

**TESTIMONY OF THE FIBER TO THE HOME COUNCIL AMERICAS
BEFORE THE CANADIAN RADIO-TELEVISION
AND TELECOMMUNICATIONS COMMISSION**

TELECOM NOTICE OF CONSULTATION CRTC 2013-551

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INTRODUCTION

Good morning. I am Heather Burnett Gold, President of the Fiber to the Home Council Americas (the “FTTH Council” or “Council”). I am joined by our counsel, Thomas Cohen, and by our economist, Hal Singer, a principal at Economists Incorporated.

The Council is pleased to appear before the Canadian Radio-television and Telecommunications Commission (“CRTC” or “Commission”) to discuss its views on the Notice of Consultation (CRTC 2013-551) dealing with wholesale services and associated policies.

The development of all-fiber networks (including FTTH and FTTP) is relatively new – only some 15 years since the first networks were deployed in the US. And, despite the enormous capabilities of these networks, no one should underestimate the challenges in building them. They are risky investments not only because they require large capital expenditures but because communications markets are more competitive. Despite these challenges, all-fiber deployments in the US have grown substantially. This stems to a large extent from the decision ten years ago by the Federal Communications Commission (“FCC”) to reverse course on its pro-unbundling regime and not mandate the unbundling of FTTH and similar fiber infrastructure. The FCC’s action provided the proper incentives for all providers – incumbents and competitors – to accelerate their investments in all-fiber networks in the US. It led, for instance, to Verizon’s immediate massive FiOS deployment. It has resulted in 80% of homes in the US having access to networks with download speeds of at least 50 Mbps¹ – and these speeds continue to increase as do the number of providers offering this capability. The level of high-speed broadband

¹ Source: National Telecommunications & Information Administration, US Department of Commerce, State Broadband Initiative Data (Dec. 2013).

availability in the US is approximately 50% greater than in Europe, which largely embraced unbundling.² In addition, according to a recent study, broadband investment in the US is \$562 per household, while it is \$244 in Europe.³

As a result of the FCC's action along with other market developments, today the US market has reached an inflection point where all-fiber networks are in great demand and their deployments are accelerating. Users want the bandwidth such networks provide. Communities want their economic benefits. Providers want their service capabilities and lower operating costs. One Wall Street analyst just estimated that if all announced all-fiber deployments in US metro areas are executed, 50% of homes in those areas will be passed soon – and that if plans under exploration come to fruition that could grow to 75%.⁴ In addition, studies show that the having all-fiber connectivity increases the value of a home – in the range of \$5,000-\$10,000 per home – and having an all-fiber network increases “community” GDP – by approximately 1.1%.⁵

In our testimony, we focus on one question: what would be the effects on all-fiber deployment of mandatory fiber loop unbundling (or similar wholesale) policies at rates based on incremental cost pricing methodology? As we will explain, the US experience in this regard is a significant event since it is a real-world economic experiment – where the FCC moved from imposing unbundling obligations on incumbents to deciding that those obligations would not

² Christopher S. Yoo, U.S. vs. European Broadband Deployment: What Do the Data Say?, U of Penn, Inst for Law & Econ Research Paper No. 14-35, June 3, 2014, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2510854.

³ *Id.*

⁴ UBS Global Research, “Communications Equipment, The Growing Case for Fiber in the Capex Diet,” Sept. 25, 2014.

⁵ Both studies are available at: www.ftthcouncil.org.

apply to FTTH (and even FTTC (fiber to the curb) and hybrid fiber-copper⁶) facilities. The FCC's action demonstrated that the industry failed to invest in fiber facilities while a mandatory unbundling regime was in effect and, when that policy was reversed, investment and fiber deployment grew substantially, along with greater facilities-based competitive choice.

BACKGROUND ON THE FIBER TO THE HOME COUNCIL AMERICAS

The FTTH Council is a not-for-profit entity founded in 2001. Its mission is to accelerate deployment of all-fiber access networks. The Council has more than 300 members throughout the Americas, including ten Canadian member companies. Its members represent all parts of all-fiber ecosystems, including incumbent, competitive, and municipal service providers, manufacturers and vendors, system integrators, and engineers.

