BROADBAND CONNECTIVITY IN RURAL CANADA

SUBMISSION
OF
BELL CANADA

30 JANUARY 2018

Table of Contents

Page

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

1. Bell Canada welcomes the opportunity to provide comments to the Standing Committee on Industry, Science and Technology on matters related to broadband connectivity in rural Canada. As Canada's largest communications company, we are proud of our role as a leader in the deployment of broadband across Canada, including in remote areas, and in the provision of a host of information services fulfilling the communication needs of Canadian consumers and businesses.

2. Canada is a world leader in broadband service, ranked fourth in the G20 for per capita broadband connections exceeding 15 Mbps. The vast majority of our country has access to high quality, affordable broadband, and as a result, Canadians also have very high broadband adoption and usage rates. This enviable position is the result of decades of infrastructure investment by Canadian telecommunications companies like Bell Canada. We are currently in the midst of a five-year, $20 billion investment plan to expand our fibre networks, with a specific focus on increasing fibre to the premise coverage and expanding our world-leading mobile broadband Long Term Evolution (LTE) network to 99% of the Canadian population. This is a significant level of investment associated with tremendous risk. Despite this, we are committed to making these investments which ultimately allow us to provide improved telecommunications services, including higher speed Internet services to our customers.

3. There remains much work to be done, however. The Canadian Radio-television and Telecommunications Commission (CRTC) has set a universal service objective of 50 Mbps download and 10 Mbps upload (50/10 Mbps) speeds. We agree with other commenters that Canada will face significant challenges in extending these speeds to all Canadians.

4. In our submission, we highlight the necessary role that government policy must play in bringing broadband to rural and remote communities that are currently unserved or underserved. While the vast majority of Canadians benefit from world-class broadband networks built by a robust and competitive industry, some communities are not economically feasible for broadband providers to serve on a private model. Currently, this is exacerbated by mandated wholesale access policies that increase the cost to invest, particularly in some rural areas. Removing wholesale access requirements would reduce the number of communities in need of public funding for network infrastructure projects. We acknowledge, however, that some communities will never be financially viable without government subsidy, and we argue that the Federal Government should focus any funding efforts on this last group.

5. Bell Canada has over a century of experience building and providing telecommunications services to rural Canadian communities. We have also participated in the previous bidding processes for broadband funding initiatives such as Connecting Canadians and Connect to Innovate. Therefore, we believe we can offer an informed perspective on how best to tackle this important policy issue. Our submission will provide a general overview on the state of broadband in Canada before turning to the three questions posed by the Standing Committee. In our answer to question three, we present four recommendations for implementing a funding regime for high-speed broadband access. The recommendations are:

- Award funding through a reverse auction;
- Use "envelopes" within the auction to account for policy considerations;
- Be agnostic with regards to technology; and
- Do not mandate access to subsidized networks.

2.0 AN OVERVIEW OF BROADBAND IN CANADA

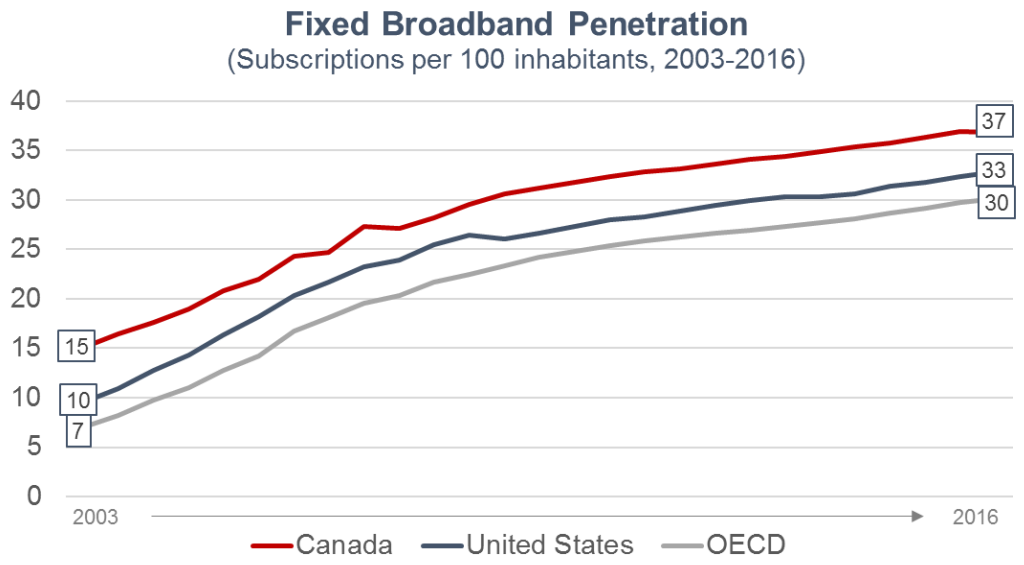
6. Canada is internationally recognized as having world-class fixed broadband networks and services, both in terms of availability and quality. 99% of Canadians have access to broadband of 5 Mbps or more – considered fast enough for streaming high quality audio and video content.[1] Further, 84% have access to the CRTC's universal service objective speeds of 50/10 Mbps.[2] These impressive numbers place Canada fourth in the G20 in per capita broadband connections exceeding 15 Mbps in download speed.[3] This achievement is especially remarkable considering Canada's challenging geography and low population density (the second lowest in the G20).

