

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC

In the Matter of)
)
Framework for Broadband Internet Service) GN Docket No. 10-127

REPLY COMMENTS OF THE FIBER-TO-THE-HOME COUNCIL
IN THE NOTICE OF INQUIRY



FTTH | fiber to the home
council

Joseph P. Savage
President
Fiber-to-the-Home Council
4741 Cambridge Court
Lake Oswego, OR 97035
503-635-3114 (Telephone)
president@ftthcouncil.org

August 4, 2010

TABLE OF CONTENTS

	Page
SUMMARY	I
I. INTRODUCTION: REWIRING AMERICA WITH FTTH NETWORKS	4
II. THE COMMISSION’S PROPOSED TITLE II RECLASSIFICATION SCHEME WOULD UNAVOIDABLY LEAD TO REGULATED WHOLESALE ACCESS.....	7
A. The Commission’s Proposed Reclassification Of Broadband Internet Service Would Require Complicated Technical Unbundling	7
B. Applying Sections 201 And 202 To “Internet Connectivity” Service Would Require The Commission To Price Regulate	10
C. Because The Commission Has Suggested That The Broadband Market May Not Be Competitive, Price Regulation Under Sections 201 And 202 Would Follow.....	13
D. Unavoidable Regulation Under Sections 201 and 202 Will Go Beyond Prices To Include Non-Price Features of Broadband Internet Service	16
E. Although the Commission Has Ignored These Issues In The NOI, Reclassification Will Make Them Unavoidable	18
III. OPEN ACCESS FTTH NETWORKS HAVE NOT BEEN FINANCIALLY VIALE WITHOUT GOVERNMENT OR OTHER EXTERNAL SUPPORT	19
A. FTTH Open Access Deployments in the United States	19
B. FTTH Open Access Deployments in Foreign Countries	25
IV. AN ECONOMIC MODEL DEVELOPED BY CSMG DEMONSTRATES THAT REQUIRING A PROVIDER OF BROADBAND INTERNET SERVICE TO WHOLESALE TRANSPORT TO UNAFFILIATED ENTITIES WILL RESULT IN DECREASED REVENUES AND INCREASED RISK, THUS MATERIALLY REDUCING THE RETURN ON INVESTMENT IN – AND HARMING THE BUSINESS CASE FOR -- FTTH NETWORKS	28
V. RECLASSIFICATION WILL SERIOUSLY IMPEDE ACHIEVEMENT OF THE NATIONAL BROADBAND PLAN’S NEXT GENERATION ACCESS GOALS.....	33
VI. THE COMMISSION CAN ACHIEVE ITS STATED GOALS—PROTECTING CONSUMER INTERESTS AND IMPLEMENTING THE NATIONAL BROADBAND PLAN—WITHIN ITS EXISTING LEGAL FRAMEWORK.....	35
A. Comcast Does Not Foreclose The Commission From Asserting Ancillary Authority Over Broadband Internet Services.....	36
B. The Commission Has Sufficient Statutory Authority to Protect Consumer Interests And Accomplish Other Goals Identified in the Broadband Plan	38
VII. CONCLUSION	42

TABLE OF CONTENTS (CONTINUED)

APPENDIX A

DECLARATION OF MICHAEL JOHNSTON
VICE PRESIDENT, INFORMATION TECHNOLOGY
JACKSON ENERGY AUTHORITY

DECLARATION OF TODD MARRIOTT
EXECUTIVE DIRECTOR
UTAH TELECOMMUNICATION OPEN INFRASTRUCTURE AGENCY

APPENDIX B

CSMG FINAL REPORT: FCC BROADBAND RECLASSIFICATION
AUGUST 2, 2010
PREPARED FOR THE FIBER-TO-THE-HOME COUNCIL

SUMMARY

Over the past decade, almost 500 telecommunications providers have risked their capital to begin rebuilding the nation's wireline communications infrastructure by deploying fiber-to-the-home ("FTTH") networks. From passing only thousands of homes in 2001, FTTH networks today pass more than 18 million homes and almost 6 million are connected. The tremendous growth of FTTH networks owes much to the Commission and its key deregulatory decisions, which removed burdens to share network components or services with entities that had not incurred the major risk of constructing infrastructure.

Yet, despite this success, private and public sector entities have just begun to deploy FTTH networks. These networks are only accessible by about 15% of the nation's homes. In addition, despite the fact that costs of deployment are declining significantly, deploying FTTH networks continues to be very capital-intensive with a long payback period. In such an environment, imposing any additional regulatory burdens would only increase the challenge and act as a drag on growth. More specifically, the proposed reclassification of broadband Internet service or any transport component thereof from Title I to Title II would significantly undermine the economic viability of FTTH deployments. Consequently, the Fiber-to-the-Home Council opposes the Commission's Second and Third Way proposals as they apply to FTTH networks. The Council supports its determination by demonstrating in these comments that:

- Reclassifying broadband Internet service as a Title II offering would lead to the imposition of requirements for FTTH providers to offer wholesale access to unaffiliated entities;
- Reclassifying broadband Internet service as a Title II service offering would measurably increase the risk associated with investing in newly-regulated markets where regulatory requirements are uncertain and where proposed regulations are certain to be subject to many years of litigation; and
- The mandated sale of wholesale access on FTTH networks and increased risk of investment would undermine the economic rationale for deployment, leading to substantially lower levels of investment in the technology than would occur if there were no regulatory change.

To support this conclusion, the Council first shows that real-world open access FTTH networks on which transport is sold at wholesale have not proven to be economically self-sustaining through customer revenues alone. Second, it shows that, based on economic modeling of the FTTH business case by the consulting firm CSMG, the number of households that can be served economically by FTTH networks is reduced substantially (by about 50%) when: (1) broadband Internet service providers are required to offer transport at wholesale to unaffiliated entities; and (2) these providers are subject to increased risk arising from investment in newly-regulated broadband markets where the regulatory obligations are uncertain and Commission decisions to adopt such obligations will be contested on appeal. Consequently, the Council urges the Commission to eschew Title II reclassification. Instead, it believes that the Commission can achieve its policy goals by subjecting broadband Internet access service provided over FTTH networks to Title I regulatory authority.

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC**

In the Matter of)
)
Framework for Broadband Internet Service) **GN Docket No. 10-127**

**REPLY COMMENTS OF THE FIBER-TO-THE-HOME COUNCIL
IN THE NOTICE OF INQUIRY**

The Fiber-to-the-Home Council (“FTTH Council”) hereby respectfully submits its reply comments to the Federal Communications Commission (“Commission”) in response to the Notice of Inquiry (“*Commission Notice*”) issued in the above-captioned proceeding.¹

The FTTH Council is a non-profit organization established in 2001. Its mission is to educate the public and government officials about fiber-to-the-home (“FTTH”)² and to promote and accelerate FTTH deployment and the resulting quality of life enhancements FTTH networks make possible. The FTTH Council’s members represent all areas of the broadband access industry, including telecommunications, computing, networking, system integration,

¹ *In the Matter of Framework for Broadband Internet Service*, Notice of Inquiry, GN Docket No. 10-127, Rel. June 17, 2010.

² As used in these comments, the term FTTH means a local access network that extends fiber from the central office to the subscriber’s premise. The term encompasses fiber-to-the-premise networks, such as Verizon’s FiOS network.

engineering, and content-provider companies, as well as traditional service providers, utilities, and municipalities. As of today, the FTTH Council has more than 210 entities as members.³

The members of the Council have a substantial interest in how the Commission classifies broadband Internet access service because any decision significantly affects the FTTH business model and hence the viability of current and future investment in the technology. Current and potential FTTH service providers and equipment vendors will suffer material harm if the Commission decides to overturn the *Wireline Broadband Order*⁴ and subject either broadband Internet service or a transport component of such service to Title II regulation,⁵ even with the NOI's proposed forbearance from many provisions of this Title. The FTTH Council, therefore, submits that while the Commission should not alter the *Wireline Broadband Order's* information services classification (and Title I regulatory regime) for any wireline provider, there is an overwhelming reason not to do so for FTTH providers.

The Council demonstrates in these comments that:

- Reclassifying broadband Internet service as a Title II offering, which would subject it to the requirements of sections 201, 202, and 208, would lead to the imposition of requirements for FTTH providers to offer wholesale access to unaffiliated entities;

³ A complete list of FTTH Council members can be found on the organization's website: <http://www.ftthcouncil.org>.

⁴ *In the Matter of Appropriate Framework for Broadband Internet Access to the Internet Over Wireline Facilities et al.*, CC Docket Nos. 02-33, 01-337, 95-20, 98-10, WC Dockets Nos. 04-242, 05-271, Report and Order and Notice of Proposed Rulemaking, 20 FCC Red 14853 (2005), ("*Wireline Broadband Order*").

⁵ In these comments, the FTTH Council analyzes the consequences of two effects -- a wholesale obligation and increased risk arising from market uncertainty -- that arise from altering the current Title I regulatory regime and either regulating broadband Internet service ("Second Way") or the transport component of such service ("Third Way") pursuant to Title II. Because these two effects arise from either the Second Way or Third Way approach, the Council uses the term broadband Internet service in these comments to refer to either approach.

- Reclassifying broadband Internet service as a Title II service offering would measurably increase the risk associated with investing in newly-regulated markets where regulatory requirements are uncertain and where proposed regulations are certain to be subject to many years of litigation; and
- The mandated sale of wholesale access on FTTH networks and increase risk of investment would undermine the economic rationale for deployment, leading to substantially lower levels of investment in the technology than would occur if there were no regulatory change.

To support this conclusion, the Council provides two pieces of compelling evidence.

First, it shows that real-world open access FTTH networks on which transport is sold at wholesale have not proven to be economically self-sustaining through customer revenues alone. Second, it shows that, based on economic modeling of the FTTH business case by the consulting firm CSMG,⁶ the number of households that can be served economically by FTTH networks is reduced substantially (by about 50%) when: (1) broadband Internet service providers are required to offer transport at wholesale to unaffiliated entities; and (2) these providers are subject to increased risk arising from investment in newly-regulated broadband markets where the regulatory obligations are uncertain and Commission decisions to adopt such obligations will be contested on appeal. Consequently, the Council urges the Commission to eschew Title II reclassification. Instead, it believes that the Commission can achieve its policy goals by subjecting broadband Internet access service provided over FTTH networks to Title I regulatory authority.

⁶ FCC Broadband Reclassification (Final Report), Prepared for the FTTH Council by CSMG, August 2, 2010. Attached as Appendix B. (“CSMG Report”)

I. INTRODUCTION: REWIRING AMERICA WITH FTTH NETWORKS

In the recently issued Omnibus Broadband Initiative Technical Paper No. 1, the Commission recognized both the enormous value of FTTH networks and the challenges faced in deploying this plant: “Fiber-to-the-Premises (FTTP) offers the greatest potential capacity of any of the [access] technologies considered, making it the most future-proof alternative. The tradeoff for this is the additional construction costs incurred to extend fiber all the way to the premises, making FTTP the most capital-intensive solution considered.”⁷ Over the past decade, almost 500 telecommunications providers have accepted this challenge and have begun rebuilding the nation’s wireline communications infrastructure to bring FTTH networks to residences and businesses. From passing only thousands of homes in 2001, FTTH networks today pass more than 18 million homes and almost 6 million are connected.⁸

The tremendous growth of FTTH networks owes much to the Commission and its key deregulatory decisions, which removed burdens to share network components or services with entities that had not incurred the major risk of constructing infrastructure. Two actions by the Commission stand out. First, in 2003, the Commission, in the *Triennial Review Order*, concluded that “requesting carriers are not impaired without access to FTTH loops” and therefore removed section 251(c)(3) unbundling obligations.⁹ Second, in 2005, the Commission

⁷ *The Broadband Availability Gap*, Omnibus Broadband Initiative Technical Paper No. 1, Federal Communications Commission, at 94.

⁸ “Fiber-to-the-Home Primer: Advantages of Optical Access,” FTTH Council, *Broadband Properties Magazine*, In 2009, there were 17 retail providers. Vol. 31, No. 3, March/April 2010, “Insert” at 18-19.

⁹ *In the Matter of Review of the Section 251 Unbundling Obligations of Local Exchange Carriers et al.*, Report and Order on Remand and Further Notice of Proposed Rulemaking, CC Dockets Nos. 01-338, 96-98, and 98-147, (rel. Aug. 21, 2003) at ¶ 273. (“*Triennial Review Order*”)

in the *Wireline Broadband Order*, decided “that eliminating the *Computer Inquiry* rules at this time will make it more likely that wireline network operators will take more risks investing in and deploying new technologies that they are willing and able to take under the existing regime.”¹⁰ As evidenced by the growth in FTTH networks, the Commission’s predicative judgment has proven correct.

Yet, despite this success, private and public sector entities have just begun to deploy FTTH networks. These networks are only accessible to about 15% of the nation’s homes. In addition, despite the costs of deployment declining significantly, deploying FTTH networks continue to be very capital-intensive with a long payback period. In such an environment, imposing any additional burdens, including through new regulatory requirements, would only increase the challenge and act as a drag on growth.

These concerns of the FTTH Council’s should be viewed through the prism of the National Broadband Plan.¹¹ With the release by the Commission of the plan, the nation has embarked on a mission to increase investment in and deployments of high-performance broadband networks – of which FTTH is the most capable. Goal No. 1 of the plan is: “At least 100 million U.S. homes should have affordable access to actual download speeds of at least 100 megabits per second and actual upload speeds of at least 50 megabits per second.”¹² In addition, the National Broadband Plan seeks to “ensure robust competition and, as a result, maximize

¹⁰ *Wireline Broadband Order* at ¶ 72.

¹¹ *Connecting America: The National Broadband Plan*, Federal Communications Commission, rel. Mar. 16, 2010, available at: <http://www.broadband.gov/plan/>. (“National Broadband Plan”). This goal is often referred to as the “100 Squared” objective.

¹² *Id.*, at Executive Summary, XIV.

consumer welfare, innovation and investment.”¹³ In other words, the Commission should seek to enhance investment in multiple, high-performance broadband networks to consumers. The Council supports these ambitious objectives, but they will be set back severely if the Commission’s reclassification proposal is adopted.

The harm that would flow from re-imposing Title II regulation on FTTH providers is measurable. In the next sections, the Council will demonstrate that it is substantial. The Council first describes the legal consequences of imposing Title II regulatory requirements. It then analyzes the economic viability of FTTH deployments, both actual deployments and from a FTTH deployment model developed by CSMG. Because a wide variety of service providers, public and private, have deployed FTTH networks with different business models, we have been able to gain insights into the variables that are most critical for determining viability. More specifically, a small group of FTTH providers have employed an open access business model – akin to what would be required if Title II regulation were imposed -- where the provider offers a transport service and other entities (including in some cases the FTTH provider) provide retail services. The Council examines those providers and shows that they have not been financially viable except in instances where governments have provided material support. Finally, the Council shows that, if the Commission maintains the current Title I regulatory classification for broadband Internet access services, it can achieve its key policy objectives.

¹³ *Id.*, at Executive Summary, XI.

II. THE COMMISSION'S PROPOSED TITLE II RECLASSIFICATION SCHEME WOULD UNAVOIDABLY LEAD TO REGULATED WHOLESALE ACCESS

The Commission maintains that it has no plans to regulate broadband Internet rates or retail pricing,¹⁴ and that it intends to take action that will avoid uncertainty and encourage investment in broadband deployment. But the Commission's proposal to include sections 201, 202, and 208 among the six Title II provisions that would apply to broadband Internet service under the Third Way proposal contradicts these asserted intentions.¹⁵ The NOI is conspicuously silent on how sections 201 and 202 would apply to pricing as well as other terms and conditions of broadband Internet services. The Commission's proposal would be a radical departure from the Title I status quo the Commission claims to be seeking to preserve. Under Title I, broadband Internet providers offer consumers a single Internet service priced at market-based rates subject to the Commission's ancillary jurisdiction. The imposition of sections 201, 202, and 208 would lead to rate regulation and wholesaling of unbundled Internet transmission service.

A. THE COMMISSION'S PROPOSED RECLASSIFICATION OF BROADBAND INTERNET SERVICE WOULD REQUIRE COMPLICATED TECHNICAL UNBUNDLING

Broadband Internet service is an inherently intertwined service currently offered at a single retail price. While transmission is one element of broadband Internet service, it must be

¹⁴ *Framework for Broadband Internet Service*, Notice of Inquiry, ¶ 74 (rel. June 17, 2010) ("NOI"); see also *A Third-Way Legal Framework For Addressing The Comcast Dilemma*, Austin Schlick, General Counsel, Federal Communications Commission, at 6 ("*Schlick Third Way Statement*") ("There is no reason to anticipate the Commission would reach a different conclusion about prices or pricing structures for broadband access.").

¹⁵ NOI, ¶ 74; see also *The Third Way: A Narrowly Tailored Broadband Framework*, Julius Genachowski, Chairman, Federal Communications Commission, at 5 (May 6, 2010) ("*Genachowski Third Way Statement*") ("The Commission would take steps to give providers and their investors confidence and certainty that this renunciation of regulatory overreach will not unravel while also giving consumers, small businesses, entrepreneurs and innovators the confidence and certainty they need and deserve.").

seamlessly integrated with a variety of computer processing functions to enable Internet access. That is, broadband Internet service is a complete integration of transmission with a number of information services, including protocol conversion, IP address number assignment, domain name resolution through a domain name system (“DNS”), and telecommunications-provided caching.¹⁶ This stands in stark contrast to broadband’s technological predecessor, “dial-up” Internet service, which consists of two technologically distinct components: (1) information services provided by an Internet service provider (“ISP”); (2) that is accessed via a traditional telephone network. As the Commission has previously recognized, broadband is different—it “is a functionally integrated, finished service that inextricably intertwines information-processing capabilities with data transmission such that the consumer always uses them as a unitary service.”¹⁷ And just as consumers use the components of broadband Internet service as a “unitary service,” so too do they pay a “unitary” retail price for it.

¹⁶ We leave the task of explaining the NOI’s technological fallacies to other commenters. See, e.g., Comments of The Alliance For Telecommunications Industry Solutions (“ATIS”), at 6 (explaining, from a technical standpoint, that “[t]he Commission’s attempt to create a distinction between ‘Internet access service’ and ‘Internet connectivity service’ could inject confusion . . . because to connect to the Internet is to access the Internet, [and so] the two terms are logically synonymous”); *id.* at 11 (explaining that “the NOI’s . . . reference to the NECA tariff as ‘offer[ing] . . . Internet transmission services as telecommunications services’ seems to be technically inaccurate” (alteration in original) (internal footnotes omitted)). Our focus is on analyzing how established legal principles will lead unavoidably to rate regulation if the Commission moves forward with its proposed reclassification.