Since its inception, the Council has been involved in the FCC's proceedings considering the unbundling of the fiber portions of incumbent local exchange carriers' ("ILECs") networks. The Council has produced empirical research and analysis demonstrating that mandatory unbundling of fiber stifles network investment by incumbents and new entrants alike and, as a result, serves to undermine robust competition and ultimately consumer choice and innovation. The Council's work informed the decision of the FCC more than a decade ago not to mandate unbundling of fiber network facilities. Since then, in the face of continued efforts to undo the FCC's action, the Council has advocated successfully to maintain that policy. As a consequence, we have witnessed dramatically increased deployment of all-fiber networks by incumbents and others and more robust facilities-based competition in advanced services for consumers. The Council has every reason to expect the same outcome in Canadian markets if the CRTC adopts a "no fiber unbundling" policy.

⁶ In Canadian terms, fiber to the node (FTTN).

THE DECISION OF US REGULATORS TO NOT MANDATE UNBUNDLED ACCESS TO FIBER FACILITIES

In the US, the Telecommunications Act of 1996 (the “1996 Act”) provided the statutory roadmap to encourage and enable the development of local competition. It requires that ILECs provide requesting telecommunications carriers nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory. The US has never required comparable network unbundling of facilities by cable operators.

The legislative history of the 1996 Act explained that its market opening provisions, including mandatory unbundling, were intended to accelerate private sector deployment of advanced information technologies and services by opening all telecommunications markets to competition. The US Congress found that since competitors would need time to build capital-intensive networks, in the interim, they would likely need to obtain facilities and capabilities from the incumbents. In other words, Congress saw unbundling as a transitional mechanism until such time as competitors built their infrastructure.

The FCC initially implemented the 1996 Act by taking an expansive approach to unbundling, including by mandating the unbundling of copper loops. But, only a short time later, the Commission began to shift course, and it eventually developed an unbundling regime favoring facilities-based competition and providing incentives for both incumbents and competitors to invest and innovate. This policy evolution is captured in the Commission’s 2003 *Triennial Review Order* in which it adopted a targeted approach to unbundling, one that identified with greater precision the impairment facing competitive providers and provided incentives for investment and innovation.

As part of its circumscribed approach to unbundling, the FCC decided not to mandate the unbundling of all-fiber and similar facilities – a decision that rested on a solid foundation. The Commission had before it a study by the Cambridge Strategic Management Group (CSMG), a group of business consultants, that examined the potential effects of mandated unbundling on FTTH deployments by incumbent and competitive providers. The study found that mandating unbundling deterred incumbents from investing since they would have to share the return, and, since incumbents were not investing, there was no pressure for competitors to make their own investments. Accordingly, CSMG projected that if unbundling were required, all-fiber deployments would pass only 5% of the households in the US in a ten-year period. In contrast, if unbundling of fiber loops was not mandated, CSMG estimated that by 2013 FTTH could be economically deployed in 31% of households, roughly a 6 fold increase. In addition, CSMG estimated that incumbents would invest \$45 billion in FTTH builds by 2013 in comparison with only \$5 billion if they were required to provide unbundled access to their fiber facilities.

The FCC used CSMG’s findings as a basis for its decision not to mandate unbundled access to FTTH loops, concluding:

“We expect that this decision to refrain from unbundling incumbent LEC next-generation networks...will stimulate facilities-based deployment...[I]ncumbent LECs will have the opportunity to expand their deployment of these networks, enter new lines of business, and reap the rewards of delivering broadband services to the mass market...[W]ith the knowledge that incumbent LEC next-generation networks will not be available on an unbundled basis, competitive LECs will need to continue to seek innovative network access options to serve end users and to fully compete against incumbent LECs in the mass market.”

And, ten years after the Commission’s action, we see that CSMG’s projections were on target.