7. As a result of our high quality and widely accessible networks, Canadians are also world leaders in Internet adoption and usage. As Figure 1 below demonstrates, broadband subscription rates in Canada have consistently outperformed the United States and the Organisation for Economic Co-operation and Development (OECD) average for over a decade. In 2015, comScore studied online consumer behaviour and found that Canadians are among the "world's most engaged" users, ranking first in average monthly hours per visitor and average monthly web site visits per visitor, and third in average monthly pages per visitor.[4]

---

1 2017 Communications Monitoring Report (CMR 2017), Table 5.3.14.
2 Ibid.
3 Akamai, The State of the Internet Report Q1 2017, Volume 10, No. 1, available at: http://www.akamai.com/stateoftheinternet/.
4 comScore, Canada Digital Future in Focus 2015, page 6, available at http://www.comscore.com/Insights/Presentations-and-Whitepapers/2015/2015-Canada-Digital-Future-in-Focus.

Figure 1



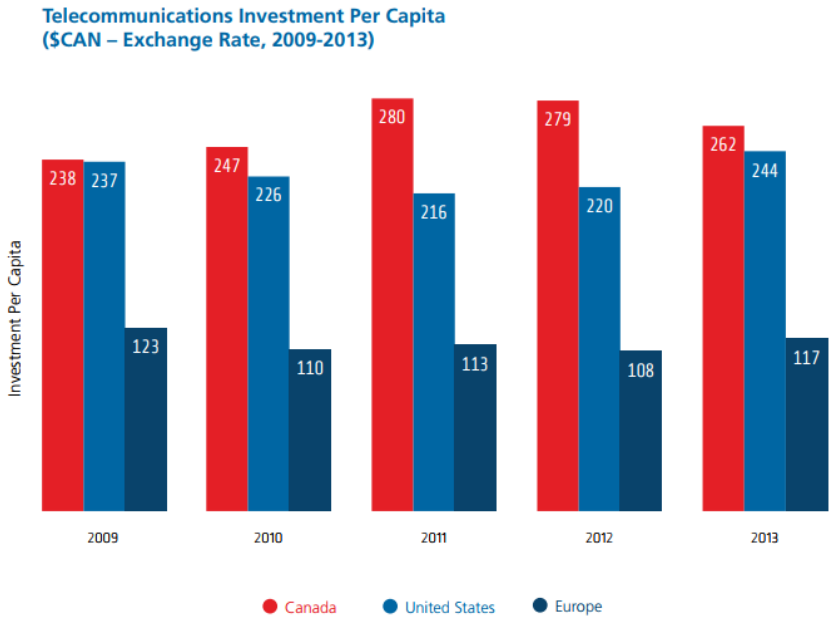
Source: OECD Broadband Portal, "OECD Historical (Fixed) Broadband Penetration Rates."

8. Canada has achieved its broadband success through high levels of capital investment made by facilities-based competitors willing to risk significant financial resources to keep pace with and surpass their market rivals. Facilities-based competition has led to strong competitive incentives to offer services that meet the needs of all potential customers. Since 2006, Canadian telecommunications companies have invested over $86 billion in wireline broadband networks.[5] The wide presence broadband infrastructure built by both Incumbent Local Exchange Carriers (e.g., Bell Canada, Telus, SaskTel) and Cable companies (e.g., Rogers, Shaw, Eastlink) has placed Canada in an envious position internationally, as many other industrialized nations have struggled to build even a single ubiquitous broadband network. Canadian investment levels compare favourably on the international stage: Canada is fourth out of 35 OECD countries in terms of investment in telecommunications as a percentage of revenue (shown in Figure 2).[6]

---

5 IDC Canada, *Canadian Communications Service Provider Capex Budgets, 2016 – 2017*, April 2017.
6 OECD Digital Economy Outlook 2017, Figure 3.26. "Investment in telecommunications as a percentage of revenue."

