



Telecom Regulatory Policy CRTC 2016-496

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Modern telecommunications services – The path forward for Canada’s digital economy

This decision sets out the actions the Commission is taking to help meet the needs of Canadians so that they can participate in the digital economy and society.

Modern telecommunications services are fundamental to Canada’s future economic prosperity, global competitiveness, social development, and democratic discourse. In particular, fixed and mobile wireless broadband Internet access services are catalysts for innovation and underpin a vibrant, creative, interactive world that connects Canadians across vast distances and with the rest of the world.

Canadians are using these services to find jobs, manage their investments, conduct business, further their education, keep informed on matters of public concern, consult with health care professionals, and interact with all levels of government. In general, fixed and mobile wireless broadband Internet access services improve the quality of life for Canadians and empower them as citizens, creators, and consumers.

A country the size of Canada, with its varying geography and climate, faces unique challenges in providing similar broadband Internet access services for all Canadians. Private sector investments, as well as funding programs from various levels of government, support the expansion of these services outside densely populated urban centres. Despite these efforts, many Canadians, particularly in rural and remote areas, do not have access to broadband Internet access services that are comparable to those offered to the vast majority of Canadians in terms of speed, capacity, quality, and price.

The Commission’s determinations in this decision were made with a view to achieving the following objectives:

- *Canadians in urban, rural, and remote areas can access affordable, high-quality telecommunications services;*
- *telecommunications companies continue to invest in and various levels of government continue to fund robust infrastructure that can be upgraded in the future and that is capable of providing high-quality telecommunications services to Canadians across the country;*

- *Canadians can access innovative service offerings that enhance social and economic development; and*
- *Canadians can make informed decisions about their telecommunications services.*

Pursuant to its legislative mandate, the Commission is establishing the following universal service objective: Canadians, in urban areas as well as in rural and remote areas, have access to voice services and broadband Internet access services, on both fixed and mobile wireless networks. To measure the successful achievement of this objective, the Commission has established several criteria, including,

- *Canadian residential and business fixed broadband Internet access service subscribers should be able to access speeds of at least 50 megabits per second (Mbps) download and 10 Mbps upload, and to subscribe to a service offering with an unlimited data allowance; and*
- *the latest generally deployed mobile wireless technology should be available not only in Canadian homes and businesses, but on as many major transportation roads as possible in Canada.*

The widespread availability and adoption of broadband Internet access services are issues that cannot be solved by the Commission alone. The universal service objective can only be attained with the help of other stakeholders in the Canadian telecommunications landscape. A variety of stakeholders have already undertaken efforts to address these issues. For example, the Government of Canada has announced funding to improve the availability of broadband Internet access services across the country. In addition, provincial and municipal governments across the country are devoting financial resources to broadband Internet access services, and the private sector is investing in improved and expanded network coverage.

To help attain the universal service objective, the Commission will begin to shift the focus of its regulatory frameworks from wireline voice services to broadband Internet access services. As such, the following services – which form part of the universal service objective – are hereby basic telecommunications services within the meaning of subsection 46.5(1) of the Telecommunications Act (the Act): (i) fixed and mobile wireless broadband Internet access services, and (ii) fixed and mobile wireless voice services.

The Commission will establish a mechanism, pursuant to subsection 46.5(1) of the Act, to fund continuing access to the basic telecommunications services listed above. This funding mechanism will assist the Commission in achieving various policy objectives set out in the Act, including the development of a telecommunications system that serves to enrich and strengthen the social and economic fabric of Canada and its regions.

A third party will operate the fund at arm's length from the Commission in a manner that is transparent and efficient. The fund will evolve within the broadband Internet funding ecosystem and complement other sources of funding and investment. For the first year of the fund, no more than \$100 million will be distributed. This amount will increase by \$25 million annually over the following four years to reach an annual cap of \$200 million.

As a result, the Commission will begin to phase out the subsidy that supports local telephone service – except where reliable broadband Internet access service is unavailable – and review its voice service regulatory frameworks. Consequently, Northwestel Inc.'s price cap regulatory framework is extended to 31 December 2018.

The Commission is also establishing regulatory measures to address issues related to accessibility for persons with disabilities and to enhance consumer empowerment.

The Commission will monitor progress towards achieving the universal service objective and closing the gaps in connectivity by continuing to collaborate with partners and by expanding its data collection process, as appropriate.

This decision complements the Government of Canada's Innovation Agenda, notably the action area of competing in a digital world. Concurrent with this decision, the Commission is publishing, as a submission to the Innovation Agenda, input on the availability and adoption of broadband Internet access services in Canada, including gaps in access resulting from issues of infrastructure, affordability, and digital literacy, as well as barriers to connectivity in Indigenous communities.

Background

1. The Commission seeks to ensure that all Canadians have access to a world-class communication system. Telecommunications services play an important role in the lives of all Canadians, enabling them to participate in today's digital economy and to access, for example, health care, education, government, and public safety services.
2. Over the years, the Commission has established and modified (as appropriate) its policies to ensure that Canadians have access to basic telecommunications services. The Commission's current policies on basic telecommunications services rely primarily on three interrelated regulatory measures, which were last reviewed in 2011:¹ the obligation to serve, the basic service objective, and the local service subsidy regime.
3. The obligation to serve requires the incumbent local exchange carriers (ILECs)² to provide telephone service to (i) existing customers, (ii) new customers requesting service where the ILECs have facilities, and (iii) new customers requesting service beyond the limits of the ILECs' facilities.³

¹ See Telecom Regulatory Policy 2011-291.

² ILECs consist of privately and publicly owned (i) large regional telephone companies (i.e. the large ILECs, which are Bell Canada; MTS Inc.; Saskatchewan Telecommunications; Télébec, Limited Partnership; and TELUS Communications Company); (ii) smaller local telephone companies (small ILECs); and (iii) Northwestel Inc., which provides services in the North.

³ The terms and conditions associated with such service extensions are set out in the ILECs' respective General Tariffs. Bell Canada is also subject to the *Bell Canada Act*, which requires the company to provide a telephone service when requested by any person or organization in a municipality or other territory within which the company provides a general telephone service, subject to some limitations.

4. The basic service objective was set out in Telecom Decision 99-16 and consists of the following:
 - individual line local touch-tone service;
 - the capability to connect to the Internet via low-speed data transmission at local rates;
 - access to the long distance network, operator/directory assistance services, enhanced calling features and privacy protection features, emergency services, as well as voice message relay service; and
 - a printed copy of the current local telephone directory upon request.
5. The basic service objective applies to the ILECs only in local exchanges⁴ where the Commission continues to regulate the rates, terms, and conditions of wireline local telephone services. In exchanges where the Commission has forborne from regulation (forborne exchanges), the ILECs continue to have an obligation to provide stand-alone wireline local telephone services, which consist of (i) unlimited local calling at a flat monthly rate, subject to a price ceiling;⁵ and (ii) access to a choice of long distance service provider.⁶ The ILECs have the flexibility to meet this obligation by offering mobile wireless voice services.
6. The local service subsidy regime⁷ was established to subsidize the provision of residential local voice services in high-cost serving areas (HCSAs).⁸ Telecommunications service providers (TSPs), or groups of related TSPs, that have \$10 million or more in annual Canadian telecommunications revenues are required to contribute to the National Contribution Fund (NCF). Contribution (money) is collected by means of a revenue-percent charge that is applied to the contribution-eligible revenues of a TSP. Certain revenues (e.g. from retail Internet and texting services⁹) and other amounts (e.g. intercarrier payments) are currently excluded from the calculation of a TSP's contribution-eligible revenues. The money collected in the NCF is distributed to ILECs serving regulated HCSAs, but only where they meet the basic service objective.

⁴ An exchange is a basic unit for the administration and provision of telephone service, and normally comprises a city, town, or village, and adjacent parts.

⁵ The Commission set this price ceiling at \$30 per month in forborne exchanges and allowed this rate to increase annually, on 1 June of each year, by the rate of inflation starting in 2014. The price ceiling includes charges for touch-tone service and other permanent monthly charges associated with unlimited local calling (i.e. charges for mileage, extended area service, and Community Calling Service).

⁶ See Telecom Decision 2006-15 and Telecom Regulatory Policy 2011-291.

⁷ The current local service subsidy regime was established in Decision 2000-745. A summary of this regime can be found in Telecom Circular 2007-15.

⁸ An HCSA is a clearly defined geographical area where the ILEC's monthly costs to provide basic service are greater than the associated revenues generated by service rates.

⁹ The Commission is using the term "texting" in this decision because today, the majority of retail paging revenues, as defined in Order 2001-220, are texting revenues.

7. In Telecom Regulatory Policy 2011-291, the Commission recognized that broadband Internet access services were an increasingly important means of communication. The Commission established universal target speeds of 5 megabits per second (Mbps) download and 1 Mbps upload for broadband¹⁰ Internet access service in Canada. The Commission stated that these speeds should be available to all Canadians, through a variety of technologies, by the end of 2015.¹¹
8. However, the Commission determined that regulatory intervention was not appropriate at that time, choosing instead to rely on market forces and targeted government funding for the continued deployment of broadband Internet access service. Accordingly, the Commission did not modify the basic service objective to include broadband Internet access service.

Telecom Notice of Consultation 2015-134

9. Through Telecom Notice of Consultation 2015-134, the Commission initiated a public proceeding to, among other things, examine (i) the telecommunications services that Canadians require to participate in the digital economy, (ii) how these telecommunications services are used by Canadians, and (iii) its role in ensuring the availability of affordable basic telecommunications services to all Canadians.
10. A large number of parties with diverse interests and backgrounds participated in the proceeding. These include service providers such as large ILECs, small ILECs,¹² cable companies, and Internet service providers (ISPs); non-profit organizations representing, for example, consumers of telecommunications services, low-to-moderate-income Canadians, and persons with disabilities; small businesses; local, provincial, and territorial governments; arts and cultural organizations; Indigenous groups; post-secondary institutions; and individual Canadians. These parties represented all regions across Canada. There was significant representation of rural areas and the North.
11. This proceeding included a public hearing that began on 11 April 2016.
12. During the public hearing, the panel of Commissioners for the proceeding (the Panel) suggested that a coherent national broadband strategy be created, through an open and transparent process, based on evidence from all Canadians. The Panel specified that this strategy could be achieved (to the extent possible) through consensus, and implemented through shared responsibility—while the Commission

¹⁰ Broadband is defined as an always-on connection to the Internet that provides a download speed of 1.5 Mbps and above. This connection may be delivered on fixed and mobile wireless networks using a variety of technologies.

¹¹ According to the 2016 CRTC *Communications Monitoring Report*, at the end of 2015, 99.5% of households in Canada had access to these target speeds.

¹² These are smaller independent local telephone companies. There are currently 35 small ILECs: one in British Columbia and the rest in Ontario and Quebec.

may take some leadership on defining the strategy, it would not be alone in implementing and financing it.

13. The Panel stated that the gaps in connectivity (geographic, technological, economic, and skill-related) should be assessed, as should the best ways to close them. In addition, the Panel raised the issue of who was in the best position to close or eliminate the gaps, and what role the Commission should play.
14. The public record of this proceeding (including reports and input from Canadians), which closed on 13 June 2016, can be found on the Commission's website at www.crtc.gc.ca or by using the file number provided above.

Innovation Agenda

15. On 14 June 2016, the Honourable Navdeep Bains, Minister of Innovation, Science and Economic Development (ISED), put forward the Government of Canada's Innovation Agenda, a vision to build Canada as a global centre of innovation. The Honourable Kirsty Duncan, Minister of Science; and the Honourable Bardish Chagger, Minister of Small Business and Tourism, supported Minister Bains' vision to make innovation a national priority. All three ministers are expected to lead specific activities as part of a government-wide approach to building an inclusive and innovative Canada.
16. According to ISED, the Innovation Agenda will be the focus of public engagement efforts intended to result in an action plan, and central to this plan will be a call to action for all sectors of society, since the Government of Canada cannot act alone if Canadians expect to see meaningful results.

Strategic policy objectives

17. While voice communications were historically priced on time and distance, broadband connectivity has disrupted it all. Voice is now an application and content is a bit that travels at the speed of light to everywhere in the world through digital networks. We are in a day and age where everything is about broadband Internet. As a result, telecommunications regulation needs to be focused more on connectivity and capacity issues than on voice-related issues.
18. The Commission's decisions in recent years have been made with the goals of shaping Canada's communication system and enabling Canadians to be active participants in the digital economy for years to come. These decisions are paving the way for high-quality broadband Internet access services to be offered at competitive rates across the country and facilitating the delivery of fixed and mobile wireless broadband Internet access services to Canadian communities.

