limitations. Most notable were commitments – some dating as far back as 1992²⁷ – 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.

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 bargaining, 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-based 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 deregulatory 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.

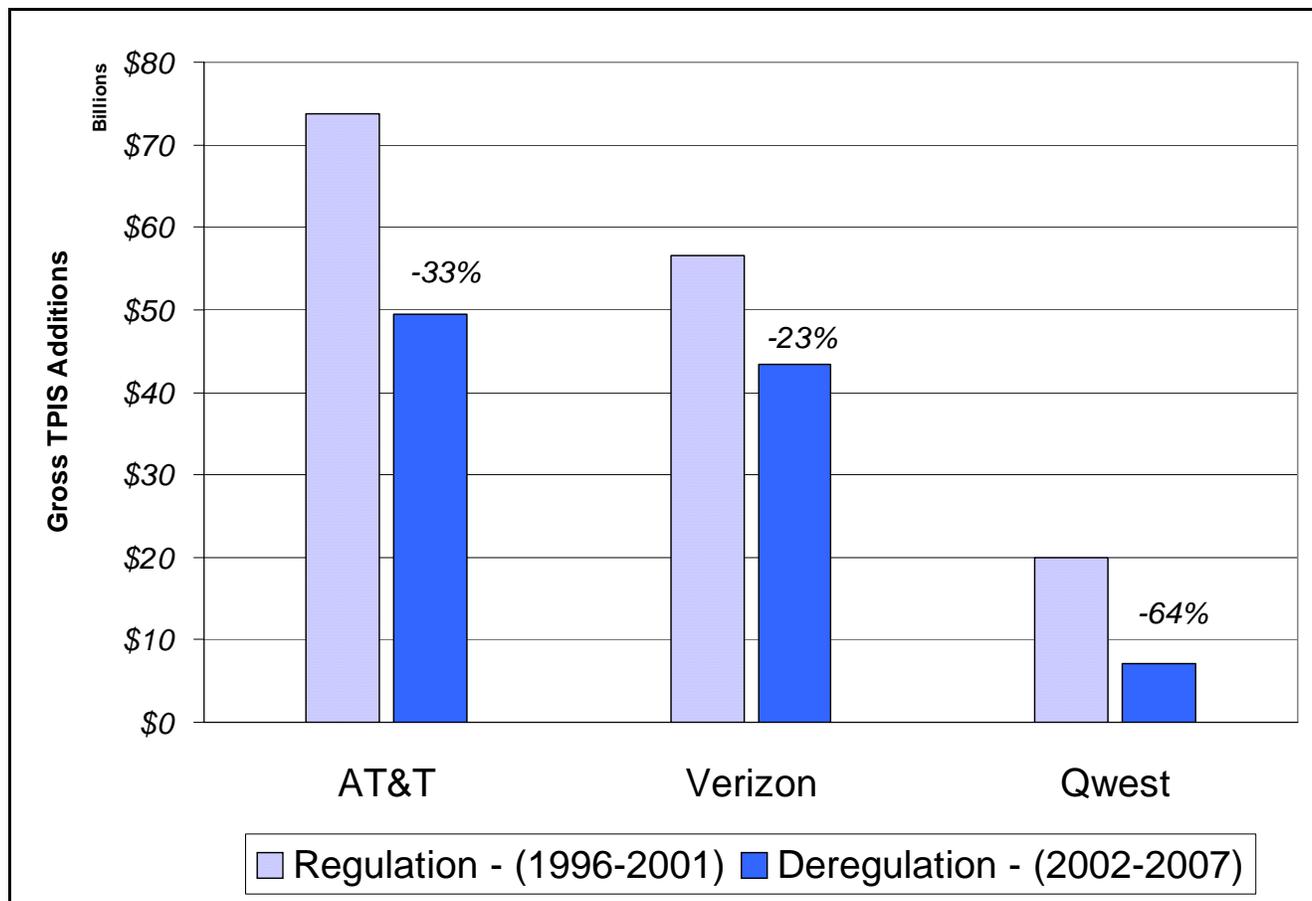


Figure 3. US Regional Bell ILEC capital expenditures (Gross Plant Additions) were greater during the first six years following TA96, while wholesale rate regulation remained in effect, than in the 2002-2007 period, when many regulatory constraints and mandates regarding ILEC wholesale services were relaxed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

The Fallacy that “Deregulation Brings Investment”

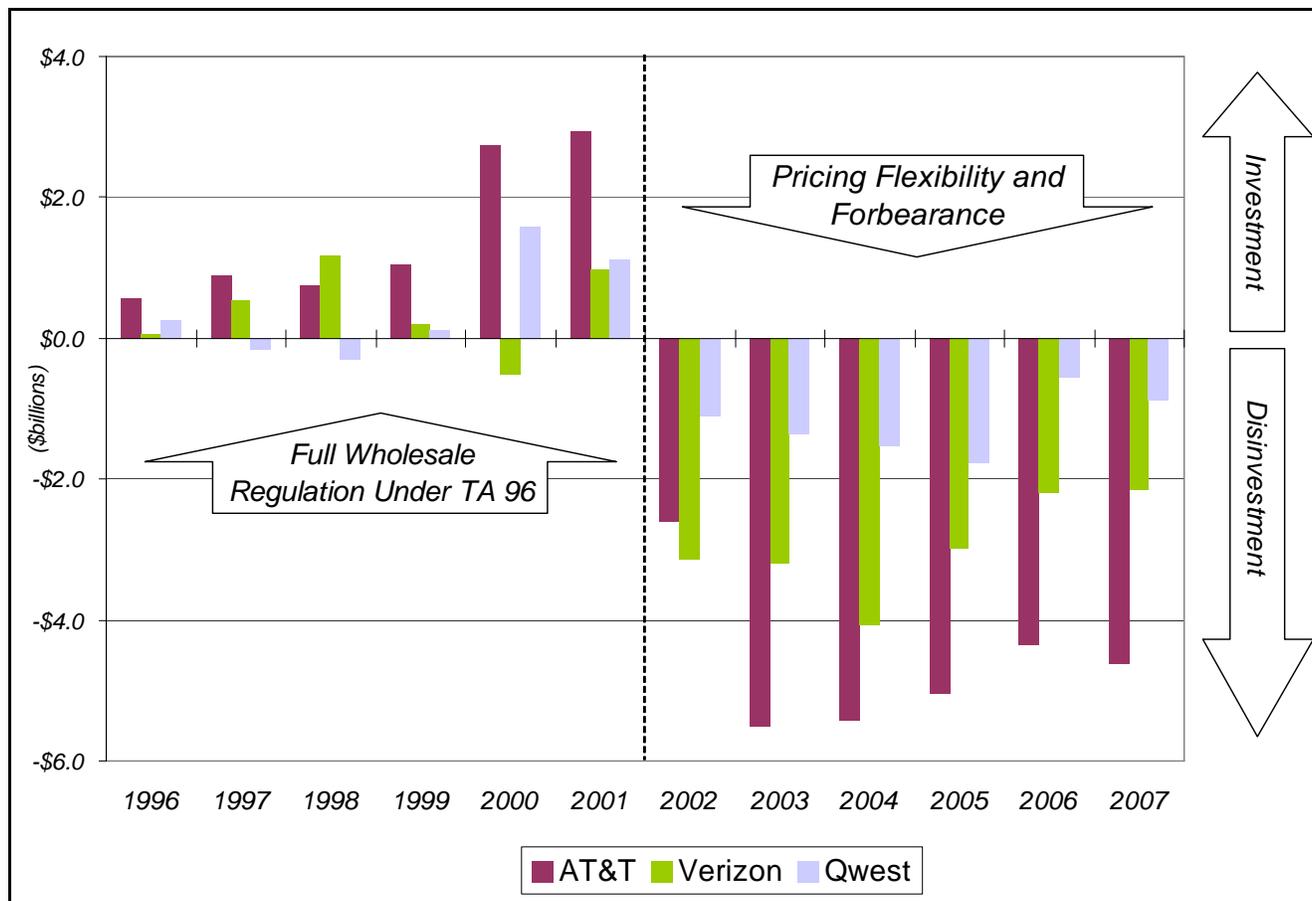


Figure 4. Positive Net Investment in RBOC plant became negative after 2001, when the RBOCs began *disinvesting* in their core ILEC networks.

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 2001 while 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 foray 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.

The Fallacy that “Deregulation Brings Investment”

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.

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, Ameritech, 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

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).

The Fallacy that “Deregulation Brings Investment”

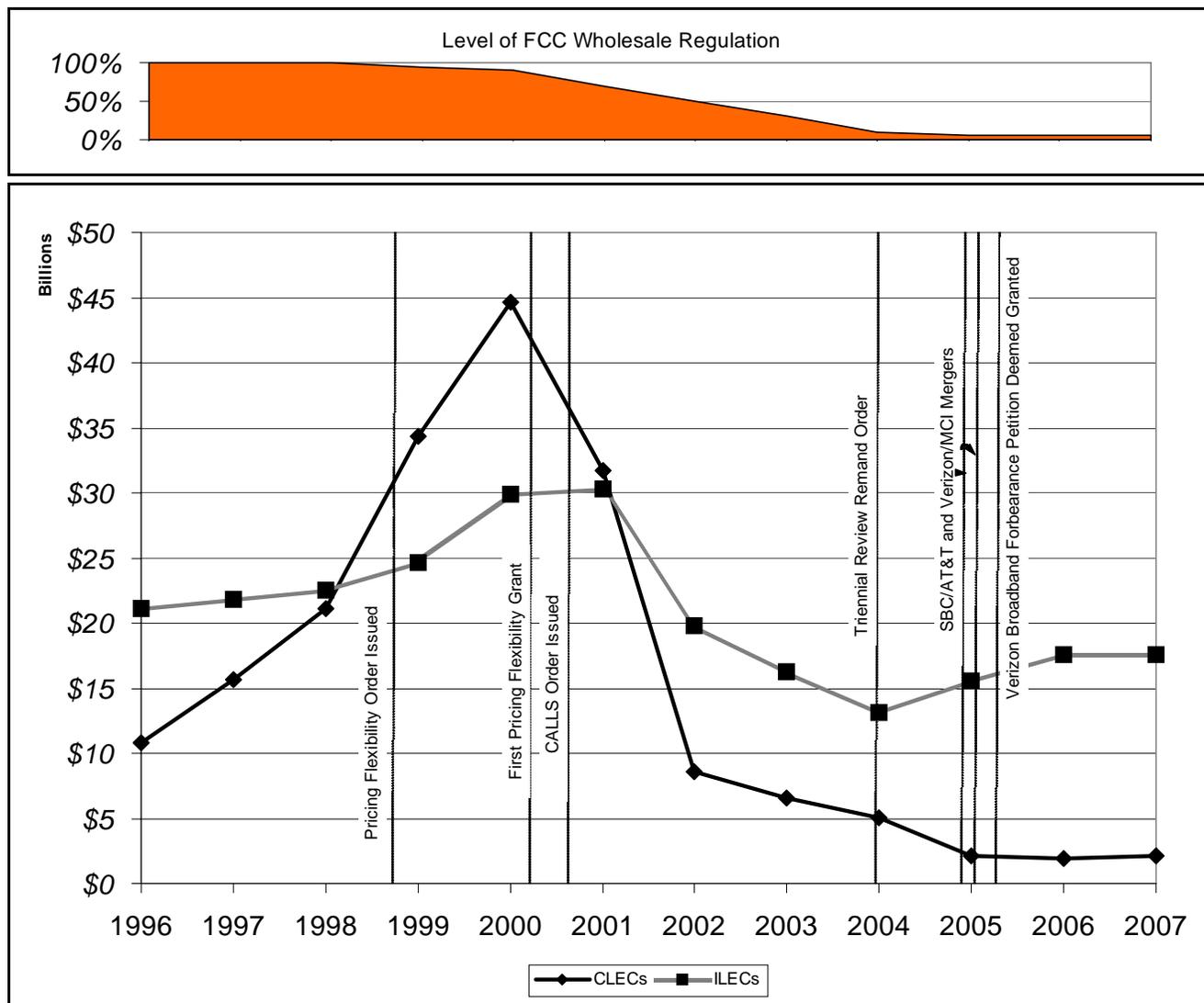


Figure 5. US ILEC and Competitive TSP Capital Expenditures, 1996-2007.

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 capital expenditures for each category relative to their respective 2001 levels.

The conclusion is particularly compelling. Under the US FCC deregulatory approach, capital 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 capital 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 compelling: Regulatory policies that work to assure competitor access to the incumbent’s network at reasonable,

The Fallacy that “Deregulation Brings Investment”

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 incumbents, is simply not borne out by factual evidence, and is little more than speculative – and highly inaccurate – rhetoric.

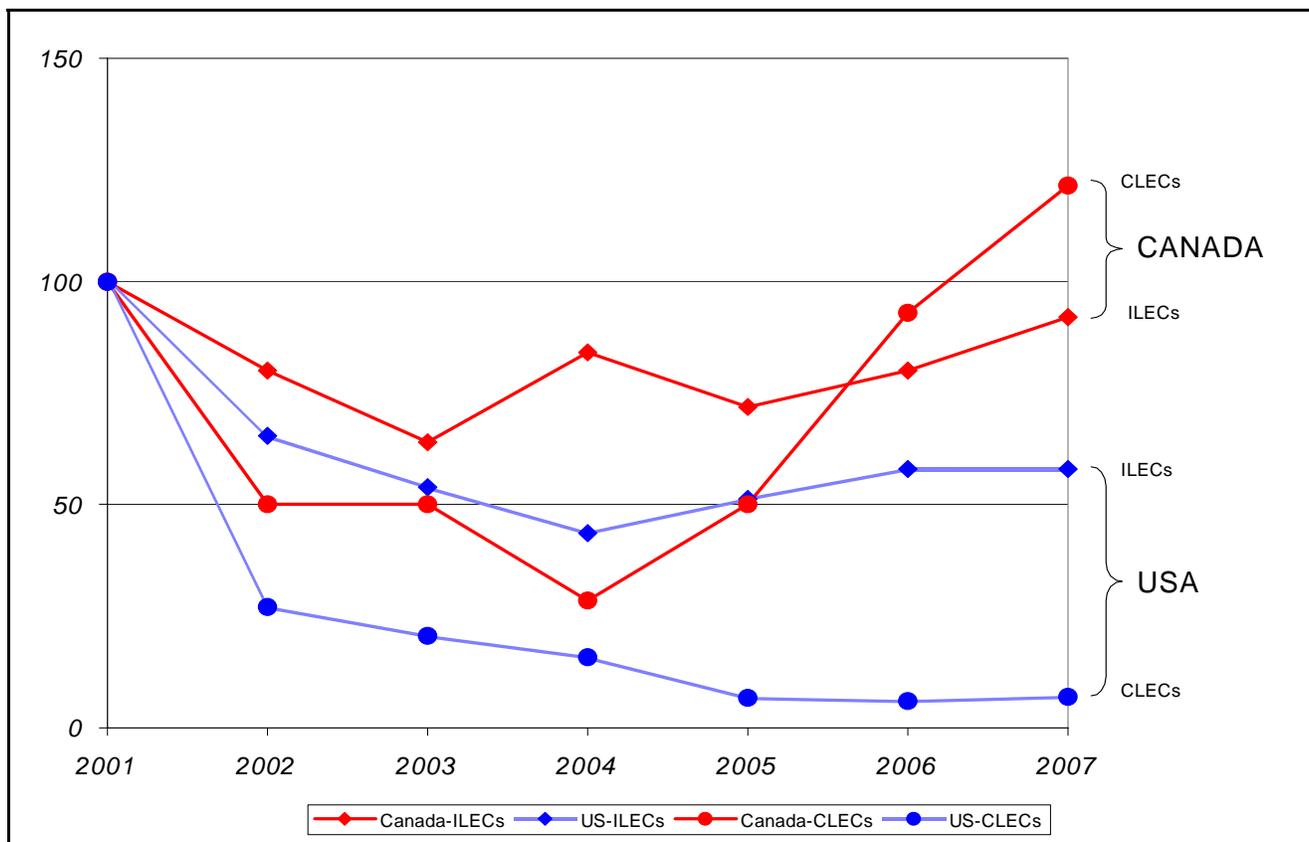


Figure 6. Canadian ILECs and CLECs increased their capital spending between 2001 and 2007 under a regime in which wholesale ILEC last-mile services remained subject to rate regulation, whereas in the US, ILECs and CLECs scaled back their investment outlays once regulation of wholesale services had been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

The Fallacy that “Deregulation Brings Investment”

Table 6							
Changes In US CLEC Market Capitalization (1999-2006)							
	September 30, 1999			July 2006			% change from 9/30/99 to 2006 ¹
		In Millions			In Millions		
Company	Stock Price	Shares outstanding	Market Cap	Stock Price	Shares outstanding	Market Cap	
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.

ECONOMICS AND TECHNOLOGY, INC.

**BIBLIOGRAPHY OF PUBLICATIONS AND REPORTS
ON CANADIAN TELECOMMUNICATIONS POLICY ISSUES**

The AWS Spectrum Auction: A One-Time Opportunity to Introduce Real Competition for Wireless Services in Canada

reply report prepared for MTS Allstream Inc. by Lee L. Selwyn, Helen E. Golding and Colin B. Weir, 27 June 2007, Appendix A to Reply Comments of MTS Allstream Inc., 25 May 2007, in Industry Canada, Consultation on a Framework to Auction Spectrum in the 2 GHz Range Including Advanced Wireless Services, Canada Gazette, Part I, 16 February 2007, DGTP-002-07

Comparison of Wireless Service Price Levels in the US and Canada

prepared for MTS Allstream Inc., by Lee L. Selwyn and Colin B. Weir, Appendix B to Comments of MTS Allstream Inc., 25 May 2007, in Industry Canada, Consultation on a Framework to Auction Spectrum in the 2 GHz Range Including Advanced Wireless Services, Canada Gazette, Part I, 16 February 2007, DGTP-002-07

Preventing Abuse of Dominance in Canadian Telecom Markets

prepared for MTS Allstream Inc., submitted to the Competition Bureau as part of the MTS Allstream Inc. response to the Competition Bureau's 26 September 2006 *Draft Information Bulletin on the Abuse of Dominance Provisions as Applied to the Telecommunications Industry*, January 2007.

Avoiding the Missteps Made South of the Border: Learning from the US Experience in Competitive Telecom Policy

prepared for MTS Allstream Inc. by Lee L. Selwyn and Helen E. Golding, Appendix A to 16 August 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 15 March 2007, in response to Telecom Public Notice CRTC 2006-14. August 2006.