Figure 2



Source: Eisenach, *Broadband Market Performance in Canada: Implications for Policy.*

9. As Canada's largest communications company, we have played a major part in driving network investment in Canada. We recognize the benefits of widespread fibre deployment, which is why we have invested unprecedented capital into upgrading our networks, beginning with fibre-to-the-node (FTTN) (which requires the building of extensive fibre connections from the central office to neighbourhood "nodes" serving multiple homes) and now increasingly with fibre-to-the-premises (FTTP) (or fibre-to-the-home, which involves constructing new fibre all the way to the subscriber's home). Fibre rollouts have been a major focus of the five-year, $20 billion investment we are committed to making by 2020.[7]

10. Our broadband Fibe service is available now to over 8.3 million homes and businesses, including 2.9 million direct fibre connections. By the end of 2017, approximately one-third of homes and businesses inside our wireline footprint were capable of accessing Gigabit Fibe service, the fastest Internet available.[8] Over the next decades, these networks will support connection speeds of between 1 GB and 40 GB per second or more, empowering Canada's largest cities and rural and remote communities alike to thrive in the modern economy. These networks are a key part of Canada's 21st century infrastructure and a fundamental building block in the transition from a resource- and manufacturing-based economy to a world-leading digital and knowledge economy.

---

7 BCE, Press Release, "BCE reports first quarter 2015 results", 30 April 2015.
8 BCE Annual Report 2016. http://www.bce.ca/investors/AR-2016/2016-bce-annual-report.pdf.

11. Although a key focus of our fibre rollouts has been upgrading Canada's major cities and emerging urban centres, we have also sought to expand our fibre footprint in rural areas. Thus far, we have deployed FTTP to 83 small communities across Ontario, Quebec, and the Atlantic provinces, including communities like St-Boniface-de-Shawinigan, Quebec; Summerside, Prince Edward Island; Minto, New Brunswick; and Springdale, Newfoundland and Labrador. In another 37 communities, most residents have access to FTTN technology.[9] Fibre networks offer long-term benefits to the residents and businesses of these communities, ensuring access to reliable high-speed broadband that can meet their future needs as demand continues to grow.

12. Canada also has an outstanding track record in delivering the best mobile broadband networks. Our world-leading LTE-Advanced network now covers 87% of the Canadian population while our LTE network covers 99% of the Canadian population, including approximately 1,188,161 KM[10] of rural and remote Canada. We continue to push the envelope on speed, and our mobile network can now provide download speeds of up to 750 Mbps. In fact, our wireless network is faster than the networks in New York, Singapore, Budapest, Melbourne, Sydney, Stockholm, Seoul, Dubai, Shanghai, Los Angeles, Vienna, Milan, Madrid, Zurich, Beijing, Rome, Paris, Berlin, London, Tokyo, Hong Kong and Rio de Janeiro.[11]

13. These advancements to coverage and speed make wireless technologies, such as fixed wireless and mobile broadband, viable alternatives in rural and remote communities that cannot be served through wireline. In addition, enhanced mobile broadband has been recognized as a key potential use case for 5G technology. Cognizant of the potential benefits 5G can offer all Canadians, we successfully ran the first 5G wireless technology in Canada with Nokia in 2016, achieving speeds more than six times faster than those available today.

14. Overall, we have invested close to $16.4 billion in capital in our wireless and wireline networks in the past five years. This is a significant level of investment associated with tremendous risk, as there can be no guarantee that these investments will deliver a reasonable return. Despite this, we are committed to making these investments which ultimately allow us to provide improved telecommunications services, including higher speed Internet services, to our customers. These upgrades are especially meaningful for residents in remote and rural regions of Canada, where improvements to the speed and quality of streaming services will open doors to

---

[9] For purposes of this estimate, we considered communities with less than 10,000 households and with over 75% FTTP or FTTN deployment.

[10] For purposes of this estimate, we have defined as rural and remote areas with fewer than 24 households per km^2.

[11] City comparison speeds based on Ookla's analysis of Speedtest Intelligence data from 1 January 2017 to 31 March 2017.

education and employment, but the corresponding risk is that much greater. It is through our commitment to invest in the future of Canadian networks that we contribute to ensuring Canadian consumers have every opportunity to engage with the modern online ecosystem. With this in mind, we now turn to the specific questions posed by the Standing Committee.