19. Access to scalable broadband networks¹³ is essential as the digital economy in Canada expands. Telecommunications companies have invested, and will continue to invest, billions of dollars annually in wireline and wireless infrastructure to improve broadband Internet access services. Fibre technology is being heavily deployed in telecommunications networks to deliver faster speeds and greater capacity. Mobile wireless Internet access services, particularly those based on long-term evolution (LTE) technology, can offer the majority of Canadians download and upload speeds comparable to some fixed broadband Internet access services.
20. Funding programs from various levels of government have supported, and will continue to support, the expansion of broadband Internet access services to areas that were previously uneconomic to serve. For example, the Government of Canada announced in Budget 2016 funding of up to \$500 million to bring high-speed Internet access service to rural and remote communities.¹⁴
21. While the Commission set out to examine all telecommunications services that Canadians require to participate in the digital economy, fixed and mobile wireless broadband Internet access services became the focus of the proceeding. During the second week of the hearing, the Panel acknowledged that today, broadband Internet access services are vital to Canada's economic, social, democratic, and cultural fabric. There is general agreement by all parties on the importance of broadband Internet access services for Canadians to participate in the digital economy.
22. The *Telecommunications Act* (the Act) affirms that telecommunications services perform an essential role in the maintenance of Canada's identity and sovereignty, and sets out several broad Canadian telecommunications policy objectives. The Commission's determinations in this proceeding were informed by the policy objectives set out in section 7 of the Act, as well as the Policy Direction.¹⁵
23. Given this context, the determinations were made with a view to achieving the following specific objectives:
 - Canadians in urban, rural, and remote areas can access affordable, high-quality telecommunications services;
 - Telecommunications companies continue to invest in and various levels of government continue to fund robust, scalable infrastructure capable of providing high-quality telecommunications services to Canadians across the country;

¹³ The scalability of broadband networks refers to the capability of the networks to adapt to increased speed or use over time without requiring significant additional investment.

¹⁴ On 15 December 2016, the Government of Canada announced details of this funding program.

¹⁵ *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives*, P.C. 2006-1534, 14 December 2006

- Canadians can access innovative service offerings that enhance social and economic development; and
- Canadians can make informed decisions about their telecommunications services.

Issues

24. The Commission has identified the following issues to be addressed in this decision:

- Policy regarding modern telecommunications services
- The Commission's role regarding broadband Internet access services
- Criteria for broadband Internet access services
- Broadband funding mechanism
- Modifications to current regulatory measures for local voice services
- Affordability of broadband Internet access services
- Accessibility
- Consumer empowerment
- Digital literacy
- Data collection and monitoring

Policy regarding modern telecommunications services

Positions of parties

25. Almost all parties in this proceeding, whether individuals, TSPs, governments, or non-governmental organizations (e.g. accessibility groups and consumer associations), submitted that Canadians need broadband Internet access services to participate in Canada's digital economy. Individual Canadians, business representatives, and governments submitted that they anticipate that their needs will grow rapidly and that reliable broadband Internet access services significantly decrease barriers to accessing health services, jobs, and education. Municipalities noted the importance of broadband Internet access services in attracting and retaining talent and businesses, and developing tourism.
26. The Fédération des communautés francophones et acadienne du Canada (FCFA) submitted that Francophones in official language minority communities (OLMCs) need broadband Internet access services to overcome the scarcity of content in French in their community, including books, mobile apps for youth and schools, and television and radio content. This is the case particularly for Francophone OLMCs in Canada's North and in other rural and remote parts of the country.

27. A large number of individuals and parties, such as the Affordable Access Coalition (AAC), the Canadian Independent Telephone Company Joint Task Force (JTF), the Federation of Canadian Municipalities (FCM), the Kativik Regional Government, Manitoba Keewatinowi Okimakanak, Inc. (MKO), and Rogers Communications Canada Inc. (RCCI),¹⁶ submitted that the Commission should establish fixed broadband Internet access service as a basic telecommunications service. Some of these parties submitted that the Commission should establish a regulatory framework that recognizes that the functionality provided by local and long distance telephone services can be provided through broadband Internet access services. Also, many parties, including the FCM, the Forum for Research and Policy in Communications (FRPC), and OpenMedia.ca (OpenMedia), submitted that there should be universal access to fixed broadband Internet access service.
28. A small number of parties, such as Saskatchewan Telecommunications (SaskTel) and TBayTel, submitted that while fixed broadband Internet access service is important, the Commission should not establish this service as a basic telecommunications service. They further submitted that the basic service objective should not be expanded to include broadband Internet access services.
29. Bell Canada et al.¹⁷ agreed that broadband Internet access services are important, but proposed that only broadband Internet access service at speeds of 5 Mbps download and 1 Mbps upload be declared basic in areas that currently do not have access to those speeds. TELUS Communications Company (TCC) proposed that broadband Internet access service at 5 Mbps download and 1 Mbps upload be declared basic along with voice telephony and certain ancillary services.
30. Many individual Canadians and parties, such as Bragg Communications Incorporated, operating as Eastlink (Eastlink), and Media Access Canada (MAC), raised the importance of mobile wireless services. Some individuals considered mobile wireless broadband Internet access service essential to their participation in the digital economy and necessary for daily life and business. They added that mobile wireless services are important for public safety and in emergency situations while on the road. Other parties, including the AAC and the FRPC, submitted that while Canadians are increasingly adopting mobile wireless services, the majority of Canadians still rely on wireline services.
31. The FCFA indicated that the lack of Internet access and cellular coverage in certain parts of the country has a significant impact on the vitality of OLMCs and limits their ability to participate in broader French-language society.

¹⁶ In the proceeding leading to this decision, some submissions were received from Rogers Communications Partnership (RCP). However, on 1 January 2016, RCP ceased to exist. All of RCP's business activities, including its assets and liabilities, are now held by RCCI.

¹⁷ Bell Canada et al. consist of Bell Mobility Inc.; Câblevision du Nord du Québec inc. (CVQ); DMTS; KMTS; NorthernTel, Limited Partnership; Northwestel Inc.; Ontera; and Télébec, Limited Partnership.

Commission's analysis and determinations

32. All Canadians, regardless of whether they live in urban centres or in rural or remote areas, benefit from having access to modern telecommunications services. Broadband Internet access services have become the catalyst for so much change – in the way businesses and governments offer and deliver services, and in the way Canadians express themselves as consumers, creators, and citizens of the digital world. Indeed, today's networked environment has created fundamental shifts in just about every aspect of Canadians' lives.
33. Broadband Internet access services are used for economic development, to enhance productivity, to improve safety, and for the Internet of Things.¹⁸ Moreover, broadband Internet access services offer innovative new approaches for Canadians to access the news and information they want from a wide choice of providers. These services empower Canadians to access audiovisual content that informs and entertains them when and how they choose. These services also help to attract and maintain the workforce in, and enhance the economies of, rural and remote regions of the country. Canadians will increasingly need to access broadband Internet access services to effectively participate in the digital economy.
34. Since the Commission's last review of the basic service objective, set out in Telecom Regulatory Policy 2011-291, broadband Internet access services have continued to increase in importance for Canadians. For example, the number of households subscribing to broadband Internet access services at speeds of 5 Mbps or higher increased from 54% in 2011 to 80% in 2015.¹⁹ Canadians have also made greater use of these services; the monthly amount of data downloaded by residential subscribers has increased at an average rate of 50.4% annually over the last five years.²⁰
35. The use of mobile wireless services also continues to grow, with 22 million Canadians subscribing to mobile wireless broadband services in 2015, compared to 13.2 million in 2011.²¹ Also, the average monthly mobile wireless data usage per subscriber increased from 637 megabytes (MB) in 2014 to 932 MB in 2015, and the average monthly mobile wireless data usage by smartphone users increased from 988 MB in 2014 to 1,361 MB in 2015.²²

¹⁸ The Internet of Things is the network of physical objects that are connected to each other and to the Internet, and that are capable of communicating with humans but also between themselves through electronic identification systems. These objects are capable of sending, processing, and receiving data without human intervention. Their interconnection enables the provision of advanced services, such as e-health applications (e.g. remote heart rate monitoring), home automation (e.g. remote control of heating, lighting, and home appliances), self-driving cars, and smart electric meters.

¹⁹ See the 2012 and 2016 CRTC *Communications Monitoring Reports*.

²⁰ See the 2016 CRTC *Communications Monitoring Report*.

²¹ See the 2016 CRTC *Communications Monitoring Report*.

²² See the 2016 CRTC *Communications Monitoring Report*. The Commission started to publish data on mobile wireless data usage in 2015.

36. Through the basic service objective, the Commission aimed to ensure that Canadians across the country had access to the level of telephone service generally available when this objective was established in 1999. Over the years, this objective has been used as a standard of service for providing subsidies in HCSAs and assessing service improvement plans. With near-ubiquitous access to this level of service in Canada, the basic service objective has achieved its purpose.
37. Pursuant to the Commission's legislative mandate, a new objective now needs to be established to recognize the current state of modern telecommunications services in Canada and to enable Canadians to become even greater participants in the digital economy. Accordingly, the Commission hereby establishes a universal service objective:
- Canadians, in urban areas as well as in rural and remote areas, have access to voice services and broadband Internet access services, on both fixed and mobile wireless networks.
38. Mobile wireless and fixed broadband Internet access services are key components of this new objective. Canadians living in rural and remote areas should have levels of broadband Internet access services similar to those available in urban areas. As well, it is still important for Canadians to access a variety of services and functionalities (e.g. voice, accessibility, emergency, and privacy) that are offered through traditional wireline phone services and can now also be provided through mobile wireless and fixed broadband Internet access services.
39. The Commission will establish criteria to assess progress towards reaching the universal service objective. These criteria will be used to identify which regions do not have the appropriate level of broadband Internet access services and to determine where further infrastructure investment is needed. The Commission's criteria for broadband Internet access services are set out below.

The Commission's role regarding broadband Internet access services

Positions of parties

40. The large ILECs, the large cable companies,²³ and some other parties (including the British Columbia Broadband Association [BCBA], the Canadian Association of Wireless Internet Service Providers [CanWISP], and Xplornet Communications Inc. [Xplornet]) submitted that the Commission should continue to rely on market forces which, combined with new targeted government funding, will drive the expansion of fixed broadband Internet access service availability and fill any gaps in the near future. These parties generally argued that the Commission's role should be to set benchmarks and monitor progress. Bell Canada et al. and Cogeco submitted that the

²³ The large cable companies comprise Cogeco, Eastlink, RCCI, Shaw Cablesystems G.P., and Videotron G.P.

Commission should report and make recommendations to the Government of Canada regarding the issues in question in the current proceeding.

41. Some parties, such as Bell Canada et al. and Eastlink, submitted that any Commission intervention to support the expansion of broadband Internet access service availability should be a last resort, and should be considered only for the most remote areas not reached by market forces or government funding.
42. Many parties, including the AAC, the Eastern Ontario Regional Network / Eastern Ontario Wardens' Caucus (EORN/EOWC), the JTF, MKO, and OpenMedia, submitted that the Commission needs to take action in addressing the broadband Internet access service availability gap. These parties argued that market forces and targeted government funding will not result in the universal availability of broadband Internet access services. MKO submitted that the Commission attempted a "soft strategy" in 2011, and that since then, the connectivity gap has increased. The First Mile Connectivity Consortium (FMCC) and the JTF submitted that while federal funding programs have provided benefits for many underserved communities, they are not sufficient in scope, scale, or sustainability to fully address the gaps. These parties argued that the Commission should therefore take action. MKO further submitted that despite the essential nature of the Internet, the services provided to MKO First Nations are substandard and unreliable.
43. Some parties, such as the EORN/EOWC and Mr. Luc Berthold, Member of Parliament for Mégantic-L'Érable, submitted that gaps in mobile wireless service coverage also need to be addressed. These parties argued that these gaps are a particular concern for public safety. Mr. Berthold added that these gaps in rural areas (i) have a negative impact on tourism; and (ii) inhibit economic growth by making it difficult to attract workers and businesses, and to retain young people.
44. Some parties, such as the FMCC, the Government of the Northwest Territories (GNWT), the SSi Group of Companies (SSi), and Yukon Government (YG), submitted that the Commission should establish a funding mechanism to address the high cost and low capacity of broadband Internet access services in the North, including in satellite-served communities.
45. During the public hearing, individual members of the Association of Community Organizations for Reform Now Canada (ACORN) described their struggles with the affordability of broadband Internet access services and the sacrifices they make to pay for their subscriptions. Parties including the AAC, OpenMedia, and l'Union des consommateurs (l'Union) submitted that the Commission should take action to address the gap in affordability of broadband Internet access services.
46. Other parties, including the Cree Nation / Eeyou Communications Network (ECN), the FMCC, as well as Dr. Michael McNally and Dr. Dinesh Rathi, submitted that the Commission should take steps to address the gap in digital literacy, which prevents many Canadians from participating in the digital economy. The Cree Nation/ECN

and the FMCC argued that the Commission should make funds available for digital literacy activities for northern residents.

Commission's analysis and determinations

47. For Canada to be prosperous in the digital economy, it is essential to have smart policy measures that reflect the realities of the digital global marketplace, keep up with the dynamic pace of change in knowledge-based industries, encourage innovation, and ensure a world-class digital environment for Canadians.
48. The record of this proceeding clearly demonstrates that there is a significant disparity in the broadband Internet access service levels available in urban centres compared to those in rural and remote areas.
49. Beyond the gap in the availability of high-quality broadband Internet access services, the record of this proceeding has identified other gaps, including the affordability of these services, the accessibility of these services for persons with disabilities, and digital literacy skill levels. These gaps prevent many Canadians from benefiting from the digital economy.
50. The Commission cannot address on its own all the gaps in the availability and adoption of broadband Internet access services that have been identified over the course of this proceeding. While the Act gives the Commission broad powers to regulate the provision of telecommunications services, other stakeholders are better placed to implement solutions to address some of these gaps, as discussed later in this decision.
51. However, with a view to implementing the telecommunications policy objectives set out in the Act, the Commission has a role in setting policies that will assist in expanding the availability and adoption of broadband Internet access services. Accordingly, the Commission will begin to shift the focus of its current regulatory frameworks from wireline voice services to broadband Internet access services. In particular, to support continued access to broadband Internet access services in underserved areas, the Commission intends to phase out the local service subsidy regime and to establish a new funding mechanism for broadband Internet access services. The Commission is also establishing regulatory measures to address issues related to accessibility for persons with disabilities and consumer empowerment, as outlined in the appropriate sections below.
52. The determinations in this decision complement the Government of Canada's Innovation Agenda, particularly the "competing in a digital world" action area. This action area seeks to harness the digital economy across sectors to encourage digital adoption and strengthen competitiveness, both of which require appropriate digital infrastructure availability, affordable access, and stronger digital skills among Canadians.