¹⁷ *In the Matters of Appropriate Framework for Broadband Providers to the Internet Over Wireline Facilities*, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 14853, 14860 (2005) (“*Wireline Broadband Order*”); see also *Cable Modem Declaratory Ruling*, 17 FCC Rcd at 4823 (concluding that cable modem service is a “single, integrated service that enables the subscriber to utilize Internet access service,” and the telecommunications component is “not . . . separable from the data processing capabilities of the service”); cf. *Petition of Qwest Corporation for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Phoenix, Arizona Metropolitan Statistical Area*, Memorandum Opinion and Order, FCC 10-1313, WC Docket No. 09-135, ¶¶ 42, 43 (rel. . . .*Continued*

The Commission's reclassification proposal seeks to compel broadband Internet providers to separate this fully integrated, unitary service, but fails to recognize the profound economic consequences of doing so. These consequences would necessarily include regulation of prices, terms, and conditions of the suite of services offered today as a unitary broadband Internet service. Reclassification of the transmission component of broadband Internet service would force providers to distinguish between the transmission element of broadband and its many integrated computer processing elements. As the Commission's decades-long experience with unbundling telephone network transmission demonstrate, carving the transmission component out of the integrated, unitary service offered over technologically dynamic networks creates a plethora of difficult issues.¹⁸ Broadband carriers would have to divide—and charge separately for—the essential components of their service, sowing confusion among consumers and creating the possibility for a wide variety of disputes over the nature and prices of the service's many components. Previous Commissions that struggled with these issues drew bright line rules between legacy TDM technology and packetized fiber loop facilities,¹⁹ emphasizing

June 22, 2010) (explaining regulatory and economic differences between legacy services and advanced services such as broadband) (“*Qwest Phoenix Forbearance Order*”).

¹⁸ See *Ascent v. FCC*, 253 F.3d 29 (D.C.Cir. 2001) (sustaining the Commission's decision not to apply section 251(c)(4) resale discount to incumbent LEC's tariffed DSL service sold to Internet Service Providers and provided pursuant to the Computer Inquiry II unbundling obligation); see also *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978, ¶ 448 (2003) (“*Triennial Review Order*”) (delineating between packet-based and circuit-switched networks for purposes of unbundling requirements due to different set of economic incentives related to deployment of each type of network).

¹⁹ In addition to concluding that packetized, fiber-loop facilities themselves are not subject to unbundling, the Commission concluded “on a national basis, that competitors are not impaired without access to packet switching, including routers and DSLAMS,” and “decline[d] to unbundle packet switching as a stand-alone network element.” *Triennial Review Order* ¶ 537. Given that the fiber in next-generation fiber architectures is . . . *Continued*

that incumbent LECs need not “unbundle *any transmission path* over a fiber transmission facility between the central office and the customer's premises (including fiber feeder plant) that is *used to transmit packetized information.*”²⁰ This Commission should not take any action that blurs these lines.

B. APPLYING SECTIONS 201 AND 202 TO “INTERNET CONNECTIVITY” SERVICE WOULD REQUIRE THE COMMISSION TO PRICE REGULATE

The Commission’s proposal to include Sections 201 and 202 among the provisions applicable to the newly reclassified “Internet connectivity” service would necessarily require the Commission to regulate the rates and terms of that service and the unbundled computer processing features required to make it a useful tool. Section 201 provides, in relevant part, that “[i]t shall be the duty of every common carrier engaged in interstate or foreign communication by wire or radio to furnish such communication upon reasonable request therefore,” and authorizes the Commission to regulate as necessary to ensure that “[a]ll charges, practices and classifications, and regulations for and in connection with such communication service, shall be just and reasonable.”²¹ Section 202(a) broadly declares:

It shall be unlawful for any common carrier to make any unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services for or in connection with like communication service, directly or indirectly, by any means or device, or to make or give any undue or unreasonable preference or advantage to any particular person, class of persons, or locality, or

integrated into optical or other packetized equipment, and that access could not be provided without access to the packet switching equipment, the Commission's decision that unbundling was not warranted for packet switching equipment would independently preclude the unbundling of packetized, fiber-loop facilities like FTTP.

²⁰ *Triennial Review Order* ¶ 288 (emphasis added).

²¹ 47 U.S.C. § 201.

to subject any particular person, class of persons, or locality to any undue or unreasonable prejudice or disadvantage.²²

The statute is further broadened by its defining “[c]harges or services” to “include charges for, or services in connection with, the use of common carrier lines of communication, whether derived from wire or radio facilities, in chain broadcasting or incidental to radio communication of any kind.”²³ It is thus plain that forbearance from section 203 tariffing alone does not necessarily put rate regulation off the table. And the Commission’s assurances that it does not currently intend to regulate “Internet connectivity” prices does nothing to dispel the rank uncertainty created by its proposal to apply sections 201 and 202 to the proposed reclassified service offering.

Sections 201 and 202 were designed to be enforced in conjunction with section 203 tariff requirements, and they are inherently indeterminate standing alone. With respect to section 201, the D.C. Circuit has held that “[b]ecause ‘just,’ ‘unjust,’ ‘reasonable,’ and ‘unreasonable’ are ambiguous statutory terms, this court owes substantial deference to the interpretation the Commission accords them.”²⁴ And evaluating “[a] charge that a carrier has discriminated in violation of [section 202(a)] entails a three-step inquiry: (1) whether the services are ‘like’; (2) if they are ‘like,’ whether there is a price difference; and (3) if there is a difference, whether it is reasonable.”²⁵ In a tariffed environment, the indeterminate nature of these inquiries was curtailed by the filed tariff’s provision of a baseline for analyzing the type of services at issue

²² *Id.* at § 202(a).

²³ *Id.* at § 202(b).

²⁴ *Capital Network Sys., Inc. v. FCC*, 28 F.3d 201 (D.C. Cir. 1994) (citing *Chevron U.S.A. Inc. v. Natural Res. Defense Council*, 467 U.S. 837 (1984)).

²⁵ *MCI Telecomms. Corp. v. FCC*, 917 F.2d 30, 39 (D.C. Cir. 1990) (citing *MCI Telecommunications Corp. v. FCC*, 842 F.2d 1296, 1303 (D.C. Cir. 1988)).

and a presumptively “reasonable” price therefore.²⁶ Indeed, when the Commission moved towards detariffing prior to the 1996 Act’s grant of Section 10 forbearance authority, one of the major concerns of commenters was that “the abolition of tariffs would eliminate the repository of information consumers need to detect discriminatory practices” and unreasonable rates.²⁷ The indeterminacy of these provisions causes difficulty where—as here—the Commission seeks to enforce sections 201 and 202 untethered to section 203 tariffing.²⁸

In the wake of detariffing—a regulatory shift first undertaken by the Commission and subsequently embraced by the 1996 Act’s grant of forbearance authority²⁹—competitive markets have replaced filed tariffs as the touchstone of analysis under sections 201 and 202. In *Orloff v. Vodafone Airtouch Licenses*,³⁰ a decision upheld by the D.C. Circuit,³¹ “[t]he FCC . . . applied §

²⁶ *Orloff v. FCC*, 352 F.3d 415, 419 (D.C. Cir. 2003) (“In the past, the question whether a common carrier engaged in ‘unjust or unreasonable discrimination’ in violation of § 202 was largely determined by reference to the carrier’s tariff.”); *see also MCI Telecomms. Corp. v. AT&T*, 512 U.S. 218, 220 (1994) (“The Communications Act . . . authorized the Commission to regulate the rates charged for communication services to ensure that were reasonable and nondiscriminatory, and the tariff “requirements of § 203 . . . were the centerpiece of the Act’s regulatory scheme.”).

²⁷ *MCI Telecomms. Corp. v. FCC*, 765 F.2d 1186, 1189 (D.C. Cir. 1985).

²⁸ *See, e.g., Ting v. AT&T*, 319 F.3d 1126, 1144-45 (9th Cir. 2003) (“After detariffing, federal telecommunications regulation is silent with respect to how to determine the rights and obligations of parties to individual contracts.”).

²⁹ *See generally MCI Worldcom, Inc. v. FCC*, 209 F.3d 760, 761-63 (D.C. Cir. 2000). “Starting in the early 1980s, the Commission tried to prohibit tariff-filing by nondominant carriers . . . but that effort was successfully challenged in . . . court . . . as inconsistent with the 1934 Act.” *Id.* at 762 (internal citation omitted). Despite the court’s ruling, the Commission persisted in its detariffing efforts, and [t]he result was more Commission reversals.” *Id.* “The landscape changed, however, when Congress passed then Telecommunications Act of 1996” and granted the Commission authority to forbear from enforcing certain regulations, including tariff requirements. *Id.* As it embarks on its ambitious effort to wholly rework its regulatory classification scheme despite the absence of any change in its governing statute, the Commission should perhaps view the detariffing saga as a cautionary tale.

³⁰ 17 F.C.C.R. 8987 (2002).

202(a) in the detariffed environment, and adopted the market-based mechanism for enforcing the fairness standard.”³² Thus, while sections 201 and 202 remain viable divorced from section 203, “under detariffing, [the provisions] are now interpreted in light of a market environment.” As the Ninth Circuit has explained, this shift is in line with Congress’ adoption of a pro-competitive regulatory policy in the 1996 Act:

[I]n contrast to 1934, when Congress enacted §§ 201(b) and 202(a) to protect customers for whom AT&T was the only option, the FCC now defers to the market unless the market is seriously flawed or not competitive. In so doing, the FCC has imported the rationale behind detariffing (namely, that competition can guarantee reasonable rates) into the law of § 202(a).³³

This “hands-off approach” is consistent with “the FCC’s rationale for detariffing and . . . Congress’ rationale for granting the FCC authorization to forbear from []tariffing.”³⁴

C. BECAUSE THE COMMISSION HAS SUGGESTED THAT THE BROADBAND MARKET MAY NOT BE COMPETITIVE, PRICE REGULATION UNDER SECTIONS 201 AND 202 WOULD FOLLOW

The viability of the Commission’s proposal to forbear from section 203, but not sections 201 and 202, and nevertheless refrain from price regulation, depends upon the existence of a competitive market. The Commission’s experience with detariffing, which changed the mode of analysis under sections 201 and 202 without disturbing the “goals” and “substantive

³¹ See *Orloff v. FCC*, 352 F.3d 415 (D.C. Cir. 2003).

³² *Ting*, 319 F.3d at 1144-45.

³³ *Id.* at 1445; see also Second Report and Order, 11 F.C.C.R. 20,730, at ¶ 21 (“[W]e believe that market forces will generally ensure that the rates, practices, and classifications of nondominant interexchange carriers for interstate, domestic, interexchange services are just and reasonable and not unjustly or unreasonably discriminatory.”).

³⁴ *Ting*, 319 F.3d at 1145.

requirements of” those sections, is illustrative.³⁵ In directing the Commission to forbear from applying tariff requirements under Section 203, the 1996 Act did not abandon the pre-existing, overarching goal of preventing unreasonable discrimination in charges and conditions—it merely sought to use competitive markets rather than direct tariff regulation to achieve that goal. As the Seventh Circuit has explained:

[E]ven though the FCC no longer mandates the filing of tariffs, the congressional objective of providing uniform rates, terms and conditions remains, as does the federal prohibition on terms and conditions which are unjust or unreasonable. Moreover, following detariffing, the FCC intended customers to retain the right to challenge the justness and reasonableness of long-distance providers’ charges and practices under Section 208. Additionally, the FCC made clear that its decision eliminating the tariff requirement did “not affect [the FCC’s] enforcement of carriers’ obligations under sections 201 and 202.”³⁶

In short, “detariffing d[id] not alter the fundamental design of the Communications Act, nor modify Congress’s objective of uniformity in terms and conditions for all localities.” Other courts have similarly held that, in a detariffed world, the substantive requirements of sections 201 and 202 remain in effect, but are to be enforced predominately via competitive market forces.³⁷

³⁵ *Boomer v. AT&T Corp.*, 309 F.3d 404, 421 (7th Cir. 2002); *see also MCI Telecomms. Corp. v. FCC*, 765 F.2d at 1188 (“The forbearance [sic] approach involved abstaining from applying to non-dominant carriers certain Title II procedural requirements while maintaining the basic substantive requirements that carriers charge ‘just and reasonable’ rates and not engage in ‘unreasonable discrimination.’” (quoting 47 U.S.C. §§ 201-202 (1982))).

³⁶ *Boomer*, 309 F.3d at 421-22 (internal citations omitted) (quoting *Interstate Interexchange Marketplace*, 12 FCC Rcd. at 15,057 (¶ 77)). The Seventh Circuit has recently reaffirmed this understanding of the relationship between detariffing and the continued validity of sections 201 and 201. *See Dreamscape Design, Inc. v. Affinity Network, Inc.*, 414 F.3d 665, 670 (7th Cir. 2005).

³⁷ *See Ting*, 319 F.3d at 1144-45; *accord. Star Direct Telecom, Inc. v. Global Crossing Bandwidth, Inc.*, 2007 WL 162763, *5 (W.D.N.Y. 2007) (holding that “detariffing did . . . Continued

Unfortunately, for purposes of price regulation, either this Commission or a future Commission could justify intrusive price regulation simply by determining that the broadband Internet market is not sufficiently competitive. Indeed, this Commission has recently suggested that it does *not* view certain markets with two facilities-based broadband competitors as sufficiently competitive. In the *Qwest Phoenix Forbearance Order*,³⁸ the Commission “[found] the retail mass market for wireline services in Phoenix remains highly concentrated with two dominant providers.”³⁹ Thus, the Commission appears to take the view that the broadband Internet market is, at least in most geographical areas, a duopoly.

With neither tariffs nor competitive forces available to give content to sections 201 and 202, the Commission will have to determine what constitutes a “reasonable price” for broadband Internet services. And it will have to formulate a rubric for determining what constitutes prohibited unreasonable discrimination in the provision of such services. This will be a herculean task. As the D.C. Circuit has recognized, “[t]he FCC is not required to establish purely cost-based rates.”⁴⁰ “The Commission must, however, specially justify any rate differential that does not reflect cost.”⁴¹ The Commission’s past experience with the execution of this obligation reveals it to require a highly-fact specific investigation to determine whether

not divest th[e] court[s] of jurisdiction to consider claims under Sections 201 or 202 in cases where either of the parties lacks market power”).

³⁸ See *Qwest Phoenix Forbearance Order*, at ¶¶ 2.

³⁹ *Id.* ¶¶ 80.

⁴⁰ *National Ass’n of Regulatory Util. Comm’rs v. FCC*, 737 F.2d 1095, 1137 (D.C.Cir.1984); see also *National Rural Telecom Ass’n v. FCC*, 988 F.2d 174, 182-83 (D.C.Cir.1993) (affirming price cap regulation although not tied directly to cost).

⁴¹ *Competitive Telecomms. Ass’n v. FCC*, 87 F.3d 522, 530 (D.C. Cir. 1996) (citing *ALLTEL Corp. v. FCC*, 838 F.2d 551, 556-58 (D.C. Cir. 1988)).

the services at issue are identical and whether the particular providers use their networks and provide their services similarly.⁴²

D. UNAVOIDABLE REGULATION UNDER SECTIONS 201 AND 202 WILL GO BEYOND PRICES TO INCLUDE NON-PRICE FEATURES OF BROADBAND INTERNET SERVICE

Nor will regulation under sections 201 and 202 be limited to prices—non-price features would also be susceptible of regulation. Indeed, as the D.C. Circuit has explained, Section 202(a)'s reference to “discrimination in charges” encompasses discrimination in both price and non-price features of service, and “[t]he FCC has never said that ‘discrimination in charges’ refers exclusively to price discrimination and nothing else,” and if it were so limited, “then the carrier could defeat the broad purpose of the statute by the simple expedient of providing an additional benefit at no additional charge.”⁴³ In other words, “unreasonable ‘discrimination in charges,’ . . . can come in the form of a lower price for an equivalent service or in the form of an enhanced service for an equivalent price.”⁴⁴

As explained above, the Commission’s proposed reclassification of the transmission component of broadband Internet service will require providers to unbundle and charge separately for the connectivity element and the many functionally integrated computer

⁴² *Sw. Bell Tel. Co. v. FCC*, 153 F.3d 523 (8th Cir. 1998) (“The FCC has justified its decision to exempt ISPs from access charges paid by IXCs by noting the distinction between the manner in which these separate entities utilize the local networks.”).

⁴³ *Competitive Telecomms. Ass’n v. FCC*, 998 F.2d 1058, 1062 (D.C. Cir. 1993). The Court further observed that “Congress’s intention comprehensively to outlaw discrimination is apparent from the terms of the statute, which prohibits unreasonable discrimination not only in ‘charges’ but also in ‘practices, classifications, regulations, facilities, or services . . . directly or indirectly, by any means or device.’” *Id.* (quoting 47 U.S.C. § 202(a)).

⁴⁴ *Id.*; see also *See Sea-Land Service, Inc. v. ICC*, 738 F.2d 1311, 1317 (D.C. Cir. 1984) (“The core concern in the nondiscrimination area has been to maintain equality of pricing for shipments subject to substantially similar costs and competitive conditions”).

processing services that currently form the unitary service of broadband Internet access. Once unbundled, many questions will arise, including but not limited to: (1) What constitutes a “reasonable” and “just” retail price for Internet connectivity? (2) What constitutes a “reasonable” and “just” price for the provision of each individual computing element of the service, such as caching or domain name look-up? (3) Does a provider engage in prohibited “unreasonable discrimination” by structuring its offering in one way rather than another? And the inquiries will not stop at price regulation, but will extend to challenges to the quality of various services offerings. Indeed, as the Supreme Court and other courts have recognized, quality of service regulation and rate regulation are flip sides of the same coin.⁴⁵

This federal regulation of retail pricing will not only be unprecedented—it will also be impossible to predict. Rather than prohibiting practices or setting prices *ex ante*, enforcement of sections 201 and 202 will penalize services providers for conduct that they could not have known was prohibited. The application of Universal Service funding obligations to ISPs will create additional focus on rates.⁴⁶ And many other aspects of “telecommunications” regulation will likewise require the Commission to be cognizant of and act on the basis of revenues.⁴⁷ This will create substantial uncertainty and undermine the Commission’s stated goals of ensuring regulatory certainty and encouraging investment in and deployment of new infrastructure and facilities.

⁴⁵ *AT&T v. Central Office Telephone, Inc.*, 524 U.S. 214, 223 (1998) (“Any claim for excessive rates can be couched as a claim for inadequate services and vice versa.”); *see also Bastien v. AT&T Wireless Servs., Inc.*, 205 F.3d 983, 989 (7th Cir. 2000) (“As the Supreme Court recognized in *Central Office Telephone*, a complaint that service quality is poor is really an attack on the rates charged for the service.”).

⁴⁶ *See* 47 C.F.R. § 54.706(a).

⁴⁷ Examples include support mechanisms for telecommunications relay service, local number portability, and administration of the North American numbering plan.

In this context, the Commission’s assurances that it has no interest in regulating prices rings hollow. Regardless of the *current* Commission’s intentions, it is plain that the proposed reclassification scheme will give *future* Commissions wide latitude to engage in economically disastrous rate regulation.

E. **ALTHOUGH THE COMMISSION HAS IGNORED THESE ISSUES IN THE NOI, RECLASSIFICATION WILL MAKE THEM UNAVOIDABLE**

The Commission will not be able to avoid these issues. “Section 208 allows any person injured by a violation of the Act to file a complaint with the Commission,”⁴⁸ and further “requires the Commission to investigate the complaint and issue an order concluding the inquiry”⁴⁹ within five (5) months.⁵⁰ The D.C. Circuit has held that “[w]hen presented with [a party’s section 208] complaint, the Commission ha[s] an obligation to answer the questions it raise[s] and to decide whether the [defending party] ha[s] violated the statute.”⁵¹ Because “[t]he statute . . . expressly sets up the Commission as an adjudicator of private rights . . . the agency has an obligation to decide the complaint under the law currently applicable.”⁵² Thus, when the Commission is presented with a claim—as it inevitably will be—that a broadband services provider is violating section 201 by charging an unreasonable price for “Internet connectivity service,” or is violating section 202 by unreasonably discriminating in the provision of that service, the Commission—perhaps not this one, but most certainly a future one—will have no choice but to confront the difficult rate regulation issues it currently ignores in the NOI.

