Telecom Notice of Consultation CRTC 2015-134

Review of Basic Telecommunications Services

Intervention of the First Mile Connectivity Consortium

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Executive Summary

E1. This document constitutes the intervention of the First Mile Connectivity Consortium (**FMCC**) to Telecom Notice of Consultation CRTC 2015-134 *Review of basic telecommunications services.*

E2. The First Mile Connectivity Consortium (FMCC) is an incorporated independent not-for-profit national association. Our members are First Nations Internet service providers – what we call “community intermediary organizations.” Our associate members are university and private sector researchers and others interested in Indigenous and community communications and telecommunication services for the public good. Our work focuses on innovative solutions to digital infrastructure and services with and in rural and remote communities.

E3. In this intervention, we provide evidence demonstrating that the existing model for ensuring that telecommunications services are available and affordable in rural, remote, and northern areas has fallen short of the needs of community members, and must be improved.

E4. In order to remedy the problems that are laid out below, we argue that the Commission needs to take a new approach. This new approach will involve a number of elements.

E5. The Commission must empower local organizations in rural, remote, and northern communities to establish, manage, and operate telecommunications infrastructures and services in their own communities. We argue that community intermediary organizations, and best placed to ensure that their areas are well served.

E6. The Commission must classify broadband as a basic telecommunications service. Broadband telecommunications services are necessary for full participation in modern society.

E7. The Commission must ensure that broadband services are available to all Canadians, including those who live in rural, remote, and northern areas, and also low income Canadians across the country.

E8. Service pricing must be affordable. Basic telecommunications services available in rural, remote, and northern areas must also be of high quality, and digital literacy skills must be promoted, both for consumers and in terms of local management and operation of telecommunications infrastructures and services.

E9. Regardless of the underlying technology service providers use to deploy these services, the Commission must ensure that they are affordable and of high quality.

E10. The Commission should take measures to ensure that its targets are being met by monitoring service providers’ progress. This requires placing a particular emphasis on service providers who receive subsidies. The Commission can expand upon existing

monitoring initiatives by working with communities and groups such as the Canadian Internet Registry Association (**CIRA**) and the FMCC.

E11. The Commission must recognize that market forces, even under the existing subsidy regime, are not meeting the needs of rural, remote, and Northern communities. The Commission should therefore expand the subsidy regime in a number of ways.

E12. We propose a new approach to subsidy mechanisms for telecommunications in Canada's rural, remote, and northern regions. This approach consists of the establishment of a new funding mechanism: the Northern Infrastructure and Services Fund (**NISF**).

E13. A mechanism should be established to fund transport infrastructure to connect communities. At present, transport represents an expensive bottleneck that stands in the way of access to modern communications for rural, remote, and Northern Canadians.

E14. For local service, instead of simply providing more subsidies directly to incumbent providers who have not lived up to their existing obligations, the CRTC should give community-owned and -operated groups a voice in how subsidies are allocated and spent.

E15. Additionally, the subsidy regime should be expanded beyond Northwestel's service area to encompass similarly isolated areas and communities in the northern regions of the provinces including Nunatsivik and Nunatsiavut.

E16. Considering our recommendation that the basic service objective be expanded to include broadband, and due to the shrinking revenues of traditional wireline telecommunications services, we recommend that retail Internet service revenues be made eligible for contribution to the Commission's subsidy regime.

E17. The NISF should be administered by an accountable, independent organization that includes representation from communities, and undertakes ongoing consultation with communities.

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Background

The First Mile Connectivity Consortium (FMCC) is an incorporated independent not-for-profit national association. Our members are First Nation Internet service providers – what we call "community intermediary organizations." Most of these organizations provide broadband infrastructures and services to rural, remote, and northern communities. Our associate members are university and private sector researchers and others interested in Indigenous and community communications and telecommunication services for the public good. Our work focuses on innovative solutions to digital infrastructure and services with and in rural and remote communities. We have a breadth and depth of understanding of the challenges and issues related to service provision in rural, remote and northern communities, as evidenced by the firsthand experience of many of our members and by more than 25 peer-reviewed journal publications from our associated research project, First Nations Innovation.[1]

2. In this intervention, the FMCC represents the following First Nations organizations, (listed geographically from the Western to the Eastern regions of Canada):