Establishing Effective Local Exchange Competition: A Recommended Approach Based Upon an Analysis of the United States Experience

prepared for the Canadian Cable Television Association, submitted to the Canadian Radio-Television and Telecommunications Commission, *Local Interconnection and Network Component*, Public Notice CRTC 95-96, 26 January 1996.

Cable Television Competition in Canada: Achieving Economic Efficiency and Other Policy Goals for Canada's Information Highway

prepared for the Canadian Cable Television Association, submitted to the Canadian Radio-Television and Telecommunications Commission, *Information Highway*, Public Notice 1994-130, 16 January 1995.

Pricing and Policy Issues Affecting Local/Access Service in the U.S. Telecommunications Industry

prepared for the Canadian Radio-Television and Telecommunications Commission, December 1992.

ECONOMICS AND TECHNOLOGY, INC.

A Study of National Telephone Contribution Mechanisms - Final Report

prepared for the Canadian Radio-Television and Telecommunications Commission, 29 March 1991.

A Study of Rate of Return Regulation and Alternatives: An Examination of Applicability to Regulation of Telephone Companies by the Canadian Radio-television and Telecommunications Commission

prepared for the Canadian Radio-Television and Telecommunications Commission, 31 March 1989.

Competition in the U.S. Long Distance Telephone Industry: A Study of the Impacts on Telecommunications Carrier Operations

prepared for the Canadian Radio-Television and Telecommunications Commission, 17 March 1988.

The Costs of Local Measured Service Exceed its Benefits: a Report on Recent U.S. Experience

presented at a conference sponsored by Canadian Radio-Television and Telecommunications Commission and the Centre for the Study of Regulated Industries, McGill University, Montreal, Québec, 2-4 May 1984.

**EXPERT TESTIMONY SUBMISSIONS IN
CANADIAN REGULATORY PROCEEDINGS**

Telecom Public Notice CRTC 2006-14, Review of Regulatory Framework for Wholesale Services and Definition of Essential Service, on behalf of MTS Allstream Inc. and Primus Telecommunications Canada Incorporated., filed 15 March 2007, Supplemental Evidence filed 5 July 2007. Cross-examination 26-30 October 2007.

Witnesses: Lee L. Selwyn, Helen E. Golding

Telecom Public Notice CRTC 96-26, Forbearance from Regulation of Toll Services Provided by Dominant Carriers, on behalf of AT&T Canada Long Distance Services Company, Call-Net Enterprises Inc., ACC TelEnterprises Ltd., fONOROLA Inc., Westel Telecommunications Ltd., filed 26 November 1996.

Witnesses: Lee L. Selwyn, Helen E. Golding

Price Cap Regulation and Related Issues, Docket No. CRTC 96-8, on behalf of the Canadian Cable Television Association, filed 23 August 1996

Witness: Lee L. Selwyn

AGT Limited General Rate Application 1996/97, AGTRATE on behalf of the Canadian Cable Television Association, filed 11 July 1996.

Witness: Lee L. Selwyn

Order in Council 1994-1689, Public Notice CRTC 1994-130 (Information Highway), on behalf of Canadian Cable Television Association, filed January 16, 1995, cross-examination 10 March 1995.

Witness: Lee L. Selwyn

Telecom Public Notice CRTC 94-52, Implementation of Regulatory Framework - Split Rate Base, 1995 Contribution Charges, Broadband Initiatives and Related Matter: Telecom Public Notice CRTC 94-56, Implementation of Regulatory Framework - Senior Broadband Initiatives and Canada U.S. Cost Comparisons; Telecom Public Notice CRTC 94-58, Implementation of Regulatory Framework - Issues Related to Manitoba Telephone System and Reconsideration of Rate Rebalancing, on behalf of Unitel, Expert Report filed 31 January 1995

Witness: Lee L. Selwyn

Manitoba Telephone System 1991/1992 General Rate Application, Manitoba Public Utilities Board, on behalf of the Manitoba Public Utilities Board Staff, Direct Testimony filed 28 March 1991.

Witness: Lee L. Selwyn

Considerations and Alternatives for Adapting Price Cap Regulation to Gas Metropolitan, Inc., Province de Québec Régie Du Gaz Naturel, Docket No. R-3173-89, on behalf of Industrial Gas Users Association, Expert Report filed 28 February 1991.

Witness: Lee L. Selwyn

CRTC "Cost Enquiry" proceeding, on behalf of CNCP Telecommunications, filed 19 March 1982.

Witness: Lee L. Selwyn

ATTACHMENT C



REGULATION, INVESTMENT AND JOBS

HOW REGULATION OF WHOLESALE MARKETS CAN STIMULATE PRIVATE SECTOR BROADBAND INVESTMENT AND CREATE JOBS

Susan M. Gately
Helen E. Golding
Lee L. Selwyn
Colin B. Weir

February, 2010



ECONOMICS AND TECHNOLOGY, INC.

ONE WASHINGTON MALL, 15TH FLOOR • BOSTON, MASSACHUSETTS 02108 • (617)-598-2200

At a time when the FCC and Congress are pulling out all the stops to promote investment in broadband, including providing billions of taxpayer dollars for broadband deployment, the FCC has the opportunity to advance its broadband agenda by revitalizing the telecommunications industry's economic engine -- *competition*. The RBOCs have long claimed that eliminating regulation and wholesaling requirements will incent investment by both ILECs and CLECs but the evidence to date supports and opposite conclusion. Decreased regulation has not yielded increased investments by ILECs or CLECs. By returning to policies that ensured that ILEC wholesale access facilities are ubiquitously available and fairly priced, the FCC has the opportunity to set in motion a new era of innovation, investment and job growth in the telecommunications industry. In this paper, we quantify the significant economic progress that we believe can be attained by restoring a competitively balanced regulatory regime, including stimulation of investment in high speed broadband infrastructure, industry-wide job creation, and greater productivity and employment across all sectors of the US economy.

Throughout this paper when we speak of returning to regulation we are not speaking about a return to the traditional rate of return- based regulation of the last century, but rather to broad regulations designed to ensure the most efficient use of the nation's existing and future network infrastructure. Using our construct, regulation will lead to increased competition and increased competition will lead to more investment and more jobs.

In a paper published last spring, *The Role of Regulation in a Competitive Environment*, we demonstrated that the "competition-friendly" regulatory policies in effect during the five years immediately following enactment of the *Telecommunications Act of 1996* spurred incumbents and competitors alike to invest or to expand their investments in telecommunications facilities. During that time, comprehensive unbundling requirements of the new Sections 251 and 252 of the 1996 *Act* along with relatively strict enforcement of the rate-constraining mandates of Sections 201 and 202 of the *Communications Act of 1934* ensured that competitors could purchase local transmission facilities as either UNEs or special access at relatively low and nondiscriminatory prices. The availability of reasonably priced local transmission facilities regulated in this manner enabled competitors to serve broad segments of the telecommunications market nationwide. We also showed that with the subsequent shift to a "competition unfriendly" regulatory regime – when the FCC dismantled many core protections that had been instituted so as to assure the availability and economic pricing of wholesale inputs – conditions became so unfavorable to investment by competitive carriers that entrants were compelled to dramatically scale back their capital spending and, in many cases, to withdraw from the market altogether.

Facing only limited remnants of the post 1996 Act competition, the ILECs' incentives to expand their own capital expenditures was diminished, and their investment outlays declined as well. Thus, while the combined net book value of telecom plant for AT&T, Qwest, and Verizon rose from \$142-billion in 1996 to \$155-billion in 2001, by 2007 it had dropped to only \$101-billion.

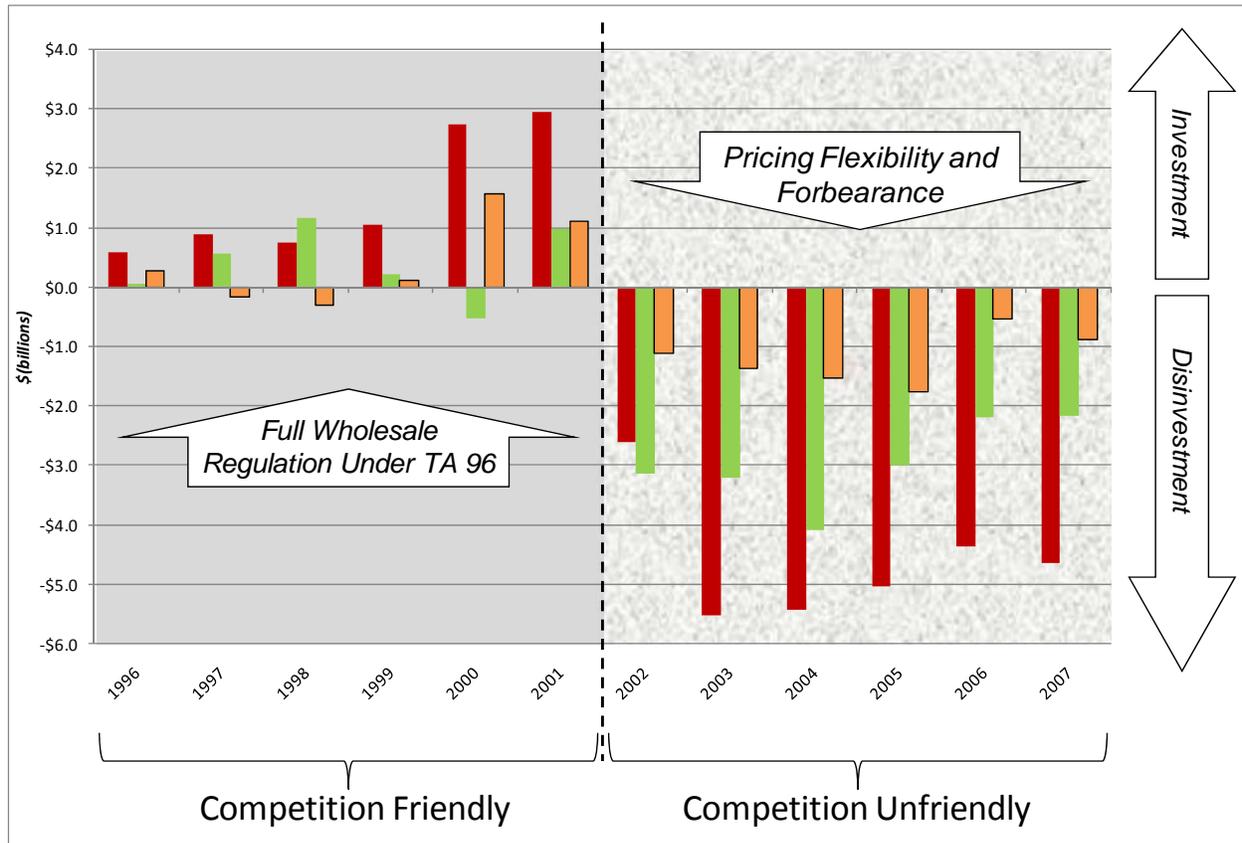


Figure ExecSum 1. RBOC net capital investments – 1996 to 2007 demonstrating that deregulation resulted in “disinvestment” rather than investment.

These same trends are also reflected in telecommunications sector employment. Telecom sector jobs grew steadily between 1996 and 2000. Although some employment losses in 2001-2002 could be attributed to general economic factors (in particular, the collapse of the “tech bubble”), jobs in the telecom sector failed to rebound even as conditions in the general economy improved. With “competition unfriendly” regulatory policies in place, the telecommunications sector has experienced steady and persistent job losses – a drop of more than 400,000 jobs, including the loss of 140,000 jobs at the regional Bell operating companies (RBOCs), between 2001 and 2007. The only segment of the telecommunications industry where employment increased was wireless where, during the relevant period, there had been four or more competitors in virtually every geographic market.

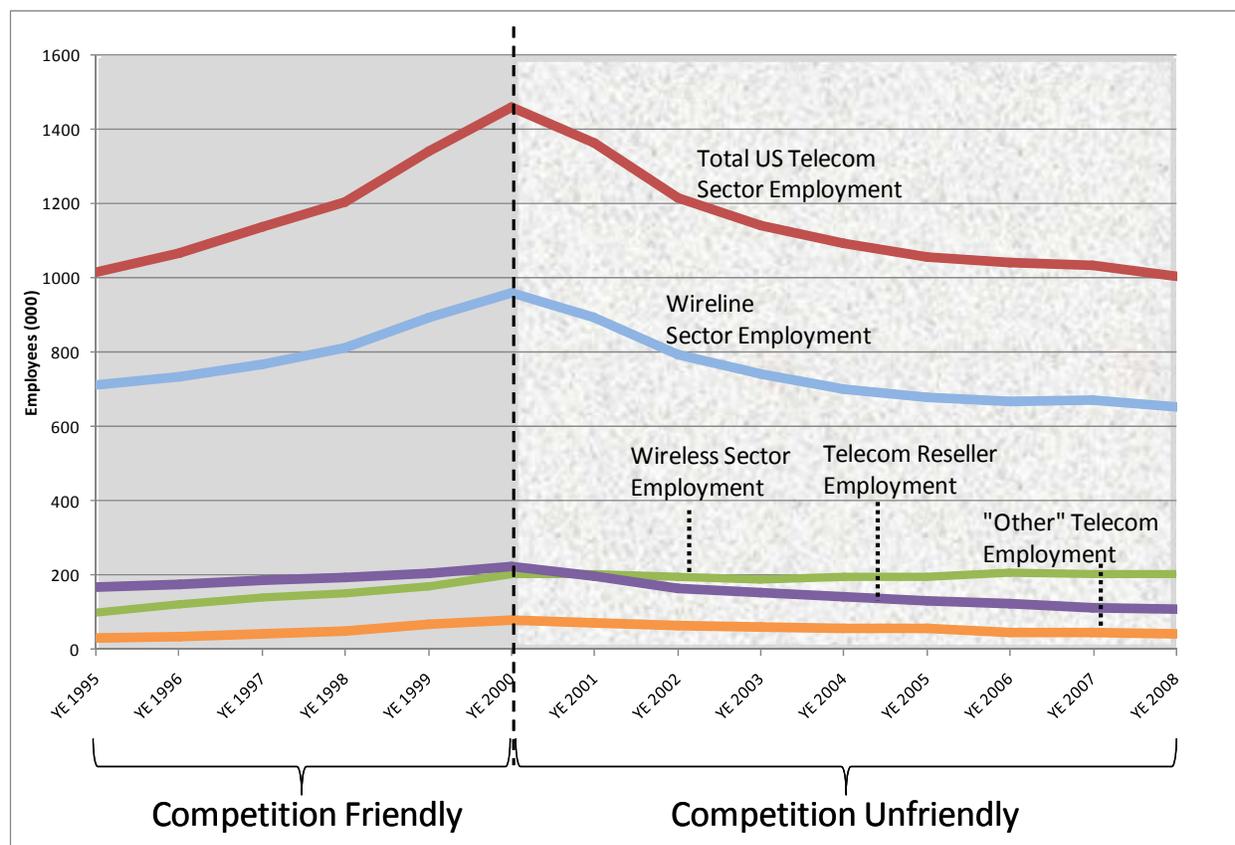


Figure ExecSum 2. Comparison of job changes overall in the US Telecom Sector to changes in the Wireline, Wireless, Reseller and “Other” telecom subsectors: 1995 – 2008.

Today’s small and medium-sized business customers are eager for innovative, attractively priced services that permit them to take advantage of the latest voice and data applications over broadband platforms. In order to offer these services competitively, CLECs and their investors need to know that CLECs can purchase the particular high-capacity broadband access services demanded by business customers – including facilities that they can use efficiently to offer Ethernet and packetized data services – at rates that afford them a fair opportunity to compete with the incumbents at the retail level. But the existing regulatory regime operates to effectively foreclose competitor access to many of the underlying wholesale services required to effectively compete with the incumbents for retail Ethernet and packetized data services.

In this paper, we chart both the significant economic losses that have occurred since the FCC phased-out its “competition-friendly” regulatory structure and the significant economic gains in terms of investment and employment that we believe will be realized by restoring a

competition-friendly regulatory regime. These potential gains from a change in regulatory structure fall into several major categories:

- ***Stimulation of investment in high speed broadband infrastructure.*** Particularly infrastructure to serve business customer locations outside of the residential neighborhoods that have been the primary focus of ILEC and cableco investment. Looking out five years, we forecast year-over-year investment growth and cumulative investment dollars under three assumption sets of varying optimism and conservatism. With reimposition of effective wholesale regulation, we project that the cumulative investment by ILECs and CLECs will increase between \$20-billion (under the most conservative assumptions) and \$60-billion (under what we believe to be the most realistic scenario) by 2014, compared to the level of investment that can be expected to occur absent significant regulatory reform.
- ***Industry-wide job creation.*** The economic expansion and additional competition resulting from restoring pro-competitive regulation for wholesale broadband services should lead to a large-scale growth in employment for ILECs and for CLECs, reversing the persistent job losses that occurred between 2001 and the present. As with our investment analysis, we forecast year-over-year job additions and cumulative job growth over a five-year period using three assumption sets. Even applying our most conservative assumptions, we forecast that there will be 135,000 more telecom sector jobs by 2014 if the FCC restores effective regulation to broadband wholesale services than if it accedes to a continuation of the current deregulatory regime. Under what we believe to be a more realistic assumption set, additional jobs in that sector over the same period could exceed 450,000.
- ***Stimulation of economy-wide economic growth and job creation.*** The adverse economic effects of stifling competition for the broad range of retail services that depend upon reasonably priced access to ILEC broadband network elements and special access services are not confined to the telecom industry itself. Conversely, the lower prices and innovative broadband offerings stemming from a more competitive telecom sector can be expected to flow through to the general economy, resulting in greater productivity and increased employment across all economic sectors. The inefficiency in the general economy as a result of special access overpricing has been compounding for close to a decade. Building off of well-regarded economic modeling tools used by AT&T itself in the past we estimate that through 2009 forgone GDP growth has been in the range of \$66-billion, and that the general economy (excluding telecom) could have supported 234,000 more jobs had the economic benefits of competitive special access pricing been flowed to businesses economywide.

Restoring access to reasonably priced ILEC wholesale broadband facilities should stimulate private sector broadband investment going forward, expanding telecommunications

Regulation, Investment and Jobs

sector employment, and generating widespread gains across the entire US economy. At a time when both economic growth and the availability of high-quality, affordable broadband services are compelling national priorities, the FCC has an important opportunity to advance both goals with the same regulatory reforms.

TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	i
COMPETITOR ACCESS TO WHOLE-SALE LAST MILE FACILITIES CREATED TELECOM INVESTMENT AND JOBS.....	1
Recognizing the linkage between strong wholesale regulation and carrier willingness to invest in network facilities and to create jobs.....	4
Limitations on wholesale use of ILEC facilities was accompanied by a reduction in overall investment levels.....	6
Empirical evidence confirms that the removal of regulatory ‘costs’ did not encourage ILECs or CLECs to invest.	12
Elimination of wholesale requirements was followed by a reduction in jobs in the telecom sector.....	15
DRIVING PRIVATE SECTOR TELECOM INVESTMENT AND JOB GROWTH.....	22
Reasonable Pricing of ILEC Wholesale facilities should stimulate private sector broadband Investment, create telecom sector jobs, and create broad economic benefit for the US.....	22
Spurring substantial high-speed broadband investment and creating new jobs throughout the telecom industry.....	24
Curing the lethargy in broadband build-out to businesses.....	25
Almost a half-million new telecom sector jobs in the next five years.....	28
Public Policy Changes Will Also Generate Economy-Wide Impacts.	32
CONCLUSION.....	35

APPENDIX A: A Brief Tutorial on the Competitive Entry Paths Envisioned in TA96

Figures

Exsum 1: RBOC net capital investments – 1996 to 2007 demonstrating that deregulation resulted in “disinvestment” rather than investment

Exsum 2: Comparison of job changes overall in the US Telecom Sector to changes in the Wireline, Wireless, Reseller and “Other” telecom subsectors: 1995 – 2008.

1.1: Comparison of RBOC capital expenditures (Gross Plant Additions) made during the “competition friendly” (1996 to 2001) and “competition unfriendly” (2002 to 2007) periods.

- 1.2: RBOC net capital investments – 1996 to 2007 demonstrating that deregulation resulted in “disinvestment” rather than investment
- 1.3: Comparison of ILEC and CLEC capital expenditures demonstrates that deregulation does not spur investment – 1996 – 2007.
- 1.4: Comparison of ILEC, non-cable CLEC and cable company capital expenditures 1996 – 2008.
- 1.5: Telecom Sector job losses 2001 to present
- 1.6: Indexed changes in US telecom sector employment compared to total US non-farm employment: 1995 – 2008
- 1.7: Almost 150,000 BOC jobs have been lost since year end 2000.
- 1.8: Changes in numbers of RBOC employees compared to changes in numbers on nonRBOC wireline telecom employees: 1995 – 2008
- 1.9: Comparison of job changes overall in the US Telecom Sector to changes in the Wireline, Wireless, Reseller and “Other” telecom subsectors: 1995 – 2008.
- 1.10: Indexed comparison of employment trends in the US Telecom Sector to changes in the Wireline, Wireless, Reseller and “Other” telecom subsectors: 1995 – 2008.
- 1.11: Job losses across US Telecom sectors during the “competition unfriendly” period: 2001 – 2008.
- 2.1: Projected increases in US telecom investment by ILECs and CLECs through 2014 resulting from a re-instatement of wholesale service regulations
- 2.2: Projected increases in US telecom sector employment through 2014 resulting from a re-instatement of wholesale service regulations

1

COMPETITOR ACCESS TO WHOLE-SALE LAST MILE FACILITIES CREATED TELECOM INVESTMENT AND JOBS

This paper examines the effect of comprehensive FCC regulation of ILEC wholesale loop offerings upon telecommunications investment and employment and upon the US economy overall. It does so by analyzing the relationship between past FCC regulation and deregulation of ILEC wholesale loops and investment/job levels and by forecasting future effects that we would expect to arise from the reinstatement of regulation of wholesale services. The study concludes that on the basis of the available evidence deregulation has not yielded increased investment by ILECs or CLECs. Comprehensive regulation of the rates charged by ILECs for current loop technologies yielded higher levels of investment in loop plant by competitors and by incumbents as well in the past and should be expected to do so in the future. The report also shows that such increased investment, in turn, can be expected to result in significant economic gains and job creation, both within the telecom sector and across the US economy overall.

Noted economist George Stigler wrote that “the basic role of the scientist in public policy, therefore, is that of establishing the costs and benefits of alternative institutional arrangements.”¹ As policymakers prepare to embark upon ‘alternative institutional arrangements’ to facilitate broadband investment in particular and to stimulate the US economy more generally, it is prudent to step back and evaluate the ‘costs’ and ‘benefits’ that can be observed to have flowed from the virtual elimination of all regulatory safeguards on the provisioning and availability of last mile broadband facilities on a wholesale basis.² It is equally important to consider whether a change in those policies would bring about a different outcome.

¹ Stigler. “The Economist and the State” *American Economic Review*, 1963.

² Throughout this paper we are reporting *correlations* between regulatory activity and levels of investments and jobs. The limited data available would make attempts at determining statistical *causality* based strictly upon the data, as opposed to industry knowledge, difficult if not impossible. Any assumptions of *causality* found herein are those arrived at by the authors based upon the observed *correlations* and decades of experience observing and analyzing the behavior of carriers operating in the telecommunications environment.

Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs

ILECs appear to retain effective monopoly control of many “last mile” facilities, and use these assets to compete in the same downstream markets as the ILECs’ wholesale customers.³ By escalating their wholesale rates to uneconomic levels, or by denying outright their rivals’ access to such facilities, the ILECs can limit competitive inroads in such downstream markets and/or force downstream retail prices above competitive market levels. The 1984 consent decree that broke up the former Bell System⁴ sought to address this concern by foreclosing incumbent Bell Operating Company (BOC) access to many downstream markets where their control of the underlying “last mile” facilities could afford them an unfair competitive edge. The 1996 federal Telecommunications Act replaced these outright BOC “line of business” entry restrictions with a series of regulatory measures that were intended to achieve the same overall result while still permitting the BOCs to compete downstream.

In an earlier paper, *The Role of Regulation in a Competitive Environment*, we explained that the thirteen years since the 1996 Telecom Act can be divided into two distinct regulatory policy regimes. TA96 strongly encouraged the development of competition and did not attempt to second-guess competitors’ business judgments as to the viability of business models reliant to varying degrees upon the use of incumbent facilities vs. competitor-owned facilities-based investments.⁵ The FCC initially adopted a framework that supported this policy that, while encouraging facilities-based entry, was also aimed at encouraging expansive competitive activity that could only arise if incumbent carrier facilities could also be utilized.⁶ When TA96 was enacted and for several years thereafter, the FCC also maintained full oversight of ILEC rates across the full range of local transmission facilities, pursuant to network unbundling and legacy special access regulation.

From the very start, however, the large ILECs challenged the TA96 unbundling requirements and continued regulation of special access services. They claimed that mandated wholesale access and price regulation created disincentives to investment by both competitors and incumbents. These claims turned out to be entirely without merit – as the analysis that

³ Effective monopoly conditions remain particularly in the market for “last mile” business class services. While successful competitive inroads have been made for “last mile” services for many mass market customers (primarily through cable company and wireless entry into those markets) the same cannot be said for the non-mass-market services.

⁴ *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982), *aff’d sub nom. Maryland v. United States*, 460 U.S. 1001, 103 S. Ct. 1240, 75 L. Ed. 2d 472 (1983).

⁵ Facilities-based entry was not the exclusive vision of the 1996 US Telecommunications Act, and for good reason. Congress understood that in order to compete effectively using what are necessarily far less extensive networks than those that had been developed by incumbent carriers operating for nearly a century as government-protected monopolies, competitors require the ability to use incumbent carrier network facilities at cost-based wholesale rates in combination with the competitors’ own facilities. The elimination of the requirement that incumbents offer wholesale local services at cost-based rates has caused the largest US telecommunications competitors to fail and has raised the barriers to entry and expansion for the few competitors that have, for the moment, survived.

⁶ Appendix A to this report contains a brief tutorial summarizing the competitive entry paths envisioned in TA-96.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

follows shows, more investment – both by CLECs and by ILECs – actually took place under regulation that encouraged competition than after its removal. Nonetheless, the large ILECs’ efforts were ultimately successful such that roughly ten years ago the FCC began largely abandoning its wholesale access and pricing mandates and replacing them with various forms of deregulation.⁷ For purposes of discussion throughout the remainder of this paper, we will refer to the pre-2001 period as the “competition-friendly” regulatory regime and the post-2001 period as the “competition-unfriendly” regime.⁸ The nature of investment data reporting (done on a year-end basis) forces references to specific years as if a change occurred on a single date when in fact changes in direction likely occurred over a series of months spanning both sides of the reporting date.

A series of major federal actions leading up to and including those occurring during the 2001 timeframe and beyond led those attempting to compete with the BOCs to realize that premising a business plan upon leasing BOC wholesale facilities to serve broad segments of the telecommunications market, including small and medium enterprise customers, was no longer a prudent proposition.⁹ Importantly, it also marks the time when the BOCs would have begun to

⁷ Details in RoR paper at 18 - 20.

⁸ Some have objected to this analysis, arguing that no fundamental shift in regulatory policy occurred in 2001 and that the fall-off in investment can be attributed to general economic conditions, including the collapse of the so-called ‘tech bubble.’ These critics’ timing argument is primarily a quibble about the exact dates of particular FCC orders, but it does not rebut the fundamental conclusion that, by 2001, the handwriting was on the wall: The FCC was committed to retreating from regulation of RBOC wholesale access services. The fact that the ‘tech bubble’ had burst at roughly the same time may or may not have been coincidental and may well have been exacerbated by FCC actions whose effect was to discourage competitive investment in new telecom ventures. In any event, whether the competitive telecommunications providers’ reversal of fortunes (including numerous bankruptcies) played a significant role in causing the tech bubble to collapse or whether the crash simply exacerbated the CLECs’ financial difficulties does not alter our conclusion about the impact of the fundamental regulatory shift that by 2001 had become all too apparent.

⁹ As an example, the FCC initially approved a pricing flexibility plan for special access services in late 1999, and although several parties, including ILEC competitors, had argued during that proceeding that the FCC’s proposed rules would allow the ILECs to exercise their market power to disadvantage their competitors, proof that the FCC’s predictive capabilities were wrong took some time to appear. (See, *In the Matter of Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Interexchange Carrier Purchases of Switched Access Services Offered by Competitive Local Exchange Carriers; Petition of U S West Communications, Inc. for Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona MSA*, CC Docket No.96-262; CC Docket No. 94-1; CCB/CPD File No. 98-63; CC Docket No. 98-157, *Fifth Report and Order and Further Notice of Proposed Rulemaking*, 14 FCC Rcd 14221(1999)) In 2000 the first markets were granted pricing flexibility. By 2001 it had become clear to both customers and competitors that the ILECs were abusing their significant market power and that rather than lowering prices to meet competition (as the FCC had anticipated) pricing flexibility was being used to increase prices on high capacity facilities that competitors needed to integrate with their own facilities in order to offer services. (See, e.g., Comments of AdHoc Telecommunications Users Committee (Jan. 22, 2002) at 2-3, filed in *Performance Measurements and Standards for Interstate Special Access Services*, CC Docket Nos. 01-321, 00-51, 98-147, 96-98, 98-141, 96-149, 00-229, Notice of Proposed Rulemaking, 16 FCC Rcd 20896 (2001) and *AT&T Corp. Petition for Rulemaking To Reform Regulation of Incumbent Local Exchange Carrier Rates For*

understand that they had successfully maneuvered their way out of the regulatory mandates that would, over time, have subjected them to competition for business broadband services.

Recognizing the linkage between strong wholesale regulation and carrier willingness to invest in network facilities and to create jobs.

The present policy focus upon “high-speed ubiquitous broadband” has as its underpinning a concern with ensuring overall US economic health and stimulating employment opportunities for US citizens. Building upon our earlier analysis linking investment outcomes under “competition-friendly” and “competition-unfriendly” policy regimes, in this paper we also demonstrate a linkage between those regulatory regimes and employment in the telecom sector. By quantifying the investment dollars and jobs lost after CLECs were cut off from a dependable source of wholesale last mile broadband facilities, it can be seen that the economic ‘benefits’ that the ILECs claimed would occur did not, rather there was a ‘cost’ associated with deregulating ILEC wholesale services that can be identified. The RBOCs, of course, have repeatedly argued (without any quantification or other hard evidence) that requiring them to continue to lease facilities to competitors would actually chill investment – and that contention did have some superficial appeal. However, upon closer analysis, it is apparent that there is no economic or other quantitative support for this argument. If the TA96 wholesale services requirements had worked to dampen RBOC investment incentives as these companies continue to assert, then the removal of these requirements should have produced a large-scale increase in RBOC investment levels. In fact, the exact opposite occurred. Moreover, the investment data also fail to support the RBOCs’ claim that, by allowing CLECs to purchase wholesale last mile facilities at regulated price levels, CLECs would not “build” their own as long as they could “buy” what they needed from the ILECs. So removal of the post-TA96 wholesale service regulation should also have worked to stimulate additional CLEC capital spending. As it has turned out, neither ILEC nor CLEC investment levels experienced the predicted growth once the dismantling of wholesale regulations had been implemented.

In many ways, these outcomes should not be surprising. As with any other business, ILECs and CLECs will invest in new technologies (in this case, rolling out business broadband) and hire or retain employees only where there is a business case to support such an investment – i.e., increased revenue opportunities, response to competition, and/or improved operational efficiencies. Capital will flow in response to *bona fide* economic opportunities, such as those created and fostered by a robustly competitive market. Choking off potential competition not only works to foreclose investment opportunities for entrants, it also operates to eliminate the urgency of competitive responses on the part of the incumbents, enabling them to defer

Interstate Special Access Services, RM Docket No. 10593, *Petition for Rulemaking of AT&T Corp.*, filed October 15, 2002. AT&T initial complaint.) Later “competitor unfriendly” actions by the courts and the FCC served to exacerbate the problem – fueling further reductions in investment levels and jobs in the telecom sector.

Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs

investments as well.¹⁰ Assuming arguendo that regulation might tend to reduce incentives for ILECs to invest (and there is no reason to expect that it would), there is every reason to expect that the effect of regulation may be relatively small in comparison to other business factors that a carrier considers when trying to determine whether to invest. Where that is the case, eliminating regulation should not be expected to cause an increase in investment by ILECs – particularly if the elimination of wholesale regulation has a dampening effect on the ability of other carriers to compete with the ILEC. At the same time, retaining or re-imposing regulation might well be a necessary precondition for some CLEC investment.¹¹ Where this is the case, eliminating regulation should be expected to lead to a decrease in CLEC investment.

The question that should have been raised by the ILECs' deregulatory push that began during the late 1990's and continues on today was whether the elimination of the regulatory structure that was in place following the 1996 Act¹² would improve the business climate for ILEC and/or CLEC investment. The ILECs' argument that deregulation will spur investment rests upon the assumption that when a carrier (ILEC or CLEC) is considering whether to make an investment in facilities, the 'cost' of regulation (in their view, the ILECs' inability to reap all of the benefits of an investment in new technologies or facilities and the CLECs' ability to get a "free ride") will tip the balance on some investment decisions to the negative side. Yet even posing this type of entirely intuitive hypothesis implicitly suggests that any regulation is, *per se*, a bad thing. There is, however, no empirical evidence that regulation chills investment.

The abrupt change in the "rules of the game" that occurred after 2001 catalyzed the withdrawal of investment capital from competitive ventures, and by eliminating much of the competitive challenge that had emerged, enabled the ILECs actually to *disinvest* in their networks, not even replacing worn-out plant as quickly as it was being retired.¹³ Contentions

¹⁰ Sprint backed up its entry into the long distance market in the 1980s by undertaking the construction of an ambitious nationwide fiber optic network, promoting its exceptionally high quality ("you can hear a pin drop") relative to AT&T's network, which retained legacy microwave and coaxial cable transport components. Sprint's competitive challenge compelled AT&T to advance its own fiber optic investment plans by several years. (See "Sprint unrolling bright future with fiber optics" *Chicago Tribune*, May 19, 1987) Competition, not complacency, is the key driver of new capital investment.

¹¹ The market for last-mile telecommunications services differs from many other product markets in that the service being provided is a component in a *network*. The relationship of the 'network effect' to CLEC requirements for generally available wholesale services to complete their owned network facilities is discussed in an earlier ETI paper *The Non-Duplicability of Wholesale Ethernet Services: Promoting Competition in the Face of the Incumbent's Dominance over Last Mile Facilities*, prepared for MTS Allstream, Inc., March, 2009.

¹² Including pre-existing Section 201 and 202 requirements that pre-dated the 1996 Act.

¹³ Unlike rate of return based regulatory schemes that encouraged carrier investment – resulting in what was frequently described as the 'gold-plated network' -- the current iteration of the FCC's price caps regime (with no upper earnings limit or sharing requirement) rewards ILECs for not investing in their networks by allowing them to reap ever higher levels of profit. In a competitive market, carriers would find it necessary to continue to invest in order to maintain or improve service and introduce new options. The FCC dismantling of its wholesale regulatory

regarding the “cost of regulation” have, in the end, been mainly rhetorical, certainly not empirical. The ILECs’ position fails to consider any of the economic benefits of regulation – benefits that include, among other things, making the most efficient use of existing economic assets rather than duplicating them for nothing more than the sake of duplication, jump-starting broad-based competition far more quickly than could have been achieved had all entrants been forced to overbuild all existing incumbent networks, encouraging innovation rather than complacency, and the like.¹⁴

This cost/benefit calculation must be made at two levels – at a microeconomic level (i.e., by each business entity as part of its capital budgeting and investment process) and at a macroeconomic level (by policymakers evaluating the economic merits of alternative regulatory policies). Firms will invest where, from their perspective, such investments will yield a positive return. An entrant will choose to build facilities rather than to purchase wholesale services from the incumbent where (a) this approach is less expensive than buying wholesale services from the incumbent, *and* (b) the investment can be expected to produce a positive return. By overpricing wholesale services, the incumbent can discourage entrants’ use of wholesale services, but if the entrant’s cost of acquiring its own facilities is so high that the venture cannot be profitable, the investment will not be made. The incumbents thus focus their policy argument entirely upon (a) and entirely ignore (b). But the empirical evidence of wide scale reductions in telecom investment on the part of both entrants and incumbents following the elimination of price regulation of wholesale services seems to resolve the cost/benefit debate supporting the following conclusion: it was the elimination of regulation, not its imposition, that engendered costs at both the firm (microeconomic) and societal (macroeconomic) levels. Policymakers do not have it within their control to increase revenue opportunities or improve operational efficiencies – but they do have the authority and tools to increase the overall level of competition for broadband facilities.

Limitations on wholesale use of ILEC facilities was accompanied by a reduction in overall investment levels.

Despite having achieved virtually all of their deregulatory goals, the RBOCs’ investment levels since 2001 do not represent anything extraordinary or particularly risky. Analysis of historic data both for ILECs and for CLECs demonstrates a reduction in overall investment levels as opportunities for use of ILEC facilities by competitors became increasingly limited (either through outright elimination of purchase options or overpricing of services that have

requirements combined with the present price caps regulatory regime dramatically reduced ILEC investment incentives.