⁴⁸ *AT&T v. FCC*, 978 F.2d 727, 730 (D.C. Cir. 1992) (citing 47 U.S.C. § 208(a)).

⁴⁹ *Id.* (citing 47 U.S.C. § 208(b)).

⁵⁰ *See* 47 U.S.C. § 208(b)(1).

⁵¹ *Id.* at 732.

⁵² *Id.*

III. OPEN ACCESS FTTH NETWORKS HAVE NOT BEEN FINANCIALLY VIABLE WITHOUT GOVERNMENT OR OTHER EXTERNAL SUPPORT

A. FTTH OPEN ACCESS DEPLOYMENTS IN THE UNITED STATES

Of the many hundreds of FTTH networks in the United States, none have been operated over a sustained period as open access networks by private sector entities. Rather, the open access FTTH networks in operation today are owned by public entities, including municipalities or other government entities, such as municipal utilities.⁵³ From the most recent count, there are 17 open access FTTH networks in operation today, either where the network operator provides no retail services or where the operator provides select retail services along with other providers.⁵⁴ To understand the business models and financial viability of these open access networks, the FTTH Council interviewed two of these operators (declarations attached): Jackson Energy Authority (“JEA”) and the Utah Telecommunication Open Infrastructure Agency (“UTOPIA”), and examined public information about the Grant County Public Utility District (“Grant PUD”). As will be seen, the JEA and UTOPIA, even with government support, have faced financial problems and have had to alter their business models. In the case of JEA, it has become an integrated network-retail service provider; stand-alone wholesale offerings are now a minor part of its business. For UTOPIA, while there continues to be a separation between wholesale and retail activities, no construction of new connections is undertaken without guaranteed take-rates that are sufficient to produce a positive return. Grant County PUD

⁵³ The Council strongly supports the deployment of FTTH networks by municipalities and related entities. Municipal involvement is important where private sector entities have not constructed networks with adequate performance capabilities and where the community believes having FTTH networks is essential for economic development and overall well-being. There are many municipal broadband networks with a “closed” business model that are operating successfully and providing substantial benefits for their communities.

continues to operate only as a wholesale provider, but its deployments and operations are subsidized by other operations of the PUD, and it is required to justify new builds by more rigorous financial criteria. The following section discusses the business model of each of these providers in greater detail:

Jackson Energy Authority: Even though residents of Jackson, Tennessee were receiving for voice and Internet access services from AT&T, “triple-play” services from Charter, and cable service from satellite providers, they considered these services inadequate, and, in 2004, the local municipal utility, JEA, received permission to build an FTTH network, E+Broadband. Under the initial business model, JEA provided at retail only cable television service, while two other unaffiliated entities, Cinergy Communications and Aeneas Internet and Telephone, provided voice, data, and Internet access services.⁵⁵

Three years later, it became evident to JEA that its initial business model was not financially viable. Michael Johnston of JEA states in the attached declaration that JEA:

“was incurring the cost of deploying capital intensive network infrastructure and producing the services while receiving only 30-40% of the retail revenues, resulting in a negative return. Moreover, it incurred a cost selling and supporting the network at the wholesale level that it determined was not much less than the cost of selling and supporting at the retail level. Finally, it found that its retail partners were not aggressively marketing and selling the services to achieve a penetration level that would allow the wholesale model to be viable.”⁵⁶

⁵⁴ “The Resurgence of Municipal Fiber”, *Broadband Properties*, May/June 2010 at 29.

⁵⁵ Declaration of Michael Johnston, Appendix A, at ¶¶ 2-3.

⁵⁶ *Id.* at ¶ 4.

Consequently, JEA began to sell all services at retail. While JEA continues to wholesale voice and Internet services – and does so to only one provider, Aeneas Internet – it “remains concerned about the significant additional costs incurred by selling at wholesale.”⁵⁷

Today, JEA provides all the video services on the network as well as 90% of the voice, data, and broadband Internet access services. The penetration for each of these services, particularly broadband, has increased significantly since the new model was implemented, and it has just broken even on an operational basis (according to the accounting methodology employed by the municipal utility.) JEA continues to be obligated to pay-off very large amounts of debt so the long term financial viability is still unknown.⁵⁸

In sum, Michael Johnston “does not believe an open access model...is financially viable for a FTTH provider that is a municipal utility, even with the lower returns required by these entities in comparison to private sector entities.”⁵⁹

The Utah Telecommunication Open Infrastructure Agency: UTOPIA was formed in 2003 by 16 cities in UTAH to provide FTTH networks to those communities. Pursuant to statute, it was prohibited from selling services at retail.⁶⁰ It thus was dependent on unaffiliated entities to market and sell services.

⁵⁷ *Id.* at ¶ 5.

⁵⁸ *Id.* at ¶¶ 6-7.

⁵⁹ *Id.* at ¶ 8.

⁶⁰ Declaration of Todd Marriott, Appendix A, at ¶ 2. (“Marriott Declaration”)

Under its original business model, UTOPIA obtained capital from bonds issued by most of the participating cities and backed by sales tax pledges, which would be accessed if wholesale revenues were insufficient to cover the bond's debt service.⁶¹ Using this approach, it was able to construct FTTH networks to approximately 60,000 premises in the area, but the connection rate was only in the range of 10%. Consequently, in 2008, UTOPIA determined that its wholesale revenues were insufficient to cover its costs, making its business plan untenable. It was able to reach agreement with the cities and bondholders to restructure the bond amounts and terms so long as UTOPIA implemented a new, more conservative business model.⁶²

With the restructured debt and new business model, UTOPIA continues to operate its network and provide wholesale services (at layers 1,2, and 3 of the protocol stack) to the approximately 15 retail service entities, which offer stand-alone or bundled voice, broadband Internet access, and IPTV services. However, UTOPIA will not begin construction of new infrastructure to any of the other 80,000 premises in the 16 city area until it receives commitments from residents in at least 25% of the homes in the prospective service territory to purchase their connection (loop) to the network. The cost of the connection is approximately \$3,000, and residents can purchase it directly or by having a lien placed on their property, which is then paid in increments on their utility bills.⁶³

⁶¹ The original sales tax pledge was for \$202 million with a 20 year duration.

⁶² Marriott Declaration, at ¶ 3. The restructured sales tax pledge was for \$504 million over 33 years.

⁶³ *Id.* at ¶¶ 4-6.

In the attached declaration, Todd Marriott, Executive Director of UTOPIA, explains the economics of its new construction model in greater detail:

“UTOPIA receives approximately \$45-\$50 per month from a subscriber. Of this amount, approximately 50% is for connectivity (amortization of the loan) and 50% for a transmission capability involved in the provision of a standard – no less than 10 or 20 megabits per second symmetrical – broadband Internet access service...[R]etail service providers...pay nothing to UTOPIA...Under this economic scenario, with a 25% take rate, UTOPIA requires a subsidy from the municipality of approximately 33% of its revenues for a period reflected in the bond sold by the municipality (from 10 to 20 years). If UTOPIA can increase penetration, the amount of the subsidy is reduced, and the bond is repaid faster.”

In sum, UTOPIA evolved from a traditional municipal bond financing model because it was unable to achieve sufficient revenues from selling at wholesale. Its current model is “unique” and has “particular appeal to municipalities that require the infrastructure to enhance economic development. Private sector funding is highly unlikely because of the lengthy payback period.”⁶⁴

Grant County Public Utility District: Grant County is a largely low-density, rural area and thus would not normally support the deployment of a FTTH network. However, because the electric utility operated by the Grant County PUD accesses and resells cheap power, it was able to subsidize the deployment of a FTTH

network beginning in 2000.⁶⁵ The PUD, however, was restricted by state statute to providing only wholesale telecommunications services. Thus, Grant County PUD's communications infrastructure is sold to a variety of entities that provide voice, broadband, and video services to end users.⁶⁶

The Grant County PUD operates a Gigabit-Ethernet FTTH network that, in early 2009, passed approximately 15,000 premises. It constructs, operates, and maintains the network, including by installing the drop to the customer premises and the edge device at the premises. Providers retailing services on the network⁶⁷ install wiring from this device to the customer premises equipment and pay a monthly fee to the PUD.⁶⁸

In 2008, after concerns arose about the economic viability of the network, the Grant County PUD permitted new deployments to occur but only if the new network covered operating expenses and depreciation (but not the initial capital cost). To date, that criterion, which is less rigorous than in private-sector, has

⁶⁴ *Id.* at ¶ 10.

⁶⁵ "Tales from the Fiber Frontier," Masha Zager, *Broadband Properties Magazine*, Sept. 2009, at 18, available at: http://www.bbpmag.com/2009issues/sep09/BBP_Sep09_Deployments.pdf. ("Broadband Properties Article")

⁶⁶ See Washington State Office of the Attorney General, Attorney General Opinion 2001 No. 3, Apr. 23, 2001, available at: <http://www.atg.wa.gov/AGOOpinions/Opinion.aspx?section=archive&id=8290>.

⁶⁷ See <http://www.gcpud.org/customerService/fiberNetwork/serviceProviders.html>. Today, there are 17 retail providers.

⁶⁸ See <http://www.gcpud.org/customerService/rateSchedules/Rate%20Sch%20100.pdf>. The recurring (monthly) charge for service providers is \$24 for access to residential subscriber with additional charges for voice (\$1), data (\$1), and video (\$1.50) ports and \$37 for business subscribers with additional port charges. There also are charges for such services as, VLAN service, upstream Internet service, and Wavelength services.

...Continued

been met by the PUD. However, the PUD Commissioners continue to monitor finances and must approve the annual new construction plan.⁶⁹ In conclusion, the Grant County PUD's FTTH network exists as an open access network because it is viewed important for economic development and thus the Commissioners are willing to subsidize the network's deployment and operations.

B. FTTH OPEN ACCESS DEPLOYMENTS IN FOREIGN COUNTRIES

FTTH networks are being deployed in numerous other countries, and a great many are using the open access business model. As with the deployments in the United States, open access FTTH networks in foreign countries require some external support, often a direct government subsidy. The report for the National Broadband Plan by The Berkman Center for Internet & Society at Harvard University⁷⁰ emphasized this fact:

The shared core understanding is that the transition to next generation infrastructures re-emphasizes the high upfront costs involved in, or natural monopoly, characteristics of, telecommunications networks, and requires some form of shared infrastructure if competition is to be maintained in the teeth of such economies of scale. At one end of the spectrum is Australia, which is approaching this problem with a plan for a nationally funded fiber network, which will be privatized after completion to a fully open access carrier. The Swedish model, which involves extensive government and municipal funding together with functional separation, marks a large role for government investment that still leaves substantial room for private investment.⁷¹

While the relative share of direct government investment is harder to gauge outside of Sweden, it does appear that the leaders in fiber deployment—South

⁶⁹ Broadband Properties Article.

⁷⁰ *Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world*, The Berkman Center for Internet & Society at Harvard University Feb. 2010, available at: http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Berkman_Center_Broadband_Final_Report_15Feb2010.pdf.

⁷¹ *Id.*, at 14.

Korea, Japan, and Sweden—are also the leading examples of large, long term public capital investments through expenditures, tax breaks, and low cost loans that helped deployment in those countries. These countries have spent substantially more, in public spending on a per capita basis, than the U.S. has appropriated for stimulus funding.⁷²

As noted above, one of the most notable efforts to deploy FTTH open access infrastructure is currently underway in Australia. The government plans to install fiber to more than 90% of the country over a seven year period, with a planned capital cost of \$42.8 billion (Australian).⁷³ The government will provide \$30 billion in funding, and it expects to use debt and revenues from the project to cover the remaining capital requirements.⁷⁴ If the cost and take-rate projections are accurate, the project will “generate a rate of return equal to the long-term bond rate of between 6 per cent and 7 percent by year 15.”⁷⁵ (In contrast, a private sector entity would “require returns of 15-25 percent.”⁷⁶) Commenting on the financial model, the Chief Executive of NBN Co., which will construct and operate the network, stated: “People who keep talking about commercial returns have lost the focus that this is a big national asset that is being built by the government. No commercial entity would do this.”

⁷² *Id.*, at 16.

⁷³ *National Broadband Network Implementation Study* (“NBN Study”), at 346, available at: http://www.dbcde.gov.au/broadband/national_broadband_network/national_broadband_network_implementation_study

⁷⁴ “National broadband network to cost \$30bn, says Mike Quigley,” *The Australian*, June 30, 2010.

⁷⁵ *Id.*

⁷⁶ NBN Study, at 368.

Another FTTH open access network, Glashart, is being deployed in the Netherlands by the investment firm, Reggeborgh, and the incumbent telecommunications provider, KPN.⁷⁷ The plan is to deploy its network to 33 municipalities covering 2 million premises by 2013 (27% of the nation's premises). The project has mitigated risks by deploying where communities have obtained commitments from 40 percent of premises and by partnering with the incumbent to migrate existing customers. Even then, the project expects only a 7-10 percent internal rate of return.

Thus, from examining both these international deployments of FTTH open access networks and those in the United States, the clear conclusion is that these deployments are not economically viable without some external support, usually from government sources. As Dr. Timothy Nulty, former general manager of Burlington Vermont municipal FTTH network, stated most succinctly about the wholesale business model: [It is] "a recipe for financial failure."⁷⁸ In the next section, the Council presents the just-completed study by CSMG modeling FTTH deployments – both the base case (the current regulatory classification) and the case if the Commission chooses to classify either broadband Internet access service or the transport component of such service as a Title II offering. As will be seen, by regulating broadband/transport on FTTH deployments pursuant to Title II, the economic viability of these deployments is dramatically reduced.

⁷⁷ *Id.*, at 371.

⁷⁸ "Why Municipal Fiber Hasn't Succeeded," Robert Atkinson and George Ou, ITIF, *The FTTH Prism*, Vol 6, No. 2, Mar. 2009, at 21, available at: <http://www.chaffeefiberoptics.com/nwsltr/ftthprismvol6no2.pdf>. As discussed in n.58, the Council disagrees with the conclusions in this paper regarding the value of municipal deployments of FTTH.

IV. AN ECONOMIC MODEL DEVELOPED BY CSMG DEMONSTRATES THAT REQUIRING A PROVIDER OF BROADBAND INTERNET SERVICE TO WHOLESALING TRANSPORT TO UNAFFILIATED ENTITIES WILL RESULT IN DECREASED REVENUES AND INCREASED RISK, THUS MATERIALLY REDUCING THE RETURN ON INVESTMENT IN – AND HARMING THE BUSINESS CASE FOR -- FTTH NETWORKS

The FTTH Council contracted with CSMG to model the economic effects on deployments of FTTH networks as a result of the Commission reclassifying either broadband Internet service or the transport component of such service as subject to key provisions of Title II, including sections 201, 202, and 208. As indicated in section II of these comments, such reclassification would subject providers of broadband service to obligations to make such service available to other providers to sell at retail. This will in turn affect the revenues received by a FTTH network operator and its ability to earn a sufficient return on investment. Without a sufficient return, projects will not receive commercial funding (although government supported funding might be available).

The CSMG study analyzes the impact of prospective regulation resulting from reclassification on FTTH economies across different geographies. First, CSMG establishes the “base case” for FTTH deployment by assessing the business case for FTTH network deployment by an incumbent local exchange carrier for a representative group of central offices⁷⁹ and extrapolates those results to the United States as a whole. CSMG uses a net present value model to establish the business case for deploying FTTH from each central office to each residence served by each central office in the representative group of central offices. It then compares the results from the base case to those that would occur if, as a result of the Commission

⁷⁹ The representative group of central offices used by CSMG is all the central offices in the state of Texas. It is the state selected for the analysis because the characteristics of the Texas network reflect an average the characteristics of the United States as a whole.

reclassifying broadband as a Title II service, providers are required to sell wholesale access to competitors and to incur the greater risk associated investing under uncertain regulatory conditions.⁸⁰

The model is based on an “overbuild” deployment of a FTTH passive optical network (GPON) providing voice, video, and broadband Internet access services (at 100 megabits per second symmetrical).⁸¹ It makes the following assumptions:⁸²

The penetration rate per central office is: for video services, 25% of households in year five and 35% in year ten; for broadband services (DSL cannibalization), 33% in year five and 42% in year ten; and, for voice services, 5% of households “saved” in year five and 10% in year 10.

Average monthly revenues per subscriber are voice -- \$45, video -- \$85, and broadband -- \$37.

A retailer by purchasing broadband service for resale also is able to provide over-the-top (IP) voice and video service.⁸³

Using these assumptions in a net present value model, CSMG predicts that under current regulatory conditions, with broadband Internet service subject to Title I, FTTH deployments are economically viable in 9% of all central offices in the representative group covering 52% of homes (the base case).⁸⁴ Extrapolating these results to the nation as a whole demonstrates that

⁸⁰ The CSMG analysis does not consider the effect of other regulatory obligations that may arise from reclassification.

⁸¹ CSMG Report, at 12, 14. In this model, incremental fiber costs are primarily driven by household density and whether the plant is aerial or terrestrial (underground). The model does not include the incremental capital expenditures required to provide service to wholesale customers. It also does not account for operational savings from deployment of a FTTH network.

⁸² *Id.*, at 30.

⁸³ *Id.*, at 4.

⁸⁴ The cost to pass 50% of the nation’s most accessible homes is \$700 per home on average and to pass the next 25% is \$1300 per home on average. The cost to connect a home is assumed to be \$650.

. . .*Continued*

today there is a positive business case to deploy FTTH networks to 61.4 million households in the United States.⁸⁵

The model then assesses two effects of imposing Title II regulations: (1) requiring the FTTH provider to sell wholesale services/capacity to unaffiliated retail providers, and (2) increased risk associated with investing in a newly-regulated market where the regulatory obligations are uncertain and will likely be contested on appeal.

First, to determine the effect of a wholesale access requirement, the net present value model uses an assumption on the share-loss, and hence revenue loss, associated with a wholesale mandate. To establish this share-loss assumption, CSMG relies upon data for wholesale pricing and take-rates by competitive providers (“CLECs”) that resulted from regulatory mandates imposed on incumbent telecommunications providers to resell services or lease unbundled network capacity. It thus assumes a 35% wholesale discount based on typical discounts for such capacity⁸⁶ and that there would be a “middle-case” steady-state share loss of 20%.⁸⁷ CSMG believes this attrition rate to be conservative for several reasons: (1) CLECs primarily accessed only one service (voice), while in the FTTH case, a reseller accessing just broadband service can provide three services -- IP voice, video, and broadband services; (2) CLEC share growth for reselling capacity was curbed by Commission decisions; and (3) in European markets where

⁸⁵ *Id.*, at 15-16. The model uses Texas as a reasonable proxy for the United States as whole. It should be noted that there is a higher percentage of underground plant in Texas than in the rest of the nation. Consequently, there may be more households in the nation where FTTH is economically viable.

⁸⁶ The CSMG model is relatively insensitive to the level of wholesale discount given the multi-service share loss dynamic.

⁸⁷ CSMG Report, at 19.

unbundling is mandated, the share loss is 24% when measured as a simple average and 42% when measured as a weighted average..