- First Nations Technology Council (B..)
- First Nations Technical Services Advisory Group (Alberta)
- Assembly of Manitoba Chiefs (Manitoba)
- First Nations Health and Social Secretariat of Manitoba (Manitoba)
- Keewaytinook Okimakanak K-Net Services (Ontario)
- Keewaytinook Okimakanak Research Institute (Ontario)
- Eeyou Communication Network (Quebec)
- First Nations Education Council (Quebec)
- Atlantic Canada First Nations Help Desk (Atlantic Canada)

3. The FMCC has contributed to past CRTC interventions on behalf of our members. In 2013, we filed an intervention in Telecom Notice of Consultation CRTC 2012-669 *Review of Northwestel Inc.'s Regulatory Framework, Modernization Plan, and related matters* (**TNC 2012-669**) outlining our positions on digital infrastructure and services in the remote and northern Aboriginal communities where our members operate. In 2014 we contributed to the Broadcasting Notice of Consultation CRTC 2014-190 *Let's Talk TV* (**BCN 2014-190)** to argue for the need to consider digital infrastructures when regulating broadcasting content. We also filed evidence regarding issues of cost and the provision of services by community intermediary organizations in Telecom Notice of Consultation CRTC 2014-44 *Appointment of an Inquiry Officer to review matters related to transport services provided by satellite* **(TNC 2014-44).** We now respectfully submit the following intervention concerning Telecom Notice of Consultation CRTC 2015-134 *Review of basic telecommunications services* **(TNC 2015-134)**.

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[1] See: First Nations Innovation. http://fn-innovation-pn.com; publications at: http://fni.firstnation.ca

4. The FMCC aims to expand the language of “consumer” beyond “resident” and “household” to also include “community members,” “communities”, and “community service organizations.” People living in remote and rural communities are active agents of change who are transforming their communities through their development and effective use of telecommunication services.

5. The FMCC organization focuses on small, remote and rural communities, First Nations, and northern service providers. Many of these communities have populations of 500 people with 60 or 70 “households” -- or are even smaller. These are the communities “at the end of the road,” if indeed there even is a road — in the remote North, these communities have no road access. Large, profit-oriented telecommunications companies ignore these communities in their development plans because the communities are too far from their existing backbone networks, and/or have too small a customer base to justify investments in infrastructure and services.

6. These communities are also too small to have a strong voice in the telecommunications sector and the regulatory and policy frameworks that guide its operations. They lack the resources and capacity to ensure that their real needs are included in plans and projects for telecommunications development by government agencies and service providers located in far-off urban centres. Even when these communities are included in the initial planning phase of a project, if the project faces construction and/or operational challenges, or public subsidies are exhausted, they once again remain unserved or underserved. FMCC provides a voice for these communities and advocates in regulatory and policy forums to ensure that they are heard.

7. FMCC members contend that for too long, the emphasis on 'household' and 'residential' consumers has been used by private sector telecommunications providers to access millions of dollars of public funding without delivering long-term, sustainable, adequate services and infrastructures in these communities. The 2011 *Arctic Communications Infrastructure Assessment Report* notes that telecommunication markets in remote and Northern regions reflect competition for subsidies rather than for customers.[2] Too often, public funding is provided to private corporations that install outdated infrastructures to deliver inadequate services in regions that lack a business case for major investment.

8. It is generally not feasible for private sector providers to build infrastructure and operate services in these difficult-to-serve regions without ongoing subsidies. Furthermore, these projects result in little to no economic development capacity developed among community members in these regions – instead, they continue to rely on services delivered by urban-based telecommunications providers. These results fall short of the long-term, sustainable needs of community members for modern, reliable, and affordable telecommunications services and facilities.

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[2] Imaituk. (2011). *A Matter of Survival: Arctic Communications Infrastructure in the 21st Century*. Ottawa: Northern Communications & Information Systems Working Group. Retrieved from: http://www.aciareport.ca/resources/acia_full-v1.pdf Page 170.

9. The FMCC's goal is to make the CRTC aware of this unsustainable model. We encourage the Commission to replace it with a different approach that provides long-term benefits to members of rural and remote communities and the intermediary organizations that they have established. Instead of simply providing more subsidies directly to incumbent providers, the CRTC should give groups located in these communities a voice in how subsidies are allocated and spent.

10. We propose a new approach to subsidy mechanisms for telecommunications in Canada's rural, remote, and Northern regions that will ensure that people living in these communities can access the telecommunications services and infrastructures that they require to be contributing members of the emerging digital economy. Our new approach consists of the establishment by the Commission of a new funding mechanism for organizations that provide infrastructure and services to these community members, and the licensing of an independent organization that is accountable to them to distribute that funding in a transparent and accountable manner. We term this new approach: the **Northern Infrastructure and Services Fund (NISF)**.