53. On 18 October 2016, the Minister of ISED encouraged the Commission to make a submission to the Innovation Agenda. Consequently, concurrent with this decision, the Commission is providing a [submission to the Innovation Agenda](#), in which it summarizes its findings and the views expressed by parties during the proceeding on issues related to the availability and adoption of broadband Internet services across Canada. These issues include gaps in access resulting from issues of infrastructure, affordability, and digital literacy.

Criteria for broadband Internet access services

54. As part of this proceeding, the Commission sought comments on the characteristics that broadband Internet access services should have to meet the needs of Canadians.
55. Below, the Commission establishes criteria to define the level of broadband Internet access services that should be available to Canadians. Specifically, the Commission will consider the broadband portion of the universal service objective to be achieved when Canadians have access to broadband Internet access services that meet the criteria set out below. These criteria will also play a role in the Commission's new funding mechanism, which is discussed later in this decision.

Positions of parties

56. There were a wide variety of opinions regarding an acceptable level of fixed broadband Internet access service. In general, most parties, such as the AAC, the JTF, and YG, were of the view that the most important criteria were (i) download and upload speeds, (ii) data allowance, and (iii) quality of service.
57. Very few parties provided their views on an acceptable level of mobile wireless broadband Internet access service. Those parties that did, such as the Deaf Wireless Canada Committee (DWCC), often suggested the same criteria (i.e. speed, data allowance, and quality of service) that were proposed for fixed broadband Internet access service.

Commission's analysis and determinations

58. In Telecom Regulatory Policy 2011-291, recognizing the speeds needed for many Internet applications, the Commission established download and upload speed targets. Download and upload speeds continue to be important characteristics of broadband Internet access services.
59. Over the past few years, the numbers of connected devices and applications used in a household have grown significantly, and these numbers will likely continue to grow. Consequently, the need for bandwidth is also growing. To give Canadians the tools they need to be able to participate in the digital economy, their broadband Internet access services must have sufficient data allowance.

60. Broadband Internet access services make possible real-time applications, such as e-health services and distance learning, which are sensitive to any degradation of the connection. For Canadians to be able to use these applications, the broadband Internet connection must be of high quality.
61. Accordingly, the availability of fixed broadband Internet access service offerings that meet certain levels of speeds, data allowance, and quality of service will help ensure that Canadians are receiving services that meet their needs and enable them to participate in today's digital society. Specific values and parameters for these characteristics are established below.
62. However, the criteria above cannot be the same for mobile wireless broadband Internet access service since the technical specifications of mobile wireless technology must be taken into account.
63. LTE technology is currently the latest generally deployed mobile wireless technology and is available to 97% of the population.²⁴ However, many factors can uniquely affect the performance of mobile wireless broadband Internet access service, such as the terrain, spectrum, distance from the antenna, weather, type of device, and number of end-users connected to the network at any one time. As a result, the Commission specifies below the mobile wireless technology to which Canadians should have access as a measure of achievement of the broadband portion of the universal service objective.
64. Accordingly, the Commission establishes the following criterion to assess whether the broadband portion of the universal service objective is achieved: the latest generally deployed mobile wireless technology should be available in Canada not only in premises,²⁵ but on as many major transportation roads²⁶ as possible. However, the Commission recognizes that achieving this level of coverage will take time since the priority will be to meet the universal service objective for fixed broadband Internet access service.

Fixed broadband Internet access service criteria

Speeds

Positions of parties

65. Several ILECs submitted that the Commission's existing target speeds of 5 Mbps download and 1 Mbps upload remain appropriate. They indicated that these speeds are sufficient for Canadians to participate in the digital economy through various activities, such as web browsing, emailing, and video streaming.

²⁴ See the 2016 CRTC *Communications Monitoring Report*.

²⁵ Premises include households, businesses, and public institutions, such as hospitals and schools.

²⁶ Major transportation roads include key interprovincial and international corridor roads, key linkages to these roads from population and economic centres, and key linkages from major roads that provide the primary means of access to northern and remote areas.

66. Other parties, such as the GNWT, the JTF, the Nunavut Broadband Development Corporation (NBDC), and l'Union, recommended that these target speeds be updated. A large number of consumers called for target speeds closer to 25 Mbps download and 3 Mbps upload, and others called for even higher target speeds. Cisco Systems, Inc. submitted that Canadians should aspire to an Internet access service offering of 100 Mbps download and upload, while i-CANADA proposed higher target speeds of 1 gigabit per second (Gbps) download and upload.
67. Many parties that supported higher target speeds, including the AAC and Cogeco, submitted that those speeds would enable Canadians to take full advantage of the applications available today and to use future applications as they become available (e.g. the Internet of Things). They were also of the view that higher target speeds are necessary, such as when there are many Internet users and many simultaneously connected devices in a household.
68. Some parties pointed out that small businesses and employees working remotely need higher speeds to use the business tools and applications that are offered online. West Parry Sound Smart Community Network Inc. submitted that the current target speeds cannot accommodate today's more complex business software applications. Some representatives of smaller communities and communities outside large urban centres submitted that the lack of availability of higher speeds constitutes a barrier to attracting businesses and investors into their communities.
69. Many parties, such as Quebecor Media Inc., on behalf of Videotron G.P. (Videotron), and Xplornet, proposed that the Commission set a basic fixed broadband Internet access service definition for today, including speeds such as 5 Mbps download and 1 Mbps upload, and an "aspirational" objective for the future including more ambitious speeds. For this aspirational objective, many parties suggested a speed of 25 Mbps download, but there was some disagreement around the upload speed. Some parties suggested that it remain at 1 Mbps, and others submitted that it should be set higher. For example, OpenMedia proposed an aspirational upload speed of 15 Mbps.
70. Some parties proposed higher aspirational download and upload speeds. For example, the FRPC proposed that download and upload speeds of 100 Mbps be made available by 2021.
71. Certain parties, such as the DWCC and OpenMedia, proposed that target speeds be symmetrical to take into account the fact that applications to upload content to the Internet (e.g. cloud computing) are increasing in importance.
72. Campbell Patterson Communications (CPC) submitted that every Canadian needs equitable access not only to symmetrical connectivity, but to scalable connectivity. Axia NetMedia Corp. (Axia) submitted that the download and upload speeds necessary in this digital age need to be scalable from speeds of 25 Mbps to 1 Gbps.

Commission's analysis and determinations

73. In Telecom Regulatory Policy 2009-657, the Commission acknowledged the investments that Canadian ISPs were making in network infrastructure and encouraged continued investments to address changing network conditions. These changes were caused, in part, by Canadians' growing reliance on the Internet and use of innovative new services. Since that decision, the investments made by ISPs have resulted in greater availability of faster broadband Internet access speeds. For example, in 2011, fixed broadband Internet access service at a download speed of more than 100 Mbps was available to 28% of households; however, with the investments made by ISPs, this percentage increased, reaching 75% of households in 2015.²⁷
74. In the last few years, more and more Canadians have shifted towards digital platforms for many daily activities, such as those related to commerce, politics, health care, education, entertainment, security, sports, and global affairs. With the appearance of new applications and services, Canadians have significantly increased their use of broadband Internet access services, and speed requirements continue to grow. Speeds that were once acceptable by Canadians are regarded as slow a few years later. Accordingly, broadband Internet access service plans offering higher speeds have become more popular. For example, the percentage of broadband Internet access service subscriptions to plans with download speeds of 50 Mbps and higher went from just 0.3% of residential subscriptions in 2011 to 19.2% in 2015.²⁸
75. The growing reliance on digital platforms is not limited to Canada; it is being experienced globally. Many of Canada's trading partners, such as the United States and members of the European Commission, are implementing digital strategies to achieve download speeds of 50 Mbps or more within the next few years to enhance network infrastructures and to meet the growing demand for higher Internet speeds.
76. It is crucial that broadband Internet access services in Canada keep pace with these global trends. They must offer the performance levels required to make it possible not only for Canadians to create, offer, and use products and services online, but for Canada to get ahead of the curve by attracting investments and being competitive in the digital economy.
77. Canadians also need broadband Internet services with appropriate upload speeds for various activities, such as telework, videoconferencing, and real-time collaborative work. Rather than simply receiving content from various providers, Canadians need the ability to upload content quickly to become exporters and creators of content. However, Canadians and businesses in rural and remote areas generally do not have the ability to upload data rapidly; this impedes their participation in the digital economy compared to those in urban areas.

²⁷ See the 2016 CRTC *Communications Monitoring Report*.

²⁸ See the 2016 CRTC *Communications Monitoring Report*.

78. It is also important for investments to be made in network infrastructure that is scalable. As technology and applications evolve within the telecommunications ecosystem, expectations concerning speeds are likely to change, and network infrastructures must be able to respond to future needs.
79. In establishing an appropriate speed criterion, the Commission must consider what is currently available to the vast majority of the population and what is likely to be required in the future for Canadians to have new and creative ways to participate in the digital economy. The Commission estimates that 82% of Canadians currently have access to fixed broadband Internet access services at speeds of at least 50 Mbps download and 10 Mbps upload.²⁹ The network infrastructure capable of providing those speeds is generally scalable, meaning that it can support download and upload speeds of up to 1 Gbps without requiring significant additional investment.³⁰
80. In light of all the above, the Commission establishes the following criterion to assess whether the broadband portion of the universal service objective is achieved: Canadian residential and business fixed broadband Internet access service subscribers can access speeds of at least 50 Mbps download and 10 Mbps upload.
81. These speeds are to be the actual speeds delivered, not merely those advertised. That stated, the Commission recognizes that the broadband Internet access service speeds actually experienced by users are affected by a wide range of factors, some of which are outside the control of the network provider.

Data allowance

Positions of parties

82. Most parties submitted that Canadians need a certain fixed broadband Internet monthly data allowance to participate in the digital economy. The FMCC and OpenMedia submitted that low-cost broadband Internet access service plans often come with low data allowances, making them impractical for participation in today's digital economy.
83. Many individuals stated that they use their monthly data allowance too quickly. Others indicated that the high fees for exceeding the monthly data allowance and the fear of exceeding the data cap prevents them from engaging in some online activities.
84. Some parties indicated that in the North, the average number of people per household is higher, and that when many people share a single Internet connection, they quickly use their monthly data allowance. The NBDC submitted that Canadian

²⁹ Based on information collected from the Commission's data collection system.

³⁰ Networks that are based on Data Over Cable Service Interface Specification (DOCSIS) 3.1 and fibre-to-the-premises (FTTP) technologies are generally scalable to higher speeds. Innovation in technologies may enable higher speeds over other facilities in the future.

consumers – especially those in satellite-served, remote, and predominantly Indigenous communities – face some of the most restrictive data allowances out of Canada’s peers in the Group of Eight³¹ and in the Organisation for Economic Co-operation and Development. The NBDC therefore proposed a data allowance of 100 gigabytes (GB).

85. YG supported the position that data allowances be removed or, at a minimum, that the Commission carefully scrutinize them in cases where customers have no realistic choice of supply. The GNWT submitted that unlimited data should be offered, but that if this is not economically feasible, a minimum monthly data allowance of 125 GB should be offered.
86. Groups representing people with disabilities submitted that American Sign Language (ASL) and Langue des signes québécoise (LSQ) users need a sufficient minimum monthly data allowance to accommodate new video communication demands.
87. Some parties argued that small businesses should not be prevented from engaging in business due to low data allowances. For example, representatives of communities outside large urban centres submitted that small and medium-sized businesses need sufficiently high data allowances to use the applications and tools that help them to be competitive in today’s economy.
88. Many parties proposed that the Commission set a high minimum monthly data allowance for fixed broadband Internet access service. For example, the Canadian Media Concentration Research Project (CMCRP) suggested a minimum of 200 GB.
89. Some parties submitted that a world-class communication system should enable unconstrained Internet use. L’Union stated that all consumers, including those with low incomes and those living in underserved areas, should have access to fixed broadband Internet access service without a monthly data allowance. The AAC and OpenMedia submitted that the Commission should eliminate data caps. The Canadian Federation of Agriculture stated that as the digital economy becomes increasingly central to agricultural operations, the availability of unlimited data packages should be a requirement for all ISPs, including those in rural areas.
90. ISPs generally supported the continued use of data caps on the basis that Internet capacity is not unlimited. They opposed the idea of the Commission requiring them to provide unlimited data usage, and instead proposed data allowances that were lower than those proposed by other parties. For example, the JTF and RCCI proposed a minimum data allowance of 25 GB, and Eastlink proposed a minimum data allowance of 20 GB, arguing that these values are sufficient to enable Canadians to participate in the digital economy.

³¹ The Group of Eight (G8) is an informal group of eight countries: Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and the United States. Each year, G8 leaders and representatives from the European Union meet to discuss broad economic and foreign policies.