¹⁴ Carrier decisions to commit capital dollars also ignore societal benefits (more competition, lower prices, innovation, and stimulation of demand) but one would not expect those elements to be considered by an individual corporation during its capital planning process.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

remained available). As the data in Figure 1-1 below demonstrate, recent years' RBOC wireline network investments have actually been less than in the past, and their capital investment has actually slowed as regulation has decreased.

The RBOCs today are only investing about half as much in their networks as they were at the start of this decade. 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.

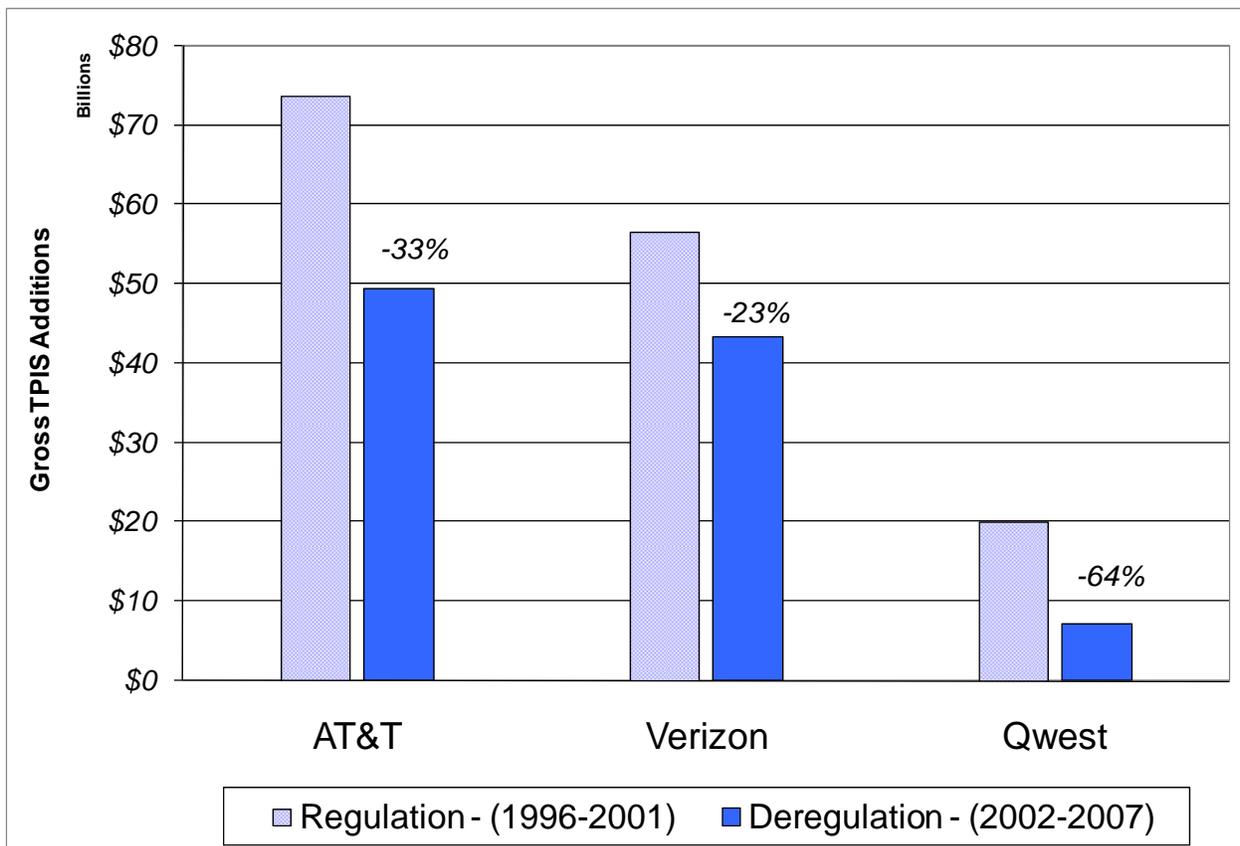


Figure 1- 1 Comparison of RBOC capital expenditures (Gross Plant Additions) made during the “competition friendly” (1996 to 2001) and “competition unfriendly” (2002 to 2007) periods.

In fact, as shown in Figure 1-2 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

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

any given year is greater than the amount of new capital investment. The combined net book value of telecom plant for the companies that now are part of AT&T, Qwest and Verizon rose from \$142-billion in 1996 to \$155-billion in 2001, but by 2007 it had dropped by a third, to \$101-billion.¹⁵

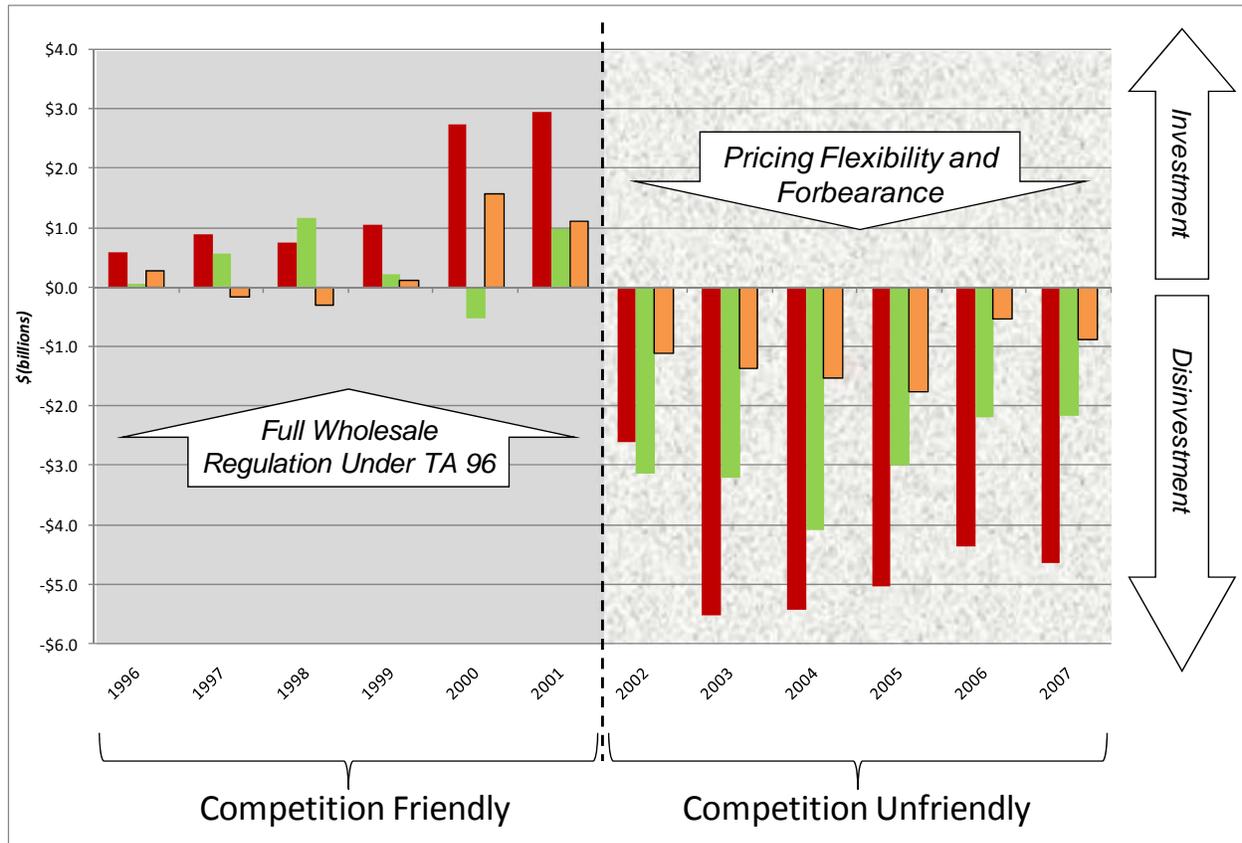


Figure 1- 2 RBOC net capital investments – 1996 to 2007 demonstrating that deregulation resulted in “disinvestment” rather than investment.

From the perspective of business customers, the magnitude of recent RBOC broadband investments is even less impressive than the aggregate investment data would suggest. Recent RBOC broadband investments have targeted residential rather than enterprise or small business customers and services. Even residential investment initiatives have been more targeted than

¹⁵ FCC, 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).

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

ubiquitous.¹⁶ Although there has been extensive press coverage of Verizon's FiOS and AT&T's U-verse rollouts, actual investment is unimpressive.

A carrier-by-carrier review of the RBOCs capital expenditures during the period 1996 (passage of the Act) to 2007 (last year for which RBOC investment data is available) reveals the regulation/investment linkage we discuss throughout the rest of this paper.

- **Verizon:** During the “competition friendly” regime (1996 to 2001) while 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 “competition unfriendly” 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.*¹⁷ That means that even including its highly publicized *FiOS* investment – Verizon’s foray into fiber-to-the-home and the TV market – Verizon spent about 30% less than it had been spending while subject to price regulation.

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 2010.¹⁸ 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

¹⁶ As the recent research report released by the Berkman Center at Harvard University concludes, the quasi-competitive conditions that exist in the market for consumer broadband services in large parts of the US are the result of the unique circumstances that enabled cable companies to utilize last-mile plant originally deployed for video transmission. (See, The Berkman Center for Internet & Society at Harvard University, *Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world*, October 2009 (Draft), at 12). Notably absent from the consumer market are other broadband competitors – facilities based or otherwise. The broadband investment that the RBOCs have made in the mass market come largely from efforts to compete with the cable companies, and has occurred primarily – if not entirely – in areas where cable company competition exists.

¹⁷ The data includes Verizon’s predecessor ILEC companies: Bell Atlantic and non-RBOC GTE.

¹⁸ *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.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

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*, only about \$2-billion (or \$500-million per year) is left 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 “competition friendly” 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 and regulation and wholesale requirements were in effect than over the subsequent six-year period of deregulation.¹⁹ *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 “competition friendly” 1996-2001 period, Qwest increased its gross TPIS by \$20-billion. But in the 2002-2007 “competition unfriendly” regime 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.*

CLEC investment followed similar trends, increasing during the period when regulation ensured the availability of cost-based wholesale inputs and falling off once it was clear that regulators were no longer committed to ensuring the availability of these key components of most CLECs’ business models. Not only did the unavailability of wholesale inputs fail to spur CLECs to ‘build’ instead of ‘buy;’ it actually caused many CLECs to exit the market. Figure 1-3 below compares the growth of ILEC and competitor capital expenditures in the high-regulation

¹⁹ The data includes AT&T’s predecessor ILEC companies: SBC, SNET, Ameritech, Pacific Bell and BellSouth.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

period immediately after the 1996 legislation, followed by a significant contraction of investment under the post-2001 FCC deregulatory regime.²⁰

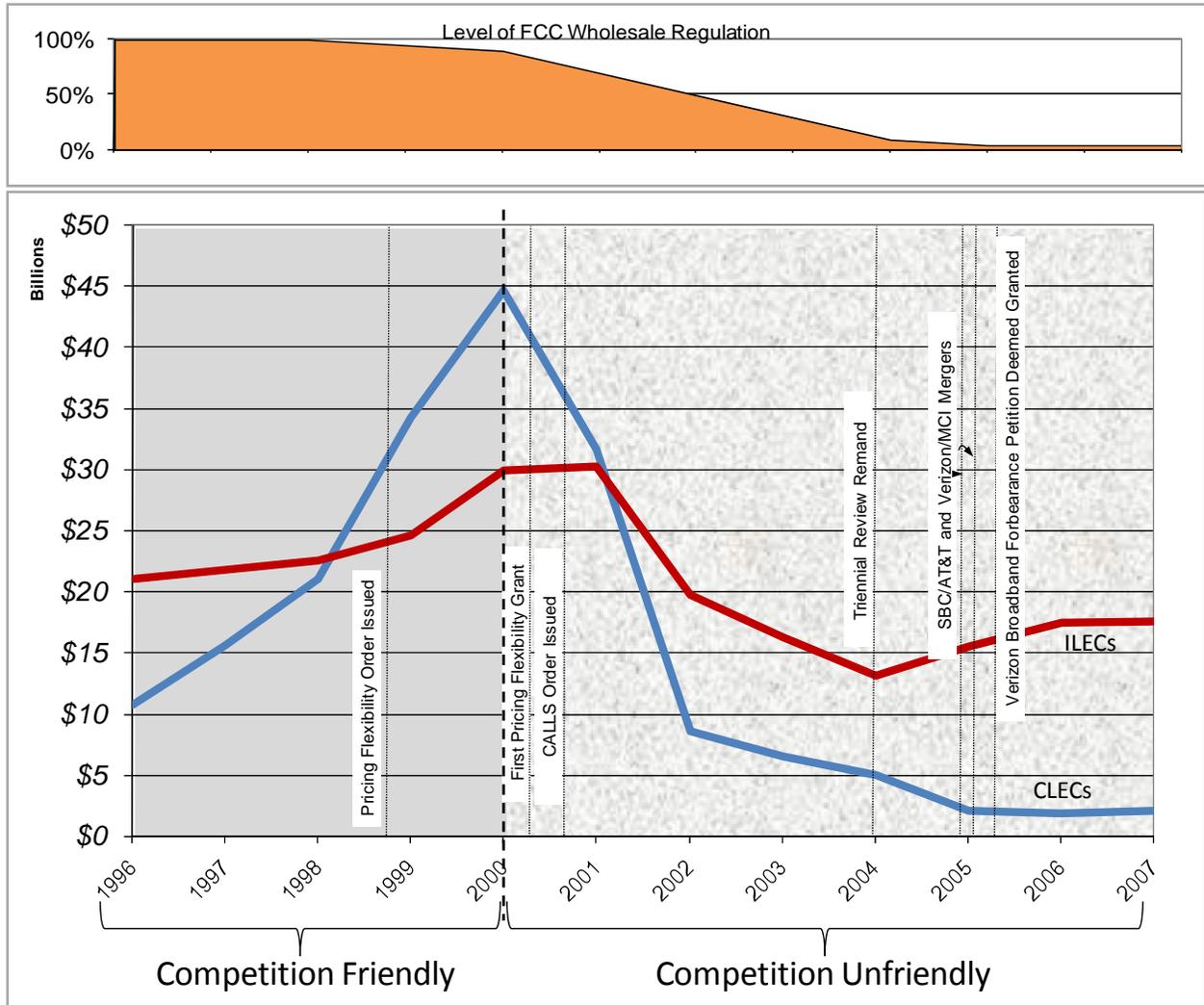


Figure 1- 3 Comparison of ILEC and CLEC capital expenditures demonstrates that deregulation does not spur investment – 1996 – 2007.

²⁰ 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).

Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs

Most of 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. Our *Role of Regulation* paper documented the decline in CLEC market capitalization and also compared that data to investment levels of Canadian CLECs operating in an environment that retains more vestiges of wholesale regulation than the US.²¹ The evidence from that paper and from our analysis here is clear:

- Regulated access to ILEC wholesale facilities appears to stimulate 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 innovations.
- Deregulation of wholesale ILEC services operates to insulate ILECs from competitive inroads and pressures with the exception of those mass market segments where competition from cable and mobile wireless has developed. Remaining competitors for business and data services have been left confined to a role of marginal, fringe players incapable of offering a meaningful competitive challenge to the ILECs. The result is restoration of *de facto* ILEC monopoly for non-mass market services where cable is not a significant presence but without the regulatory tools to ensure that ILEC services continue to be offered at just and reasonable rates.

Empirical evidence confirms that the removal of regulatory ‘costs’ did not encourage ILECs or CLECs to invest.

Even if macro-level trends in the economy might have resulted in overall reductions to capital investment levels (for example, after the “tech bubble” burst in 2000-2001) the elimination of regulation of wholesale services exacerbated the general economic trend and

²¹ ETI’s analysis comparing US and Canadian CLEC investments in *The Role of Regulation* was criticized by William Taylor, claiming that ETI had neglected to include capital expenditures associated with Cable companies in the US numbers. He presents his own version of Figure 13 from that paper purporting to correct this mistake. ETI’s analysis did not include investments associated with Cable companies because cable company entry into the US mass markets is not impacted by US wholesale regulatory policy in the same way as CLEC entry (see discussion in footnote 16 above). Moreover, even if one were to include cable companies as CLECs for these purposes, Taylor’s “correction” presents an erroneous picture of actual US CLEC/Cableco investments, since he apparently included 100% of the capital expenditures from the four largest US cable companies for the period 1996 to present, including their sizable investments in legacy video plant. We are unaware of any method of breaking out telephony and broadband investment from legacy video investment and Taylor appears to have made no effort to have done so to the Capex numbers he presents: his data sources, publicly available 10-K annual reports, do not allow for such a breakout. Taylor also appears to have included fabricated data for Cox Communications for 2006 and 2007, years for which public financial statements are not available after the company was taken private. Taylor’s flawed critique of our data analysis render it of no use to those seriously attempting to understand the factors driving CLEC investment levels.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

while investment throughout the rest of the economy rebounded after a year or two investment by ILECs and CLECs did not. As the data in Figure 1.3 above reveals, the level of CLEC investment continued dropping year after year following its initial drop during 2001. CLEC annual investment at its peak (2000) reached approximately \$45-billion. Just two years later CLEC annual investment for 2002 had dropped by about 80% to less than \$10-billion. For the 2004 annual period CLEC investment had dropped by a half again to \$5-billion and by 2007 annual CLEC investments were down to a number in the \$2-billion range. ILEC investment levels also failed to return to their pre-2000 and 2001 levels although there was a moderate recovery in ILEC investment levels beginning in 2005 – presumably in response to investment and inroads being made by cable companies into mass market telephony and broadband.

Corroboration for our conclusion that the slight rebound in RBOC investment beginning in 2005 was made in response to cable company competition for mass market broadband services come from two sources. First, AT&T's and Verizon's annual reports to shareholders reveal that the vast majority of the investment that has been occurring in their ILEC networks since 2005 has been directed at mass market broadband deployment – FiOS and U-Verse.²² Equally compelling is analysis of cable broadband penetration rates in relation to both ILEC and Cable company investment levels. Figure 1.4 below presents cable company investment levels for the years 2000 to 2007. As the analysis demonstrates, cable company annual investment levels peaked in 2001 (the first year that cable company mass market broadband deployment passed more than 50% of US households) dropping off by a little over a third through 2004 and starting to climb again in 2005. ILEC annual investment levels illustrated on Figure 1.3 had dropped by more than half between their peak in 2001 and 2004 but began a modest increase in 2005²³ when cable company mass market broadband deployment had already passed 90% of households nationwide and cable company investment also began to climb.