Second, to account for the newly-regulated broadband market where the regulations are in flux and will be contested on appeal, the model assumes that broadband Internet service providers and their investors will require a higher rate of return to compensate for the increased risk. Reclassifying broadband Internet service as a Title II service will create substantial uncertainty as: (1) the Commission crafts (and recrafts) regulations dictating to providers the precise contours of their wholesale obligations; and, (2) the Commission's decisions are subjected to years of litigation on appeal. As the Commission is well aware, its adoption of regulatory mandates is an incremental and constantly evolving process. Today, under the Title I regime for broadband Internet service, the Commission's decades of decision-making have produced regulatory obligations that, while still evolving, are relatively known. Moving broadband Internet service to Title II will restart the process, and the industry can expect years of uncertainty as the Commission addresses all the regulatory nuances that will be required to oversee a complex and dynamic industry. This uncertainty will be magnified as broadband Internet service providers will no doubt appeal FCC decisions, which will take years to resolve. These factors in combination will subject the revenue and cost estimates used by providers in their investment models to greater predictive error, thus increasing the risk associated with the investment. To simulate this increased risk, the net present value model increases the weighted average cost of capital used to discount future cash flows from 12% in the base case to 13% in the reclassification scenario.⁸⁸

⁸⁸ CSMG has found that operators use the required rate of return or WACC as a way to measure risk in developing business cases. A 1% increase in this rate captures the effect

. . .Continued

Based on these assumptions, CSMG determines the net present value of a return on investment for several share-loss scenarios:

- For a share-loss rate of 20% (“middle-case”) plus a 1% point increase in the weighted average cost of capital (WACC), the reduction in households where deployment of FTTH would be economically viable approaches 50% -- a decrease of 29 million households nationally.
- For a share-loss rate of 15% plus a 1% point increase in the WACC, the decrease is 20 million households (or approximately a 33% reduction from the base case).
- For a share-loss rate of 25% plus a 1% point increase in the WACC, the reduction in economically viable households approaches 64% -- a decrease of 39 million households.

Moreover, CSMG finds that in addition to reducing the number of households that can be economically addressed, reclassification causes a decline of \$13.2 billion in additional investment value created by FTTH deployments (for the 20% share-loss scenario).⁸⁹ To put this in perspective, for the base case, total value creation is approximately \$16 billion. In other words, with reclassification, there is a reduction in value creation of 80%.

CSMG finally summarizes its findings by examining how reclassification would affect FTTH projects in different areas of the country:

- Areas with Little or No FTTH Deployment Today (*e.g.*, Qwest and many rural areas) – “Significant reduction in business case for new [FTTH] deployment.”

of increase in risk that is in line with CSMG’s experience in developing investment business cases.

⁸⁹ *Id.*, at 23. Value creation is measured by aggregating the net present value. It effectively increases the equity value of an entity.

- Areas Planned for FTTH (*e.g.*, Verizon FiOS planned areas) – “Significant reduction in business case for FTTH deployment.”
- Areas with FTTH Deployed (*e.g.*, Verizon FiOS areas) – “Investment case eroded ex-post; could cause losses and writedowns.”
- Areas with FTTN Deployed (*e.g.*, AT&T U-verse areas) – “Expect business case for upgrade to FTTH to be substantially diminished.”⁹⁰

From any perspective, these results, even with the most conservative attrition rate, are troubling. The CSMG Report indicates that the harms from reclassification would be experienced in most areas of the country – both where FTTH networks might be deployed and where they have been built. Further, these results show that by reclassifying broadband Internet access service on FTTH networks as a Title II service, we will be backpedaling from the “100-Squared” objective of the National Broadband Plan. The next section explores this issue further, and the Council then discusses actions that the Commission can take within its statutory authority to implement the National Broadband Plan, while not adopting Title II regulation.

V. RECLASSIFICATION WILL SERIOUSLY IMPEDE ACHIEVEMENT OF THE NATIONAL BROADBAND PLAN’S NEXT GENERATION ACCESS GOALS

The Commission’s National Broadband Plan states, “The United States must lead the world in the number of homes and people with access to affordable, world-class broadband connections.”⁹¹ As a result, it adopts its “100 Squared” goal: by 2020, at least 100 million homes should have affordable broadband connections with actual speeds of 100 Mbps downstream and 50 Mbps upstream.⁹² The plan then seeks to ensure this objective is achieved

⁹⁰ *Id.*, at 18.

⁹¹ National Broadband Plan, at 9.

⁹² *Id.* The plan also includes a mid-term (2015) milestone of 100 million homes that have access to broadband with actual speeds of 50 Mbps downstream and 20 Mbps upstream.

by adopting “recommendations to foster competition, drive demand for increased network performance and lower the cost of deploying infrastructure.”⁹³

As stated in the Introduction, the Council applauds the Commission for establishing this next generation access goal. In a presentation to the staff developing the National Broadband Plan late last year,⁹⁴ the Council demonstrated the need for networks with 100/50 mbps performance capabilities by reviewing a series of applications that are enabled by next generation infrastructure and that have significant public benefits. These include:

- HD/3D Video Conferencing / Telepresence
- Streaming Video or VoD in 3D/HD
- HD/Streaming Home Security
- Place Shifted HD/3D Video
- Uploading HD Video (UGC Sharing)
- Real-time HD Video Blogging
- HD Video Collaboration
- HD/3D Teleconsultation
- HD/3D Remote Patient Monitoring
- Health Care Professional Teleconsultation Ability
- Live Instruction (HD/3D)
- Home Monitoring of Classrooms / Schools / Buses
- Downloading Massive Images
- Virtual / Remote Office
- Distance Research
- Health Care Information Management
- Software/Web-Based Learning
- Facilitation of Self-Education
- Consumer Cloud Computing / Thin Client

Not only are these applications important for users, but they generate additional revenues for providers, which in turn enhances the business case for the deployment of additional FTTH networks. In effect, the United States is at the beginning of a virtuous cycle in fiber deployment

⁹³ *Id.*

⁹⁴ *Ex Parte* Presentation of the FTTH Council, GN Docket No. 09-51, Nov. 2, 2009, CSMG Attachment, at 12.

– where each FTTH network attracts higher-performance applications which in turn provides the revenues that will justify construction of new fiber networks.

Unfortunately, as just demonstrated in the CSMG Report and by the real-world experiences of open access networks, reclassifying broadband Internet service as a Title II offering will setback this virtuous cycle and jeopardize achievement of the “100-Squared” objective. Even in the most conservative case developed by CSMG, by requiring broadband Internet service providers to wholesale service to unaffiliated entities, the business case for FTTH networks turns negative for 20 million homes. In the more realistic case, it is no longer economically viable to bring fiber to 29 million homes. These results are too significant for the Commission to ignore, especially when they undermine the National Broadband Plan’s leading goal and especially, as discussed in the next section, the Commission can achieve its public interest goals without reclassification.

VI. THE COMMISSION CAN ACHIEVE ITS STATED GOALS—PROTECTING CONSUMER INTERESTS AND IMPLEMENTING THE NATIONAL BROADBAND PLAN—WITHIN ITS EXISTING LEGAL FRAMEWORK

It is well-established that Title I conveys upon the Commission authority to adopt regulations that are “reasonably ancillary to the effective performance of the Commission’s various responsibilities.”⁹⁵ Under this standard, a regulatory measure is authorized by Title I when it is “reasonably ancillary” to an express statutory grant of authority.⁹⁶ The Commission

⁹⁵ *United States v. Sw. Cable Co.*, 392 U.S. 157, 178 (1962).

⁹⁶ *E.g., Am. Library Ass’n v. FCC*, 406 F.3d 689, 700 (D.C. Cir. 2005) (“As the Commission recognized, its ancillary jurisdiction is limited to circumstances where: (1) the Commission’s general jurisdictional grant under Title I covers the subject of the regulations and (2) the regulations are reasonably ancillary to the Commission’s effective performance of its statutorily mandated responsibilities.”).

suggests that the D.C. Circuit’s recent decision in *Comcast Corp. v. FCC*,⁹⁷ forecloses Title I as a source of authority for achieving the Commission’s regulatory goals with respect to broadband Internet access. It is mistaken. If it does the necessary legwork—as it had not in *Comcast*—there are ample statutory grounds that can support the assertion of Title I regulatory authority over broadband Internet access. The Commission should take this route because it will enable the Commission to achieve its policy goals without retarding the development of American broadband by imposing extensive and unknowable regulatory obligations on providers.

A. COMCAST DOES NOT FORECLOSE THE COMMISSION FROM ASSERTING ANCILLARY AUTHORITY OVER BROADBAND INTERNET SERVICES

The D.C. Circuit’s *Comcast* decision does not require the Commission to reclassify broadband to achieve its policy goals.⁹⁸ The D.C. Circuit’s holding in that case was simply that the Commission had failed to carry its burden of establishing its ancillary jurisdiction to impose the particular regulatory requirement at issue. The Commission’s error in *Comcast* was its attempt to assert *general* jurisdiction over broadband, because it had not performed the work required to tie the specific regulation to a particular statutory grant of regulatory authority.⁹⁹ In the course of this decision, the court reaffirmed the established rule that “Congressional statements of policy” alone cannot support the Commission’s exercise of ancillary authority because they do not create “statutorily mandated responsibilities.”¹⁰⁰ In short, the *Comcast* decision was neither surprising nor new; it merely reaffirmed well-established principles

⁹⁷ 600 F.3d 642 (D.C. Cir. 2010).

⁹⁸ *Contra*. NOI Statement of Chairman Julius Genachowski at 2 (explaining that the Third Way “was developed out of a desire to restore the status quo light touch framework that existed prior to *Comcast*”); *see also* NOI at ¶¶ 69-73.

⁹⁹ *See Comcast*, 600 F.3d at 650-51.

¹⁰⁰ *Id.* at 651-61.

governing the assertion of ancillary jurisdiction. The Commission ought not respond by overhauling its entire broadband regulatory classification scheme—instead, it should take this opportunity to remedy the defects *Comcast* identified and properly ground an assertion of Title I ancillary jurisdiction.

As the Supreme Court explained in *Brand X*,¹⁰¹ “the Commission remains free to impose special regulatory duties on facilities-based ISPs under its Title I ancillary jurisdiction.”¹⁰² The Commission can thus exercise ancillary authority to achieve its consumer protection goals by showing that: “(1) the Commission’s general jurisdictional grant under Title I covers the regulated subject and (2) the regulations are reasonably ancillary to the Commission’s effective performance of its statutorily mandated responsibilities.”¹⁰³ Indeed, courts have previously upheld the Commission’s exercise of ancillary authority to regulate enhanced services.¹⁰⁴ For example, the D.C. Circuit upheld the Commission’s determination in *Computer II* “that enhanced services fall within its ancillary jurisdiction as incidental transmissions over the interstate telecommunications network.”¹⁰⁵ More recently, the Commission has relied upon ancillary authority to subject interconnected VoIP providers to regulation under section 214 (service discontinuation requirements), section 222 (consumer privacy), section 254 (universal service obligations), the telephone disability access rules, the number porting requirements, and 911

¹⁰¹ *Nat’l Cable & Telecomms. Assn. v. Brand X Internet Servs.*, 545 U.S. 967 (2005).

¹⁰² *Id.* at 996.

¹⁰³ *Am. Library*, 406 F.3d at 691-92.

¹⁰⁴ *See CCIA*, 693 F.2d at 207.

¹⁰⁵ *CCIA*, 693 F.2d at 207 (citing *Computer II*, 77 F.C.C.2d at 432).

emergency calling regulations.¹⁰⁶ This provides a useful model for how the Commission can assert ancillary jurisdiction to protect consumers and accomplish the objectives identified in its *Broadband Plan*.

B. THE COMMISSION HAS SUFFICIENT STATUTORY AUTHORITY TO PROTECT CONSUMER INTERESTS AND ACCOMPLISH OTHER GOALS IDENTIFIED IN THE BROADBAND PLAN

As it has done in the VoIP context, the Commission can use its ancillary authority to regulate broadband Internet access in ways that will protect consumers and further the Commission's *Broadband Plan* objectives. For example, sections 254 and 706(b), particularly when read in light of section 1 of the Communications Act of 1934, provide ample basis for achieving universal broadband Internet service. Section 706(b) in particular provides a solid foundation for the Commission to take "immediate action" to ensure ubiquitous availability of broadband services by removing barriers to infrastructure development and service deployment. And Section 222, which the Commission has successfully employed in the VoIP context, supports Commission action to protect consumer privacy interests in the provision of broadband Internet services. Because these—and potentially other—bases of ancillary jurisdiction are readily available, the Commission should forgo its overly ambitious reclassification scheme in favor of a more tailored regulatory approach that will promote the Commission's regulatory agenda without creating undue uncertainty in the market.

Section 254 explicitly authorizes the Commission to support broadband Internet access with USF funds.¹⁰⁷ Section 254(b) provides that "the Commission shall base policies for the

¹⁰⁶ See generally *IP-Enabled Services*, Report and Order, FCC 09-40, WC Docket No. 04-36, ¶ 5 (rel. May 13, 2009) ("*IP-Enabled Services Order*").

¹⁰⁷ See, e.g., 47 U.S.C. § 254(b)(2) ("Access to advanced telecommunications and information services shall be provided in all regions of the Nation.").

preservation and advancement of universal service on” six principles, including two that specifically reference information services. The first of these information service-specific principles directs that “[a]ccess to advanced telecommunications and *information services* should be provided to all regions of the Nation,”¹⁰⁸ while the second provides that “[c]onsumers in all regions of the Nation . . . should have access to telecommunications and *information services*, including interexchange services and *advanced* telecommunications and *information services*, that are reasonably comparable to those services provided in urban areas.”¹⁰⁹ And section 254(b) is in no mere policy statement—it mandates that the Commission “*shall*” implement universal service support consistent with the provision’s enumerated principles. Courts have recognized this, holding that Section 254(b)’s “language indicates a mandatory duty on the FCC” to “work to achieve each [statutory principle] unless there is a direct conflict between it” and another principle or statutory mandate.¹¹⁰ Thus, section 254 provides ample grounds for the Commission to support universal broadband Internet access.

The Commission’s authority to support broadband Internet service under Section 254’s explicit language is further supported Section 1 of the Communications Act.¹¹¹ Section 1 is a statement of policy that would alone be insufficient grounding for ancillary authority, for as the court noted in *Comcast*, “statements of Congressional policy can help delineate the contours of statutory authority.”¹¹² But, in combination with the Section 254’s explicit universal service

¹⁰⁸ 47 U.S.C. § 254(b)(2) (emphasis added).

¹⁰⁹ *Id.* at § 254(b)(3) (emphasis added).

¹¹⁰ *Qwest Corp. v. FCC*, 258 F.3d 1191, 1199-1200 (10th Cir. 2001); *see also Escoe v. Zerbst*, 295 U.S. 490 493 (1935) (explaining that “‘shall’ . . . is the language of command”).

¹¹¹ *See* 47 U.S.C. § 1511; *id.* at § 1302.

¹¹² *Comcast*, 600 F.3d at 654.

direction, section 1 takes on new importance. In today's technologically-dependent society, ubiquitous broadband access is required for the Commission to fulfill its section 1 mandate "to make available, so far as possible, to all the people of the United States . . . a rapid, efficient, Nation-wide and world-wide wire and radio communication service with adequate facilities at reasonable charges."¹¹³

Section 706 of the Telecommunications Act of 1996 likewise supports the Commission's broadband regulatory goals. Section 706(a) provides that the Commission "shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans."¹¹⁴ And if the Commission determines that advanced telecommunications services are not "being deployed to all Americans in a reasonable and timely fashion," Section 706(b) further directs that the Commission "shall take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market."¹¹⁵ Although the court rejected the Commission's reliance on Section 706(a) as a source of ancillary authority in *Comcast*,¹¹⁶ neither the Court nor the Commission has evaluated whether Section 706(b)—which imposes a concrete duty for the

¹¹³ 47 U.S.C. § 151.

¹¹⁴ 47 U.S.C. § 1302(a).

¹¹⁵ 47 U.S.C. § 1302(b).

¹¹⁶ *Comcast*, 600 F.3d at 658-59; *see also Advanced Services Order*, 13 FCC Rcd 24012, 24044-45 (1998) ("[W]e agree . . . that Section 706(a) does not constitute an independent grant of forbearance authority or . . . other regulating methods. Rather, we conclude that section 706(a) directs the Commission to use the authority granted in other provisions . . . to encourage the deployment of advanced services.")

Commission to take “immediate action”—may serve as a basis for ancillary authority to regulate broadband Internet access. The Commission would do well to consider this possibility here.¹¹⁷

As the *Comcast* decision recognizes,¹¹⁸ Section 257 provides the Commission ample authority to impose disclosure requirements on broadband providers to ensure transparency regarding network management and consumer relations practices.¹¹⁹ In rejecting the Commission’s reliance on this provision as a source of ancillary authority to impose substantive nondiscrimination requirements on broadband providers, the D.C. Circuit explained that “certain assertions of Commission authority could be ‘reasonably ancillary’ to the Commission’s statutory responsibility to issue a report to Congress. For example, the Commission might impose disclosure requirements on regulated entities in order to gather data needed for such a report.”¹²⁰ Thus, to achieve greater transparency in the broadband market, the Commission should employ ancillary authority grounded in section 257 to impose disclosure requirements upon broadband Internet providers.

Finally, section 222 provides sufficient authorization for the Commission to ensure consumer privacy in the provision of broadband Internet service.¹²¹ Section 222 imposes upon

¹¹⁷ The case for Section 706(b) as a basis for ancillary authority over broadband is strengthened by fact that “The term ‘advanced telecommunications capability’ is defined, without regard to any transmission media or technology, as high-speed, switched, *broadband telecommunications capability* that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology.” 47 U.S.C. § 706(d) (emphasis added).

¹¹⁸ See *Comcast*, 600 F.3d at 659.

¹¹⁹ See 47 U.S.C. § 257.

¹²⁰ *Comcast*, 600 F.3d at 659.

¹²¹ See 47 U.S.C. § 222.

carriers “a duty to protect the confidentiality of proprietary information of . . . consumers.”¹²² “In 2007, the Commission extended the customer privacy requirements of section 222 to interconnected VoIP providers using Title I authority.”¹²³ The Commission’s reliance on this provision to achieve similar goals in the VoIP context was upheld by the courts.¹²⁴ So too would it be here.

The Commission should carefully examine its governing statute in light of its broadband regulatory goals and craft regulations that will enable it to pursue those goals without resorting to the reclassification of “Internet connectivity” service. The exercise of ancillary authority will enable the Commission to achieve its stated goals without causing the substantial uncertainty that would accompany reclassification under the lumbering Title II regulatory regime. This is necessary to balance the Commission’s own goals—i.e., promoting broadband development and protecting consumer interests without creating rampant uncertainty that will discourage investment in the very technologies and facilities the Commission seeks to promote.

VII. CONCLUSION

In speaking before the Communications Workers of America on July 26th, the Chairman discussed the importance of broadband development “to a successful economic future.”¹²⁵ The FTTH Council concurs. The Chairman also stated that “our average broadband speeds in the U.S. are too low” and that “we are [at] risk in the global race for leadership in innovation...[and] that the next generation of communications-related jobs will be created overseas instead of the

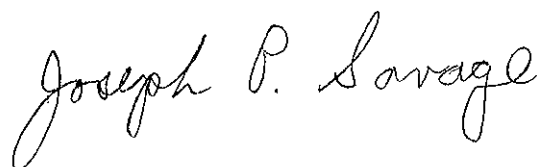
¹²² *Id.* at § 222(a).

¹²³ *IP-Enabled Services Order*, ¶ 5.