Commission's analysis and determinations

91. Increasingly, websites and services offered over the Internet require significant amounts of download and upload capacity. The digitization of many services (e.g. e-health services) and Canadians' higher reliance on cloud computing services (e.g. online learning platforms, file hosting services, and streaming media sites) also demonstrate the need for broadband Internet access services with significant capacity.
92. Canadians should be able to consume the amount of data they require to satisfy their educational, cultural, and social needs, and to participate effectively in the digital economy. Broadband Internet infrastructures must therefore accommodate this growing demand for capacity.
93. If Canadians do not have access to sufficient capacity, they might limit their use of the Internet. For example, consumers may forgo downloading updates to their operating systems or computer programs to ensure sufficient capacity for other online activities. As such, there is a risk that many Canadians could become vulnerable to online threats.
94. The average monthly amount of data downloaded and uploaded by residential broadband Internet access service subscribers increased an average of 50.4% and 30.2%, respectively, annually over the last five years.³² Bandwidth consumption is expected to continue to grow as Canadians become more reliant on the applications enabled by broadband Internet access services.
95. Almost all cable- and fibre-based broadband Internet access service subscribers have access to a choice of data allowance packages, including packages with an unlimited data allowance or with data add-ons. However, this choice is currently not available to many Canadians living in rural and remote areas. For example, today's computerized farm systems require a broadband Internet access service with high data capacity. Canadian farmers therefore face challenges in running their increasingly digital operations due to limited broadband Internet access service options.
96. A lack of sufficient data capacity impedes innovation and productivity in the economy of many rural and remote communities. Canadians should have the choice of an unlimited monthly data allowance package for fixed broadband Internet access service.
97. In light of the above, the Commission establishes the following criterion to assess whether the broadband portion of the universal service objective is achieved: Canadian residential and business customers can subscribe to fixed broadband Internet access service that includes the option of unlimited data allowance.

³² In 2015, the average monthly amount of data downloaded and uploaded by residential subscribers was 93.0 GB and 10.9 GB, respectively. See the 2016 CRTC *Communications Monitoring Report*.

Quality of service

Positions of parties

98. Most ISPs were of the view that Canadians enjoy broadband Internet access services of high quality and that there is no need to establish quality of service criteria. Moreover, many ISPs argued that different applications require different quality of service characteristics, and that the needs of Canadians depend on how they use their broadband Internet access services. As a result, it would be difficult to set general quality of service criteria. They added that intensive efforts would be required to monitor those criteria, and that market forces alone would ensure that Canadians continue to enjoy high-quality broadband Internet access services.
99. MAC submitted that broadband Internet access services with minimum service quality limits persons with disabilities, their families, and the broader public sector from deploying advanced applications.
100. According to most parties, low levels of latency,³³ jitter,³⁴ and packet loss³⁵ are important for the purpose of ensuring high-quality broadband Internet access service. The significance of these service characteristics is best illustrated in the requirement for real-time communications services, particularly videoconferencing-type services such as telemedicine (e.g. remote surgery) and Video Relay Service (VRS).³⁶
101. OneWeb, Ltd. submitted that Canadians need latency as low as 30 milliseconds (ms), while the Canadian Administrator of VRS (CAV), Inc. (CAV) suggested that a latency of up to 250 ms is acceptable. Xplornet submitted that mobile wireless services have a latency of approximately 100 ms and that satellite voice services have a latency of 400 ms, and that this has not prevented Canadians from adopting these services. The JTF suggested that jitter remain below 5 ms to ensure good-quality service. CAV and the FRPC recommended that packet loss be kept under 1%.

³³ Latency is the time data takes to arrive at its destination. A low latency is required for high-quality real-time applications.

³⁴ Jitter is the variation in the time between packets (a packet is a sequence of bits arranged in a specific format, containing control data and possibly user data, that is transmitted and switched as a whole) arriving at their destination, caused by network congestion, timing drift, or route changes.

³⁵ Packet loss is the failure of a packet to travel through the network to its destination. Internet traffic is carried as Internet Protocol packets. Due to network congestion or impairments, some packets do not reach their destination intact. These are considered to be lost packets.

³⁶ VRS is a service that enables people who are Deaf or hard of hearing who use ASL or LSQ to communicate with English- or French-speaking telephone users.

102. Some parties, such as Cogeco, Shaw Cablesystems G.P. (Shaw), and SSi, mentioned other quality of service characteristics, such as the data throughput rate,³⁷ the oversubscription ratio³⁸ on a shared circuit, the error rate,³⁹ and uptime.⁴⁰

Commission's analysis and determinations

103. Broadband Internet access services that are not of high quality impede Canadians from participating in the digital economy, whether as consumers of communications products and services, creators and distributors of content, or citizens who need access to information to fully engage in a democratic society. Reliable broadband Internet access services are also important for people with disabilities since they use many Internet-based applications and services that improve their daily lives by facilitating communication, work, and the accessibility of goods and services.

104. In rural and remote communities, high-quality broadband Internet access service is essential for accessing services that may not otherwise be available due to distance (e.g. health services via videoconferencing and education). Further, increasing reliance by banks and governments on virtual services requires reliable broadband Internet access services in all areas, including in rural and remote areas.

105. While parties proposed a wide range of quality of service characteristics, the most important ones are latency, jitter, and packet loss. Real-time applications – particularly those with audiovisual functionalities – are sensitive to any degradation of the connection and require low levels of these three service characteristics to provide a smooth experience to the Canadians who use them.

106. Accordingly, levels for latency, jitter, and packet loss need to be established to define high-quality fixed broadband Internet access service that would achieve the broadband portion of the universal service objective.

107. While a wide range of values for latency, jitter, and packet loss levels were proposed, there is incomplete evidence on the record of this proceeding to establish appropriate metrics for these service characteristics. Further, ISPs argued that it would be difficult to monitor these service characteristics.

108. Therefore, collaboration from various parties is necessary to establish appropriate metrics for these quality of service characteristics and a methodology to monitor them.

³⁷ The data throughput rate is a parameter describing service speed. It consists of the number of data bits successfully transferred in one direction between specified reference points per unit of time.

³⁸ The oversubscription ratio is equal to the combined service capacity that a group of end-users have subscribed to, divided by the network capacity provisioned to support those end-users.

³⁹ The error rate is the ratio of the number of data bits incorrectly received to the total number of data bits correctly transmitted over a given period of time.

⁴⁰ The uptime is the time in which a network is operational.

109. A working group within the CRTC Interconnection Steering Committee (CISC)⁴¹ would offer an opportunity for many different parties with technical expertise to provide input on appropriate metrics for latency, jitter, and packet loss.
110. In light of the above, the Commission requests that CISC review and make recommendations on appropriate metrics for latency, jitter, and packet loss to define high-quality fixed broadband Internet access service for the assessment of whether the broadband portion of the universal service objective is achieved. These recommendations should include (i) technical specifications, (ii) the identification of points of interconnection (POIs)⁴² in the ISPs' networks where these metrics would apply, and (iii) the methods by which data on the service metrics could be collected and reported by ISPs in a consistent manner. The Commission expects that the quality of service metrics will reflect the objective that broadband Internet access services in rural and remote areas be of similar high-quality as those in urban areas.
111. The Commission requests that CISC file its report with the Commission within **six months** of the date of this decision.

Measurement of success

112. The universal service objective will take time and significant investments to achieve, and will require efforts from all stakeholders. The Commission therefore expects that funding from the public sector and investments from the private sector will be required over many years.
113. Canada's vast land mass and low population density in rural and remote areas constitute major challenges in building modern telecommunications networks for underserved households and businesses. The costs to reach these locations are not the same across the country. In communities that are more densely populated and closer to the transport network (the backbone), the per-household cost to upgrade or build infrastructure is lower. Conversely, remote or sparsely populated communities require significantly higher investments per household.
114. Given the state of current telecommunications infrastructure in Canada, the Commission expects fixed broadband Internet access services, based on the criteria set out above, to be available in 90% of Canadian premises by the end of 2021, and in the remaining 10% of Canadian premises within 10 to 15 years. In communities where distance, geography, and limitations to existing technologies present challenges, the Commission expects that intermediate steps will be taken to progress towards these goals.

⁴¹ CISC is an organization that was established by the Commission to assist it in developing information, procedures, and guidelines as required in various aspects of the Commission's regulatory activities.

⁴² POIs are points at which networks connect with each other.

Broadband funding mechanism

Positions of parties

115. The large ILECs, cable companies (e.g. Eastlink, RCCI, Shaw, and Videotron), as well as some other parties, such as the BCBA and Xplornet, generally submitted that no industry-funded mechanism for broadband Internet access service is warranted. They argued that market forces combined with government-funded initiatives should remain the primary means by which to continue to expand fixed broadband Internet access service availability in underserved areas.
116. However, the majority of parties submitted that the Commission should implement a broadband funding mechanism to expand the availability of broadband Internet access service in all regions in Canada. These parties generally argued that market forces and targeted government funding are not sufficient to fill in all availability gaps.
117. The AAC and CanWISP submitted that an industry-funded broadband mechanism established and managed by the Commission would not be subject to changing government priorities and would provide continued support for the high operating costs of broadband Internet access service in rural and remote regions.
118. Parties including some provincial and territorial governments submitted that the Commission should be involved in funding transport infrastructure in underserved areas. They argued that this would be a means of increasing the number of service providers to these areas.
119. The FMCC and the Kativik Regional Government submitted that there is a need for an industry-funded mechanism to support the operational costs of broadband Internet access service in First Nations and northern communities. These parties suggested that such funding should be used to support the deployment of broadband to anchor institutions, such as schools and libraries, in underserved First Nations communities.
120. Specifically, the FMCC proposed that the existing NCF be replaced with a new funding mechanism called the Northern Infrastructure and Services Fund, which would be available to any service provider through a competitive process⁴³ that could offer facilities or services in designated areas. The mechanism would subsidize transport infrastructure in Northwestel Inc.'s (Northwestel) territory and northern provincial areas, such as Nunatsivik and Nunatsiavut, with the subsidized infrastructure being made available on a wholesale basis. The funding mechanism would be administered by an accountable, independent organization, include representation from communities, and involve ongoing consultation with communities.

⁴³ Parties also referred to this as a competitive bidding process or a competitive auction.

121. SSi submitted that satellite-dependent communities need dedicated funding for building terrestrial transport in these remote regions. SSi proposed that the Commission create a fund called the Backbone Assistance Program, which would allow open and affordable access to backbone (i.e. transport) connectivity and gateway services in satellite-served communities. SSi also proposed that a competitive process be used to determine who would receive funding.
122. Specifically, SSi's proposed fund would assist in building new transport infrastructure and supporting the cost of backbone already in place to allow connectivity to be provided to all local service providers at a consistent level across the North. SSi submitted that it was also necessary to lower the cost of backbone connectivity so that local service providers could deliver affordable broadband services and other basic communications services to consumers.
123. To support the goal of ensuring that all Canadians have access to "basic" telecommunications services, particularly broadband Internet access service, the AAC proposed a new funding mechanism called the Broadband Deployment Funding Mechanism, through which subsidy would be made available to all TSPs using a competitive process. The annual cost of the AAC's proposed funding mechanism would be capped at \$220 million per year.
124. With respect to the distribution of funds, many other parties, including the Alberta Association of Municipal Districts and Counties, Bell Canada et al., CMCRP, RCCI, Shaw, TekSavvy Solutions Inc. (Teksavvy), TCC, and Videotron, submitted that if a broadband fund were to be established, funding should be awarded based on a competitive process. These parties argued that this method is a best practice in the industry and would ensure that the funding program is fair and transparent.
125. However, a small number of parties, such as the Columbia Basin Broadband Corporation, the JTF, and the Province of British Columbia, opposed this view. They submitted that funding should be provided to ILECs since they are best placed to meet the needs of underserved Canadians. YG submitted that Northwestel would be best placed to develop a project proposal for building new transport services in underserved areas in the North.
126. Parties that were opposed to the establishment of an industry-funded mechanism offered some suggestions should such a mechanism be established. For example,
- Bell Canada et al. submitted that funding principles should be established;
 - TCC submitted that the general terms and conditions of the Government of Canada's Connecting Canadians funding program should be used as a guide to develop assessment criteria;

- Bell Canada et al. and RCCI proposed that funding should be transitioned from the local voice service subsidy, and that the amount of broadband funding should be no more than the current amount of the local voice service subsidy; and
- Bell Canada et al. submitted that should the Commission provide funding in satellite-dependent communities to pay for the ongoing operating costs associated with the lease of transponder capacity, this funding should be provided separately from any other terrestrial transport funding.

127. Finally, many parties, such as the AAC, Bell Canada et al., Cree Nation/ECN, and TekSavvy, suggested that should the Commission develop a broadband funding mechanism, Internet and texting revenues (currently excluded from contribution-eligible revenues) should be included in the list of contribution-eligible revenues.

Commission's analysis and determinations

Basic telecommunications services

128. The need for a Commission broadband funding mechanism to support the provision of modern telecommunications services in underserved areas in Canada was extensively examined in this proceeding. Closing the gap in broadband Internet access service availability in Canada is an enormous financial challenge, requiring billions of dollars in funding and investments that can only be overcome through shared responsibility.

129. While the Commission expects that continued investments from the private sector and funding programs from various levels of government will assist in achieving the broadband portion of the universal service objective, the record of this proceeding demonstrates a need for Commission intervention in closing the availability gap in Canada.