11. Section 7 of the *Telecommunications Act* sets out the objectives of Canadian telecommunications policy, and section 47 gives the Commission its mandate to fulfil those objectives, which include:

    - facilitating the development of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;
    - rendering reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada; and
    - responding to the economic and social requirements of users of telecommunications services.[3]

12. This proceeding represents an opportunity for the Commission to address the longstanding problems facing those Canadians living in rural, remote and Northern regions who still do not have access to the basic telecommunications services they require. Our submission identifies these requirements, provides criteria for services, and proposes innovative solutions for meeting these needs through a new approach to subsidies managed by the Northern Infrastructure and Services Fund.

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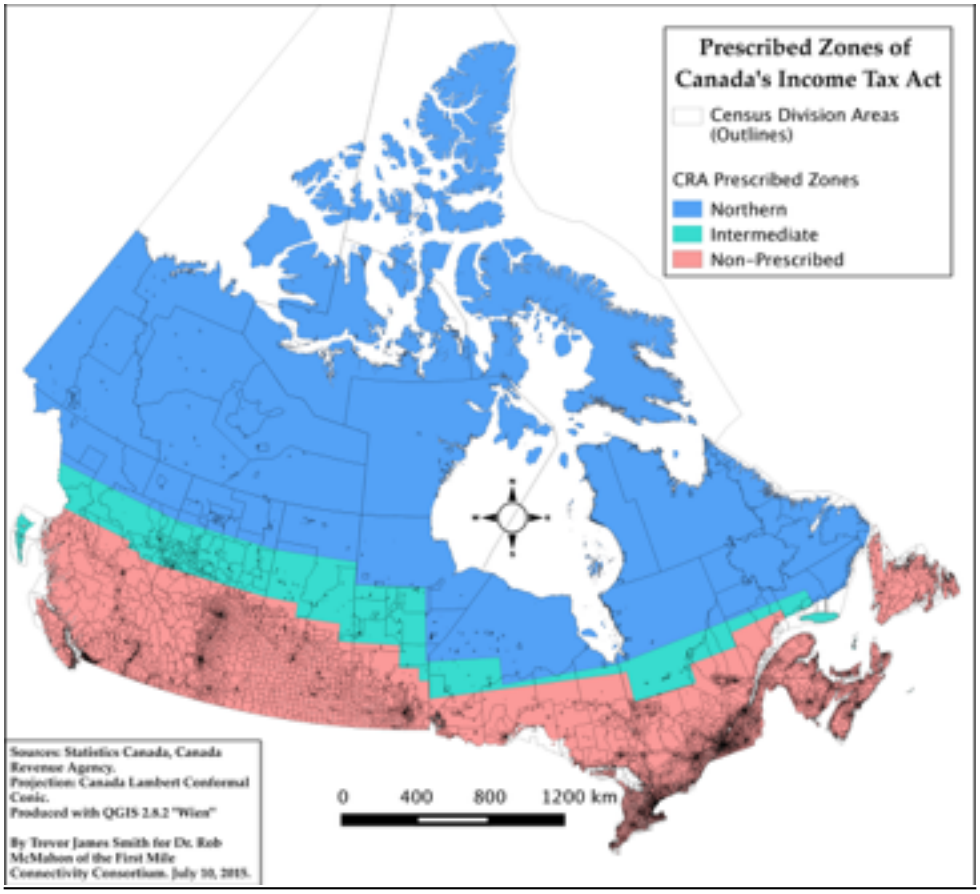
[3] Canada, *Telecommunications Act.* S.C. 1993, c. 38. §7, emphasis added.

Introduction

13. In this intervention, we represent small, dispersed, remote and Northern communities served by our member organizations. These regions are illustrated in the blue sectors of Map 1 below,[4] which approximates Canadian Revenue Agency's Northern and Intermediate zones but also resembles a boundary embraced by the Northern Development Minister's Forum. It also draws on the northern boundaries used by the Centre for the North in its 2013 report on Northern Connectivity. Importantly, this map illustrates that the northern regions of provinces - and not just territories - are areas of concern for our members. Despite their diversity, these areas face similar challenges, including access and affordability gaps to telecommunications services including broadband, in part because they lack the conditions to support a feasible business case. For this reason, over the years people in these regions have established community intermediary organizations to provide telecommunications services and infrastructures - including broadband.