²² See discussion of FiOS and U-Verse investments in our paper *Longstanding Regulatory Tools Confirm BOC Market Power: A Defense of ARMIS*, prepared for the AdHoc Telecommunications Users Committee, January, 2010, at 20 – 24.

²³ Although ILEC investment began to grow again in 2005 it reached only 60% of the pre-2001 levels by 2007 – the last year for which investment data is available.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

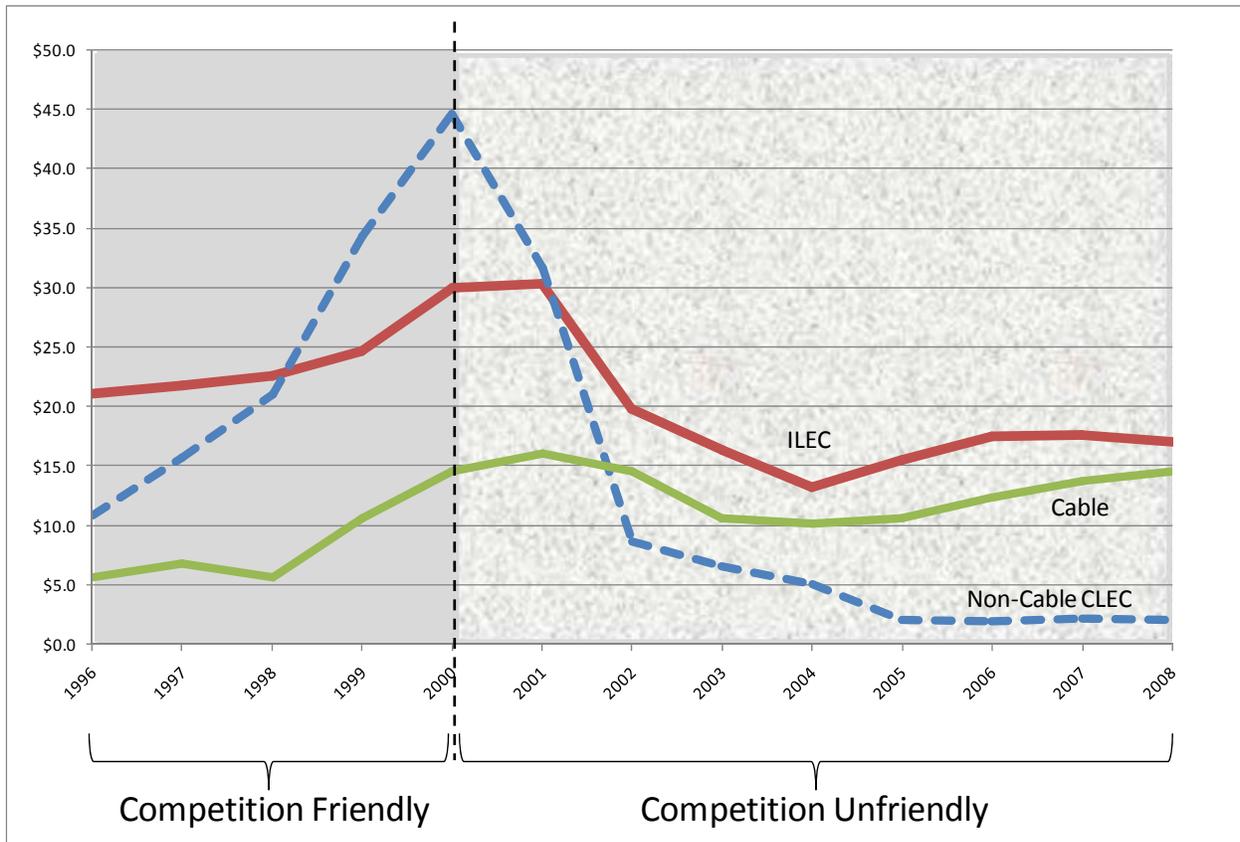


Figure 1- 4 Comparison of ILEC, non-cable CLEC and cable company capital expenditures 1996 – 2008.

The cable company investment data used in Figure 1.4 above is over-inclusive in that it includes all cable company investment – including that deployed for the provisioning of legacy video services (although by 2000, the first year of our analysis, much of the construction associated with cable company legacy video services had been completed) Although not directly comparable to the ILEC data it is presented for two purposes that do not require direct comparability of the bases. First, it is offered to demonstrate that unlike ILEC and CLEC investment levels, cable company annual investment had rebounded to close to peak year levels by 2007 – despite the fact that cable company broadband capability already passed more than 90% of households by the end of 2005. Second, it is offered in support of our position that it was competition with mass market cable-based broadband services, not elimination of regulations on ILEC wholesale services, that caused the up-tick in ILEC investment levels beginning in 2005.

Elimination of wholesale requirements was followed by a reduction in jobs in the telecom sector.

As the graphics below clearly illustrate, coincident with the elimination of regulation of wholesale broadband services was a loss of some 400,000 US jobs in the non-wireless segments of the US telecom industry. We believe it is fair to view these job losses as one of the “costs” to the US economy of deregulation. Despite the proliferation of demand and explosion of consumer and business spending on telecommunications services over the last decade, the industry as a whole today employs 40% fewer workers than it did at year-end 2000. (See Figure 1-5) These are not American jobs that ceased to exist because demand for the product dried up. These are not American jobs that ceased to exist because less expensive foreign imports took their place in the market. For the most part these are not American jobs that ceased to exist because employers outsourced the work off shore. The most plausible explanation is that these American jobs ceased to exist specifically because the FCC and the courts decided to limit wholesale access to underlying ILEC telecommunications facilities and services for which no

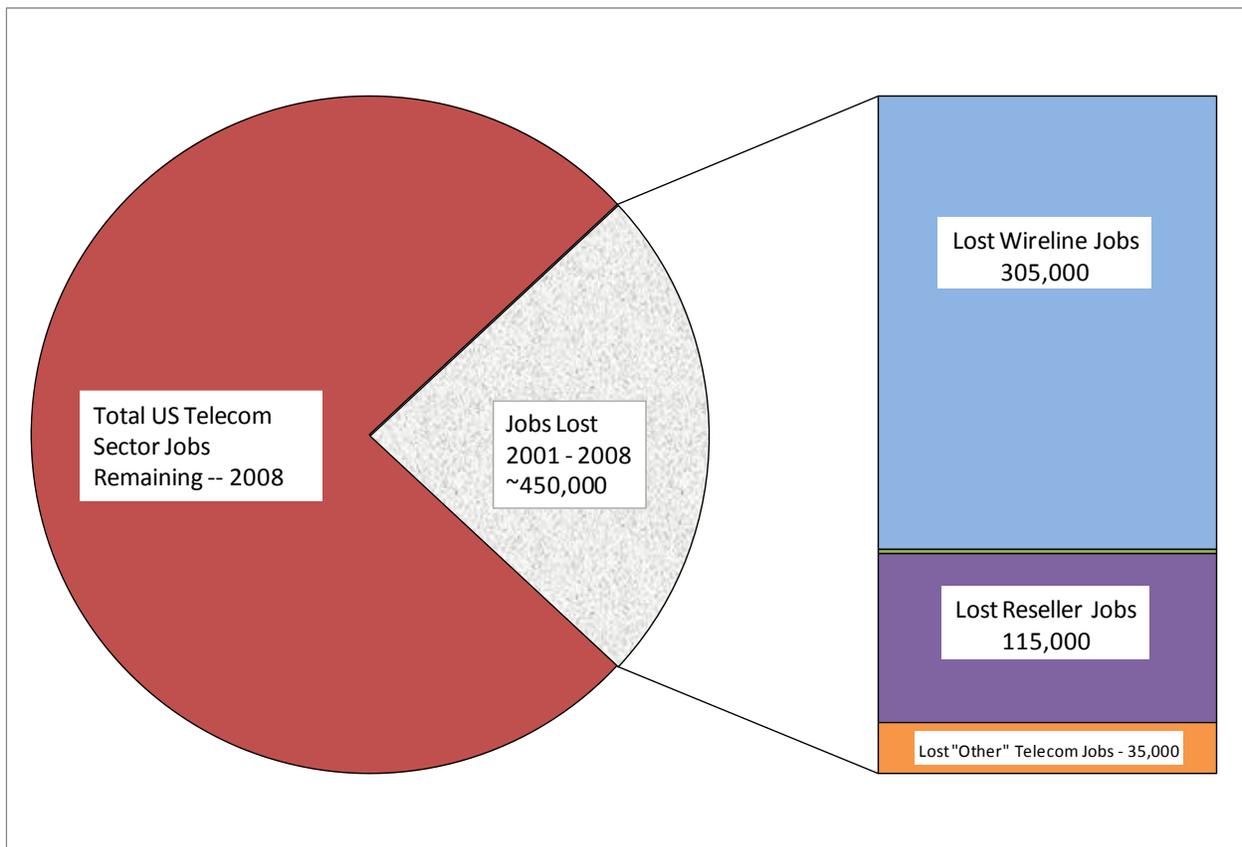


Figure 1- 5 Telecom Sector job losses 2001 to 2008.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

other competitive alternatives existed.²⁴ An otherwise healthy and growing segment of US jobs in a relatively highly compensated, high technology market suddenly stalled and then shrunk – and absent a change in the regulation of wholesale telecommunications services – further job losses are a near certainty.



Figure 1- 6 Indexed changes in US telecom sector employment compared to total US non-farm employment: 1995 – 2008.

Comparison of trends in employment levels in the US economy as a whole with those that occurred in the telecom sector demonstrate that the telecom job losses cannot be laid at the feet of the same trends that have impacted the overall US economy. Figure 1-6 above compares indices of total US and telecom sector employment from year-end 1995 through September, 2009. During the “competition-friendly” period, employment in the telecom sector grew more than three times as fast as overall US employment. Moreover, while overall employment growth economy-wide was interrupted for a short period starting in 2001 but then recovered and began

²⁴ While automation may be responsible for some job losses in this segment most of the lost jobs were not the result of automation, but of reduced activity.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

growing again, telecom sector employment plummeted and has continued to drop throughout the entire eight year “competition unfriendly” period.

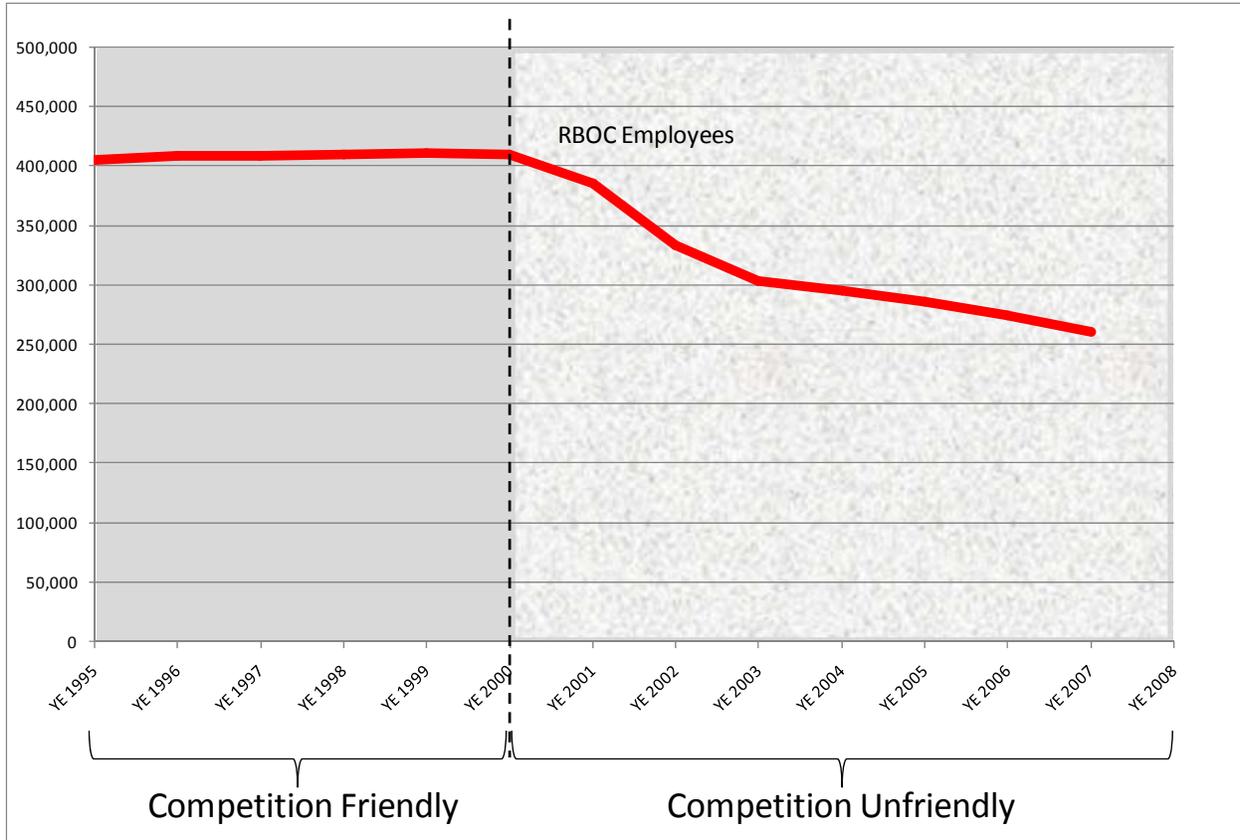


Figure 1- 7 Almost 150,000 BOC jobs have been lost since year-end 2000.

As competition from both facilities-based and resale-based CLECs dried up beginning in around 2001, not only were CLEC jobs lost, the ILECs – no longer facing the same level of competition, actual or potential – began contracting their workforces as well. As Figure 1-7 below demonstrates, during the years 1996 through 2000, while being forced to make their underlying wholesale facilities available to competitors, RBOC employment remained almost constant at approximately 400,000.²⁵ Between 2001 and 2007 (the last year for which such data

²⁵ This encompasses what we have described as the “competition friendly” period from the end of 1995 at which point it was clear that some manner of Telecom Reform would be enacted in the US Congress requiring broad availability of RBOC facilities on a wholesale basis to the beginning of 2001 by which point it became clear to all involved that the RBOCs had succeeded convincing regulators of their party-lines regarding the damage those same wholesale regulations were causing and that the march to the virtual elimination of those rules had begun.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

has been collected) that number dropped to 260,000. 140,000 RBOC jobs – at one time one of the most coveted employment positions in America – had simply ceased to exist. To put those 140,000 lost jobs in perspective, one out of every three “phone company” jobs vanished during this period. In other words, rather than producing any net positive economic benefit, the “cost” to society of eliminating those wholesale requirements and as a result limiting the extent of competition that the BOCs would face was the elimination of 140,000 well-paid, fully benefited, RBOC jobs and tens of thousands of CLEC jobs across the US.

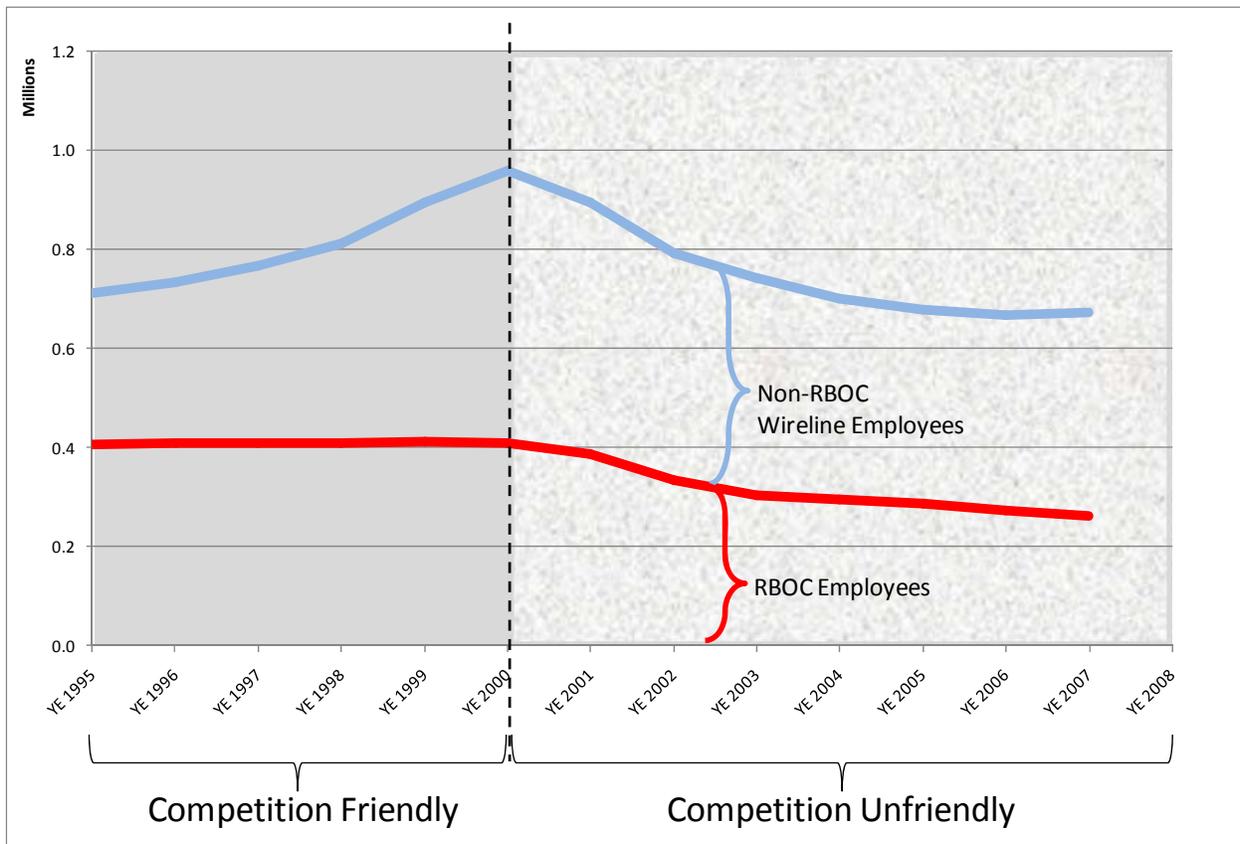


Figure 1- 8 Changes in numbers of RBOC employees compared to changes in numbers on non-RBOC wireline telecom employees: 1995 – 2008.