¹²⁴ *See NCTA v. FCC*, 555 F. 3d 996 (D.C. Cir. 2009).

U.S.”¹²⁶ Again, the Council concurs. The country has a great deal at stake in ensuring we develop that world’s highest-performance broadband infrastructure. Yet, as these comments demonstrate, by subjecting broadband Internet service or its transport component offered over FTTH networks to Title II regulation, we head in the wrong direction. Reclassification will materially harm broadband growth, reduce investment, and restrict job creation. The Council therefore urges the Commission to eschew Title II regulation – at the very least for higher risk, FTTH networks, especially when the benefits of any regulation are so speculative.

Respectfully submitted,



Joseph Savage
President
Fiber-to-the-Home Council
4741 Cambridge Court
Lake Oswego, OR 97035
503-635-3114 (Telephone)
president@ftthcouncil.org

August 4, 2010

¹²⁵ *Prepared Remarks of Chairman Julius Genachowski*, Federal Communications Commission, 72nd Communications Workers of America Conference, Washington, D.C., July 26, 2010, at 1.

¹²⁶ *Id.*, at 2.

APPENDIX A

not financially viable. It was incurring the entire cost of deploying capital intensive network infrastructure and producing the services while only receiving 30-40% of the retail revenues, resulting in a negative return. Moreover, it incurred a cost selling and supporting the network at the wholesale level that it determined was not much less than the cost of selling and supporting at the retail level. Finally, it found that its retail partners were not aggressively marketing and selling the services to achieve a penetration level that would allow the wholesale model to be viable.

5. In 2007, JEA shifted to selling at retail voice, data, and broadband Internet access services. It continues to sell these services at wholesale, but it remains concerned about the significant additional costs incurred by selling at wholesale. It also is unable to increase the price for these wholesale services to a level that reflects the risk it has undertaken in deploying its network because of competition from AT&T and Charter. Only Aeneas decided to continue to purchase these services for resale.

6. Today, the E+Broadband network passes approximately 30,000 premises, of which about 25,000 are residential. It provides cable service to approximately 16,000 homes. It also provides voice service to more than 7,000 voice customers and broadband Internet access service to more than 9,500 customers. The growth in broadband sales has been particularly significant. Aeneas provides voice and broadband Internet access services to approximately 1,000 subscribers and voice service to less than 1,000, levels that have not changed appreciably in recent years.


7. To date, the change to a retail business model has proven successful for JEA, and, according to the financial methodology it uses as municipal utility, it has just broken

even on an operating basis. It understands that private sector entities may require a greater return on investment for a project to be considered financially viable.

10. In sum, based on its experience, JEA does not believe an open access model, where transport and services are sold separately, is financially viable for a FTTH provider that is a municipal utility, even with the lower returns required by these entities in comparison to private sector entities. This is certainly the case for a pure open access model, where the municipal network owner provides no retail services, and the result does not differ materially for the hybrid model, where the municipal network owner and other non-affiliated entities retail services. Because private sector entities normally demand higher returns on investment than municipal utilities, an open access model in any form can only be financially viable for such entities if there are additional revenues provided by the government or another business.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my information and belief.

Executed on July 19, 2010


Michael Johnston

creating a new business model which anticipated requiring end users to contribute directly toward the cost of the curb-to-home connection to the network.

4. Following the restructuring of UTOPIA's bonds in 2008, UTOPIA began to implement its new business model. Under this model, UTOPIA requires subscribers to purchase their own connection to the network, and, once approximately 25% of the subscribers in the prospective service area agree to make this purchase, UTOPIA proceeds to build the network in that territory. Subscribers can finance the connection, which costs approximately \$3,000 on average, either directly or by having a lien placed on their property (which is paid in small monthly increments on their utility bill) and then paying-off this amount over a longer time-period, *e.g.* 20 years. This period coincides with the municipal utility's bond that is sold to gain the funds necessary to build the subscriber purchases.

5. Under the current business model (which began to be established in June 2008), UTOPIA is responsible for constructing, operating, and maintaining its active Gigabit-Ethernet all-fiber network. It generally wholesales to retail service providers transmission capability at Layers 1 and 2 of the Protocol Stack and adds some Layer 3 functionality for the provision of IPTV services. For smaller providers and for some municipalities and other governmental entities who need their own Internet connectivity, it provides a complete wholesale Internet access service.

6. At the subscriber premises, UTOPIA provides an Ethernet portal with back-up power. For service providers, it provides connectivity to reach subscribers at their portal, including by providing PRI circuits and termination to UTOPIA's network. The service providers offer voice, broadband Internet access, and IPTV services. Today, there are between 12-15 service providers on the UTOPIA network.

7. Today, UTOPIA passes approximately 62,000 premises and has approximately 9,500 premises connected. There are approximately 140,000 businesses and homes in the 16 cities that are part of UTOPIA.

8. The economics of the business model work generally as follows. UTOPIA receives approximately \$45-\$50 per month from a subscriber. Of this amount, approximately 50% is for connectivity (amortization of the loan) and 50% for a transmission capability involved in the provision of a standard – no less than 10 or 20 megabits per second symmetrical – broadband Internet access service. The service fee is increased for higher levels of connectivity (for instance, customers that want 50 Mbps). UTOPIA continues to refine its business relationship with retail service providers to ensure maximum revenue collection for UTOPIA's wholesale services. Since the end user will directly pay for connectivity and transmission capability, retail service providers soon will pay nothing to UTOPIA, but instead will collect a charge directly from subscribers for the services they offer. For standard broadband service, the charge from an Internet Service Provider ("ISP") averages around \$30 per month, although it varies by market, and an ISP generally incurs a cost of \$10-\$15 to provide this service.

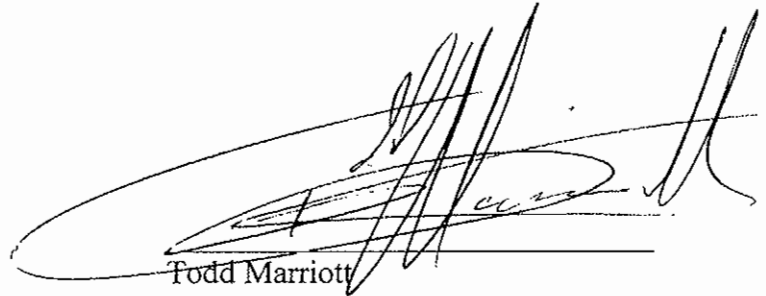
9. Under this economic scenario, with a 25% take rate, UTOPIA requires a subsidy from the municipality of approximately 33% of its revenues for a period reflected in the bond sold by the municipality (from 10 to 20 years). If UTOPIA can increase penetration, the amount of the subsidy is reduced, and the bond is repaid faster. Municipalities make the decision to finance UTOPIA based on the long-term case for economic development in their communities.

10. In sum, UTOPIA is a unique business model for the deployment of all-fiber networks, which has particular appeal to municipalities that require this infrastructure to enhance

economic development. Private sector funding is highly unlikely because of the lengthy payback period.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my information and belief.

Executed on July 13, 2010



Todd Marriott

APPENDIX B



Reach Higher Ground

FCC Broadband Reclassification

Final Report

Prepared for:





- Executive Summary
- Introduction
- Base Case FTTH Deployment
- Impact of Reclassification
- Appendix



This study examines the impact of prospective FCC regulation on future investment in Fiber to the Home (FTTH) networks

- The FCC has issued a Notice of Inquiry, seeking comment on options for the future regulation of broadband Internet services
 - Options include reclassifying broadband Internet services to enable new obligations to be imposed
 - New obligations may lead to the requirement to resell or unbundle network access
 - Reclassification creates a risk that such access requirements may arise even if not intended
 - Reclassification would also increase uncertainty and risk associated with a FTTH investment
- Operators considering network investments will generally use a business case model to determine whether new investments are financially viable
 - Projects which are unprofitable or generate insufficient returns will not receive commercial funding
- This study assesses the impact of prospective FCC regulation on FTTH economics across geographies
 - We analyze the FTTH network deployment decision by an ILEC on a case by case basis for a representative group of COs and extrapolate our results to the US as a whole
 - We compare the outcome of the deployment decisions under current regulation against a potential future scenario in which: 1) the ILEC is required to offer regulated access; and 2) a FTTH investment is subject to greater risk associated with the prospect of increased regulation
- Our analysis does not consider the potential negative impacts of other obligations that may arise from reclassification



Our analysis shows that a resale obligation significantly harms the economic case for commercial FTTH investment

- Under base case conditions, i.e. the current regulatory paradigm, our analysis forecasts that 9% of the central offices in Texas (as an example representative geographic area) have a positive business case for an ILEC to deploy FTTH facilities
 - Combined, these 9% of COs cover 52% of Texas households
 - Extrapolating this representative geography to the U.S. as a whole suggests that 61.4M households could be profitably covered with FTTH investment under the current regulatory regime
- Resale obligation reduces the number of areas where an ILEC could profitably make investments in FTTH
 - We assume a competitor would be able to sell its own video and voice services over resold lines
 - The ILEC would receive revenue only for the wholesale broadband service, and that would be at a discount to retail



Regulations stemming from reclassification cause \$13.2B in value erosion and impact 29M homes nationally

- Facing increased uncertainty and risk, ILECs are likely to require a higher rate of return on investment
- With 20% expected wholesale share loss and a 1% point increase in required returns, reclassification will erode \$13.2B of potential value created by FTTH investment
- This value erosion will cause 47% fewer HHs to financially justify FTTH investment relative to our base case, impacting 29M HHs nationally
- This value erosion will impact ILECs deploying or considering FTTH deployment in different ways:
 - Network operators that have already deployed FTTH will see their investment returns eroded
 - Network operators considering new investments will be able to justify 47% fewer FTTH builds on average nationally where no FTTx investments have been made
 - Case for upgrading from FTTN to FTTH also presumably will be significantly impacted
 - Overall increase in perceived risk for new projects potentially subject to regulation

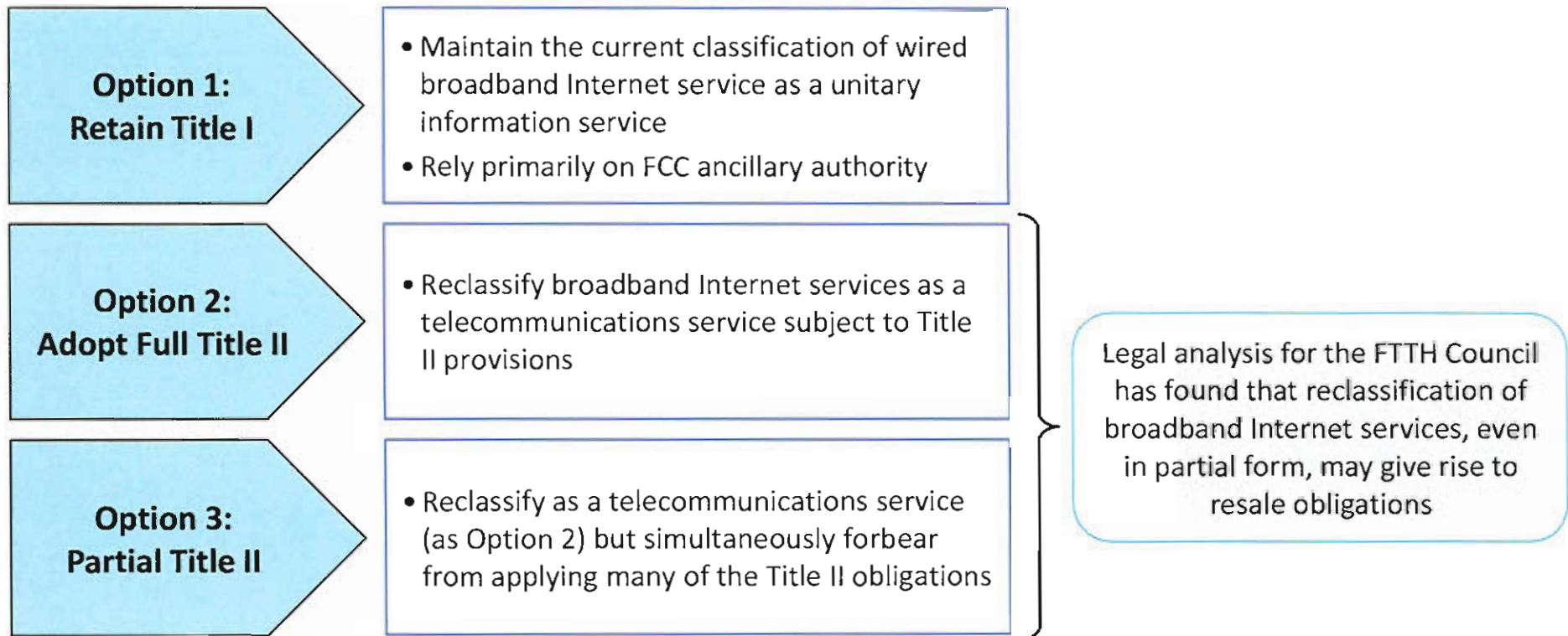


- Executive Summary
- Introduction
- Base Case FTTH Deployment
- Impact of Reclassification
- Appendix



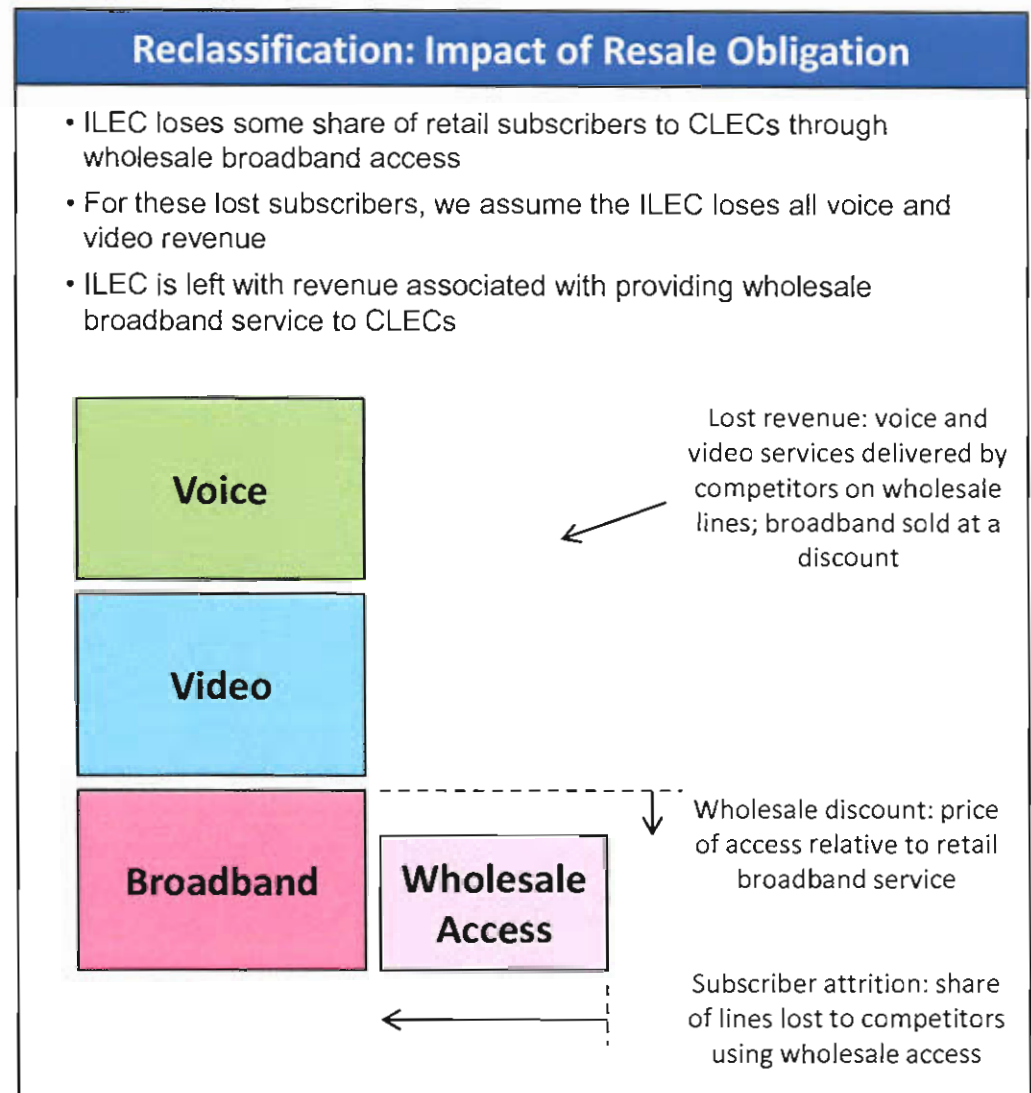
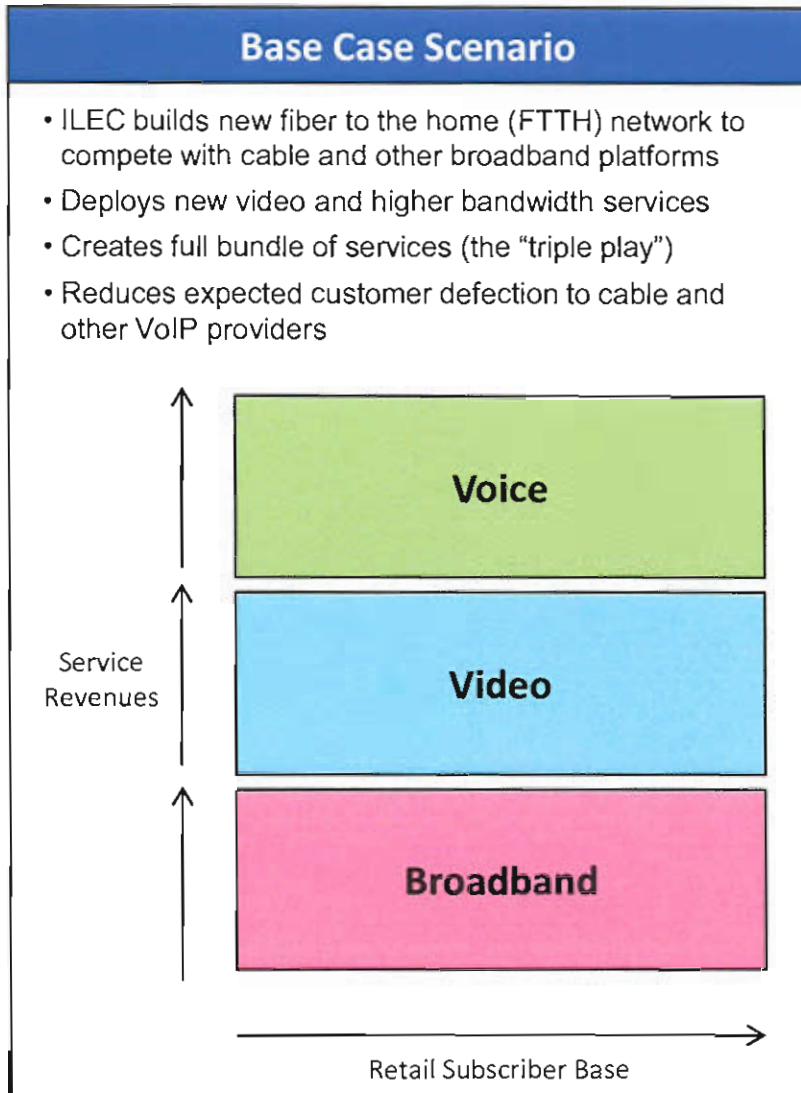
The FCC is seeking comment on options for the future regulation of Broadband Internet Services, including potential reclassification

