



The Future of Broadband Internet Access in Canada

Key Concept

The CRTC is seeking responses on the Telecom Notice of Consultation 2013-551 regarding the review of Canada's wholesale services. As Alberta's not-for-profit neutral technology agency, Cybera recommends that new wholesale services should be included in the CRTC's mandated regulation, particularly with respect to fibre to the premises (FTTP; see Question 4b of Appendix 1). Currently, Canada's FTTP industry is not regulated, which means competition is severely restricted, with FTTP consumers having limited or no choice of internet providers. By asking the CRTC to regulate this technology, we can ensure that Canadians have affordable choices and that network neutrality is protected.

Background

In this increasingly connected world, fibre that is capable of carrying 1,000 Mbps+ speeds will become the backbone on which Canada's digital economy will grow and thrive. In the future, fibre to the premises (FTTP) technology and infrastructure will deliver fast internet to Canadian homes and businesses and provide the foundation to advance our digital workforce, research and creative activities.

With its basic service objective (2011-291), the CRTC has established a baseline internet availability target of 5 Mbps download and 1 Mbps upload rates for all Canadians by 2015. Cybera commends the CRTC's efforts and vision to bring affordable high-speed internet service to Canadians in urban and rural areas. However, we believe that these targets are too low. The basis for setting such targets should be the ability of Canadians to use the internet interactively, and not simply in a broadcast/consumer mode. As such, upload speeds have to be higher to allow consumers to carry out such digital activities as videoconferencing and telecommuting. Furthermore, these baseline numbers should be updated frequently to match leading international benchmarks, for the long-term welfare of Canada.

There is also a need to regulate advertised rates versus actual data rates achieved by consumers. The advertised data rates should reflect the minimum bandwidth available at peak hours.

For Canada's digital economy to grow, all Canadians need access to unmetered fibre. This means competitive access to next-generation FTTP infrastructure and technology. Canada significantly trails other OECD (Organization for economic co-operation and development) countries when it comes to FTTP penetration (Figure 1), and this is reflected in our poor overall internet speed ranking (36th; <http://www.netindex.com>). Other countries have made the strategic decision to prioritize FTTP adoption (Figure 1). If Canada is to be globally competitive, it needs to follow suit. By establishing regulations in the wholesale FTTP services market, the CRTC will help to ensure that a competitive market exists to provide all Canadians with FTTP at an affordable rate.

CYBERA

Calgary Office: Suite 200, 3512 - 33 St NW, Calgary, AB T2N 2A6 T: 403-210-5333
Edmonton Office: 3-43, Computing Science Centre, University of Alberta, Edmonton, AB T6G 2E8
[@cybera](https://twitter.com/cybera) info@cybera.ca www.cybera.ca