130. Subsection 46.5(1) of the Act states that the Commission may require any telecommunications service provider to contribute, subject to any conditions that the Commission may set, to a fund to support continuing access by Canadians to basic telecommunications services.

131. The universal service objective reflects the modern telecommunications services that enable the participation of Canadians in the digital economy and society. The Commission determines that the following services – which form part of the universal service objective – are basic telecommunications services within the meaning of subsection 46.5(1) of the Act: (i) fixed and mobile wireless broadband Internet access services, and (ii) fixed and mobile wireless voice services.

132. The Commission further determines that it will establish a new mechanism, pursuant to subsection 46.5(1) of the Act, to assist in funding continuing access to the basic telecommunications services that form part of the universal service objective. This

new funding mechanism will assist the Commission in achieving various policy objectives set out in the Act, including the development of a telecommunications system that serves to enrich and strengthen the social and economic fabric of Canada and its regions.⁴⁴

133. There will be many elements involved in the Commission's new funding mechanism, including guiding principles, fund design, and assessment criteria. In addition, the administration of this mechanism will require a defined governance structure and accountability framework. Below, the Commission sets out its determinations and preliminary views with respect to these elements. The Commission will initiate a follow-up proceeding in early 2017 to examine these preliminary views and other matters related to the establishment of the funding mechanism.

Guiding principles

134. The Commission has established above criteria to assess progress in the achievement of the broadband portion of the universal service objective. Geographic areas that do not meet these criteria are considered to be underserved areas for the purpose of the Commission's broadband funding mechanism.

135. The Commission expects that governments will continue to fund, and will create new funding programs to support, broadband infrastructure projects in underserved areas. In addition, the private sector will continue to invest in expanding and upgrading its broadband networks, including in underserved areas, to meet the needs of Canadians. As such, the Commission's broadband funding mechanism will be aligned with existing and future broadband investments and funding initiatives; it will complement and not replace them.

136. With respect to the administration of the Commission's broadband funding mechanism, the Commission will designate a person to administer the fund pursuant to subsection 46.5(2) of the Act. The appropriate structure and safeguards for the administration of this mechanism will be put in place to ensure that the third-party administrator operates the fund fairly and efficiently.

137. Accordingly, the following are the Commission's guiding principles for the development of its broadband funding mechanism:

- The funding mechanism will focus on underserved areas in Canada;
- The Commission will attempt to align its funding mechanism with the broader ecosystem of current and future funding and investments; and
- To the greatest extent possible, the funding mechanism will be managed at arm's length, based on objective criteria, and will be administered in a manner that is transparent, fair, and efficient.

⁴⁴ See section 7 of the Act.

Fund design

General

138. Competitive processes have been used for broadband government funding programs in Canada and abroad. As well, these processes are considered to be a best practice and a cost-effective, fair, and transparent means of distributing funding. Accordingly, a competitive process will be used to distribute funds to successful applicants under the Commission's broadband funding mechanism.
139. Applicants will be able to submit funding proposals to build or upgrade access and transport infrastructure for fixed and mobile wireless broadband Internet access service to achieve the broadband portion of the universal service objective in underserved areas. Both access and transport infrastructure are key to providing modern telecommunications services and thus support continuing access to basic telecommunications services. In addition, applicants will need to demonstrate that the proposal would not be viable without funding from the Commission's mechanism.
140. In some underserved areas, achieving the objective will likely need to be accomplished in incremental steps due to many factors, such as geography, the cost of transport capacity, the distance to points of presence, and the technology used.

Government funding and private sector investment

141. To be eligible for the Commission's funding mechanism, applicants will be required to secure a minimum level of financial support from a government entity. In this context, government entities include, for example, federal, provincial, territorial, regional, and municipal entities; Aboriginal governments; community entities; and non-profit organizations. In addition, applicants will be required to provide a minimum amount of investment in their project.
142. The level of funding from a government entity and the proposed investment from the applicant must be more than a nominal amount and must be commensurate with the nature of the project. Applications with greater levels of government funding and private investment will be given more weight in the competitive process.

Level of funding

143. In 2016, the local voice service subsidy was approximately \$100 million. While the current amount of funding for the local voice service subsidy is an appropriate starting point for the Commission's new broadband funding mechanism, given the size of the availability gap that exists in Canada, the level of funding from this new mechanism will need to be higher.
144. A gradual increase in the level of funding would provide contributors to the broadband funding mechanism time to make adjustments regarding their contribution obligations. As well, capping the level of funding at a certain amount, and phasing out the local service subsidy regime as discussed below, would help mitigate contributors' financial concerns.

145. Accordingly, for the first year of implementation of the Commission's broadband funding mechanism, no more than \$100 million in funding will be distributed. This amount will increase by \$25 million annually over the following four years to reach an annual cap of \$200 million.
146. The Commission intends to conduct a review of the fund in the third year to ensure that it is managed efficiently and is achieving its intended purpose. The incremental increases in years four and five will be contingent on the results of this review.
147. With the changes to the contribution-eligible revenues set out in the section below, the revenue-percent charge at the \$200 million annual cap would be approximately the same as the current revenue-percent charge.⁴⁵

Satellite component

148. Many Canadians who depend on satellite services for some or all of their telecommunications needs are located in some of the nation's most remote areas, where terrestrial transport facilities are minimal or non-existent. In particular, satellite-dependent communities present a challenge to connect terrestrially due to significant costs, lack of roads, harsh terrain, and short construction seasons.
149. The Government of Canada has provided and continues to provide funding to expand broadband Internet access service in satellite-dependent communities. However, this funding is insufficient to provide these communities with adequate terrestrial transport infrastructure to achieve the broadband portion of the universal service objective. Connecting these communities using terrestrial transport facilities requires a collaborative approach with all stakeholders and the development of an action plan to pay for the necessary infrastructure costs. In the interim, the Commission's broadband funding mechanism will also support these communities in improving their broadband Internet access services.
150. To ensure that these satellite-dependent communities are supported by the Commission's broadband funding mechanism, up to 10% of the total annual limit of the broadband funding mechanism will be allocated to satellite-dependent communities for the first five years of the fund's operation. This funding is intended to support operational costs and potentially certain related capital costs.

Eligibility and assessment criteria

151. In addition to the requirements set out in the fund design section above, funding applicants will be subject to a two-stage process. In the initial eligibility screening stage, proposals must meet certain eligibility criteria. Eligible proposals that proceed to the next stage, the assessment stage, will be examined on their merits using certain weighted criteria.

⁴⁵ See Telecom Decision 2016-473.

152. The Commission sets out in Appendix 1 its preliminary view on certain eligibility criteria to be used to determine eligible recipients and eligible capital and operational costs, as well as on certain assessment criteria, for funding fixed and mobile wireless broadband infrastructure projects. These criteria, generally based on those used for other Government of Canada broadband funding programs, will be examined in the follow-up proceeding to establish the funding mechanism.

153. The development of appropriate criteria for identifying priority underserved areas to be funded is an important element of the Commission's broadband funding mechanism and will also be examined in the above-mentioned follow-up proceeding. Such criteria could include the existing level of broadband Internet access service available in the area, the proximity of the area to fibre transport infrastructure, the population density of the area, and the cost of the proposed investment.

Governance structure

154. The Commission's broadband funding mechanism will involve two main functions:

- the implementation and operation of the competitive process, as well as the management of the funding agreements (i.e. the project management function); and
- the collection of contributions and the distribution of funds (i.e. the accounting function).

155. These functions could be conducted by a single administrator, or separate administrators could be selected for each function.⁴⁶ The Commission will retain oversight of the fund and will approve the projects to be funded.

156. The Commission sets out in Appendix 2 to this decision its preliminary view on its responsibilities, as well as those of the third-party administrator(s) for the project management and accounting functions. These responsibilities will be examined in the follow-up proceeding to establish the funding mechanism.

Accountability framework

Audit committee

157. Currently, the board of directors of the third-party administrator of the local voice service subsidy fund has an audit committee to ensure that the administrator has followed Commission-approved procedures, collected the correct amount of contribution, and paid the correct amount of subsidy. The accounting function of the Commission's broadband funding mechanism will require similar oversight.

⁴⁶ For example, the accounting function could be conducted by the current local voice service subsidy fund administrator.

158. Accordingly, the board of directors of the third-party administrator for the accounting function of the Commission's broadband funding mechanism will be required to establish an audit committee.

Fairness monitor

159. The involvement of a fairness monitor⁴⁷ in the Commission's broadband funding mechanism will not diminish or absolve the third-party administrator for the project management function of its accountability or responsibilities. Instead, it will ensure that the project management function is being administered in a fair, open, and transparent manner.

160. Accordingly, the Commission will appoint a fairness monitor to observe the competitive process.

Contribution-eligible revenues

161. Similar to the local voice service subsidy fund, contribution towards the broadband funding mechanism will be collected by means of a revenue-percent charge that is applied to the contribution-eligible revenues of a TSP.

162. Retail Internet access and texting services are now used by consumers largely as a substitute or replacement for traditional voice services. Given that the broadband funding mechanism will support continuing access by Canadians to basic telecommunications services, it is appropriate to include retail Internet access and texting service revenues in the list of contribution-eligible revenues used to calculate the revenue-percent charge.

163. Accordingly, contribution-eligible revenues will be expanded to include both retail Internet access and texting service revenues. This change to the calculation of the revenue-percent charge will take effect in the first year of implementation of the Commission's broadband funding mechanism.

Modifications to current regulatory measures for local voice services

Background

164. As noted above, the Commission has relied on three interrelated regulatory measures to ensure that Canadians have access to basic telecommunications services: the basic service objective, the obligation to serve, and the local service subsidy regime. In addition, the Commission has established price cap and local forbearance regimes for local voice services, which are related to the above measures.

⁴⁷ A fairness monitor is an independent, external party that observes all or part of a competitive process and provides an unbiased and impartial opinion on the fairness of that process.

165. Price cap regulation, which applies only to the ILECs' tariffed services, generally places upward constraints on prices that companies can charge their customers. The Commission currently has similar price cap regimes in place for the large ILECs, the small ILECs, and Northwestel.⁴⁸ While the regime for Northwestel is set to expire on 31 December 2017, the regimes for the large ILECs and the small ILECs have no expiry date.
166. The local forbearance regimes set out the detailed criteria that the large and small ILECs are required to meet before the Commission will forbear from rate regulation of retail local exchange services.⁴⁹ In forbearance exchanges, the large and small ILECs continue to have an obligation to provide stand-alone wireline local telephone services subject to a price ceiling. A local forbearance regime has not been established for Northwestel.

Positions of parties

Basic service objective

167. The ILECs and other parties, such as the AAC, CanWISP, Eastlink, and MKO, generally submitted that the current basic service objective remains important and that it would be premature to eliminate it, given that many Canadian households continue to rely on wireline voice services.
168. Xplornet submitted that there is no requirement for a basic service objective because there are sufficient alternative technologies to provide voice services today. TekSavvy added that most provisions included in the basic service objective remain mandated as components of voice service, and that these components are available from competing providers over broadband Internet access service.
169. TCC, Yellow Pages Limited, and other parties proposed that the Commission no longer mandate the provision of printed telephone directories under the basic service objective. They stated, among other things, that directory information is important to Canadians but that it can be more readily found by digital means. They noted that few mobile wireless telephone numbers are listed in the directory and that few subscribers request a printed copy of the directory.
170. The AAC submitted that printed telephone directories are important for those who have limited or no broadband Internet access service. The JTF suggested that special home delivery of printed telephone directories could be arranged for certain vulnerable customers.

⁴⁸ These regimes are set out in Telecom Decision 2007-27, Telecom Regulatory Policy 2013-160, and Telecom Regulatory Policy 2013-711, respectively.

⁴⁹ The Commission established similar forbearance regimes for retail local exchange services for the large ILECs in Telecom Decision 2006-15 and for the small ILECs in Telecom Regulatory Policy 2009-379.

Obligation to serve

171. Some parties, such as CanWISP, RCCI, Shaw, TCC, and Videotron, submitted that the obligation to serve should be eliminated in all markets where local voice service has been forborne from regulation since there is a competitive market for that service.
172. RCCI argued that the obligation to serve is not necessary since in almost all cases, voice services are provided in response to consumer demand and competitive market forces.

Local service subsidy regime

173. Parties such as MTS Inc. (MTS), SaskTel, and TCC submitted that distribution of the existing local voice service subsidy should continue. SaskTel submitted that although the amount of subsidy disbursed for local voice service is gradually declining, it continues to provide an important safety net for a significant segment of society.
174. Many parties, including Bell Canada et al., CanWISP, Cogeco, Cree Nation/ECN, RCCI, Shaw, SSI, TekSavvy, Videotron, and Xplornet, submitted that the Commission should reduce, phase out, or eliminate local voice service subsidy.
175. Bell Canada et al. submitted that the current local service subsidy regime is deficient and overstates the costs needed to provide voice services, and that as a result, it overstates the amount of local voice service subsidy needed to support the provision of local voice service.
176. SSI argued that the subsidy is funding old technology and services from which customers are migrating away. Customers are moving to other forms of voice services, such as mobile wireless services or voice over Internet Protocol (VoIP) services. CanWISP added that the Commission should subsidize voice services only in areas where no alternative voice services are available.
177. Xplornet suggested eliminating the local service subsidy regime over a one-year transition period. However, Cree Nation/ECN proposed that the local voice service subsidy should remain in place for a maximum of three years and should be phased out thereafter.
178. Most ILECs submitted that should the Commission decide to phase out the local service subsidy regime, the regulatory measures associated with the obligation to serve, including the price ceiling applicable to stand-alone residential wireline voice service, should be eliminated.