MAP 1: Regions of concern to First Mile Connectivity Consortium



[4] The map is drawn from CRA's Income Tax Act's geographic coordinates for prescribed zones (CRC c. 945, s. 7303.1(1) and (2) (http://laws-lois.justice.gc.ca/eng/regulations/c.r.c._c._945/page-161.html) overlaying a shapefile of provinces and territories from StatsCan.

14. To introduce our intervention, we present the case of **Natuashish** (the former Davis Inlet) in northern Labrador. This community provides a poignant illustration of the challenges faced in many of the rural, remote, northern and Indigenous communities where FMCC member organizations operate. Given the environmental, social and economic challenges faced by its community members, the federal government relocated Natuashish from its former site in Davis Inlet. However, since broadband is not now considered a basic service, public and community service organizations in the new community were not provided with sufficient connectivity. Industry Canada's most recent program *Connecting Canadians* includes a download benchmark of 5Mbps to the home – but at present community services in Natuashish can access only a shared 1.5 Mbps service. Without the ability to develop and manage connectivity through a local community network, Natuashish losing out on a host of economic, education, health and other community development opportunities. In short, for Natuashish and similar communities, government funding programs like *Connecting Canadians* focus on residential customers, but effectively ignore the economic development opportunities and broadband-enabled public services that can help members of communities in these regions to overcome the challenges of geographic isolation.

15. Broadband-enabled public services - from distance education and telehealth to tele-justice and online government services - benefit remote and rural communities to a much greater extent than urban communities where the services exist locally. Now, however, these isolated communities do not have access to the telecommunications services they require. Recent programs such as the funding set aside by Industry Canada for that purpose focus on household and residential connectivity which is important but not sufficient for these community members.

16. This story is not unique, and in fact is reflected in many past telecommunications developments in the three northern territories and the northern regions of the provinces illustrated in the map above. A similar outcome to Natuashish emerged before the advent of digital infrastructure and services in the First Nations of Keewaywin, North Spirit Lake and Slate Falls in northwestern Ontario. For 25 years, members of those communities could only access a single pay phone per community. It was not until they took control and raised funds to distribute to community intermediary organizations and local service providers, that their communities gained access to broadband-enabled telecommunications services including voice-over-IP phones and videoconferencing.

CRTC Q1a: Canadians are using telecommunications services to fulfill many social, economic, and cultural needs in today's digital economy. Explain how telecommunications services are used to meet these needs. For example, uses may include e-commerce (i.e. the online purchase and trade of products or services), e-banking and/or telephone banking, e-health or telehealth services, telework, and distance education. Which of these uses of telecommunications services are the most important to ensure that Canadians meaningfully participate in the digital economy?

Response to Q1a: Social, economic, & cultural uses for telecommunications services

17. Canadians require access to public services including health, education, governance and many others to participate meaningfully in a wide range of social, economic and cultural activities. In the emerging network society, these services are increasingly delivered through digital applications and infrastructures. High-speed, affordable broadband has therefore been described as a foundation stone of modern society.[5]

18. All Canadians – including those who live in rural, remote and Northern regions – use telecommunications services to fulfill social, economic and cultural needs. Most isolated and remote communities lack local access to services such as hospitals, high schools, or banks, which makes their infrastructure needs particularly pressing. For example, broadband is increasingly important for education as students and teachers are using digital learning resources, schools are being required to conduct standardized tests online, and are increasingly adopting online textbooks, teachers are taking professional development courses online, and colleges and universities are offering distance education via the web and by videoconferencing.

19. To illustrate these applications, consider the work of KNET, one of our members, which develops and supports broadband-enabled First Nation community services. Two of the most notable examples are the Keewaytinook Internet High School (KiHS) and KO Telemedicine (KOTM). KOTM, the only tele-health network managed and operated by Aboriginal people in Canada, provides services in First Nations across northwestern Ontario. KiHS was the first accredited First Nations digital school in Canada, and began delivering online courses in 2000. It has since expanded into a network of more than a dozen high school classrooms located in remote First Nations in Ontario's far north. To support these 'anchor tenants', KNET gains revenues from government departments that pay to use the network for services like KOTM and KiHS.

20. Training opportunities for many jobs are also available online. All these educational services and resources provide valuable opportunities for isolated community members of all ages. However, these services require affordable and reliable access to broadband.

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[5] United Nations Broadband Commission (2015). *The State of Broadband 2014: Broadband for All*. Available at: http://www.broadbandcommission.org/Documents/reports/bb-annualreport2015.pdf.