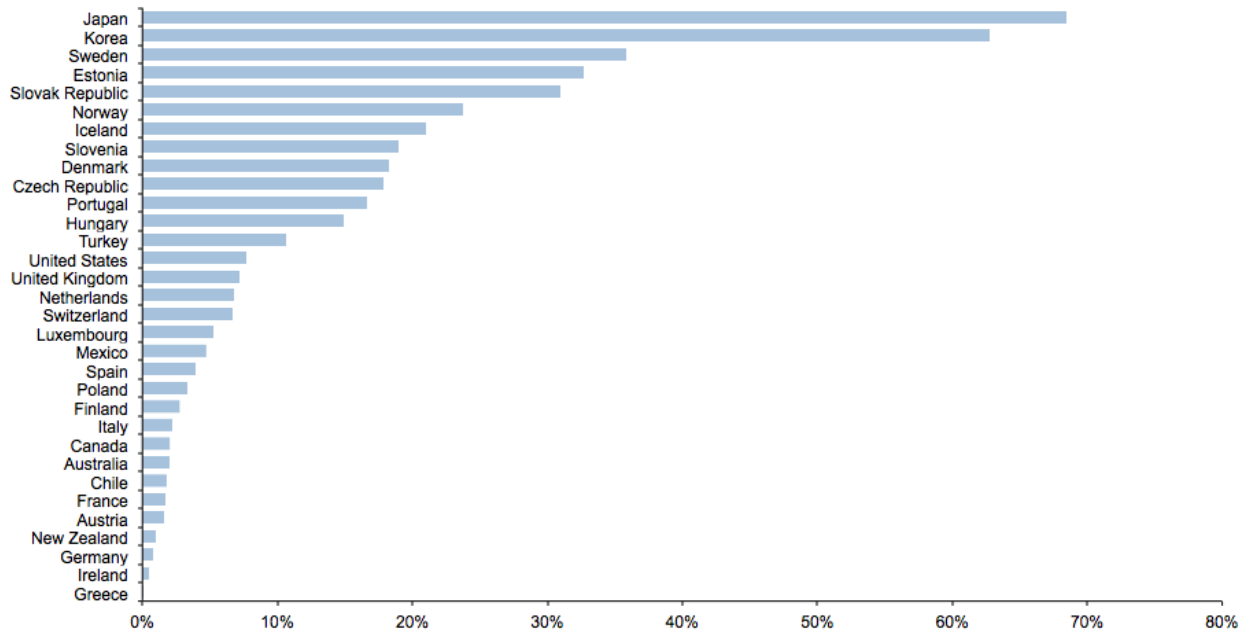


Figure 1. International percentage of fibre connections from OECD broadband statistics
 [www.oecd.org/sti/ict/broadband]

Appendix 1, Question 4B-1:

Should fibre to the premises (FTTP) wholesale services be mandated by the CRTC?

Yes.

Cybera believes that regulation of FTTP wholesale services that are provided by incumbent carriers is essential for creating a competitive digital environment. This will provide maximum benefit for Canadians, while still ensuring a fair rate of return to the builders of the fibre networks (and recognizing the capital investment they have made). Next-generation FTTP technology and infrastructure can robustly deliver symmetric fibre to homes and businesses, without restrictions.

The FTTP industry is currently not regulated and the few large incumbent carriers (i.e. large telecommunications and cable companies) that can provide this service are set to become the sole providers of fibre to Canadians. Without FTTP wholesale service regulation, there is no incentive for these companies to allow competitors to gain access to their customers' premises (e.g. home or business) and to provide Canadians with the freedom to choose their internet service provider and broadband internet rates.

Unmetered fibre for all Canadians is becoming increasingly important as more devices and applications become internet-enabled, and will be a key driver of Canada's digital economy. Cable and DSL networking technologies have the potential to deliver high internet speeds to the homes and businesses of Canadians, but typically fall short due to factors such as distance to the node, number of connected premises and crowded network traffic.

Figure 2 below shows the growth in bandwidth access in Australia, clearly indicating a trend towards speeds requiring FTTP. If Canada wants to remain economically competitive with, and have a comparable standard of living to, other developed nations, FTTP deployment will be required.

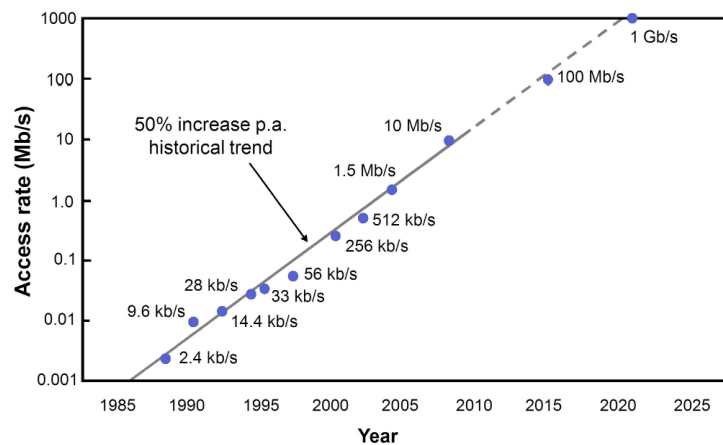


Figure 2. Australian bandwidth access rates.¹

¹ Tucker, RS. (2010) Broadband Facts, Fiction, and Urban Myths. *Telecommunications J of Australia*.

² OECD (2009) Working Party on Communication Infrastructure and Services Policy.

CYBERA

Calgary Office: Suite 200, 3512 - 33 St NW, Calgary, AB T2N 2A6 T: 403-210-5333
Edmonton Office: 3-43, Computing Science Centre, University of Alberta, Edmonton, AB T6G 2E8
@cybera info@cybera.ca www.cybera.ca

Appendix 1, Question 4B-2:

How would mandating the unbundling of FTTP wholesale services facilitate the development of a competitive Canadian market while ALSO providing incentives to invest in innovative networks?

Mandating the unbundling of FTTP wholesale services creates a competitive Canadian market by providing access to a comprehensive set of services.