Commission's analysis and determinations

179. Voice services continue to be important for many Canadians. The Commission has recognized this by including them in the universal service objective. However, given the evolving importance of broadband Internet access services to Canadians' participation in the digital economy, it is appropriate to transition the Commission's regulatory frameworks and measures from being voice-centric to broadband-centric. Accordingly, the Commission must review these measures to determine whether changes are necessary to meet the policy objectives of the Act, and if so, what changes.

Basic service objective, local service subsidy regime, and the obligation to serve

180. As stated earlier, there is currently near-ubiquitous access in Canada to the level of service set out in the basic service objective. As a result, the intended goal of the basic service objective has been achieved.
181. The local service subsidy regime was developed to help Canadians in HCSAs benefit from the same residential voice services as those available in urban areas at reasonable prices by funding the difference between the price of the local voice services and the associated costs.
182. Technology has evolved such that the ILECs' network infrastructure, originally installed to deliver voice services, now also delivers other services, including broadband Internet access services. Mobile wireless and fixed broadband Internet access services are key components of the universal service objective. As stated above, the new broadband funding mechanism will help expand the availability of broadband Internet access services in areas that are currently underserved.
183. Accordingly, the Commission determines that the current local voice service subsidy will be phased out. The Commission will launch a follow-up proceeding early in 2017 to examine the phase-out of the local service subsidy regime.
184. The Commission expects that subsidy in HCSA Bands⁵⁰ E and F exchanges will be phased out first, while Bands G and H1 exchanges could require a longer phase-out period. Local voice service subsidy will be eliminated in regulated HCSA exchanges if the Commission determines that they qualify for forbearance, as set out in Telecom Decision 2006-15 and Telecom Regulatory Policy 2009-379. However, in all other regulated HCSA exchanges, the Commission does not intend to remove the local subsidy for a network access service (NAS)⁵¹ unless reliable broadband Internet access service is available.

⁵⁰ An HCSA band represents a group of exchanges or wire centres with similar characteristics, such as the number of lines, remoteness, and, in some cases, loop length. Large ILEC bands are defined in Decision 2001-238, small ILEC bands are defined in Decision 2001-756, and Northwestel's Band H1 is defined in Telecom Decision 2007-5.

⁵¹ NAS is a connection or line that provides customers with access to the public switched telephone network.

185. In addition, the Commission hereby eliminates the basic service objective as follows: (i) for regulated local voice service in non-HCSAs, the basic service objective is eliminated as of the date of this decision, and (ii) the basic service objective will be eliminated for a NAS in a regulated HCSA when the local voice service subsidy for that NAS is eliminated. The elimination of the basic service objective will not impede the continued provision of local voice service in regulated exchanges since the associated rates, terms, and conditions are set out in the ILECs' respective tariffs.
186. With respect to the obligation to serve, only ILECs are capable of providing access to local voice service for all customers in their respective exchanges. Given this situation, as well as the minimal presence of competitors in regulated exchanges, the obligation to serve, as it currently applies to voice telephone service, will be retained for the ILECs.

Price cap and local forbearance regimes

187. Given the interrelationship of local voice service subsidy with both the price cap and local forbearance regimes, the elimination of this subsidy requires a review of, among other things, the existing pricing constraints and price ceiling applicable to the rates for residential local voice services.
188. Accordingly, the Commission intends to launch a proceeding to examine the price cap and local forbearance regimes as applicable to the ILECs following its review of the local service subsidy regime.
189. Since the Commission must complete its review of the local service subsidy regime prior to reviewing the price cap and the local forbearance regimes, the Commission hereby extends Northwestel's current price cap regulatory framework to 31 December 2018.

Affordability of broadband Internet access services

Positions of parties

190. Parties were divided on the need for regulatory intervention regarding prices for broadband Internet access services.
191. Consumer groups, including the AAC, OpenMedia, and l'Union, submitted that certain vulnerable (e.g. low-income) consumers are struggling to afford broadband Internet access services. Provincial and territorial governments, as well as groups representing northern citizens, submitted that the prices for broadband Internet access services offered in rural and remote areas are significantly higher than those available in urban centres.
192. These parties argued that the Commission should intervene to ensure that broadband Internet access services are affordable for all consumer segments in Canada. Notably, parties such as the Cree Nation/ECN, the FMCC, the JTF, and YG submitted that there should be a maximum retail price for broadband Internet access

services. Cybera, EORN/EOWC, and OpenMedia proposed that the Commission mandate an entry-level tier for broadband Internet access services, similar to the model for basic television service packages. The Government of Ontario and MKO submitted that retail broadband Internet access service prices should be regulated only in areas with insufficient competition.

193. The AAC and l'Union opposed the idea of a mandated entry-level tier for broadband Internet access services, submitting that this measure would not provide the flexibility to respond to end-users' needs. Rather, they proposed that the Commission implement an affordability subsidy to support broadband Internet access services for low-income households. Similarly, SSi proposed a subsidy mechanism targeted to consumers living in HCSAs.
194. By contrast, most ISPs argued that prices for broadband Internet access services are competitive and affordable, and that they compare favourably internationally. These companies opposed the imposition of any measure that would distract from continued reliance on market forces, including the introduction of a mandatory, price-regulated, entry-level tier for broadband Internet access services.
195. These parties generally recognized the issues experienced by certain vulnerable consumers in paying for their telecommunications services. However, they were of the view that these issues stem from broader socio-economic conditions and not exclusively from the pricing of telecommunications services. As such, any subsidies should be funded by federal or provincial governments. RCCI and TCC also pointed to industry-led programs, including their own initiatives to offer affordable Internet packages to low-income households in their serving areas. They suggested that more experimentation and research are needed to find solutions and reduce barriers for these households.

Commission's analysis and determinations

196. The Commission does not regulate the retail rates for broadband Internet access services, with the exception of those provided by Northwestel over terrestrial facilities. However, the Commission has put in place wholesale and retail policies to foster a competitive marketplace for broadband Internet access services.
197. For example, in Telecom Regulatory Policy 2015-326, the Commission established a wholesale wireline services framework to provide Canadians with increased choice and reasonable prices for their telecommunications services. Notably, through that decision, competitors can access certain telecommunications facilities and network components from incumbent carriers, including optical fibre facilities.
198. In addition, in Telecom Regulatory Policy 2015-177, the Commission established regulatory measures to foster sustainable competition, innovation, and investment in the wireless services market. Specifically, the Commission began regulating the rates charged by the national wireless companies for the wholesale roaming services they provide to their competitors. The Commission also reduced certain barriers faced by mobile virtual network operators.

199. Further, in Telecom Regulatory Policy 2013-271 (the Wireless Code Policy), the Commission established the Wireless Code, a mandatory code of conduct for providers of retail mobile wireless voice and data services. The Wireless Code sets out basic rights for wireless consumers, including protections against bill shock.
200. These wholesale and retail policies have facilitated, and will further facilitate, sustainable competition, resulting in innovative service offerings and more competitive prices for consumers.
201. There are between three and nine competing ISPs in the majority of urban centres, and between two and six wireless service providers (WSPs), thereby ensuring that Canadians living in urban centres enjoy the benefits of competitive offerings in the retail broadband Internet access services market. However, competitive and technological challenges related to the provision of fixed and mobile wireless broadband Internet access services in rural and remote areas can lead to higher prices for consumers.⁵²
202. Moreover, analysis of pricing and income-related data from the 2016 CRTC *Communications Monitoring Report* supports parties' views that low-income households are experiencing issues related to the affordability of their broadband Internet access services. Although spending on communications services by lower-income households was less than that by higher-income households, expenditures on communications services take up a significantly larger percentage of their annual incomes. In addition, households in lower-income quintiles are much less likely to use the Internet from home than those in higher-income quintiles.
203. A comprehensive solution to affordability issues will require a multi-faceted approach, including the participation of other stakeholders. In this regard, the record of this proceeding demonstrates that various stakeholders, including ISPs and community organizations, have begun to implement innovative solutions to meet the wide-ranging needs of lower-income consumers. The Commission is mindful that its regulatory frameworks should be sufficiently flexible to allow for such solutions and does not want to take regulatory action that would inadvertently hinder the development of further private and public sector initiatives.
204. In addition, the Government of Canada is currently examining these affordability issues in the context of its Innovation Agenda. As the Government of Canada has stated, everyone has a role to play. In the Innovation Agenda, ISED indicated that Canada must do more to give rural communities and low-income Canadians affordable high-speed Internet access services so that they can participate fully in the digital and global economy for a better quality of life. As stated in the Commission's submission to the Innovation Agenda, the Commission supports concerted efforts from a variety of stakeholders as essential to making progress in this area and encourages other stakeholders to follow suit.

⁵² See the 2016 CRTC *Communications Monitoring Report*.

Accessibility

Availability and awareness of accessibility products and services

Background

205. In Broadcasting and Telecom Regulatory Policy 2009-430, the Commission set out a number of requirements and encouragements related to the promotion of disability-specific information and the training of customer service representatives. Regarding the promotion of disability-specific information, the Commission

- required TSPs to promote information on all of their disability-specific services and products in the accessible manner(s) of their choice;
- encouraged TSPs to promote disability-specific information through their websites; and
- encouraged TSPs to consult with customers with disabilities and the appropriate advocacy groups to develop suitable options and packages of optional features for persons with disabilities, and to offer such options at the earliest possible opportunity.

206. Further, in the Wireless Code Policy, the Commission expected WSPs to ensure that customers with disabilities have the information they need to determine which plans, services, or products best meet their needs, and directed WSPs to report on these plans and services. The WSPs' reports are available on the Commission's website at www.crtc.gc.ca.⁵³

Positions of parties

207. The Canadian Association of the Deaf-l'Association des Sourds du Canada, the Canadian Hearing Society (CHS), DWCC, and MAC submitted that they find it difficult to locate information related to telecommunications plans and services that address the needs of people with disabilities. Further, the DWCC submitted that there is often no uniformity among companies' wireless service plans geared for people with disabilities, nor is there consistency in how ASL and LSQ users are informed of wireless service plans. Collectively, these groups asked the Commission to ensure that WSPs do the following:

- offer packages that meet the needs of people with disabilities;
- clearly advertise these wireless plans in digital and print media, using ASL and LSQ, and English and French;

⁵³ See the [2012 Closed Notices of Consultation page](#) on the Commission's website under "Compliance Reports."

- develop terminology in ASL and LSQ videos for users to understand and navigate their wireless service contracts; and
- employ customer service representatives with specialized training in communicating with people with disabilities.

208. Groups representing people who are Deaf or hard of hearing also submitted that Deaf Canadians primarily use data services – not voice services – to communicate, since they use video for sign language communications. As a result, many Canadians with hearing disabilities are paying for voice services that they are not fully using as part of their wireless services. These groups requested that WSPs offer packages that take into consideration low voice service use.

209. MAC submitted that people with visual disabilities use many applications on their smartphones (apps) to address their accessibility needs. For example, a representative from the Canadian Council of the Blind explained that she uses several accessibility apps, including one that helps identify objects, read ingredient information on packages, and read cooking instructions. She also stated that many accessibility apps can be paired with a Braille display and that these apps make the smartphone an important tool to enhance the independence of people with disabilities.

210. Some WSPs submitted that they currently offer a number of wireless service plans that could respond to the needs of people who are Deaf or hard of hearing, but that those consumers appear to be unaware of those plans. For example, TCC stated that it offers a \$15 voice credit to its customers who are Deaf or hard of hearing and who cannot fully use the voice functionality of their phone. Also, RCCI submitted that it has introduced a flex plan with data and unlimited text messaging designed specifically for its customers with hearing disabilities.

Commission's analysis and determinations

211. The record of this proceeding demonstrates that some WSPs offer packages tailored to customers with disabilities; however, this does not appear to be a common practice among all WSPs. Canadians with disabilities should have equitable choices in the marketplace that meet their needs.

212. Accordingly, the Commission **directs** all WSPs to offer mobile wireless service packages that meet the needs of Canadians with disabilities. These include people who are Deaf or hard of hearing, and primarily use video to communicate, as well as people with visual disabilities who use way-finding and Global Positioning System (GPS) apps. WSPs must make these packages available no later than **six months** from the date of this decision. These packages must include access to 9-1-1 service and be based on consultations with Canadians with disabilities.

213. While Broadcasting and Telecom Regulatory Policy 2009-430 provided flexibility regarding how disability-specific wireless products/services are promoted, the record of this proceeding demonstrates that this approach does not ensure that Canadians

with disabilities are aware of suitable options. Canadians generally use the WSPs' websites as the initial and primary source of information, prior to engaging a customer service representative, for choosing suitable products/services. Therefore, these options must be clearly stated on WSPs' websites.