- Reclassification could give rise to resale obligations, even if this is not the FCC's primary intent





This CSMG study assesses how reclassification of broadband may affect the business case for FTTH deployment; our focus is on the impact of a resale obligation

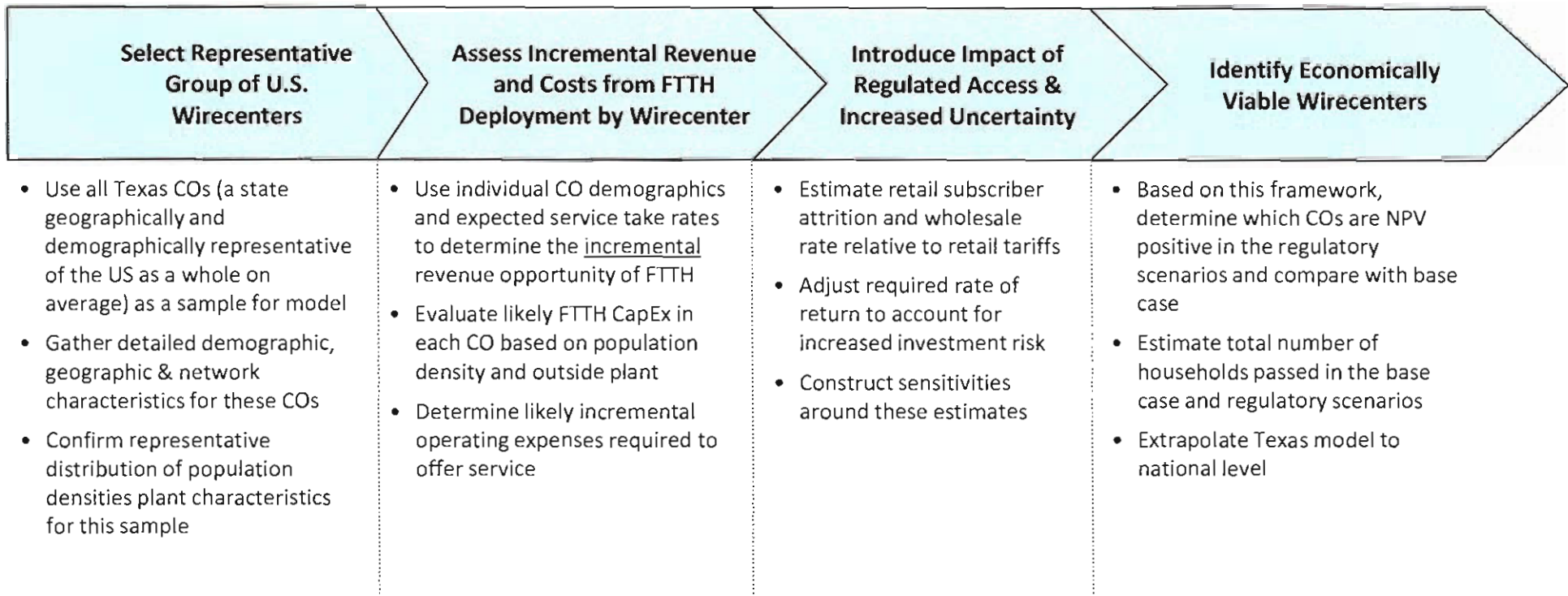




Our methodology uses wirecenter data to identify locations where it makes financial sense for an ILEC to overbuild its facilities with FTTH. This allows us to compute and compare the level of expected deployment in regulated and unregulated environments

- The model uses 3rd party sources for its input assumptions, and attempts to describe the economics for a generic ILEC

CSMG Methodology

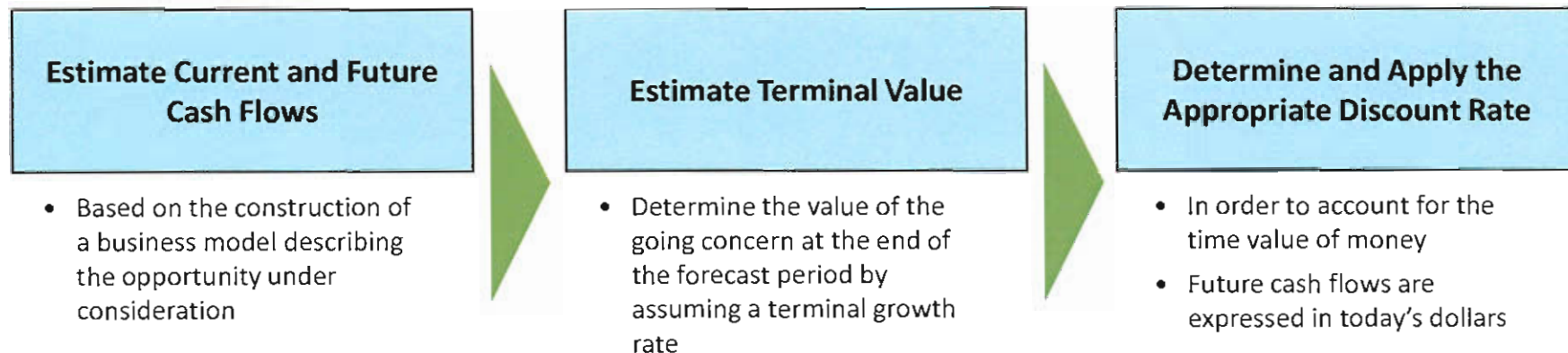




We use the Net Present Value (NPV) of a network investment to determine whether it is commercially viable

- ILECs (and businesses in general) regularly make decisions based on NPV calculations
- A positive NPV implies that an investment is worthwhile, while a negative NPV suggests that an investment should be avoided
- Valuing a potential investment generally involves three specific steps, resulting in the calculation of NPV:
 - Estimate current and future cash flows
 - Estimate a terminal value
 - Determine the appropriate discount rate to apply to the free cash flows
 - Adjust discount rate to reflect level of risk

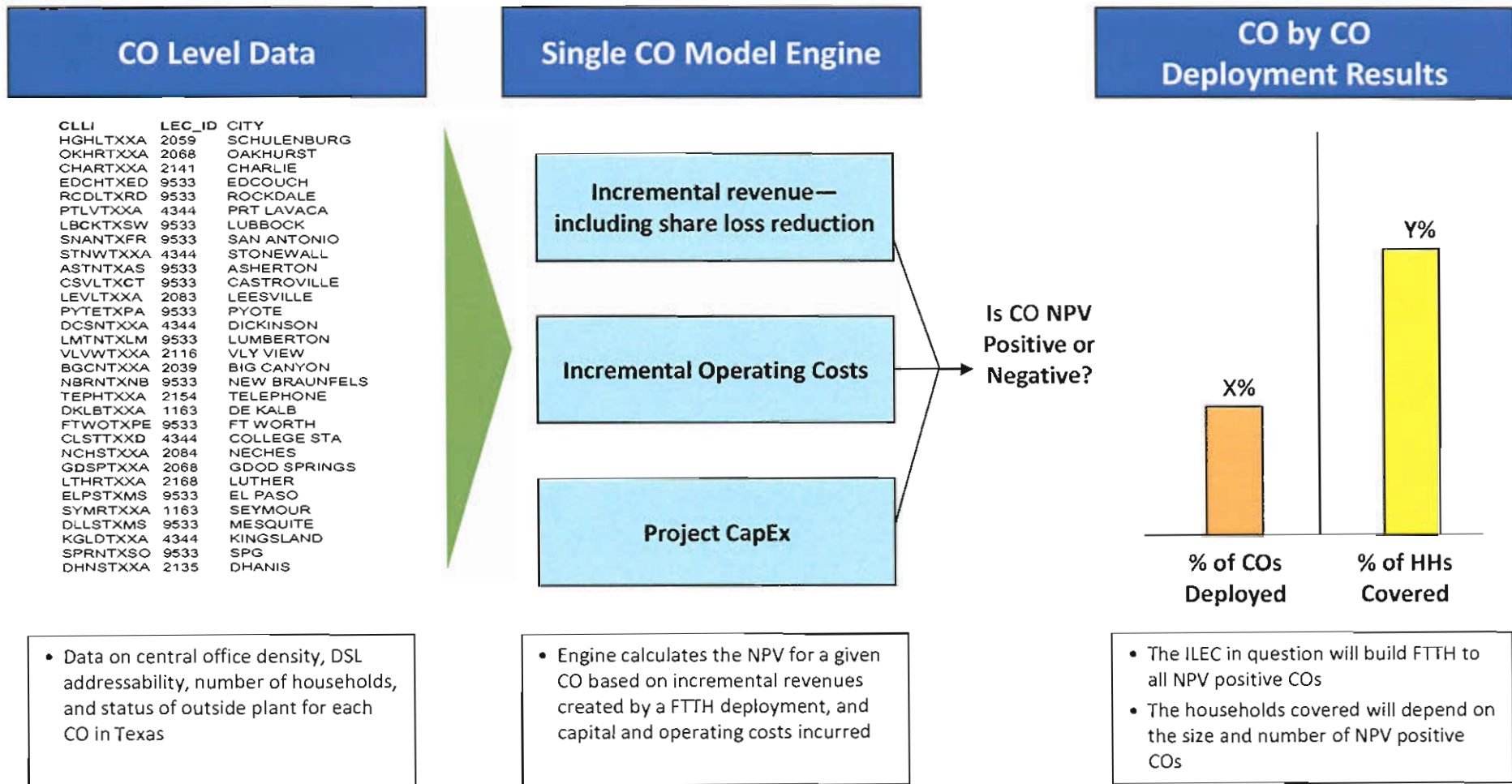
Valuing an Opportunity





The model uses CO level data to calculate the incremental revenue opportunity, OpEx and CapEx required in a FTTH deployment

- Running this model for a representative group of COs (in this case the entire state of Texas) allows us to identify the areas in which FTTH could feasibly be deployed under different scenarios and assumptions





The FTTH base case is constructed as an overbuild; the ILEC incurs CapEx to deploy fiber which is justified by the additional revenues this enables

- With additional regulation, the CapEx is still incurred, but much of the revenue is lost

Analyses Performed

1

Status Quo Scenario

- DSL broadband data
- No video
- Significant voice competitive line loss

2

FTTH Overbuild

- Deploy fiber to the home in economically viable COs
- Higher data revenues
- New video data stream
- Lower competitive line loss than status quo

3

Reclassification Scenario

- Deploy fiber to the home in economically viable COs
- Mandated wholesale access to fiber network
- Significantly lower share of voice, data and video
- Increased risk associated with potential regulation

Key Revenue Drivers & Assumptions

- Retail local and LD voice revenues built by line/household count and average revenue per user (ARPU)
- Retail DSL revenues by household based on current penetrations and third party forecasts
- No ILEC video revenue
- Voice modeled as above, but with lower competitive line loss (based on more attractive ILEC package of services)
- Bundling increases in importance as high share of customer telecom “wallet” drives profitability
- FTTH enables high ILEC penetration of video market
- All revenue streams are as modeled above, but a significant portion of retail revenue is lost through wholesale access to competitors
- Some of this lost revenue is recouped in the form of wholesale revenue
- Increase rate of return required to account for the increased risk of investing in an environment that could result in revenue loss and increase the cost of regulation

Key CapEx & Expense Drivers & Assumptions

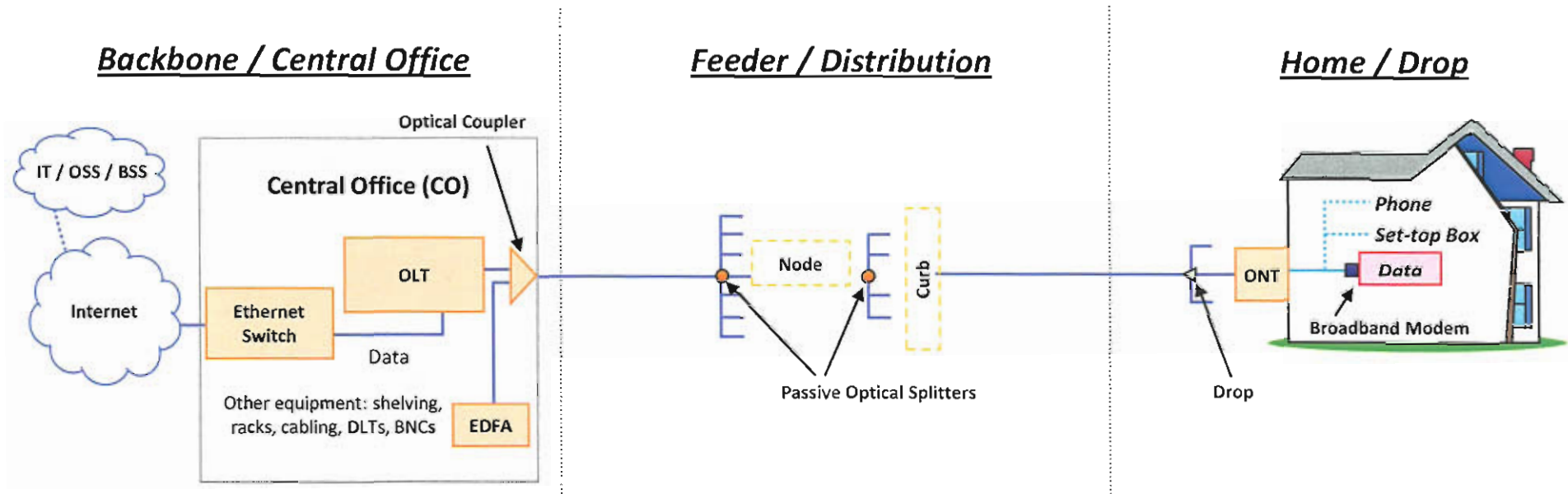
- No incremental CapEx beyond current deployment
- Cost of Goods Sold (COGS), marketing expense, and G&A calculated as a percent of revenue
- Incremental fiber costs per market primarily driven by household density and mix of aerial vs. terrestrial plant
- Incremental CO equipment required per market based on FTTH architecture
- Incremental fiber, line card and CPE costs per home based on FTTH architecture
- COGS and OPEX calculated as percent of revenue
- Acknowledged exclusions that we did not model:
 - Incremental network CapEx required to for interconnection with wholesale customers
 - Costs associated with modifying systems and processes for wholesale access
 - Operational savings from FTTH network



- Executive Summary
- Introduction
- Base Case FTTH Deployment
- Impact of Reclassification
- Appendix



The FTTH model represents a passive optical network (GPON) capable of telephony, video and high speed internet services at symmetrical speeds of 100Mbps and above



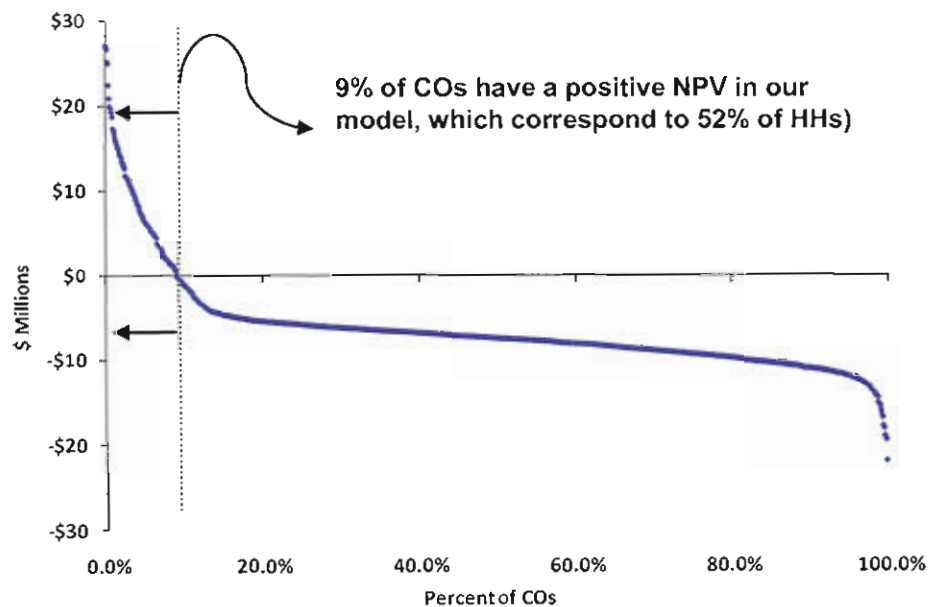
COST COMPONENT	<ul style="list-style-type: none"> • OLT • Backbone (allocation) • CO Labor (installation) • Other CO Equipment (passive and active components) 	<ul style="list-style-type: none"> • Feeder and Distribution Fiber Costs • Feeder and Distribution Fiber Labor Costs • Passive Optical Components 	<ul style="list-style-type: none"> • Drop Fiber Cost • Drop Fiber Installation Cost • ONT • Broadband Modem Cost
COSTS VARY BY	<ul style="list-style-type: none"> • Homes per CO • Subscribers per CO • Labor and equipment cost/efficiency improvement over time 	<ul style="list-style-type: none"> • Length of feeder and distribution fibers • Extent of buried vs. aerial plant • Labor and equipment cost/efficiency improvement over time 	<ul style="list-style-type: none"> • Length of drop (housing lot size) • Installation efficiencies • Labor and equipment cost reductions



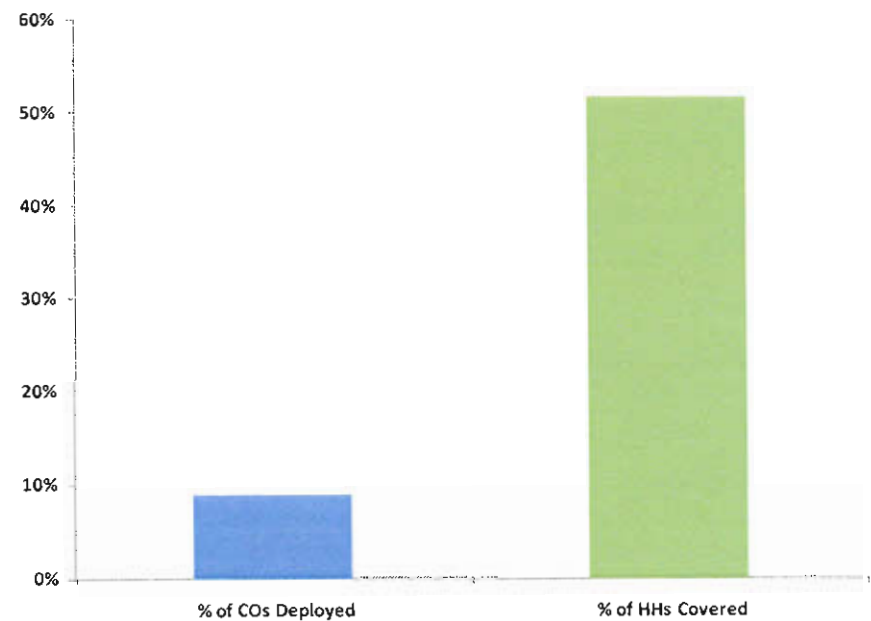
Running the FTTH model under base case conditions, we find that 9% of all COs in Texas – covering 52% of households – have a positive business case

- The base case is in line with publically available Verizon FiOS plans relative to original footprint
- Verizon’s announced target was 18M HHs passed of the 33M (55%) HHs in its wireline footprint at that time