3.0 WHAT CONSTITUTES ACCEPTABLE HIGH-SPEED SERVICE?

15. The CRTC has established a universal service objective of 50/10 Mbps. Achieving these speed targets will have a significant positive impact on Canada's rural and isolated populations, allowing them to fully participate in the online economy and access remote healthcare and educational services. We caution however, that this objective remains ambitious. Although 84% of the population currently has access to these speeds, that includes only 39% of rural households.[12] Given the heavy cost and time commitment of broadband infrastructure builds, the state of current technologies and the number of communities in Canada that are still underserved, achieving universal speeds of 50/10 Mbps may be unrealistic at this juncture. This is particularly true in the case of satellite-dependent communities, which are limited by the technology of the current generation of satellites providing transport services.

16. We therefore recommend that the Government's focus should first be on the communities where there is no reasonable prospect of a positive business case for private sector broadband investment. Focusing funding on these communities will ensure that no Canadian is left behind as we move towards the goal of universal high-speed access.

4.0 THE FINANCIAL CHALLENGES OF IMPLEMENTING HIGH-SPEED SERVICES

17. Although Canada is an international leader in its level of broadband investment and build-out, there are still unserved and underserved communities that require government subsidy to make broadband service economically viable. Canada is a vast and varied country, and the business model that allows companies to deliver world-class broadband services like our fibre networks to the majority of our population is not a viable business model for the remote and rural communities that remain. The costs to build out infrastructure to a remote area, often with challenging geography, are onerous. When coupled with a small customer base and high operating and maintenance costs, companies cannot generate enough of a return on investment to cover the costs of the build.

---

[12] CMR 2017, Figure 5.3.17.

18. In the case of many communities, this unworkable business case is further exacerbated by the CRTC's decision to mandate the provision of wholesale access to fibre infrastructure. Mandating wholesale access allows providers to access the proprietary fibre networks of competitors at a regulated rate. This has two major implications. First, providers no longer need to invest in broadband infrastructure themselves to gain access to a fibre network. Second, providers that do want to expand their fibre networks face a diminished return on investment to the point that some projects are no longer feasible. Building a fibre network entails significant up-front costs and a lengthy payback period, and companies rely on their service improvements to give them a competitive edge and generate subscriber growth. If competitors can provide this exact same service through mandated access, however, the potential advantage is undermined or eliminated to the point that the provider can no longer generate a return on investment.

19. This policy has direct and outsized impact on underserved remote and rural communities, where the business case is already challenging and the diminished margins caused by mandated access can be the difference between receiving service and remaining unserved. For example, as a direct consequence of the CRTC's 2010 decision to mandate FTTN access, we deployed FTTN technology to 400,000 fewer homes than we had previously planned. Many of these 400,000 homes now represent communities that require subsidies in order to fund network upgrades. By preventing broadband providers from expanding their fibre networks to communities they otherwise would have invested in, the CRTC's mandated access policy has increased the number of communities in need of subsidy and therefore the amount of public money required to address this issue.

20. If the Government returned to its policy of forbearance from mandating access to fibre networks, there would be an immediate reduction in the number of communities who cannot get network infrastructure built. By ensuring that providers can reap a reasonable return on these massive network investments, the Government can significantly reduce the amount of public money needed to subsidize universal broadband access. Further, removing mandated access would compel providers who currently rely on competitor networks to invest in their own infrastructure.

21. Even with the removal of mandated access, there will still be communities that are too costly to finance on a private model. As recommended above, the Government should focus its subsidies on these unserved and underserved communities starting with those that do not receive true 5 Mbps download and 1 Mbps upload speeds today.

22. Finally, many of the submissions to the Standing Committee thus far have referenced the need for both backbone and "last mile" access. We agree that both kinds of investment are extremely important and in need of subsidy, and we urge the Government not to prioritize one over the other. Programs such as Connect to Innovate and Connecting Canadians have placed a focus on one type of infrastructure or the other, but we believe there is more benefit in ignoring the category and focusing solely on outcome for the community. Different kinds of communities will have different needs. For example, a community that is tightly populated but quite remote would generate expensive transport costs but little in access build out. Conversely, another community might already have transport infrastructure but be unable to get access because of the expense of connecting homes that are spread far apart. Instead of prioritizing either type of infrastructure, funding should be awarded to bids that are overall the most cost efficient, regardless of what bucket most of the spending falls into.

5.0 THE REGULATORY CHANGES TO ENCOURAGE THE IMPLEMENTATION OF HIGH-SPEED SERVICE

23. As we argued above, we believe that the Government has a key role in bringing broadband access to unserved and underserved communities. In our four recommendations below, we argue that the Government can best achieve this goal by designing a fair and efficient funding regime that rewards the most cost-effective bids and by eschewing policies that undermine incentives to invest.