Previous CRTC telecom decisions (e.g. 2010-632), which regulated the wholesale service industry, made cable and dial-up internet services more affordable in Canada. Given Canada's low population density, service-based competition is preferable to facility-based competition. Unbundling will facilitate this. This will lead to increased competition and ensure Canadians gain access to unmetered fibre at reasonable rates from the internet service provider of their choosing.

Smaller internet service providers and network operators will also benefit from access to components and facilities of the wholesale FTTP market, which will ensure competition at regional levels.

Incentive for incumbent carriers: In order to remain competitive, they need to invest in FTTP. Current network technologies are reaching the end of their lifecycles. As Canadians demand more bandwidth for activities that require ultra high-speeds (such as telecommuting, telehealth, video conferencing) and above the network services (such as cloud storage of their digital files), there is a strong incentive for large incumbent carriers to incorporate FTTP infrastructure and technology.

CYBERA

Calgary Office: Suite 200, 3512 - 33 St NW, Calgary, AB T2N 2A6 T: 403-210-5333
Edmonton Office: 3-43, Computing Science Centre, University of Alberta, Edmonton, AB T6G 2E8
@cybera info@cybera.ca www.cybera.ca

Appendix 1, Question 4B-3:

Provide an overview of the potential socioeconomic impacts that may result from mandating or not mandating access to FTTP wholesale services for consumers, competitors or incumbent carriers.

Regulating FTTP technology in Canada at an early stage will level the playing field and ensure a predictable and fair market for service providers to compete in. Providing a stable environment will allow telecommunication providers to forecast their return on investment, removing the risk associated with an uncertain regulatory environment, thereby encouraging investment in, and rapid development of, FTTP technologies.

The potential socioeconomic benefits are well-documented by research organizations and advocacy groups, who demonstrate the importance of broadband penetration for a nation's economic development. The OECD² advocates for open-access FTTP networks, as it directly affects both the economy and essential services such as health, transportation and education. Multiple^{3,4} studies show that broadband has a positive effect on a nation's GDP and household income, as it increases personal productivity and allows for more flexible work arrangements, as well as home-based business and distance-learning opportunities.

Rural communities face a serious challenge in maintaining their economic viability as populations move to urban centres. Without access to reliable and affordable connectivity via the internet, this trend will continue, eroding a key element of Canadian culture.

² OECD (2009) Working Party on Communication Infrastructure and Services Policy.

³ Danish Energy Association (2010) The socio-economic value of digital infrastructures. Copenhagen Economics.

³⁴ Ericsson, Arthur D. Little, and Chalmers University of Technology (2013) Socioeconomic effects of Broadband Speed.

CYBERA

Calgary Office: Suite 200, 3512 - 33 St NW, Calgary, AB T2N 2A6 T: 403-210-5333

Edmonton Office: 3-43, Computing Science Centre, University of Alberta, Edmonton, AB T6G 2E8

@cybera

info@cybera.ca

www.cybera.ca

Appendix 1, Question 4C:

What additional new wholesale services should be mandated by the CRTC (CRTC 2013-551)?

It is important that Canadians living in rural areas be given the same opportunities as urban Canadians with respect to fibre services. In rural areas, market forces are often insufficient to provide residents with an internet service that is high-quality, high-speed and affordable. A potential solution would be to regulate access to long-haul fibre infrastructure in rural regions. Giving internet service providers and network operators competitive access to fibre infrastructure gives them the incentive to provide services to rural Canadians at affordable rates.

CYBERA

Calgary Office: Suite 200, 3512 - 33 St NW, Calgary, AB T2N 2A6 T: 403-210-5333
Edmonton Office: 3-43, Computing Science Centre, University of Alberta, Edmonton, AB T6G 2E8
@cybera info@cybera.ca www.cybera.ca

Appendix 1, Question 6:

Should the CRTC conduct another comprehensive review of wholesale services and if so, what is the appropriate timing of such a review?

Due to the rapidly changing technology landscape, a review of wholesale services associated with high-speed internet access should occur at least every three years. A flexible economic benchmark also needs to be put in place to monitor the fast-changing cost structure associated with internet access services. Targets should be updated annually based on average speeds within a peer country, such as another G8 nation.

CYBERA

Calgary Office: Suite 200, 3512 - 33 St NW, Calgary, AB T2N 2A6 T: 403-210-5333
Edmonton Office: 3-43, Computing Science Centre, University of Alberta, Edmonton, AB T6G 2E8
@cybera info@cybera.ca www.cybera.ca