214. Accordingly, the Commission **directs** all WSPs to publicize all of their disability-specific products/services on their websites, and expects them to use other methods to publicize this information, such as through call centres, no later than **six months** from the date of this decision.
215. In Broadcasting and Telecom Regulatory Policy 2009-430, the Commission encouraged TSPs to adopt the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines and to conduct user testing for the customer service portions of their websites to be as accessible as possible. Since 2009, legislation has been passed into law or is in the process of becoming so in several provinces⁵⁴ that requires prescribed accessibility standards for websites, including the adoption of the W3C Web Content Accessibility Guidelines. As a result, some WSPs, particularly the national providers, have already taken steps to implement these guidelines.
216. Given the importance of WSPs' websites in enabling Canadian consumers to make informed choices about their communications products/services, the information available on WSPs' websites needs to be accessible to all Canadians.
217. Accordingly, the Commission expects that all WSPs' websites will meet the W3C Web Content Accessibility Guidelines by **1 June 2017**. The Commission will undertake an active monitoring program to verify that the products/services offered by WSPs, and the ways in which the WSPs make customers aware of their availability, are accessible to all Canadians.

Current and future accessibility initiatives

Positions of parties

218. SaskTel submitted that it intends to continue to sponsor Inclusion Regina, the organization to which it had directed its deferral account funds for a program that enables people with cognitive disabilities to use tablets. MTS submitted that it worked with an accessibility organization to pilot an accessibility awareness training program for its employees. RCCI submitted that it systematically works to improve its services and processes for people with disabilities. Its efforts include meeting with representatives of advocacy groups, offering data-only wireless service flex plans, and offering a website and customer service representatives dedicated to serving the needs of people with disabilities.

⁵⁴ The Governments of Ontario and Manitoba have legislation already established. The Government of Nova Scotia is in the process of developing its legislation, and the Government of British Columbia has an action plan.

219. Several TSPs referenced various in-house accessibility initiatives. Bell Canada et al. highlighted Bell Canada's Accessibility Services Centre, which houses sign language videos to assist customers who use ASL/LSQ and increase their digital literacy. Bell Canada et al. stated that Bell Canada's deferral account initiatives⁵⁵ on mobility were set up with a product lifecycle support of beyond five years (2019) in mind and that they hoped this set-up would continue thereafter.

Commission's analysis and determinations

220. The Commission acknowledges the progress that some TSPs have made in advancing accessibility efforts, as reflected on the record of this proceeding. However, the Commission reiterates that the inclusion in the communication system of all Canadians is in the public interest and that accessibility needs to be an integral part of the corporate structure of any organization.

221. The Commission's experience with deferral account funding for accessibility initiatives has highlighted the following principles that should be used to guide future investment in accessibility initiatives:

- seeking solutions from non-traditional avenues outside the current supply chain of equipment manufacturers, including third-party app developers and suppliers that focus on accessibility issues;
- ensuring that accessibility features introduced on a platform are carried over to future iterations, thus encouraging third-party innovation in accessibility;
- consulting the appropriate accessibility organizations;
- offering integrated packages of products and accessibility apps with technical and customer support for a "one-stop shop" approach; and
- developing innovative customer service models tailored to the needs of customers with disabilities.

222. The majority of the telecommunications service market is currently served by a few large facilities-based TSPs, and their activities related to accessibility have the potential for initiating change in market behaviour. To ensure that the Commission, as well as Canadians, are kept apprised of these activities, these providers should report on their accessibility initiatives.

223. Accordingly, the Commission **directs** Bell Canada, Bell Mobility Inc., Cogeco, Eastlink, MTS, RCCI, SaskTel, Shaw, TCC, and Videotron to each submit a detailed report concerning their respective plans to invest in the ongoing accessibility of their telecommunications services. These reports are to be filed with the Commission no later than **six months** from the date of this decision.

⁵⁵ See Telecom Decision 2014-527, in which the Commission made a number of determinations with respect to a request by Bell Canada and Bell Mobility Inc. to use \$6.5 million of Bell Canada's deferral account funds to improve access to telecommunications services for persons with disabilities.

Mandating captioned telephone services

Positions of parties

224. The CHS submitted that Canadians with hearing disabilities and speech impediments need a captioned telephone service, similar to Captioned Telephone (CapTel) in the United States.⁵⁶ The CHS therefore recommended that the Commission direct TSPs to conduct a feasibility study, similar to the one Bell Canada conducted on VRS, for the establishment of bilingual captioned telephone services in Canada.

Commission's analysis and determinations

225. There are currently three relay services, namely Teletypewriter (TTY) Relay Service, Internet Protocol (IP) Relay Service, and VRS, that address the real-time communications needs of Deaf and hard-of-hearing Canadians. VRS was launched in September 2016.

226. There is no evidence on the record of this proceeding to indicate that there is an insufficient choice of services to fulfill the needs of Canadians with hearing disabilities. Accordingly, it is not appropriate for the Commission to mandate captioned telephone services at this time.

Consumer empowerment

Positions of parties

227. Many individual Canadians expressed frustration with data overage charges for Internet access services. Individuals submitted that, combined with low data caps and the challenges of understanding and monitoring data use, data overage charges can lead to bill shock and high prices for broadband Internet access services. Canadians indicated that it is difficult to understand the data allowances associated with their broadband Internet access services, the overage fees they may be charged if they exceed those limits, and how to accurately monitor their data use.

228. Individuals indicated that this is especially problematic for customers without access to unlimited data plans or to plans with higher data caps, and for customers in rural and remote areas where the lack of competitive alternatives limits the choice of data cap options. Customers in these areas submitted that they are especially vulnerable to bill shock and that they must limit their Internet use, unless they are willing to pay additional overage fees, which can be as much as \$3 per GB.

229. Consumer advocacy groups and ISPs had differing opinions on how the Commission should address consumer frustration related to bill shock from data overage charges. The AAC and OpenMedia submitted that the Commission should eliminate data caps, since they no longer serve a purpose as an Internet traffic management practice (ITMP). YG supported the position that data caps be removed, or at a minimum, that they be carefully scrutinized by the Commission in areas where customers have no realistic choice of supply.

⁵⁶ Through CapTel service, the caller's words are transcribed on a screen.

230. In contrast, ISPs generally supported the continued use of data caps as economic ITMPs and did not consider bill shock to be a sufficient reason to prohibit data caps. Bell Canada et al. and TCC submitted that (i) they offer unlimited data packages, (ii) only a small portion of their respective customers with data caps incur overage charges, and (iii) customers who routinely exceed their data caps receive additional education to help them understand their data use. Many ISPs submitted that they provide tools to help customers better understand their services.

Commission's analysis and determinations

231. Bill shock has been an issue for consumers of mobile wireless data services. In the Wireless Code Policy, the Commission stated that it expected WSPs to offer data usage notifications and monitoring tools, and required these providers to ensure that postpaid contracts and related documents clearly explain (i) the services included in the contract, (ii) any limits on the use of those services that could trigger overage charges or additional fees, (iii) the minimum monthly charge for services included in the contract, and (iv) where customers can find information on rates for overage charges. The Commission is currently reviewing the Wireless Code Policy, and any issues stemming from mobile wireless broadband Internet access services will be considered as part of this review.

232. With respect to fixed broadband Internet access services, the data usage associated with common online activities can be complex and difficult for consumers to estimate. The record of this proceeding revealed that many Canadians are unaware of certain basic elements of their Internet access service contracts, including their monthly data usage limits.

233. This confusion can result in consumers unintentionally exceeding their data limits and experiencing bill shock. Data overage charges for fixed broadband Internet access services vary greatly between ISPs, ranging from \$0.50 to \$3.00 per additional GB.

234. Only a few ISPs have implemented a maximum overage charge in a monthly billing cycle, which means that customers who find it difficult to understand and monitor their data usage could get billed an amount that exceeds their usual monthly bill by hundreds of dollars. Individual and small business consumers of broadband Internet access services in all regions of Canada should have the information they need to understand, monitor, and manage their data usage to prevent bill shock.

235. Accordingly, the Commission expects all ISPs that provide retail fixed broadband Internet access services to individual and small business customers to do the following, within **six months** of the date of this decision:

- ensure that contracts and related documents clearly explain, in plain language, (i) the services included in the contract; (ii) any limits on the use of those services that could trigger overage charges; (iii) the minimum monthly charge for services included in the contract; (iv) where customers can find information on rates for overage charges; and (v) whether or not there is a

maximum data overage charge that might be incurred in a monthly billing cycle, and if so, the amount of that maximum charge;

- provide account management tools that enable customers to monitor their data usage; and
- provide plain-language information on the data usage associated with common online activities.

236. The above-noted information and tools should also be accessible to customers with disabilities.

237. Further, the Commission **directs** the following large ISPs – Bell Canada, Cogeco, Eastlink, MTS, RCCI, SaskTel, Shaw, TCC, and Videotron – to report on how they have met these expectations within **nine months** of the date of this decision.

238. If consumers were notified of alternative broadband Internet access service plan options that may better suit their needs when they incur data overage charges, they would be empowered to better manage their bills and to avoid bill shock. The availability of usage monitoring tools and data overage notifications would provide consumers with cost certainty and would empower consumers to make better-informed choices.

239. Accordingly, the Commission **directs** all ISPs that offer retail fixed broadband Internet access services, within **six months** of the date of this decision, to notify residential and small business⁵⁷ customers who have incurred overage charges of where they can find information about (i) the account management tools the ISP offers, (ii) the data usage associated with common online activities, and (iii) alternative plans that may better suit the customer's needs. Customers should be able to opt out of these notifications at any time. Such notifications must be provided each month in which a customer incurs data overage charges, unless the customer opts out of receiving such notifications.

240. Further, the Commission **directs** the following large ISPs – Bell Canada, Cogeco, Eastlink, MTS, RCCI, SaskTel, Shaw, TCC, and Videotron – to report on how they have met this requirement within **nine months** of the date of this decision.

241. If a particular ISP is faced with a unique barrier that would make it technically impossible or financially unreasonable to implement the expectations or requirements listed above within the time frames provided, that ISP can file an application to obtain an extension from the Commission. However, the ISP is required to provide detailed evidence and rationale demonstrating that the burden it faces is unreasonable.

⁵⁷ For the purpose of this decision, a “small business” is defined as a business whose average monthly telecommunications bill is under \$2,500.

Digital literacy

Positions of parties

242. Individual Canadians, consumer groups, and provincial governments submitted that Canadians require not only access to broadband Internet access services, but also the knowledge of how to participate in the digital landscape so that they can benefit as much as possible from what it offers. Some provincial governments indicated that they have introduced digital literacy programs.
243. Parties such as the Cree Nation/ECN, the FMCC, MediaSmarts, and the NBDC proposed that the Commission establish a fund for digital literacy initiatives. Dr. Michael McNally and Dr. Dinesh Rathi proposed that the Commission develop a national digital literacy strategy and a series of programs in conjunction with Employment and Social Development Canada.
244. TSPs indicated that they are not well-equipped to address digital literacy, and that this issue would best be addressed by governments.

Commission's analysis and determinations

245. The Commission acknowledges that a gap in digital literacy skills is a factor that can contribute to limiting consumers' ability to participate in the digital economy and society, and that closing this gap would maximize the potential benefits for Canadians. However, responsibility for the issue of digital literacy is not within the Commission's core mandate. Multiple stakeholders are involved in the digital literacy domain, and additional coordination among these stakeholders is necessary to address this gap.
246. For example, in the context of the action area of competing in a digital world under the Innovation Agenda, the Government of Canada is seeking input on innovative ways to develop stronger digital literacy skills among Canadians. The Commission looks forward to the findings of the Government of Canada's public engagement efforts and the resulting plan.

Data collection and monitoring

Positions of parties

247. Many parties submitted that the Commission should continue to monitor the availability of broadband Internet access services, and suggested improvements in the collection and reporting of related information.
248. Some parties, such as the AAC, the CMCRP, and the FRPC, suggested that the Commission should collect and make available additional information on broadband Internet access service affordability and use.
249. Other parties, such as the Canadian Cable Systems Alliance Inc. (CCSA), the Canadian Network Operators Consortium Inc. (CNOC), and TekSavvy, argued that there is a lack of information on the availability of transport services, such as

interexchange private line and dark fibre services. These parties also argued that in some areas of the country, there is insufficient competition for these services, and that the Commission should therefore review its forbearance frameworks for these services.

Commission's analysis and determinations

250. The Commission intends to closely monitor the availability and affordability of broadband Internet access services, including progress towards achieving the broadband portion of the universal service objective. The Commission will therefore expand its data collection process, as appropriate, to improve its ability to monitor the evolution of broadband Internet access service availability and offerings. Under the Act, the Commission has the authority to collect information from, among others, Canadian carriers and non-carriers. The Commission will also collaborate with federal, provincial, and territorial governments to collect data on broadband Internet access service availability.
251. With respect to transport services, investment in transport facilities will be required in rural and remote areas to achieve the broadband portion of the universal service objective. There is insufficient evidence on the record of this proceeding to determine all areas of the country where there is a lack of transport capacity. There are also, potentially, alternative suppliers of transport facilities in rural and remote areas, such as hydro-electric companies that have fibre facilities.
252. Therefore, the Commission will perform a fact-finding exercise to collect more information on the availability of transport services to underserved areas, and will not re-examine the forbearance frameworks for these services at this time.

Policy Direction

253. The Policy Direction states that the Commission, in exercising its powers and performing its duties under the Act, shall implement the policy objectives set out in section 7 of the Act, in accordance with paragraphs 1(a), (b), and (c) of the Policy Direction.
254. The issues under consideration in this decision relate to the provision of basic telecommunications services, which Canadians require to participate in the digital economy, and whether new or modified regulatory measures are required in this regard. Therefore, subparagraphs 1(a)(i) and (ii),⁵⁸ as well as subparagraphs 1(b)(i), (ii), and (iii),⁵⁹ of the Policy Direction apply to the Commission's determinations in this decision.