During the “competition friendly” immediate post-TA96 period (1996 through 2000) when RBOC employment held steady, other wireline carriers (IXCs and CLECs, Cablecos) and telecom resellers added some 300,000 employees to their payrolls. Virtually all of those were full-time employees so the cumulative person-years of non-BOC wireline telecom employment growth during that period approximated 700,000. This telecom sector employment growth during the immediate post-TA96 time frame supports the conclusion that strong wholesale regulation spurred substantial and significant job creation throughout the non-BOC portions of

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

the wireline telecommunications industry (primarily IXCs and CLECs, including cablecos). Figure 1-8 on the previous page illustrates employment levels in the “wireline” portion of the telecom sector (as defined by BLS) and displays a steady and substantial increase in non-RBOC employment throughout the sector until the regulatory regime began to change – at which time “wireline” employment by both BOCs and non-BOCs began its steady and unending decline.²⁶ Figure 1-9 displays the employment data during this period for all of the BLS reported telecom sectors.

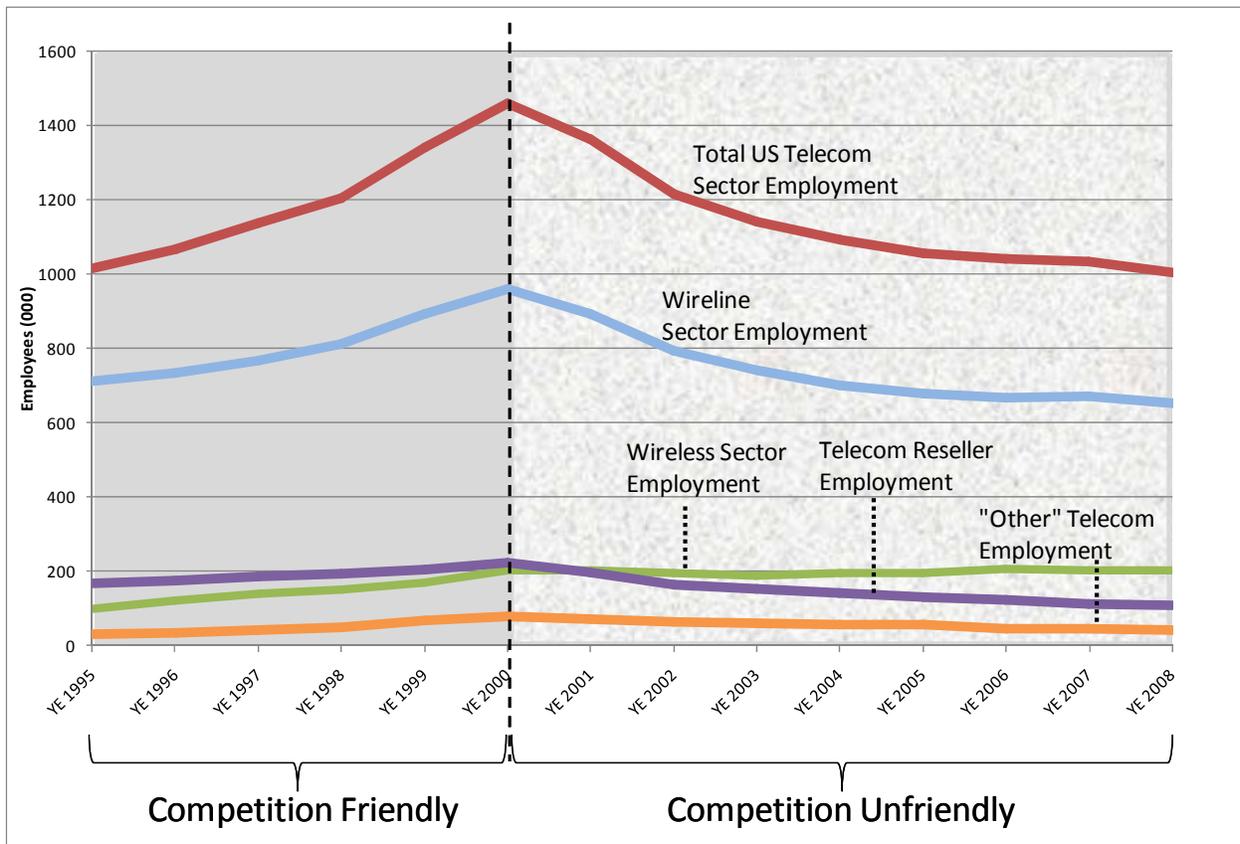


Figure 1- 9 Comparison of job changes overall in the US Telecom Sector to changes in the Wireline, Wireless, Reseller and “Other” telecom subsectors: 1995 – 2008.

It has been suggested that the ‘tech bubble crash’ of 2000 and 2001 has more to do with the decline in investment and jobs overall than with the evolving telecom regulatory regime. The

²⁶ It should be noted that the BLS “wireline” category does not include telecom resellers – a category of competitor that was hit as hard as any other by the change from a “competitive friendly” to “competitive unfriendly” regime. Were resellers included in Figure 1-6 above the overall increase in employment during the first period would have been greater, and the drop-off in employment steeper following the regime change.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

evidence however does not support that view. Figure 1-10 below presents indexed jobs data for the primary segments of the telecom sector as categorized by the BLS. If the downturn in employment was associated with the end of a bubble, one would expect a one-time drop, followed by gradual recovery. Instead, the wireline, reseller and “other” employment levels began their decline during 2001 and have never fully recovered. Only the wireless segment shows job growth – a striking divergence from the rest of the indexed data. Like the rest of the sector, employment in the wireless segment dropped during 2001 through 2003 (although less steeply than in the wireline or reseller segments), but by 2004 the number of US wireless segment employees had begun to increase again, and by 2006 any job losses that might have been attributable to the end of the “tech bubble” had been regained. By year-end 2008, there were slightly more US workers in the wireless industry than at year-end 2000. If the general economic conditions in 2001 and 2002 had been responsible for the substantial drop in telecom sector employment, employment levels should have rebounded in the wireline and reseller categories as well.

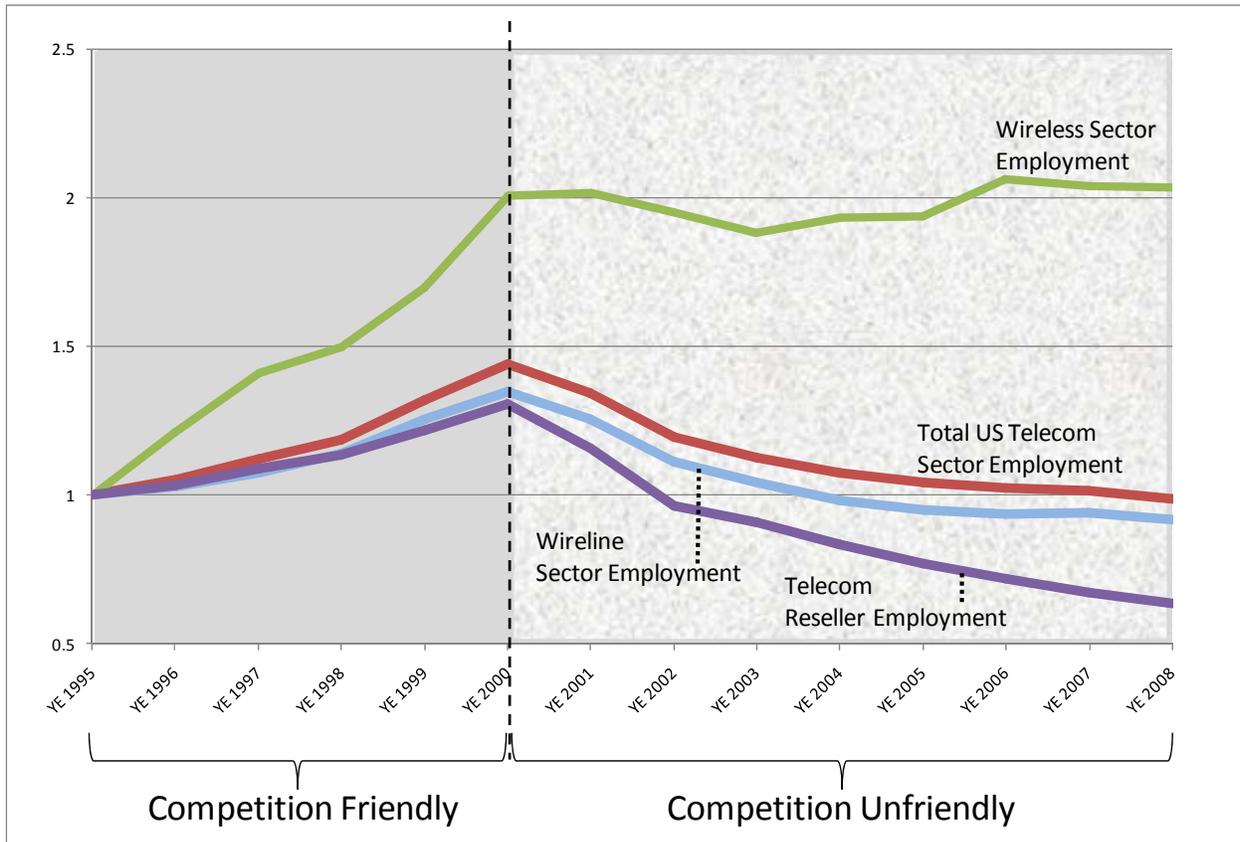


Figure 1- 10 Indexed comparison of employment trends in the US Telecom Sector to changes in the Wireline, Wireless, Reseller and “Other” telecom subsectors: 1995 – 2008.

*Competitor Access To Wholesale Last Mile Facilities
Created Telecom Investment And Jobs*

The last graphic in this section, Figure 1-11, illustrates what we are describing as the ‘costs’ in terms of American jobs of the FCC’s failed experiment of wholesale deregulation of the RBOCs. Thirty-one percent of all jobs in the telecom sector (including wireless) were lost between January 1, 2001 and December 31, 2008. 32% of the jobs in the wireline segment,²⁷ and 52% of jobs in the resale sector of the industry, are simply gone. The only segment of the telecommunications industry where employment increased was wireless telecommunications, where, during the relevant period, there have been four or more competitors in virtually every geographic market. The linkage between competition in the telecom market and the prospects for maintenance or growth of employment in that sector could not be clearer.

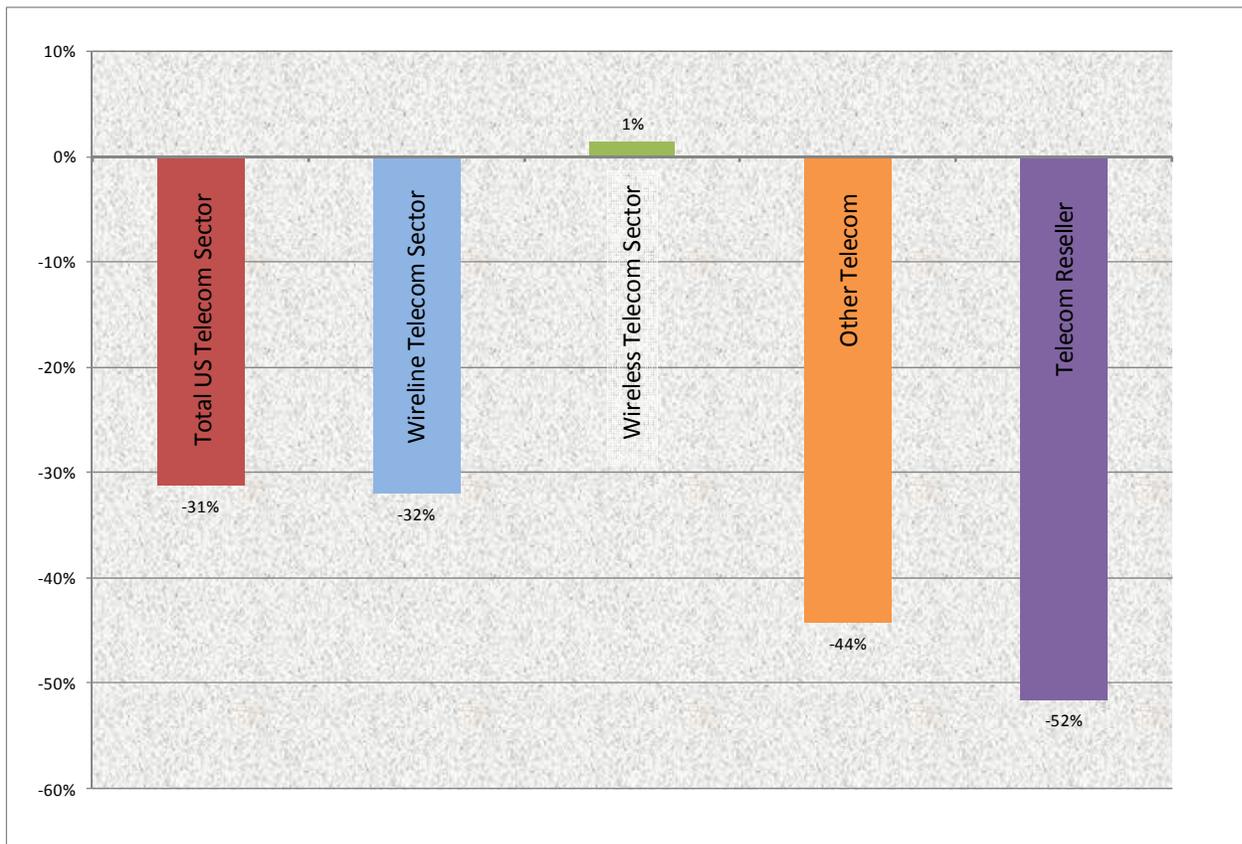


Figure 1- 11 Job losses across US Telecom sectors during the “competition unfriendly” period: 2001 – 2008.

²⁷ Per the descriptions in the BLS databases, the “wireline” category includes cable employment.

2

DRIVING PRIVATE SECTOR TELECOM INVESTMENT AND JOB GROWTH

Private sector investment in broadband telecom infrastructure by ILECs and by CLECs may be stimulated by adopting a competition-friendly regulation climate, one capable of ensuring that wholesale access to underlying ILEC facilities is and will continue to be made available to entrants that desire to incorporate those wholesale facilities into service offerings of their own. By implementing relatively modest changes to the wholesale telecommunications regulatory environment, the FCC could work towards meeting its goal of encouraging ubiquitous broadband availability and do so using private, not public funds. Our modeling estimates an increase in private sector investment in broadband telecommunications network facilities of as much as \$60-billion by the end of 2014 and telecom sector job-growth of as much as four hundred and fifty thousand American jobs. Additional economy-wide growth of \$66-billion and an additional 234,000 jobs over the next five years would also be expected to flow from a reimplementation of several of the FCC's rules that have been dismantled during the last decade.

Reasonable Pricing of ILEC Wholesale facilities should stimulate private sector broadband investment, create telecom sector jobs, and create broad economic benefit for the US.

If policymakers were to undo some or all of the harmful deregulatory actions of the last decade, how much better off could conditions be in terms of investment and job creation? Our modeling suggests that substantial additional private sector investment in advanced network services would be stimulated by policy-mandated corrections to the wholesale telecom market.²⁸ That increased investment would lead to substantial job growth throughout the telecom sector, and the increased facilities-based competition would result in lower prices for services purchased in large quantities by business customers. The savings by businesses of all sizes and in all sectors of the US economy on their telecommunications purchases would in turn lead to

²⁸ Underlying our modeling is a premise that re-creation of a “competition friendly” environment like that found immediately post-TA96 is likely to invigorate competition and that increased competition will lead to increased investment and jobs – in other words – that the *correlation* that we demonstrated in the previous chapter is a reflection of a causal link between wholesale regulation and investment and job levels in the telecom industry.

additional economy-wide investment and job growth. In short, ensuring economic wholesale access to incumbent LEC telecommunications facilities as envisioned in the 1996 federal legislation should speed the delivery of “high speed ubiquitous broadband”²⁹ and should, in particular, expand broadband options for small businesses that depend upon competitively priced, innovative broadband services to enhance efficiency, remain competitive and create new jobs.

Identifying the exact changes policymakers would need to implement in order to reverse some of the damage that has been wrought by disrupting the original wholesale mandates that existed prior to 2001 is beyond the scope of this paper. It is possible, however, to identify several categories of relatively simple-to-implement “corrections” that would make it feasible for competitors to justify making the significant investments necessary to become long-term participants in high-speed broadband telecommunications markets. The results of the prospective investment and jobs impacts modeling that are detailed later in this chapter are premised upon the assumption that changes in the nature of those identified below are implemented.

**Policy Changes Needed to Ensure Sufficient Wholesale Access
to ILEC Broadband Services**

- i. Roll back forbearance from dominant carrier and common carrier regulation and from unbundling of services. Packetized services, most importantly Ethernet, are basic transmission services in a broadband world and must be recognized as such. Wholesale special access and unbundling rules and regulations must apply to these services.
- ii. Require carriers to make packetized data streams available to competitors so that they can utilize those facilities to develop and market efficiency enhancing products to small businesses. Such data streams should be available without regard to the underlying incumbent LEC network architecture.
- iii. Implement a mechanism (a reformulated price caps plan or some other mechanism) to ensure that prices for special access services, including TDM and Ethernet services, are set at “just and reasonable” rate levels.
- iv. Access to FTTC and FTP and dark fiber to serve business customers.
- v. Establish rules to ensure that the prices that ILECs charge for Section 271 checklist items are “just and reasonable,” consistent with the methodology proposed by a coalition of CLECs.

²⁹ *National Broadband Plan NOI*, at para 1.

Forecasts of quantifiable “benefits” that we believe should be expected to flow from these market opening changes are described and illustrated in the sections that follow. Specifically:

- *Stimulation of investment in high speed broadband infrastructure*, particularly infrastructure deployed to the kinds of business customer locations that have not been addressed by much of the mass-market based investment resulting from the limited – and primarily residential-oriented – competition that exists as between the ILEC and the Cableco serving any particular geographic area. We forecast year-over-year investment growth and cumulative investment expenditures over a five-year period under what we believe to be conservative, moderate and realistic assumption sets.
- *Creation of jobs throughout all segments of the telecom industry*. As with our investment analysis, we forecast year-over-year job additions and cumulative job growth over a five-year period under what we believe to be conservative moderate and realistic assumption sets.
- *Stimulation of economy-wide economic growth and ensuing economy-wide job creation* flowing from the efficiency enhancements and reduced prices that will result from the enhanced competitive opportunities that will exist in the downstream retail telecommunications markets – particularly the markets for business broadband services.

Spurring substantial high-speed broadband investment and creating new jobs throughout the telecom industry.