According to data compiled by RVA, LLC, in March 2003, a few months prior to the *Triennial Review Order*, FTTH facilities passed less than 1% of homes in the US. Shortly after the FCC's decision to not unbundle FTTH, Verizon announced that it would spend upwards of \$23 billion to construct its all-fiber (FiOS) network. In just over three years, FiOS was available to 12.7 million homes in sixteen states. By May of 2013, the FiOS footprint covered 18 million homes. In combination with Verizon's build, other incumbent, competitive and municipal providers also undertook FTTH deployments, According to RVA, LLC, by 2014 (10 years after the FCC's decision), almost 30% of homes in the US had access to FTTH, and a great many deployments were in progress or planned. In combination with FTTN deployments, the percent of US homes passed with very high-speed broadband service exceeds 50%.⁷

While Verizon was the only Regional Bell Operating Company ("RBOC") to make investment in all-fiber networks on the scale of its FiOS offering after the *Triennial Review Order*, more recently the other RBOCs have changed course and are making substantial capital investments in FTTH facilities as well. AT&T, which had relied upon its "U-verse" fiber-to-the-node deployments, is deploying its "GigaPower fiber network" in Austin and intends to expand that to 22 metropolitan areas. As for CenturyLink, in August 2014, it announced that it would expand its gigabit-speed, fiber network to 16 cities.

Significantly, competitors have been reacting to FTTH builds by incumbents by making investments in all-fiber networks. Importantly, the chief competitors of incumbent telecommunications companies, the cable companies, accelerated the deployment of DOCSIS technology after the FCC decided to back off its extensive unbundling policy, averaging over \$15 billion in investment in the three years after the decision and spending between \$12.4 billion

⁷ RVA, LLC, "FTTH Progress and Impact," (2014), available at: www.ftthcouncil.org.

and \$14.6 billion annually from 2006 to 2012. By 2012, almost all cable infrastructure had been upgraded to next-generation technology (DOCSIS 3.0) capable of offering download speeds of 100 Mbps or faster. Now, these cable providers are taking the next step and deploying all-fiber networks. Cox Communications, for instance, announced this past May that it will deploy gigabit Internet connections in Phoenix, Las Vegas, and Omaha, before expanding to all its markets by the end of 2016. Through these investments, the cable industry is offering robust facilities-based competition to incumbent wireline and other facilities-based providers.

And, then there are the notable all-fiber deployments by other competitors to the ILECs, including Google, EPB of Chattanooga, Tennessee, Lafayette Utilities in Louisiana, CSpire in Mississippi, and so many more. In other words, there is room in some markets for a third wireline entrant – even one pursuing a greenfield build.

In short, the FCC’s “no fiber unbundling” policy has proven a success. In the past ten years, all-fiber deployments have accelerated; facilities-based competition has developed; and, concerns about the deleterious effects of unbundling have eliminated it as a serious policy option.

ECONOMISTS AGREE THAT UNBUNDLING DETERS FACILITIES-BASED INVESTMENT, DOES NOT RESULT IN LOWER PRICES, AND DOES NOT STIMULATE PENETRATION

US policies to abstain from unbundling of FTTH facilities have a strong basis in both empirical evidence and in economics. The US decision to pursue (and then unwind) unbundling policies for the copper networks provides a natural experiment for economists to study its impact. The lesson learned is that entrants will respond to a menu of entry options by favoring those that are artificially supported by government regulations. Specifically, if a regulator favors one form of entry (*e.g.*, resale of a facilities-based provider’s network elements or services) over

another (*e.g.*, facilities-based investment), the regulator gets more of the former and less of the latter. Thus, despite US policymakers' best intentions to promote facilities-based investment, the unbundling policies adopted by the FCC perversely discouraged competitive investment, as entrants who availed themselves of artificial resale opportunities were not able to wean themselves from their favored treatment.

Empirical evidence generated by the US unbundling experience demonstrates clearly why unbundling in the telecommunications industry is unsound. The provision of telecommunications is characterized by large upfront costs and *de minimis* marginal costs. Thus, platform providers must earn a margin over incremental costs to pay down the large upfront costs associated with building the network. US regulators tried to peg unbundled prices to a marginal-cost standard, which was inefficient and failed to compensate incumbents for investment risks in new facilities, such as fiber. The market response was predictable: rather than use unbundling as a transition vehicle to full facilities-based competition, competitors became addicted to an artificially low price of entry and investment by both incumbents and competitors stalled.

In 2004, I (Hal Singer) conducted an empirical study of unbundling with Drs. Robert Crandall and Allan Ingraham. We used cross-state variation in the price of constructing local phone lines (adding capacity) relative to leasing unbundled loops to identify the sensitivity of CLEC investment in local lines to the incremental-cost rate mandated by the FCC. We showed that mandatory unbundling at prices based on these incremental-costs encouraged a CLEC to delay facilities-based investment by altering its relative net present value of investment between time periods. We also found that facilities-based lines growth relative to unbundling growth was faster in states where regulated rates for loops were higher relative to the cost of facilities-based

investment; in other words, the more generous the regulated access price, the less facilities-based CLEC investment.