Texas COs Ranked by NPV for FTTH Deployment



Economic Viability Footprint



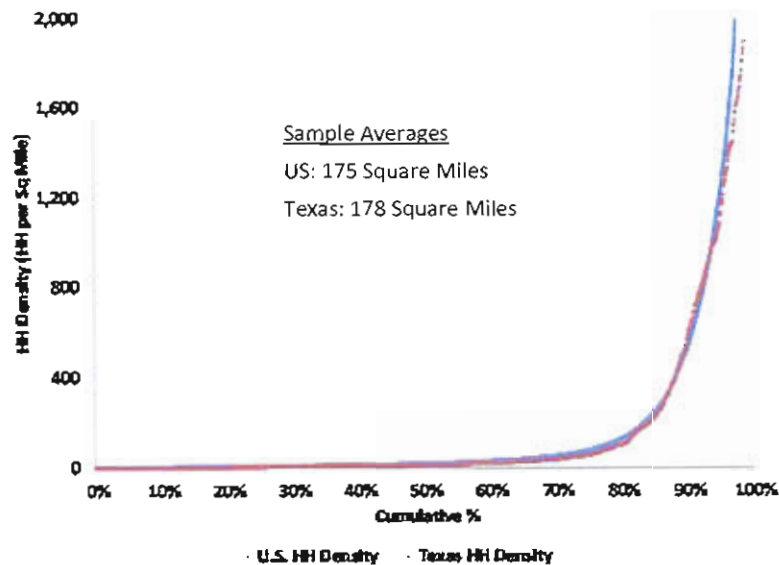
1. Based on U.S. Census data and a 5-yr HH CAGR of 0.97%; 2010 total U.S. households = 119m
 2. Source: Verizon investor relations, 2006



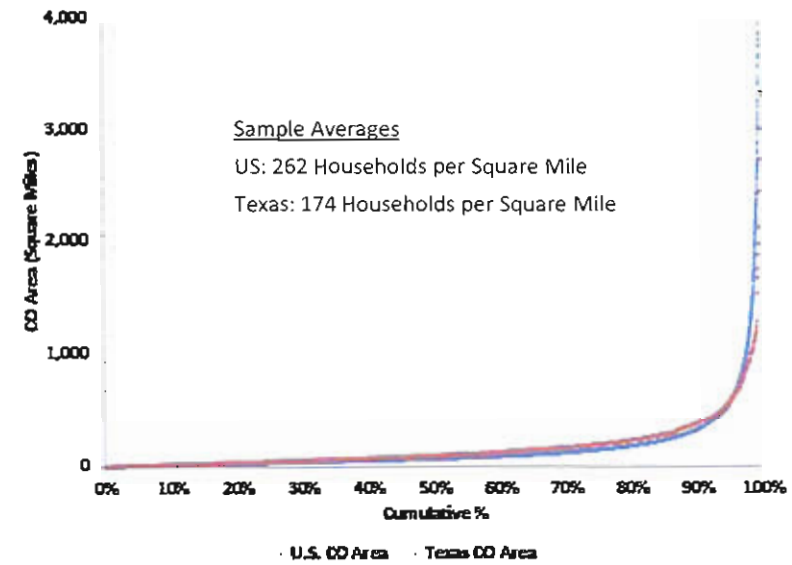
Texas acts as a reasonable proxy for the U.S. as a whole; extrapolating from the Texas results indicates that fiber could profitably be brought to 61.4M households nationally

- The use of Texas as a proxy for the U.S was accepted by the FCC in an 2002 study by CSMG

Cumulative Distribution of CO Area



Cumulative Distribution of Household Density



Share of Underground Plant

Sample Averages
 US: 44%
 Texas: 53%
 AT&T Texas: 54%



- Texas has more underground plant than the rest of the U.S.
- This will result in the extrapolation giving a conservative result, i.e. more HH could be viable at a national level than predicted

Texas Analysis: 52% Households served by NPV positive COs

Extrapolating to Total U.S. Households:
 $119M \times 52\% = 61.4M$



- Executive Summary
- Introduction
- Base Case FTTH Deployment
- Impact of Reclassification
- Appendix



Reclassification will impact ILEC areas differently depending on whether FTTx programs are already in place or not

- Of the households impacted by reclassification, some will be in areas where new investments will be impacted and others will be in areas where investments have already been made, causing an erosion in the planned returns of past investments

Varying Impact of Reclassification by Area

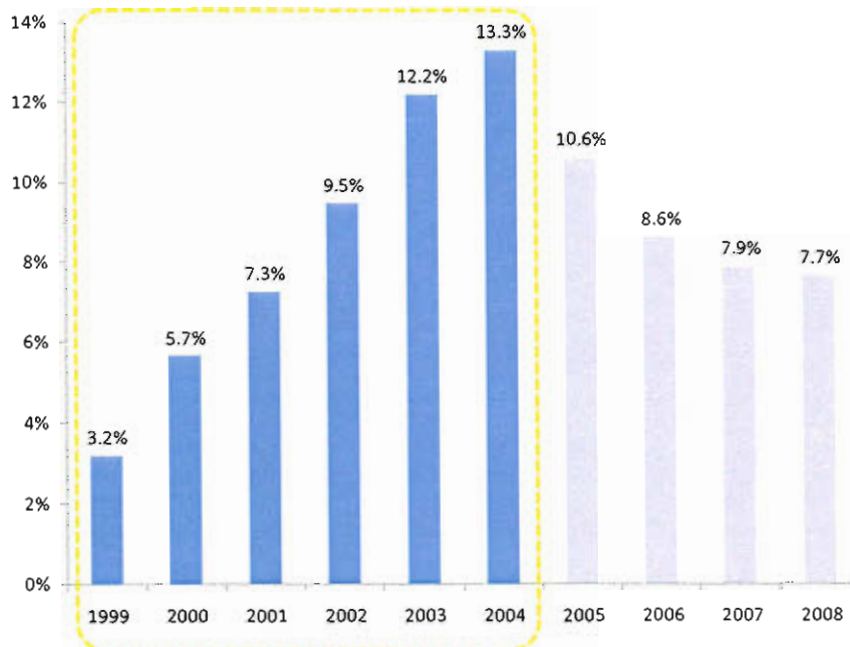
	1 Little/No Current FTTx Deployment	2 Areas Planned for FTTH	3 Areas with FTTH Already	4 Areas with FTTN Already
Example Area	<ul style="list-style-type: none"> • Qwest and many RLEC territories 	<ul style="list-style-type: none"> • Verizon territories in the FiOS plan but not yet deployed 	<ul style="list-style-type: none"> • Verizon FiOS territories 	<ul style="list-style-type: none"> • AT&T U-verse territories
Current Situation	<ul style="list-style-type: none"> • Service providers considering whether or not to deploy FTTH 	<ul style="list-style-type: none"> • Service providers committed to completing announced deployments 	<ul style="list-style-type: none"> • Areas where FTTH has already been deployed 	<ul style="list-style-type: none"> • Areas where FTTN has already been deployed • May be considering FTTH upgrade
Impact of Reclassification	<ul style="list-style-type: none"> • Significant reduction in business case for new deployment • Fewer homes deployed • Higher investment risk 	<ul style="list-style-type: none"> • Significant reduction in business case for FTTH deployment • Potential reduction of existing programs • Higher investment risk 	<ul style="list-style-type: none"> • Investment case eroded ex-post; could cause losses and writedowns 	<ul style="list-style-type: none"> • Not formally in our study but expect business case for upgrade to FTTH to be substantially diminished



To assess the scale of lines that could be lost through regulated access, we use the CLEC share curve following the Act of 1996 as a proxy for retail subscriber attrition

- Our base case reclassification scenario assumes a steady-state subscriber attrition rate of 20%

UNEs and Resold Lines Provided to CLECs as a % of Total ILEC Access Lines¹



Scenario Input for Model

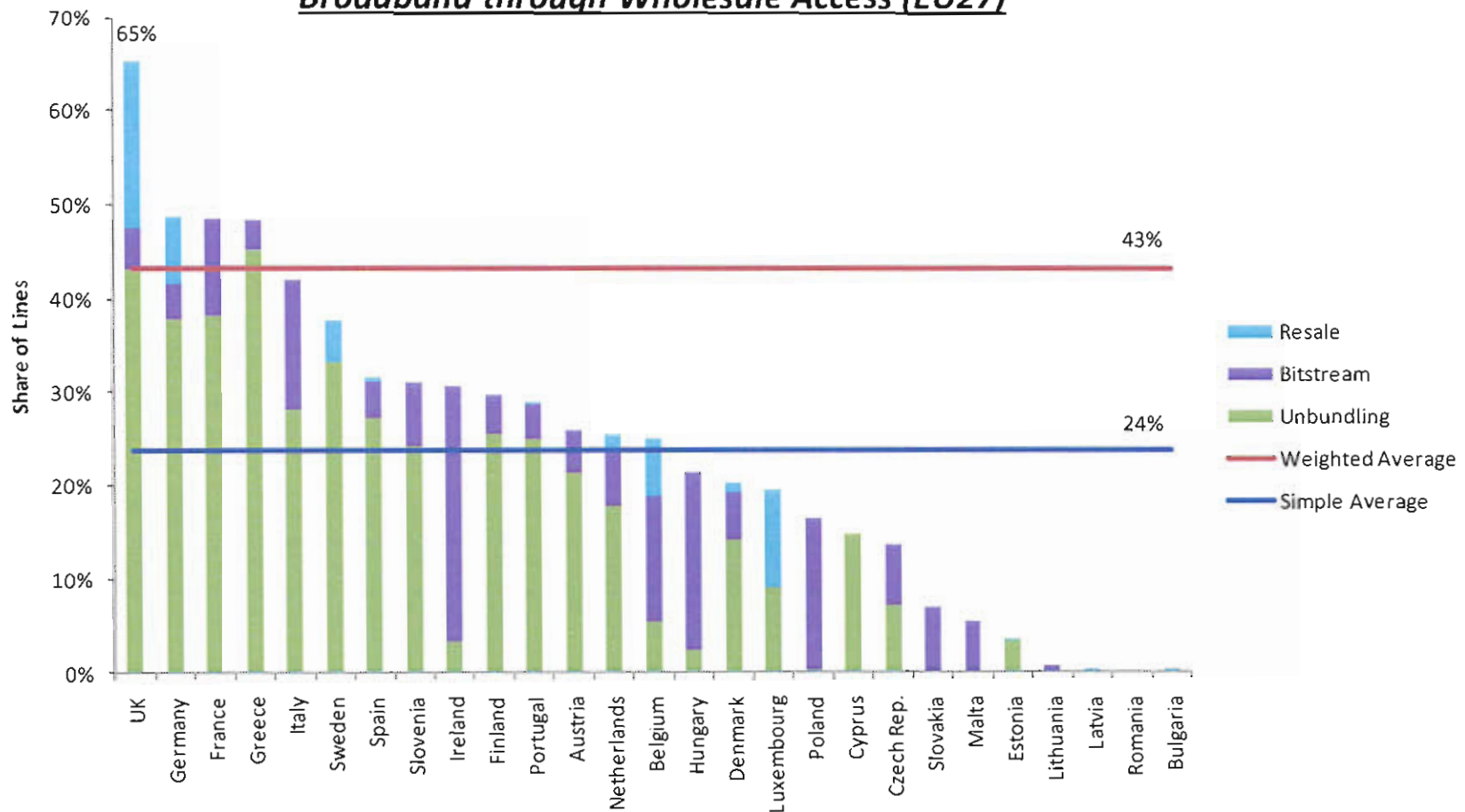
- The chart to the left illustrates the aggregate # of lines lost through resale and unbundling to CLECs in a previous wholesale access paradigm in the U.S.
- This curve is used as a proxy for the subscriber attrition ramp in the FTTH model
- We assume a steady-state share loss of 20%, which is a reasonable estimate considering:
 1. The CLEC proxy to the left to a large part represents just one service (voice via UNE-P), whereas the FTTH case includes voice, video, and data
 2. CLEC share growth was curbed by the FCC's 2005 resolution undoing the requirement for ILECs to make UNE-Ps available
 3. In Europe where mandated unbundling and resale is imposed, observed ILEC share loss is up to 65%²
- We assume a wholesale broadband discount of 35% based on typical discounts for UNEs; (resale discounts are typically lower)
- The FTTH model is relatively insensitive to the level of wholesale discount given the multi-service share loss dynamic

1. Source: FCC Local Telephone Competition report, June 2010
 2. Source: ECTA Broadband Scorecard, 2009Q3



Our assumption for subscriber attrition is conservative by international standards; in Europe most incumbents have lost over 20% of copper lines through wholesale access

Share of Incumbent Lines used by Competitors for Broadband through Wholesale Access (EU27)

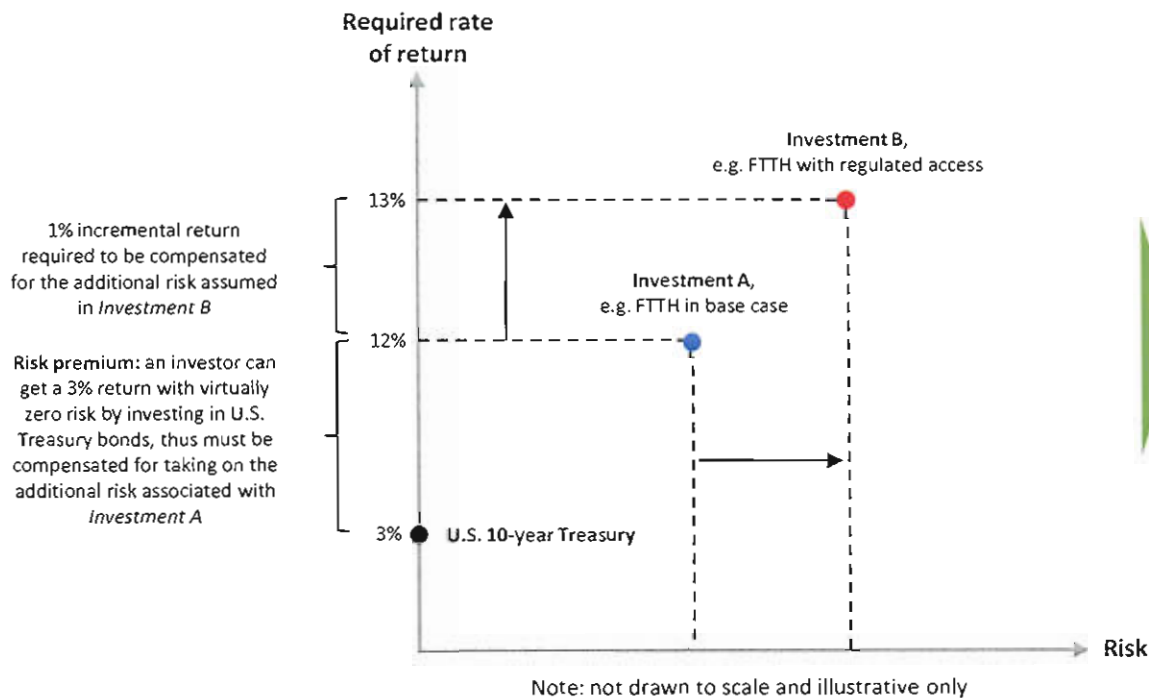




The prospect of regulated access would introduce additional risk to a FTTH investment, thereby raising an ILEC's required rate of return (RRR) for the project

- In the reclassification scenario, we assume a one percentage point increase in required rate of return to reflect the additional uncertainty and risk associated with a FTTH investment

The Risk-Return Tradeoff



Required Rate of Return

- For a given investment, there is a required rate of return (RRR) to compensate an investor for risk and the opportunity cost of selecting that investment instead of another
- In our base case, we assume this RRR to be 12% based on typical planning assumptions
- The prospect of regulated access creates an environment of uncertainty that inherently raises the risk of investing in a FTTH network
- We assume the RRR would then increase to 13%
- While there are multiple ways to calculate required RRR, we feel an initial 12% assumption and a 1% point increase are conservative assumptions, the latter of which illustrates the significant impact of risk assessment on long dated capital projects

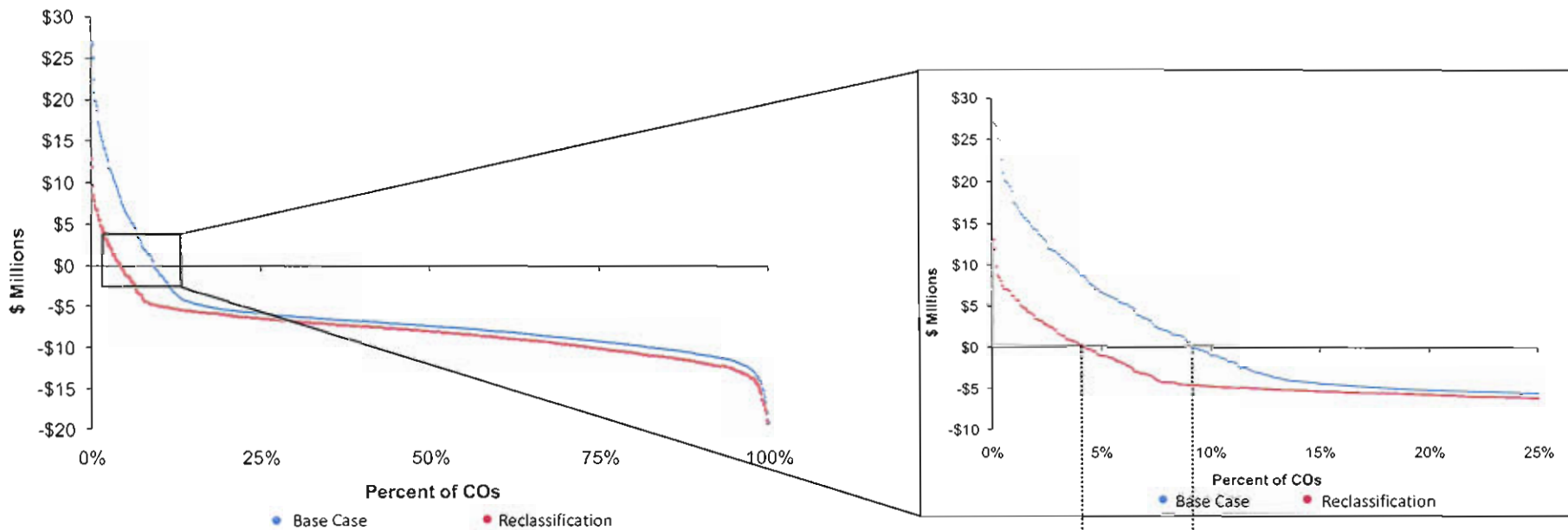
A higher RRR implies that future income is less reliably forecasted and therefore less valuable than that under more predictable conditions



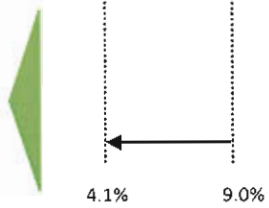
Accounting for share loss and lower risk tolerance, resale obligation reduces the number of economically viable U.S. HHs by 29 million relative to the base case

- The net effect of 20% wholesale customer loss and increased perceived project risk (1% point higher RRR) is that fewer central offices prove in for new investment

Texas COs Ranked by NPV for FTTH Deployment: Reclassification vs. Current Regulation



Regulation reduces the % of economically viable (NPV positive) COs from 9.0% to 4.1%, which corresponds to a national decrease of 29m households¹ or 47% fewer HHs. Network operators typically will not invest in COs that are NPV negative, hence fewer HH can be addressed