Recommendation 1: Award funding through a reverse auction

24. We believe the public good is best served by seeking to build out broadband using the lowest possible amount of public money. This goal can be directly achieved through a reverse auction, which naturally awards the most cost-effective proposals. We have developed a detailed proposal for how a reverse auction could be used to allocate funding for broadband access, which we submitted to the CRTC in response to their consultation on the development of the Broadband Fund.[13] In our proposal, the successful bid would simply be the one that meets all the project criteria at the lowest cost of subsidy. As we explain further below, specific policy considerations can be accounted for by splitting the funding into "envelopes". Under a reverse auction approach the Government can maximize the benefits of broadband for Canadians and consistently reward the most deserving bids.

---

[13] Telecom Notice of Consultation CRTC 2017-112, *Development of the Commission's broadband funding regime,* dated 25 April 2017.

25. Auctions are well recognized as leading to efficient outcomes and have been effectively used to allocate billions of dollars in spectrum licences, oil and gas leases and Government financial instruments. Outside Canada, reverse auctions have been used successfully to implement broadband access subsidies. In particular, the American telecom regulator's (i.e., the Federal Communications Commission (FCC)) Connect America Fund, which aims to expand broadband access in the United States, used a reverse auction to award subsidies in its Phase II and case studies have demonstrated that this resulted in lower subsidies than using a cost model.[14]

Recommendation 2: Use "envelopes" to account for policy considerations

26. A reverse auction is an unbiased and exact tool; indeed, this is its greatest strength. However, it must also be designed with the flexibility and nuance to distribute the funds equitably based on any policy priorities the Government might have. This can be done by breaking available funding into "envelopes" and conducting reverse auctions within each. For instance, an auction could be separated into discrete funding envelopes for unserved areas, underserved areas, the most remote communities served by satellite technology, and by region.

27. In addition, there may be specific eligibility criteria for certain types of projects that are distinct from the overall requirements. For example, the Government may want any proposal for a First Nations reserve to demonstrate an acceptable level of indigenous participation. This is easily achieved by creating a dedicated envelope for First Nations reserves and restricting eligibility to proposals with a certain percentage of indigenous participation. In this way, the envelope system allows the Government to spend public money as efficiently as possible while still ensuring that it is distributed equitably with all policy considerations in mind.

Recommendation 3: Be agnostic with regards to technology

28. The Government's funding regime should not favour any one technological solution over another. Providers should be able to determine which communities they want to serve using the technology they believe provides the most effective and economically efficient means of meeting the broadband service requirements. As we demonstrated above, wireless technologies offer exciting opportunities to connect rural and remote communities and they should not be overlooked.

---

[14] Telecom Notice of Consultation CRTC 2015-134, *Review of basic telecommunications* services, Bell Canada and its Affiliates Intervention, Appendix 3, Joseph Gillan, *Transitioning Universal Service Support to Broadband in the United States: Providing Incumbents a Right-of-First Refusal or Competitive Bidding*.

In the end, the Government's only priorities should be whether broadband is being delivered with the lowest possible amount of subsidy and at the best speed possible.[15]

Recommendation 4: Do not mandate wholesale access on subsidized networks

29. While we recognize that broadband funding programs have historically required wholesale access as a condition of receiving subsidies, we urge the Government to abandon this obligation. Mandating wholesale access drives up the cost of the subsidy required, discourages bids, forecloses investment, and delays the extension of broadband to communities in need of digital infrastructure.

30. Without a wholesale obligation, applicants can assume a higher level of retail penetration and therefore will be able to seek a lower level of subsidy. In contrast, where there is a wholesale obligation, an applicant will have to assume that it will lose retail market share – and thereby retail market revenues to a wholesale competitor. Unless the wholesale competitor actually grows the market (an unlikely proposition), then the impact of mandating wholesale can only be to reduce the viability of the business case (and therefore increase the required subsidy) for the bidder. Thus, if the Government's broadband funding regime mandates wholesale obligations, they will essentially be forced to pay a higher contribution – and by extension – reduce the amount of communities funded. This program should aim to bring access to as many Canadians as possible as quickly as possible, and mandated access runs counter to this goal.

6.0 CONCLUSION

31. We thank the Standing Committee for the opportunity to provide our comments on the issue of rural access to broadband in Canada. By adopting policies that provide incentive to invest and pursuing a funding regime that uses public money efficiently, the Government can maximize the benefits of broadband to Canadians.

*** End of Document ***

[15] The one possible exception to this policy is satellite communities for reasons set out in our submission to TNC 2017-112.