Our modeling of the impact of a new market-opening focus by federal policymakers is informed by an extrapolation based upon actual historical outcomes. A policy paradigm that would make ILEC wholesale last mile facilities dependably available at economic price levels should spur additional investment both by ILECs and by CLECs – and should lead to the steady creation of good sustainable employment opportunities throughout the telecom industry. Employment growth can be expected to occur rapidly as competitors – once again able to address segments of the market that have been foreclosed to them for the better part of the last decade – hire staff to develop products, design customer solutions, market their services and support customer care and similar functions. Longer-term competitor employment growth should also include American jobs for those building additional broadband infrastructure. ILECs – once again faced with competitors able to address the ILECs’ currently-protected market segments – will also need to recruit and hire employees to respond to that new competition. Investment growth by CLECs would likely lag employment growth slightly as the turn-around time for constructing facilities is somewhat longer – although ILEC investment outlays might well increase more rapidly in anticipation of the growing competitive challenge.

Curing the lethargy in broadband build-out to businesses.

ILEC and non-cable CLEC³⁰ annual capex peaked in 2000 at approximately \$75-billion, and the average capex for the three years preceding the precipitous drop-off in 2002 averaged \$65-billion per year.³¹ Combined capital expenditures for ILECs and non-cable CLECs have hovered just under \$20-billion per year for the last four years. As discussed above, the vast majority of the ILECs' recent broadband build-out has been targeted at mass-market, primarily residential and the very smallest of business customers e.g., SOHO. Absent a fundamental change in the regulatory climate to something friendlier to competitors whose business plans focus on the entire spectrum of business customers, there is nothing on the horizon to suggest that private sector investment will grow much beyond its present levels. Our "realistic" scenario projects annual capital expenditures by ILECs and non-cable CLECs of \$46-billion in 2014 – more than double today's investment levels but still significantly less than the amounts being expended a decade ago.

Present conditions in the capital markets will likely cause investment growth to ramp up more slowly than might have occurred at another time; this has been factored into our analysis. Overall, our forecasting of potential investment stimulation is conservative. Because of the complexity of the capital expenditure planning process in large corporations combined with the lead times typically required to fully implement major capital investment programs such as broadband deployment, we have modeled no investment stimulation in 2010, with the ramp-up not commencing until 2011 even though we have been told that some CLECs would in fact increase investment levels immediately during 2010 were some of the regulatory changes they seek implemented. Notably, under none of the scenarios we analyzed does the total annual investment by ILECs and CLECs combined reach the level of any of the three peak years – 1999, 2000 and 2001 – prior to the major policy swings that so decimated competition at the start of this decade.

We modeled three investment stimulation scenarios – a conservative scenario, a moderate scenario and a scenario we believe to be more realistic than either of those. In each of these, the baseline investment levels were set at total 2008 ILEC and non-cable CLEC capital expenditures. Cable company investment levels were excluded from the investment baselines because these companies' primary focus is upon mass market services, mainly residential broadband,³² whereas our concern here is with the business broadband services market that up to now cable operators have shown little interest in pursuing on a stand-alone basis.³³ Although mass market cable

³⁰ The focus of our report is the business broadband market. To date, there is no evidence that we are aware of that suggests that cableco broadband build-out has made any serious inroads in connecting to business facilities.

³¹ See Chapter 1 above.

³² The data sources for the figures and tables used in this Chapter correspond with those used for the tables and figures in Chapter 1.

³³ For the most part, cable television MSOs have adopted a network architecture based upon hybrid fiber/coax technology. While perfectly acceptable for most mass market applications, present constraints on upstream

investments have not been included in the dollars used as the base of our analysis, cable companies growth into business markets is not excluded from our forecasting. The modeling parameters used in each of the forecasts are detailed in Table 2-1 below.

Table 2-1 Baselines and Assumptions for Telecom Investment Growth Modeling		
	Period	Carriers included
Baseline Investment Levels Being Grown	December 31, 2008	ILECs and non-cable CLECs
	Index Development	Application of Index
Conservative Scenario	Index developed based upon investment changes 1996 – 2008 for Cable Companies	Index applied to combined ILEC and non-cable CLEC base
Moderate Scenario	Separate Indices for ILECs and non-cable CLECs based upon investment changes 1996 - 2000	Indices applied separately to ILEC and non-cable CLEC portions of base (ILEC index to ILEC base and CLEC index to CLEC base)
Realistic Scenario	Index developed based upon investment changes 1996 – 2000 for combined ILECs and non-cable CLECs	Index applied to combined ILEC and non-cable CLEC base

The model results are plotted on Figure 2-1 below. Even under our most conservative assumptions, by the end of 2014 close to \$20-billion in additional private sector investment in business-oriented broadband facilities will have been constructed. Under what we believe to be a more realistic scenario, by 2014 annual investment levels by ILECs and CLECs will have more

bandwidth limit the utility of this approach for many medium and large enterprise telecom uses. Some cable operators have made limited forays into fiber-to-the-premises deployment as a means of serving enterprise customers, a strategy that places them in exactly the same position as non-cable CLECs seeking to address this market. In order to offer enterprise customers a single-source solution capable of meeting their needs at all required locations, the cable CLEC affiliate has essentially the same need to obtain economic access to ILEC wholesale last mile broadband infrastructure as any non-cable competitor seeking to address this same market.

than doubled and \$60-billion in additional private sector investment will have occurred.³⁴ Table 2-2 below details the results of our analysis.

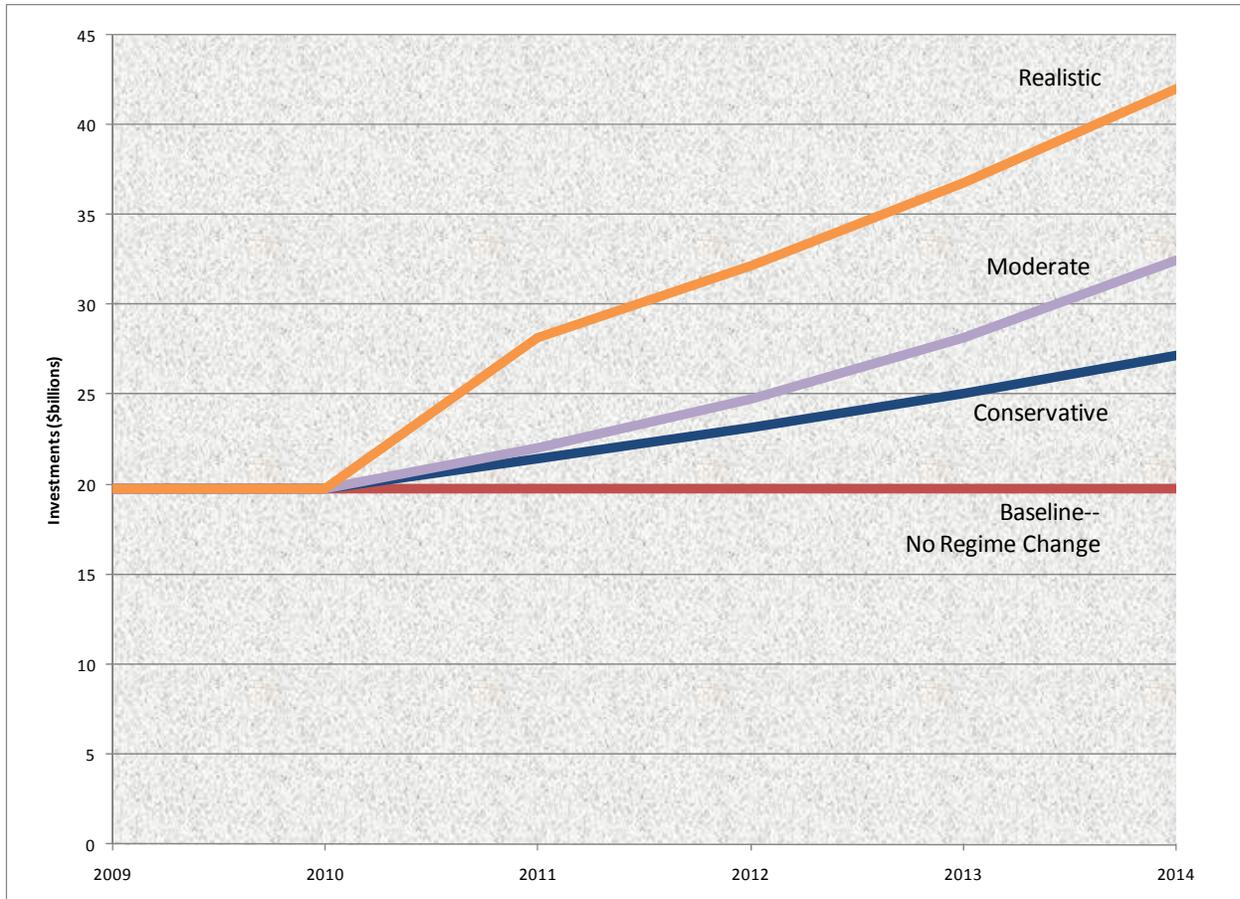


Figure 2- 1 Projected increases in US telecom investment by ILECs and CLECs through 2014 resulting from a re-instatement of wholesale service regulations.

³⁴ This scenario projects investment growth by non-cable CLECs and ILECs to track the overall growth in investment in the cable market as cable operators began offering mass market broadband services. As discussed above, cable company competitors have not been hampered by the need for wholesale access services from ILECs in deploying services to mass market customers – offering a snapshot of the kinds of investment that can be expected once the wholesale access services that they do need are available to CLECs.

Table 2-2			
Results of Modeling of Impact of Policy Changes Requiring Wholesale Availability of Current Generation Last-Mile Facilities on ILEC and CLEC Investment			
SCENARIOS		Forecast Investment Changes by 2014	
		Additional Annual Investment by 2014	Cumulative Additional Investment 2010 to 2014
Conservative	Trend based upon investment trends for cable companies across since 1996 Act (1996 – 2008).	\$7.5-billion	\$18-billion
Moderate	Trend based upon investment trends of ILECs and CLECs during the “competition friendly” regulatory regime (1995 – 2000) separately applied to each category.	\$12.5-billion	\$28.5-billion
Realistic	Trend based upon combined investment trends of ILECs and CLECs during the “competition friendly” regulatory regime (1995 – 2000)	\$26.5-billion	\$59-billion
No Policy Change	Investment growth under current deregulatory regime	0	0
Dollars rounded to the nearest half-billion			

Almost a half-million new telecom sector jobs in the next five years.

In Chapter 1 we demonstrated our calculation of the “cost” to the US economy attributable to the FCC’s elimination of regulation of wholesale broadband services: a loss of more than 400,000 US jobs in the non-wireless segments of the US telecom industry. By reversing this policy now, the FCC has the opportunity to contribute to the overall economic recovery by reinstating the pro-competitive, market-opening regulatory measures that were built into the 1996 legislation and whose effectiveness in stimulating investment and job creation in the immediate post-TA96 time frame we find to be beyond dispute. The tables and figures following demonstrate the significant economic gains that we believe are available under a “competition friendly” regime that requires the ILECs to dependably make wholesale business broadband services and facilities available to rivals for use in downstream markets at reasonable prices and on reasonable terms and conditions. In each of the three scenarios we studied, we

used as the baseline level of employment the “Non-Wireless” telecom sector jobs reported by the Bureau of Labor Statistics as of September 2009.³⁵

Table 2-3 Baselines and Assumptions for Telecom Sector Jobs Growth Modeling		
	Period	BLS Job Category
Baseline Jobs Being Grown	September, 2009	Wireline Telecom Jobs (all jobs in BLS NAICS 517- Telecom excluding Wireless (NAICS 5172))
Conservative Scenario	Growth trajectory based upon indexed growth in jobs 1/1/2003 to 9/30/2009	Non Wireline Telecom Jobs in the Information Sector (BLS SuperSector 51)
Moderate Scenario	Growth trajectory based upon indexed growth in jobs year 1/1/2003 to 9/30/2009	Overall US non-farm Employment (BLS Supersector 00000000)
Realistic Scenario	Growth trajectory based upon indexed growth in jobs 1/1/1995 to 12/31/2000	All Telecom Jobs (all jobs in BLS NAICS 517 – Telecom)

Our first scenario, labeled “conservative,” uses an index based upon all non-wireline telecom employment in BLS “Information” supersector 51 (of which telecom is a segment) for a period beginning in January, 2003 (when the economy began recovering following the 2001-2002 economic downturn) and ending with jobs in those categories reported as of September 30, 2009. The “conservative” label is used because, like the “moderate” category identified below, this index reflects the significant job losses experienced during the current recession and, in addition, includes industry segments significantly impacted by “off-shoring” of jobs during this period (for example call centers) and industry segments that have been negatively impacted by the growth of the internet (e.g., newspapers). As such, our “conservative view” presents a very “worst case scenario” relative to the employment changes that can be expected in the “non-wireless” segment following changes in the regulatory structure. The index assumptions for each of the three scenarios used in our analysis are documented on Table 2-3 above.

³⁵ For purposes of our discussions here, “Non-Wireless” jobs are all those found in BLS NAICS 517 *Telecom* except NAICS 5172 *Wireless*. This includes Telecom Industry Subsectors *Wireline* (5172) and *Other* (5174 and 5179) which includes *Resellers* (517911). The *Wireline* subsector (5172) includes employees of cable companies.

Our “moderate” scenario assumed growth in ‘non-wireless’ telecom jobs paralleling the growth that had occurred in total US non-farm employment for the same January 1, 2003 to September 30, 2009 period reflected in the “conservative” scenario. This period represents the job trajectory that occurred economy-wide and that was not impacted by the change in the FCC’s regulatory regime from “competition friendly” to “competition unfriendly.” The scenario is labeled as “moderate” because the period covered includes employment data from the present recession – including the substantial economywide job losses that have occurred though out 2009.

Our final scenario and the one we believe to be most likely to occur is identified as the “realistic” scenario and assumed that growth in jobs in the “non-wireless” BLS telecom jobs category would parallel the growth that the entire Telecom sector experienced in the immediate post-TA96 period (year end 1995 to Year end 2000). This five-year period saw the strongest CLEC growth and ILEC responsiveness to that growth, and so most closely approximates the regulatory environment and market conditions that will be extant following the reregulation of wholesale broadband services.

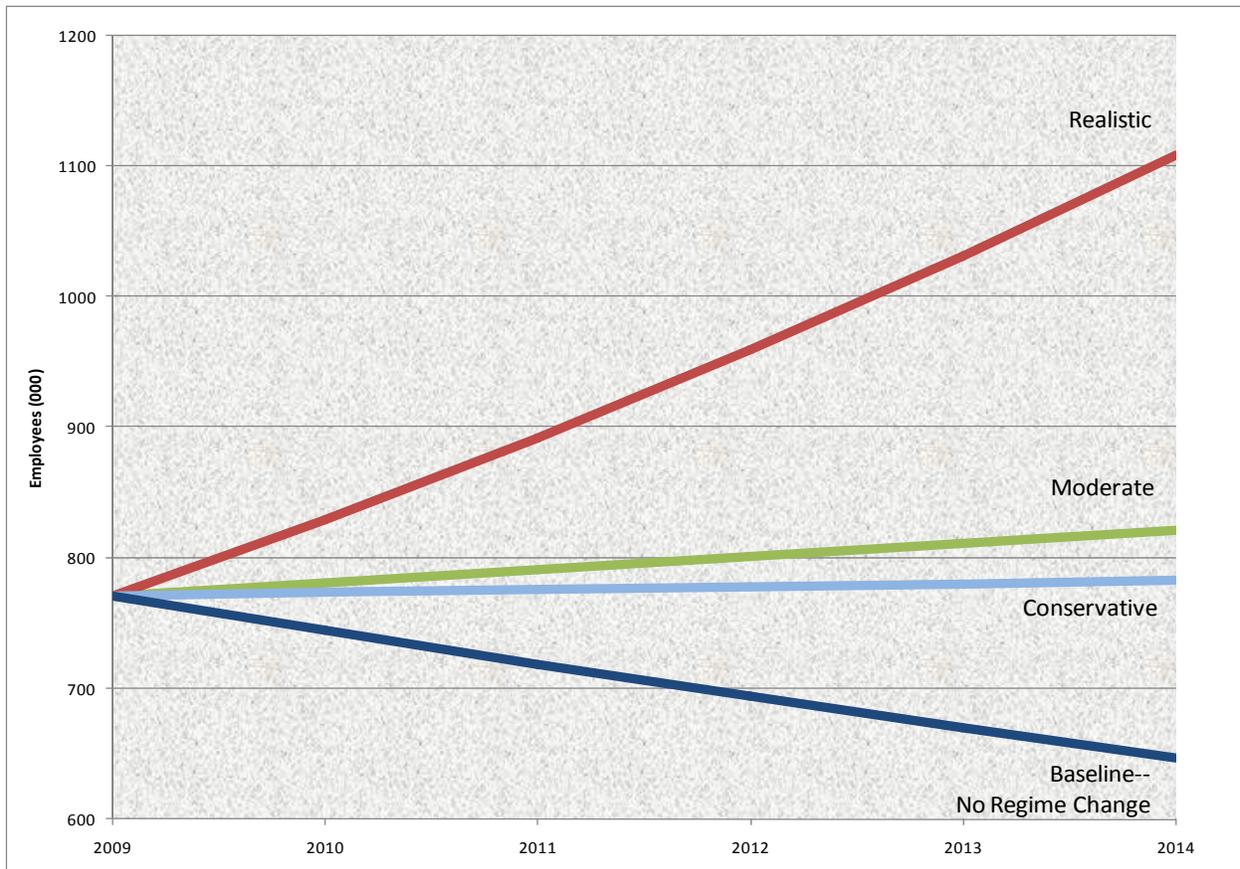


Figure 2- 2 Projected increases in US telecom sector employment through 2014 resulting from a re-instatement of wholesale service regulations.

Figure 2-2 demonstrates the economic gains that should result from reinstating regulation of wholesale broadband services. Even under our most conservative analysis, job losses in the wireline telecom segment are halted and slight growth occurs over the coming five-year period. Compared against the continuing job losses that will persist absent any change in the regulatory regime, the minimum difference we would expect to see at the end of five years under a more “competition friendly” structure is more than one hundred thousand American jobs saved. Under what we believe to be the most realistic scenario, the economy will gain more than 300,000 jobs relative to employment levels today. Compared against expected employment levels absent FCC action – reinstating regulation of wholesale broadband will promote investment, competition, and competitive responses that collectively will boost employment by some 450,000 over the next five years relative to retaining the regulatory status quo. Table 2-4 below demonstrates these results.