Other notable economists, such as Tom Hazlett, former chief economist of the FCC and Jerry Hausman of MIT, agree that contrary to the prediction of the stepping-stone (or ladder) hypothesis, CLECs were increasingly relying on unbundling as their preferred mode of entry, which of course would be expected from a rational competitor, and that capital expenditures in the network actually declined dramatically for both incumbents and entrants.

The disincentives for incumbents to make the capital investments to upgrade their networks for fear of being saddled with unremunerative access charges had a sobering result. Despite experiencing strong broadband and voice demand, cable companies were reluctant to invest in network upgrades in significant part because CLECs, using unbundled loops at marginal-cost rates, kept margins for those services artificially low. Why invest in your own network when your rivals (DSL and voice resellers) can enter via a subsidized resale model? Even though the DOCSIS technology to make the upgrades to provide higher-speed broadband and IP telephony was available for deployment as early as 1997, cable operators were slow to roll it out. It was only after a series of court orders and FCC actions, beginning in 1999, which limited access to unbundled network elements, that cable companies began to see the signal through the noise. As a result of these decisions and other factors, cable operators reversed course and greatly increased their investments in the DOCSIS technologies. The average annual capital expenditure for cable operators from 1996-98 was \$6 billion. In comparison, the average annual capital expenditure for cable operators from 2000-02 — as unbundling became increasingly disfavored — was \$15.1 billion, an increase of 149%. In the absence of the

unbundling experiment, it is reasonable that cable investment in DOCSIS would have occurred two or three years sooner.

Similarly, the ILECs were reluctant to invest in fiber until they received assurances that fiber would not be subjected to mandatory sharing rules. After the FCC determined in the 2003 *Triennial Review Order* to not impose unbundling obligations on their fiber facilities, ILECs entered into a race with their cable counterparts to begin building the broadband networks that are transforming the communications landscape. In the span of just five years, from the FCC's adoption of a policy of regulatory forbearance for fiber and IP networks in 2003, the annual miles of optical fiber deployed doubled from five to ten million. The results of this competitive race are impressive: By 2012, cable infrastructure in the US was largely upgraded to next-generation DOCSIS 3.0 technology capable of download speeds of 100 Mbps or faster in almost 100 million households. And telecommunications carriers offered next-generation fiber technology—FTTH or fiber-to-the-node—to more than 50 million households, setting the stage for fierce competition and powering new applications in a variety of other industries including education and medicine.

We understand that the residential broadband market will attract a limited number of facilities-based wireline providers because a significant penetration rate is required to cover the massive upfront costs and break even. Some may argue that two (or even three where possible) wireline providers are insufficient to characterize meaningful competition. But the empirical literature shows that cable operators in the US significantly reduce their broadband prices in response to a single overbuilder, suggesting that two providers are enough to provide competitive outcomes. This outcome is foreseeable since the cost of keeping a subscriber tends to be much lower than the cost of obtaining a new one. And for those who doubt two are enough, we are

seeing a third wireline broadband provider (*e.g.* Google Fiber or municipal utility deployment) in many major US markets, and continuous increases in throughput enjoyed by wireless broadband services make these alternative platforms increasingly competitive with their wired counterparts.

CONCLUSION

The Council submits that this proceeding provides the CRTC with an important opportunity: by not mandating unbundling of FTTP by incumbent local communications providers, it can both accelerate investment in FTTP and foster competition for the provision of ultra-high speed broadband and other services. This conclusion is based on the experience in the US where the decade-old decision of the FCC to not require unbundling has resulted in substantial FTTP investments by incumbents and others, facilities-based broadband competition, and very high-speed broadband service offerings for consumers. The US experience in FTTP deployment and use also demonstrates that these networks are fundamental drivers of economic growth, social interaction, and citizen engagement. There is little doubt that communities, residents, businesses and community anchor institutions in the US see the tremendous value in having FTTP connectivity. The Council wants Canada to reap the same benefits.