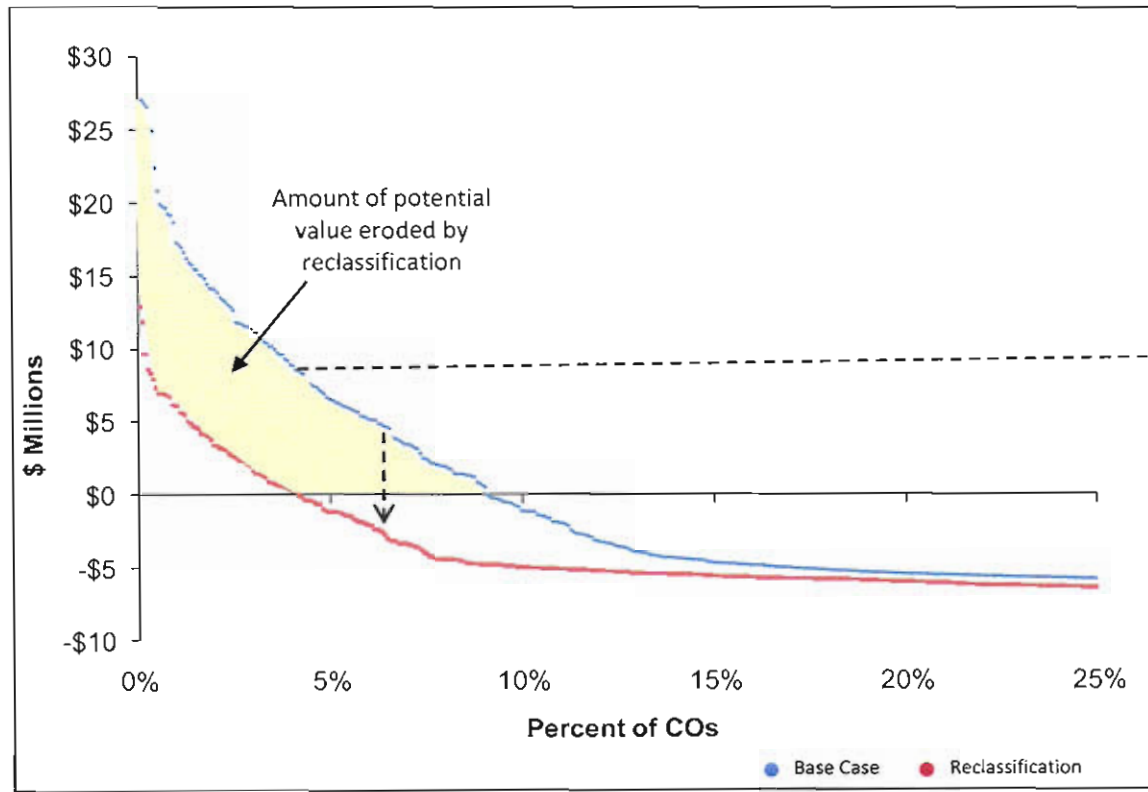
1. Based on U.S. Census data: 2010 total U.S. households = 119m, CAGR = 0.97%



Reducing the number of households which can be economically addressed is not the only effect – there is also \$13.2B of investment value erosion across all deployed areas in our base case sensitivity

- This will impact both areas that have already been deployed and those that are being considered for deployment

COs Ranked by NPV for FTTH Deployment:
Reclassification vs. Current Regulation



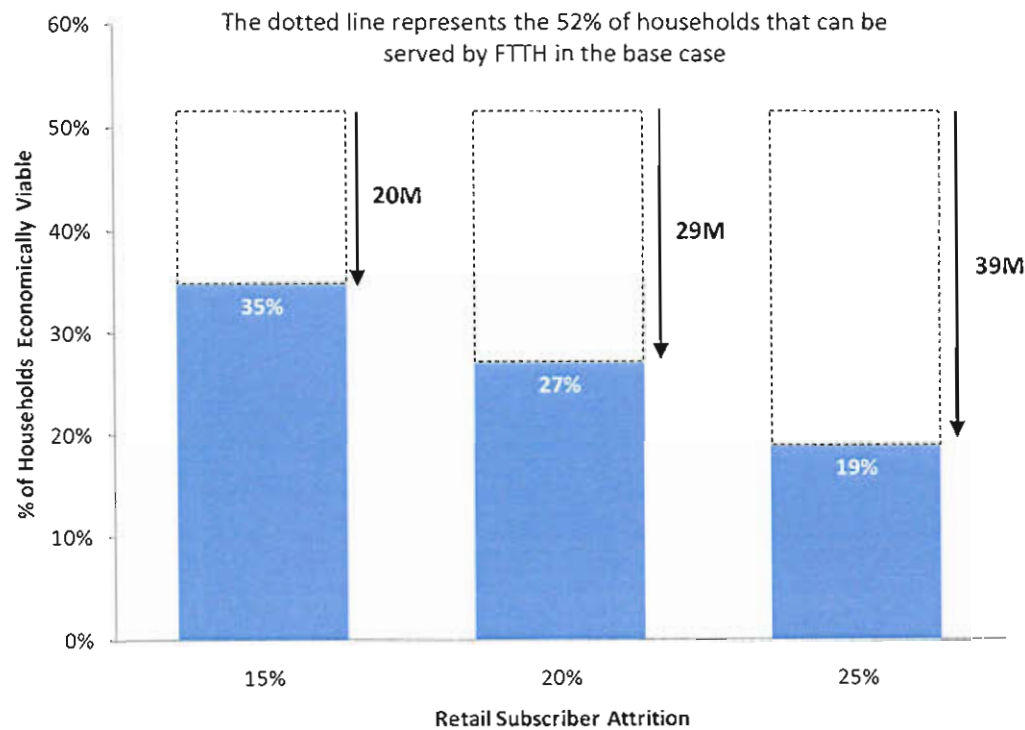
- Regulations stemming from reclassification cause the business case to erode across all areas where FTTH has been deployed or are being considered for deployment
- We can measure this value erosion by comparing the aggregate positive NPVs before and after reclassification (the eroded value is represented by the shaded area between the blue and red lines and above the X-axis in the chart on the left)
- The net effect of 20% share loss and 1% point increase in RRR causes an incremental value decrease of \$13.2B in eroded NPV extrapolating from our Texas case to the nation as a whole



The impact is very sensitive to the number of customers an ILEC considering FTTH investment would expect to lose to wholesale competitors

- 25% retail subscriber loss causes 39M households to be negatively impacted (63% of homes that are economically viable) nationally versus 29M in the reclassification base case
- 15% loss results in 20M homes being negatively impacted

Effects of Varied Levels of Share Loss

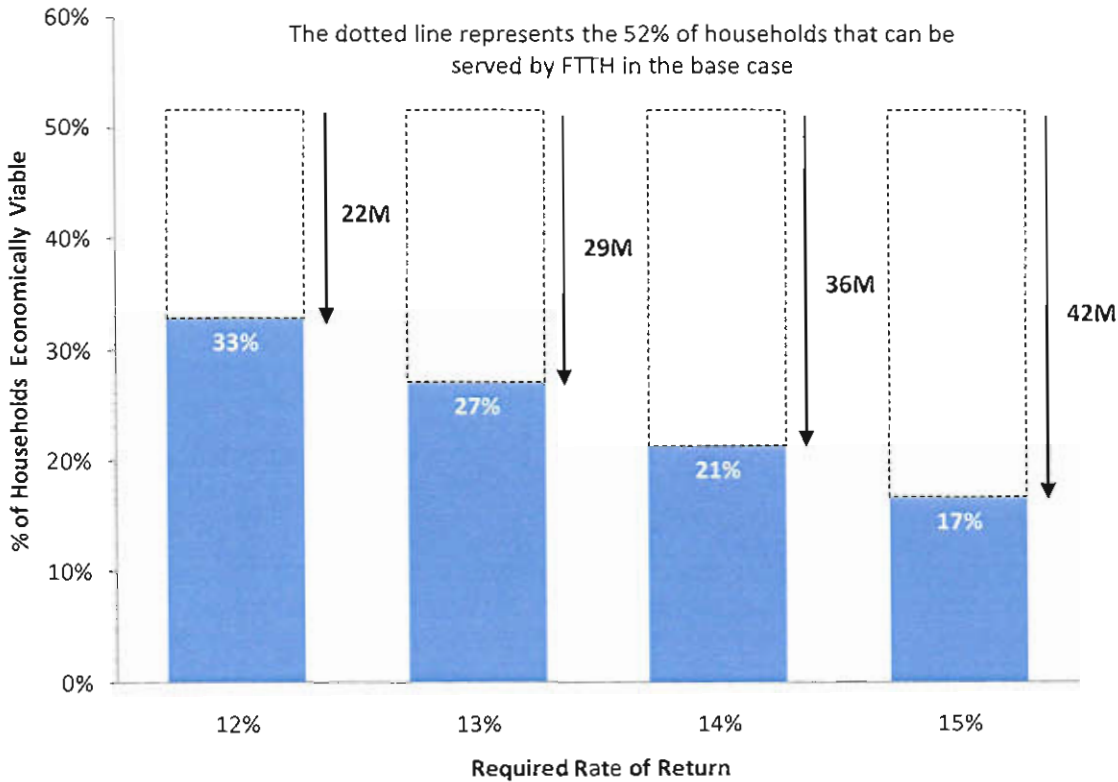




The impact is amplified as the required rate of return is increased

- The required rate of return is a metric used by operators to capture the perceived degree of risk
- In our base case reclassification scenario we increase the RRR to 13%, resulting in less FTTH investment as illustrated in chart below

Required Rate of Return Sensitivity



1. Assumes 20% retail subscriber attrition



To illustrate the impact that regulation would have on the decision-making inputs for an operator considering a FTTH investment, we profiled a specific wirecenter

1

Example Area without an FTTx Plan

- Population: 107,000 people
- Land area: 63 square miles
- Population density: 1,698 per square mile



FTTH Overbuild Model

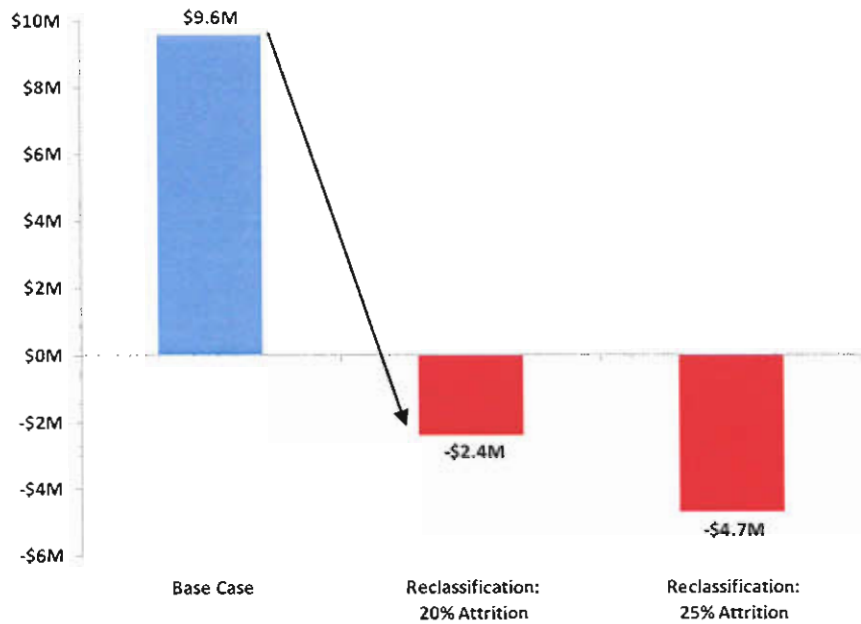
- Investment case to deploy FTTH in a single CO with existing DSL and telephony service
- 10 year cash flow model
- Triple-play retail services including broadband Internet access
- GPON architecture
- Only incremental revenues and costs of deployment are included



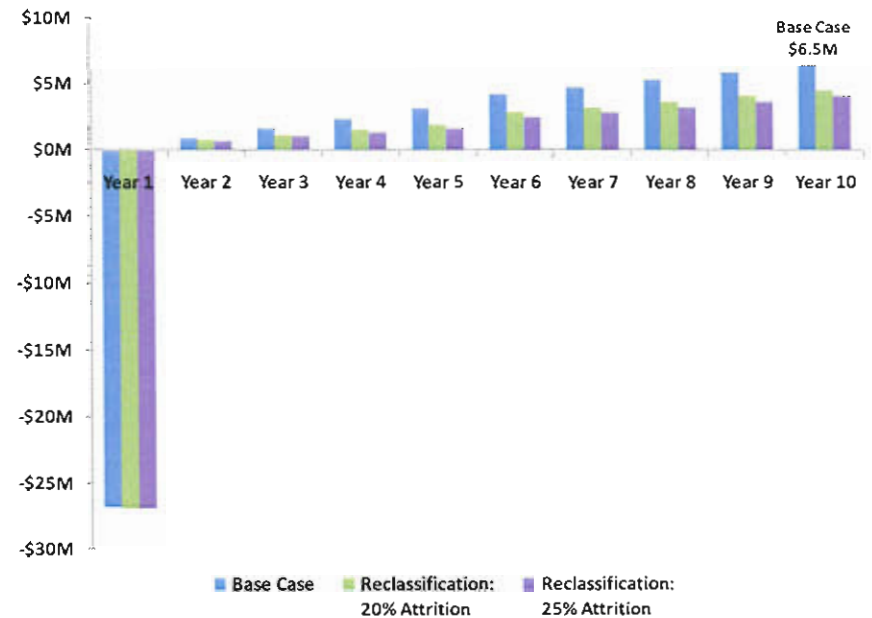
Our example CO has a positive NPV of \$9.6M in the base case, but reclassification turns the NPV negative and lengthens the payback period

- Operator losses would be greater still with a 25% line loss

NPV Comparison



Free Cash Flow Comparison

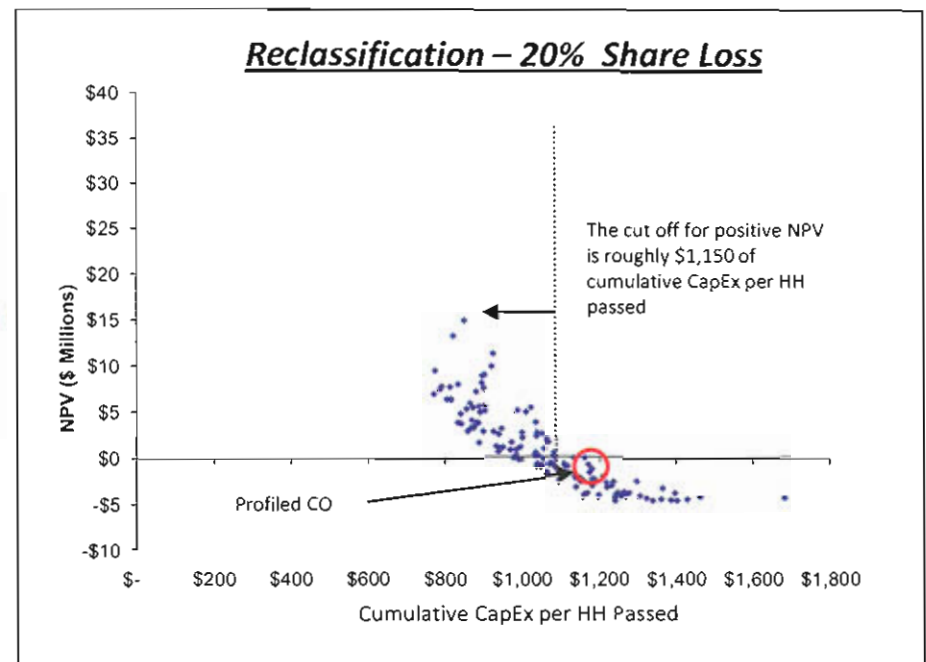
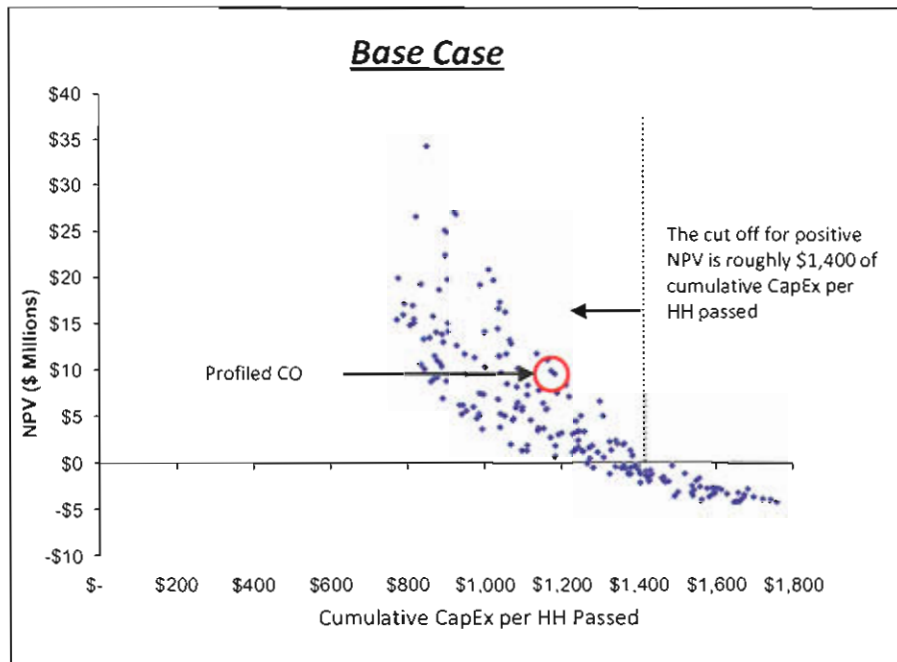


1. RRR = 13%



Reclassification lowers the threshold for the amount of CapEx an operator is able to profitably invest per household in order to earn a return

NPV of Texas COs versus CapEx per Household



1. RRR = 13%



- Executive Summary
- Introduction
- Base Case FTTH Deployment
- Impact of Reclassification
- Appendix
 - Input Assumptions



Key Assumptions

Household penetration (Per CO)		Source
Voice services (subs saved through FTTH deployment)	5% of households "saved" moving to 10% "saved" in Y10	CSMG
TV services (market share) ¹	25% in Y5, 35% in Y10	SNL Kagan, CSMG
Broadband services (DSL cannibalization)	33% in Y5; 42% in Y10	SNL Kagan, CSMG

ARPU ²		Source
Voice ARPU	\$45 (2.5% decrease pa)	SNL Kagan, CSMG
TV ARPU	\$85 (2.2% increase pa)	SNL Kagan, CSMG
Data ARPU	\$37 (0.3% increase pa)	SNL Kagan, CSMG

CapEx		Source
Buried fiber	\$11 / foot	Cook Report, Verizon, Bread, CSMG
Aerial fiber	\$3 / foot	Gates Foundation, CSMG

¹ Assume that over time FTTH TV gains share from cable

² Note: Individual service ARPUs are based on service revenue divided by # of RGUs. Because each subscribing HH has > 2 RGUs, blended ARPU is less than the sum of service ARPUs



One Boston Place
31st Floor
Boston, MA 02108
USA
+1 617 999.1000

Descartes House
8 Gate Street
London WC2A 3HP
UK
+44 20 7643 5550

www.csmg-global.com