Table 2-4			
Results of Modeling of Impact of Policy Changes Requiring Wholesale Availability of Current Generation Last-Mile Facilities on Telecom Sector Jobs			
SCENARIOS		Forecast Jobs Changes by 2014	
		Jobs gained on 2009 Base	Jobs gained relative to expected job losses
Conservative	Trend based upon total Information supersector, less wireline telecommunications, 2003-2009.	11,297	136,182
Moderate	Trend based upon wireless telecommunications sector, 2003-2009	29,374	154,257
Realistic	Trend based upon total telecommunications sector, post TA '96 Act – 2000	337,730	462,614
No Policy Change	Jobs lost as a result of continued deregulation	(124,885)	

Public Policy Changes Will Also Generate Economy-Wide Impacts.

Reduction in the level of competition for the kinds of last-mile broadband facilities required by businesses and by non-ILEC telecommunications providers appears to have led to excessive pricing of last-mile services. As discussed above, this diminution in competitive alternatives is apparently the result of unrealistic expectations as to the development of widespread competition for last mile broadband facilities deployed to business locations, premature price deregulation based upon such unrealistic assumptions, and the elimination of opportunities for competitors to purchase essential last mile facilities on a wholesale basis from the ILECs at reasonable cost-based prices. In addition to the significant impacts upon investment and jobs in the telecom sector described above, the overpricing of essential business telecom services has had profoundly negative impact upon the overall US economy, as measured in terms of national output (GDP) and employment outside of the telecom sector. Reinstatement of regulation of wholesale last mile broadband services will have a multiplicative beneficial impact upon the national economy.

In order to estimate the macroeconomic impact of the lack of competition and reduction in investment and employment that has occurred in the telecom industry as a result of deregulation, it is necessary first to establish a metric for measuring the economic loss. The differential between actual BOC special access revenues and those that would have been realized had price regulation remained in place represents a drag on the economy. Following the elimination of most other wholesale avenues (specifically broadband UNEs), special access services remain as the only wholesale broadband service available to competitors.³⁶

In 2007, BOC revenues from dedicated last-mile broadband special access services topped \$17-billion and represented more than 50% of all BOC interstate business. Among the most recent pieces of regulatory “relief” granted to the BOCs was the elimination of any requirement to file cost or revenue data for their interstate services – making the 2007 results the most recent available. It is likely that for 2008 and 2009 special access revenues had increased to an even greater total dollar amount, and that they now represent an even larger portion of overall BOC interstate revenues than they did in 2007. For 2007, more than one-third of BOC special

³⁶ UNEs do still remain viable in some cases – although that can change on a case by case basis at any time with the reclassification of a wire center. CLECs can purchase DS1 and DS3 UNEs in wire centers that are deemed “impaired” under the FCC’s rules; the vast majority of wire centers are impaired for DS1 loops and most wire centers are also deemed impaired for DS3 UNEs. For small businesses, the problem is that DS1s are increasingly viewed as delivering insufficient capacity for small business applications while DS3s actually provide too much bandwidth at too high a price to meet small business needs. Ethernet is the appropriate solution in those cases, but Ethernet is not available as either a regulated special access service or a UNE. For larger businesses, UNE DS3s are sometimes suitable, often, however, special access is the only viable alternative.

access revenues – some \$6-billion – represented excess profits³⁷ 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.³⁸ This sustained overpricing of special access creates a “deadweight loss” to the US economy that undermines its overall efficiency and competitiveness. While each individual impact, 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 and, in fact, AT&T, prior to its acquisition by SBC, had done just that. In 2003, AT&T commissioned a detailed macroeconomic study³⁹ that found that restoring prices for enterprise broadband last-mile facilities to competitive levels would, over three years, result in \$14.5-billion in economic growth and the creation of 132,000 jobs across the US economy. We updated the AT&T Study in 2007 to give effect to both the higher special access profit levels and the significant growth in

³⁷ “Excess profits,” sometimes referred to as “monopoly profits” or “monopoly rents,” represent profits in excess of what can reasonably be expected to arise under competitive market conditions. Economic regulation of dominant telecom carriers – whether focused upon profit levels (“rate of return regulation”) or price levels (“price cap regulation”) is intended to simulate such competitive market conditions in circumstances where economic conditions make the development of a competitive market unlikely or highly inefficient. We use the term “excess profits” here to refer to earnings in excess of the interstate rate of return last-authorized by the FCC. This occurred some twenty years ago – in 1990 – where the Commission set the authorized rate of return at 11.25%. *Represcribing the Authorized Rate of Return for Interstate Services of Local Exchange Carriers*, CC Docket No. 89-624, Order, FCC No. 90-315, 5 FCC Rcd 7507 (1990). That rate was intended to be a proxy for what the RBOC could be expected to earn in a market where its rates were constrained by competition, based on then-current market conditions (including capital costs). In fact, at the time the 11.25% rate was set, market interest rates were considerably higher than they are today. Considering that the most recently authorized rate of return was adopted in 1990 at a time when the prime rate was 10% and the 10-year US Treasury Bond rate was 8.89% (September 1990), competition-constrained earnings could be expected to be much lower – so our use of the 11.25% return level in estimating a reduction in prices is quite conservative. Today, those rates are both under 3.5% (December 10, 2009). Federal Reserve Board, *Statistics: Releases and Historical Data*, <http://www.federalreserve.gov/releases/h15/data.htm#fn3>, (accessed December 14, 2009). If the same criteria for defining the “authorized rate of return” surrogate for competitive earnings levels were applied under today’s capital 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.

³⁸ 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.

³⁹ 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”).

special access demand that had occurred in the four years following the completion of the original AT&T Study. The updated study projected that, in 2007 alone, the benefit to the US economy from eliminating the (then extant) \$5-billion in excess special access prices that businesses economywide had paid to the RBOCs would have produced an additional 95,000 jobs and \$17.2-billion in GDP.⁴⁰ Looking out two additional years (through 2009, inclusive), the updated study estimated that reversing the inefficiencies arising from the excessive special access rate levels would have translated to 234,000 new jobs and additional GDP growth in the range of \$66-billion.⁴¹

⁴⁰ 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”).

⁴¹ *Id.*

3 | Conclusion

The preamble to the 1996 federal Telecommunications Act describes the legislation as “An Act to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.”⁴² In crafting this legislation, Congress clearly understood that replication of the incumbents’ extensive and ubiquitous networks by entrants was not even possible in the short run and was not particularly efficient or practical even in the long run. At the same time, Congress was under no illusion that the incumbent carriers would voluntarily open their networks and share their network resources with rival firms, and on that basis imposed a series of specific duties upon incumbent local carriers both as to the availability and cost to entrants of utilizing incumbent network elements to enter the local telecom market and to offer services to customers. The FCC was directed to – and did – adopt detailed regulations aimed at assuring that such access was made available at forward-looking, cost-based wholesale prices.

Presented with these Congressionally-mandated opportunities to enter the local telecom market and to compete with incumbent carriers using the incumbent carriers’ own network facilities, rival competitive local exchange carriers obtained capital and developed and pursued business models premised upon their ability to combine their own facilities with those obtained from the incumbents. In the five years immediately following TA96’s adoption, CLECs invested some \$125-billion in competing telecom facilities and business resources to support their entry. ILECs too were compelled to invest in new facilities to respond to these competitive inroads. Competition flourished, innovation exploded, and price levels fell – *precisely what Congress had intended and expected.*

But after 2001, the FCC commenced undoing much of what the agency had accomplished in the immediate post-TA96 period. Regulated wholesale rates were replaced by “market-based” rates that appear to have been nothing more than take it or leave it prices dictated by the dominant incumbents rather than “negotiated” between the ILECs and their CLEC rivals. Entrants’ ability to compete using ILEC facilities was all but shut down, and bankruptcies and large-scale market exits became all too frequent.

Competition not only serves the overarching Congressional goals for the 1996 legislation, it also promotes investment, employment, and serves to stimulate economic activity generally. There can be no doubt that entrants’ ability to obtain access to ILEC facilities and to utilize those facilities to compete with the ILECs in downstream markets drives the competitors’ own

⁴² Preamble, *Telecommunications Act of 1996*, P. L. 104-104

facilities investments. Moreover, the presence of robust competition and the challenges that such competition presents to incumbents forces incumbents to escalate their own investment programs as well. Policies that frustrate entry serve to create complacency among incumbents, affording them with little incentive to take risks, increase their efficiency, bring innovative services to market, and to invest in their networks.

The economic gains in terms of investment, employment, innovation, and national competitiveness that will flow from a reinstatement of the successful regulatory regime under which competition flourished in the late 1990s should be beyond dispute. The FCC should act – and act quickly – to reverse the failed policies of the past decade and get the US telecommunications industry moving forward once again.

Appendix A | A Brief Tutorial on the Competitive Entry Paths Envisioned in TA96

In 1996, the US Congress passed the *Telecommunications Act of 1996* (“TA96”), a key goal of which was to promote and facilitate the development of competition in local telephone and access markets. Previously, local exchange competition was either prohibited outright or (where permitted in some states) was frustrated by the inability of would-be entrants to interconnect with the dominant incumbents. TA96 barred state regulators from restricting competitive entry in the local telephone market, but beyond merely making local competition *possible* as a legal matter, the legislation included a number of measures designed specifically to *facilitate and encourage* entry with the expectation that increased competition and reduced regulation would work to “secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.”⁴³

The US Congress recognized that in order for robust local exchange competition to arise, it must be feasible for multiple competitive local exchange carriers (“CLECs”) to enter the market and to sustain and expand their market presence. Congress also recognized, however, that replication of the incumbent carriers’ installed base of network facilities would require enormous infusions of capital and a protracted time frame to accomplish, and that in many cases such replication would be so inefficient that it would be unlikely ever to occur. Accordingly, TA96 created three separate, but not mutually exclusive, paths by which a CLEC could gain entry into the local market:

(1) *Facilities-based entry.* An entrant could acquire and construct its own transmission and switching facilities, and be assured the right to interconnect these to the incumbents’ networks.⁴⁴ Facilities-based entry gives the CLEC the greatest control of its network and to control costs – once it can justify the large up-front investment that is required. However, facilities-based entry involves high fixed costs the recovery of which requires that a relatively large volume of business (i.e., revenue) be derived from such facilities.

Because an entrant will typically serve only a small fraction of the total market, the *unit cost* to serve each individual customer will often exceed – and sometimes by a considerable amount – the incumbent’s per-customer unit cost. In many situations, the level of revenue potentially available

⁴³ Preamble, *Telecommunications Act of 1996*, P.L. 104-104.

⁴⁴ 47 U.S.C. §251(c)(2)

from that relatively small portion of the market that an entrant can reasonable expect to capture over a given route may be insufficient to justify the cost of an overbuild of the incumbent’s existing network. For this reason, TA96 created two alternative means by which the CLEC can provide local service using the incumbent’s facilities – by leasing individual network components (“unbundled network elements”) or by purchasing a total service for resale to retail customers.

(2) *Unbundled Network Elements (“UNEs”)*. Competitive carriers could lease, on a wholesale basis, individual components (“elements”) of the incumbents’ network and combine them with the competitor’s own facilities or with other unbundled elements, to form a complete service that the competitor could market to its retail customers.⁴⁵ TA96 required incumbents to price these elements at cost, including a reasonable profit.

Because it takes time to construct a network, even where such investment can be justified economically, *leasing unbundled network elements* could be used to complement the CLEC’s facilities, enabling it to offer service across a much larger geographic footprint than would be possible if it were confined solely to its own network assets. Where CLEC facility overbuilds would be uneconomic, the availability of UNEs leased from the incumbent would make competition feasible. Moreover, demanding that a CLEC deploy facilities when it is uneconomic to do so benefits neither the CLEC nor the ILEC. When the ILEC’s existing network has all of the capacity required to serve the total demand (its own plus CLECs’), *requiring* the construction of redundant facilities through a CLEC overbuild creates a situation in which neither network is likely to be deployed in an economically efficient manner. To undermine the economic viability of both ILEC and CLEC investments in this manner is clearly not in the public interest.

(3) *Total Service Resale (“TSR”)*. Any service that the incumbent offered on a retail basis could be purchased – stripped of its retail functions – at a discount that reflected the incumbent’s avoided retailing costs. The competitor could then rebrand the service and market it to its own retail customers.⁴⁶ This approach offered the CLEC the least control of its network and costs, but had the advantage of permitting more rapid and flexible expansion, with minimal investment.

Each competitive path presented the entrants with different economic challenges and opportunities. Importantly – and quite appropriately – *TA96 did not contain any preference or predisposition favoring one method of competitive entry over the others*; it left the choice of the optimal business model or entry strategy to each CLEC. Moreover, UNEs and TSR were never envisioned as “transitional” devices that would be phased out once the CLECs had an opportunity to deploy their own facilities. Instead, the continued use of the incumbents’ networks was seen as playing a critical role in promoting *and sustaining* local competition on a permanent basis.⁴⁷

⁴⁵ 47 U.S.C. §251(c)(3)

⁴⁶ 47 U.S.C. §251(c)(4)

⁴⁷ Non-facilities based business models are the norm in most industries, not the exception. For example, in wireless, non-facilities-based retail-level competition offers important benefits in terms of expanded choice, product innovation, and market discipline. Retailing activities may represent as much as 17-19% of an incumbent local telco's costs; even if limited solely to retailing activities, competition can produce significant consumer benefits by exploiting opportunities to increase

Importantly, each of the two wholesale approaches was designed to be fully compensatory to the ILEC.

As with most laws, however, the 1996 Telecommunications Act's success was dependent upon its implementation. Initially, the FCC took great pains to adopt regulations supportive of the pro-competitive provisions in the Act.⁴⁸ The U.S. Supreme Court upheld the progressive incremental cost methodology ("Total Element Long Run Incremental Cost" or "TELRIC") that the FCC had adopted as the cost-based pricing standard for unbundled network elements.⁴⁹ As we discuss in the body of the paper, the early implementation of TA96 was followed by a period of robust competitive growth by CLECs and significant investment by these companies in their networks.

The three entry paths specifically enumerated in TA96 supplemented the use of more expensive, but still useful, rate regulated dedicated special access services by competitors that had been available since 1984.⁵⁰ The use of special access services represented an entry path similar to that described for UNE elements above – allowing competitors to complement facilities they built on their or in some cases to provide service entirely on a resold basis. Unlike UNEs, however, special access prices have never been set at the forward-looking cost levels designed to emulate competitive market price levels – rather they were, at least until the early 2000's when pricing flexibility became operative, subject to price caps regulation and annual price caps price adjustments that resulted in price levels much higher than those available for UNEs.⁵¹

retailing efficiency overall, and by introducing innovating service packages and pricing. The existence of competition at the retail level can help to stimulate additional facilities-based entry as well, affording nascent wholesale carriers with access to an established retail distribution channel that would otherwise be unavailable if all telecom retail activities were confined to vertically integrated incumbents and facilities-based CLECs.

⁴⁸ *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, CC Docket Nos. 96-98, 96-185, *First Report and Order*, 11 FCC Rcd 15499 (1996) ("*Local Competition Order*").

⁴⁹ *Verizon Communications Inc. V. FCC* (00-511) 535 U.S. 467 (2002) 219 F.3d 744, affirmed in part, reversed in part, and remanded.

⁵⁰ Special access was created as part of the FCC's original access charge regime in 1984.

⁵¹ Today, while some services remain available to competitors as special access (albeit with no ceiling on the prices charged by the ILECs in over half the country) many categories of service (packet-based services like Ethernet and high capacity services at the OC-level) are no longer classified as special access, and as such, there is no guaranteed availability to wholesale customers.

The Authors

Lee L. Selwyn, President and founder of Economics and Technology, Inc., is an internationally recognized authority on telecommunications economics, regulation, and public policy. Since founding ETI in 1972, Dr. Selwyn has formulated numerous policy recommendations and regulatory devices that have been widely embraced by policymakers at all levels. He has provided expert testimony and analysis on technology, rate design, service cost analysis, market structure, form of regulation, and numerous other telecommunications policy issues before more than forty state commissions, the FCC, the United States Congress and a number of foreign regulatory bodies on behalf of commercial organizations, institutions, and local, state and federal government authorities. Dr. Selwyn regularly speaks on telecom policy at government and industry conferences worldwide, and has published dozens of articles on telecommunications industry issues. [Ph.D. in Management, Alfred P. Sloan School of Management, Massachusetts Institute of Technology; Master of Science in Industrial Management, MIT; B.A. with Honors in Economics, Queens College, City University of New York.]

Susan M. Gately, Senior Vice President of Economics and Technology, Inc., is a leading expert in telephone industry pricing, services, and network management. Active in telecom policy for twenty-five years, Ms. Gately is among the nation's foremost experts in access charge rate structure, cost development, and policy. She advises large corporate telecom users in the evaluation and procurement of custom network service packages. Ms. Gately serves as primary contact point and coordinator for ETI's major corporate user clients, providing advice in the areas of strategic planning, service procurement negotiation, and pricing and policy trends. She has designed and presented training sessions for corporate users and public utilities commission staff in subject areas ranging from tariff structures and regulatory schemes to in-depth exploration of public policy issues. [B.A., Economics, Smith College.]

Helen E. Golding, Vice President at Economics and Technology, Inc., has thirty years experience in the utilities field. At ETI, Ms. Golding has managed and participated in a broad range of projects involving the transition from regulation to competition, including incentive regulation, interconnection, universal service and access charge reform, and the public interest review of mergers and BOC long distance entry requirements. Ms. Golding also has an extensive public sector background, having worked at the FCC and as Assistant General Counsel and Acting General Counsel at the Massachusetts Department of Public Utilities. Prior to joining ETI in 1994, Ms. Golding's other private sector employment included a private law practice specializing in telecommunications and public utility regulation, and as Telecommunications Counsel at Honeywell Inc. [J.D., Boston University School of Law; A.B. cum laude, Bryn Mawr College].

Colin B. Weir, Senior Consultant, conducts economic, statistical, and regulatory research and analysis for ETI's clients, with a primary focus on the telecommunications industry. Mr. Weir has contributed research and analysis to numerous ETI publications and testimony at the state, federal, and international levels that have addressed a variety of issues, including: wireless pricing, and ETF and handset locking practices; NANPA numbering policy; Universal Service policy; pricing and regulation of Unbundled Network Elements; rate-of-return regulation; pricing flexibility for special access services; and telecommunications tariff and contract pricing. [M.B.A. with honors, Northeastern University; B.A. cum laude in Business Economics, The College of Wooster.]

Economics and Technology, Inc. has been primarily and continuously engaged in the telecommunications policy field for more than thirty-five years. ETI has participated in more than 500 regulatory and policymaking proceedings in more than forty states, at the Federal Communications Commission, the Canadian Radio-television and Telecommunications Commission, and in a number of other countries. The firm has served as consultants on a broad range of policy and ratesetting issues to the FCC, to numerous state utility commissions and state consumer advocacy agencies across the United States, as well as to numerous corporate, government, consumer and competitive carrier clients.