⁵⁸ Paragraph 1(a) states that the Commission should (i) rely on market forces to the maximum extent feasible as the means of achieving the telecommunications policy objectives, and (ii) when relying on regulation, use measures that are efficient and proportionate to their purpose and that interfere with the operation of competitive market forces to the minimum extent necessary to meet the policy objectives.

⁵⁹ Paragraph 1(b) states, among other things, that the Commission, when relying on regulation, should use measures that satisfy the following criteria, namely, those that (i) specify the telecommunications policy objective that is advanced by those measures and demonstrate their compliance with [the Policy Direction],

255. Consistent with subparagraph 1(a)(i) of the Policy Direction, the Commission has relied on market forces to the maximum extent feasible in making its determinations in this decision. For example, the Commission will establish a targeted broadband funding mechanism that will provide subsidy subject to certain conditions and only in underserved areas that are uneconomic to serve.
256. Consistent with subparagraph 1(a)(ii) of the Policy Direction, the regulatory measures approved in this decision are efficient and proportionate to their purpose, and minimally interfere with market forces. In particular, the broadband funding mechanism is narrow in scope, and will replace, over time, the local voice service subsidy. The broadband fund will complement – and not replace – existing and future private sector investments and government funding within the broader funding ecosystem.
257. In compliance with subparagraph 1(b)(i) of the Policy Direction, the policy objectives set out in paragraphs 7(a), (b), (c), (f), (g), and (h) of the Act⁶⁰ are advanced by the regulatory measures established in this decision. The determinations in this decision – particularly with respect to the establishment of a universal service objective and a broadband funding mechanism – are consistent with the objective of responding to the economic and social requirements of users, and the objective that Canadians in both urban and rural areas have access to reliable and affordable telecommunications services of high quality.
258. Consistent with subparagraph 1(b)(ii) of the Policy Direction, the regulatory measures established in this decision, for example, using a competitive process to distribute funding, will neither deter economically efficient competitive entry into the market nor promote economically inefficient entry.
259. Finally, consistent with subparagraph 1(b)(iii) of the Policy Direction, the regulatory measures that are not of an economic nature are, to the greatest extent possible, symmetrical and competitively neutral. For example, with respect to persons with disabilities, the Commission requires all WSPs to offer specific services and take measures to publicize these services. In addition, the Commission requires all ISPs

(ii) if they are of an economic nature, neither deter economically efficient competitive entry into the market nor promote economically inefficient entry, and (iii) if they are not of an economic nature, to the greatest extent possible, are implemented in a symmetrical and competitively neutral manner.

⁶⁰ The cited policy objectives are as follows: 7(a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions; (b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada; (c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications; (f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective; (g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services; and (h) to respond to the economic and social requirements of users of telecommunications services.

to take measures to improve customer awareness of the following aspects of their retail fixed broadband Internet access services: (i) the terms and conditions of their service contracts, and (ii) their data usage.

Secretary General

Related documents

- *Final 2016 revenue-percent charge and related matters*, Telecom Decision CRTC 2016-473, 2 December 2016
- *Review of wholesale wireline services and associated policies*, Telecom Regulatory Policy CRTC 2015-326, 22 July 2015, as amended by Telecom Regulatory Policy CRTC 2015-326-1, 9 October 2015
- *Review of basic telecommunications services*, Telecom Notice of Consultation CRTC 2015-134, 9 April 2015, as amended by Telecom Notices of Consultation CRTC 2015-134-1, 3 June 2015; 2015-134-2, 22 December 2015; 2015-134-3, 14 January 2016; 2015-134-4, 9 March 2016; and 2015-134-5, 28 April 2016
- *Regulatory framework for wholesale mobile wireless services*, Telecom Regulatory Policy CRTC 2015-177, 5 May 2015
- *Bell Canada and Bell Mobility Inc. – Further proposals for the use of deferral account funds to improve access to telecommunications services for persons with disabilities*, Telecom Decision CRTC 2014-527, 8 October 2014
- *Northwestel Inc. – Regulatory Framework, Modernization Plan, and related matters*, Telecom Regulatory Policy CRTC 2013-711, 18 December 2013
- *The Wireless Code*, Telecom Regulatory Policy CRTC 2013-271, 3 June 2013
- *Regulatory framework for the small incumbent local exchange carriers and related matters*, Telecom Regulatory Policy CRTC 2013-160, 28 March 2013
- *Obligation to serve and other matters*, Telecom Regulatory Policy CRTC 2011-291, 3 May 2011, as amended by Telecom Regulatory Policy CRTC 2011-291-1, 12 May 2011
- *Review of the Internet traffic management practices of Internet service providers*, Telecom Regulatory Policy CRTC 2009-657, 21 October 2009
- *Accessibility of telecommunications and broadcasting services*, Broadcasting and Telecom Regulatory Policy CRTC 2009-430, 21 July 2009, as amended by Broadcasting and Telecom Regulatory Policy CRTC 2009-430-1, 17 December 2009

- *Framework for forbearance from regulation of retail local exchange services in the serving territories of the small incumbent local exchange carriers*, Telecom Regulatory Policy CRTC 2009-379, 23 June 2009
- *Price cap framework for large incumbent local exchange carriers*, Telecom Decision CRTC 2007-27, 30 April 2007
- *The Canadian revenue-based contribution regime*, Telecom Circular CRTC 2007-15, 8 June 2007
- *Price cap regulation for Northwestel Inc.*, Telecom Decision CRTC 2007-5, 2 February 2007
- *Forbearance from the regulation of retail local exchange services*, Telecom Decision CRTC 2006-15, 6 April 2006, as varied by Order in Council P.C. 2007-532, 4 April 2006
- *Regulatory framework for the small incumbent telephone companies*, Decision CRTC 2001-756, 14 December 2001
- *Restructured bands, revised loop rates and related issues*, Decision CRTC 2001-238, 27 April 2001, as amended by Decisions CRTC 2001-238-1, 28 May 2001; and 2001-238-2, 7 August 2001
- *Industry Consensus Reports submitted by the Contribution Collection Mechanism (CCM) Implementation Working Groups*, Order CRTC 2001-220, 15 March 2001
- *Changes to the contribution regime*, Decision CRTC 2000-745, 30 November 2000
- *Telephone service to high-cost serving areas*, Telecom Decision CRTC 99-16, 19 October 1999

Appendix 1 to Telecom Regulatory Policy CRTC 2016-496

Eligibility and assessment criteria – Preliminary view

Eligibility criteria

Eligible recipients

Eligible recipients will be required to meet the following criteria:

- be legal entities, incorporated in Canada, that already operate or intend to operate broadband infrastructure. These include private sector companies; provincial, territorial, regional, municipal, and First Nations entities; and non-profit organizations. Individuals and federal entities (including Crown corporations) are not eligible.
- demonstrate experience in deploying and operating broadband infrastructure. If the entity does not itself have a track record in operating broadband infrastructure, it must demonstrate that it has appropriate resources with experience deploying and operating broadband infrastructure as part of its project team or contractual resources.
- demonstrate solvency and reliability through supporting documentation.

Eligible costs

Terrestrial component of the fund

Eligible costs will include costs associated with activities such as engineering and design, environmental scans and assessments, as well as the purchase and installation of equipment and infrastructure (including the provisioning of backhaul capacity and other one-time access-driven costs).

These eligible costs will include, for example,

- equipment costs, including the costs of servers, switching and transmission equipment, fibre-optic cable, repeaters, radio and microwave equipment, towers, poles, shelters and enclosures, backup power supplies, and network broadband connectivity devices including upgrades and adaptations;
- material costs associated with the set-up and performance of the proposed project;
- labour costs, including the one-time costs associated with the engineering and installation of capital equipment, network deployment, and service provisioning;
- labour-related travel costs, such as those associated with engineering, installation, network deployment, and service provisioning, considered on a case-by-case basis; and
- other direct costs associated with the project start-up.

Satellite component of the fund

For satellite-dependent communities, eligible costs are the costs associated with improving the speed, capacity, and quality of broadband Internet access services in the community. These eligible costs will include those listed above, as well as satellite capacity and equipment costs, such as the portion of the direct purchase or lease of bandwidth or capacity, modems, satellite links, and any other costs directly related to building and maintaining earth stations.

Assessment criteria

Applications will be assessed based on the following factors, with a view to minimizing, if possible, overlaps in multiple projects and overbuilding existing coverage:

- Speeds – Applications will be given more weight the greater the expected improvement in download and upload speeds for the community’s broadband Internet access services (measured in Mbps).
- Capacity – Applications will be given more weight the greater the expected improvement in data transfer capacity per household in the community (measured in GB).
- Quality of service – Applications will be given more weight the greater the quality of service that can be provided to customers in terms of latency, jitter, and packet loss.
- Government funding – Applications will be given more weight the greater the level of financial contribution of the total project costs from a government entity.
- Private investment – Applications will be given more weight the greater the level of financial contribution of the total project costs from private investment.
- Scalability – Applications will be given more weight the greater the capacity of the proposed project to do the following over a five-year period after project completion: (i) provide higher speeds, (ii) provide increased network capacity, (iii) expand to serve more clients (households and businesses) within the proposed project area, and (iv) expand to serve a larger area.
- Wholesale access – Applications will be given more weight if wholesale access to elements of the network is proposed.
- Mobile coverage – Applications will be given more weight if mobile wireless coverage in addition to fixed broadband Internet access service is proposed.
- Timeliness of project rollout – Applications will be given more weight the earlier the proposed completion dates.
- Service coverage – Applications will be given more weight the more households and businesses served and the greater the geographic area covered.

- Coverage density – Applications will be given more weight the greater the proportion of underserved households and businesses within the proposed project area.
- Cost per household – For the terrestrial component, applications will be given more weight the lower the cost per household.
- Sustainability – Applications will be given more weight the greater the potential of the proposed project to support long-term use of the network (as demonstrated in the operations plan, subscriber estimates, financial forecast, and technology solution).
- Pricing – Applications will be given more weight the lower the monthly price for subscribers for a broadband Internet access service plan that includes a higher data transfer.

Appendix 2 to Telecom Regulatory Policy CRTC 2016-496

Project management function – Preliminary view

Role of the third-party administrator

The third-party administrator will be governed by a board of directors and will have full independence from any recipients of the broadband fund (such as ISPs). The board will ensure that all activities are conducted in full compliance with the terms of its agreement with the Commission and all applicable laws, rules, and regulations.

Specifically, the responsibilities of the third-party administrator for this function will include the following:

- administering the application process;
 - producing an application guide for Commission approval;
 - receiving applications; and
 - communicating with applicants and parties that may be interested in applying.
- screening and assessing applications;
 - developing assessment tools (such as an assessment grid) for Commission approval;
 - screening applications by applying the Commission's eligibility criteria (such as those outlined in Appendix 1);
 - assessing the merits of eligible applications using the Commission's weighted criteria (such as those outlined in Appendix 1);
 - providing to the Commission a list of eligible applications, including projects recommended for funding; and
 - demonstrating how, and to what extent, the projects recommended for funding meet the Commission's eligibility and assessment criteria.
- managing funding agreements;
 - preparing funding agreements;
 - communicating with the third-party administrator for the accounting function, as required, regarding the schedule of payments and any hold-back payments; and
 - reviewing fund recipients' interim, annual, and final performance reports, including results data, to ensure that contribution agreements are fulfilled.

- conducting activities related to accountability; and
 - filing with the Commission an annual report containing a budget and audited financial statements; and
 - co-operating fully with the fairness monitor engaged by the Commission.
- reporting results.
 - collecting data from fund recipients and sharing it with the Commission, taking into account commercial sensitivity as appropriate; and
 - monitoring and filing annual public reports on the performance of the broadband fund.

Role of the Commission

As stated in the decision, the Commission will retain oversight of the fund, approve the projects to be funded, and appoint a fairness monitor.

The Commission's responsibilities for the project management function will include the following:

- establishing the complete terms and conditions of the fund and approving any amendments to these terms and conditions, which may be proposed by the third-party administrator;
- approving the application guide produced by the third-party administrator;
- approving assessment tools to be used by the third-party administrator;
- reviewing the third-party administrator's recommendations of projects to be funded; and
- developing a performance measurement strategy for the fund, including developing performance measures and indicators, the supporting data requirements, and a data collection strategy.

Accounting function – Preliminary view

Role of the third-party administrator

The third-party administrator for this function will be responsible for collecting contributions from TSPs and remitting payments to the successful applicants. This administrator will be governed by a board of directors, which may include fund recipients, such as ISPs, given that the administrator will make no recommendations or decisions with respect to funding.

Specifically, the responsibilities of the third-party administrator for the accounting function will include the following:

- implementing Commission-approved decisions with respect to its operating procedures and the contribution pay-in rate;
- maintaining the system used by TSPs to report their revenue information;
- collecting monthly revenue information from TSPs;
- collecting contributions from TSPs;
- making payments to fund recipients based on the schedule set out by the administrator for the project management function; and
- conducting an annual review of its systems and processes to ensure that it has followed Commission-approved procedures.

Role of the Commission

The Commission's responsibilities for the accounting function will include the following:

- approving the procedures for this function;
- determining the revenue-percent charge contribution pay-in rate on an annual basis;
- determining the allowable deductions within the contribution regime; and
- performing other related tasks, such as reviewing TSPs' annual contribution-eligible revenue reports.