21. The CRTC and many parties in past interventions have noted that reliable and affordable telecommunications services are critical for social and economic development. In TNC 2012-699, BNC 2014-190 and TNC 2014-44, we provided evidence of how individuals and communities in rural and remote regions are using telecommunications to drive their own economic and community development. Members of the FMCC provide many innovative examples of these initiatives, such as e-communities, technology in schools, technology training, telemedicine, health data management, and social networking, which are available on our website.[6]

22. These examples illustrate how telecommunications services are cross-sector enablers that support a range of social, economic and cultural needs. The specific uses of telecommunications services are best determined by members of communities and their representative organizations. Priorities assigned to the uses of telecommunications differ across communities and regions: for example, a priority for Kuujjuaq in northern Quebec may be different for Slate Falls, Ontario. It is therefore imperative to obtain direct and ongoing input from communities and the intermediary organizations.

23. Broadband networks and technologies are malleable: they are constantly and rapidly evolving as people and communities adapt them to their specific needs. Instead of determining the uses of telecommunications services before the fact, in this proceeding the Commission should instead focus on ensuring that those services are available and affordable to all citizens. The best way for the Commission to do this is to support and encourage community members and their representative intermediary organizations to articulate their needs to service providers and technical experts. This is the perspective advanced by the concept of the 'First Mile', which explores ways to ensure that telecommunications development emerges from communities and enables them to meet their self-determined needs.

24. The position advanced by the FMCC is consistent with the *Telecommunication Act's* policy objectives "to promote the ownership and control of Canadian carriers by Canadians" and "to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services."[7]

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[6] See: http://meeting.knet.ca/mp19/mod/data/view.php?d=31 for more information.

[7] Canada, *Telecommunications Act.* S.C. 1993, c. 38. §7(d) & 7(g), emphasis added.

CRTC Q1b: Explain which telecommunications services are most important to support these needs and uses. What characteristics (e.g. capacity, mobility, high-speed, and low latency) should these telecommunications services have?

Response to Q1b: Telecommunications services and their characteristics

25. Community members and their organizations are in the best position to determine the characteristics of the telecommunications infrastructures and services that will best meet their needs. The Commission should therefore empower community members and their organizations to contribute to such decisions. This follows the *e-Community Strategy* articulated by the Assembly of First Nations and presented to the Commission in the FMCC's past interventions (e.g. interventions of FMCC and K'atl'odeeche First Nation in TNC 2012-669).

26. That said, in general the members of these communities require sufficient capacity, speed, and low latency to provide a range of services including online banking, e-health, telemedicine, e-commerce, distance education, and e-government services.[8] This ensures that community members will have the same access to the essential public and commercial services available to urban Canadians. As we have pointed out, online access to these services is perhaps more important to rural and remote community members because they lack the availability and range of services (healthcare, education, food, supplies, etc.) found in urban areas.

27. Certain basic telecommunications services are required for all Canadians. Therefore the Commission must ensure that a minimum Basic Service is in place for all people living in Canada, regardless of their physical location. We expand our definition of what this 'Basic Service' should include later in this intervention. In the 2010 report *Putting the last-mile First: Re-framing broadband development in First Nation and Inuit communities*, we noted that communities require two distinct, but interrelated, components: Broadband Infrastructure and Connectivity.[9] At present, government agencies and funding programs sometimes conflate these two components and functions into a single concept of 'broadband connectivity'. For example, the First Nations Infrastructure Fund administered by Indian and Northern Affairs Canada (INAC) incorporated 'broadband connectivity' into its funding mandate. However, this Fund is primarily designed to support capital builds (Broadband Infrastructure), which can leave out consideration of ongoing network sustainability and broadband-enabled public and community service applications (Connectivity).

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[8] For examples of research on this topic, see the papers published through the First Nations Innovation project: http://fni.firstnation.ca

[9] McMahon, R., O'Donnell, S., Smith, R., Woodman Simmonds, J., Walmark, B. (2010) Putting the 'last-mile' first: Re-framing broadband development in First Nations and Inuit communities. Vancouver: Centre for Policy Research on Science and Technology (CPROST), Simon Fraser University, December. URL: http://firstmile.ca/wp-content/uploads/2015/04/2010-Putting-the-Last-Mile-First.pdf

28. Therefore, any consideration of broadband as a Basic Service must include support for both broadband infrastructure (i.e. the pipe into the community and distributed connectivity to all community buildings); and ongoing support to 'use' (e.g. monthly connectivity costs) and maintain (e.g. qualified, affordable, accessible technicians) those networks.

29. **Broadband Infrastructure** refers to the physical infrastructure that forms the core of a network. It includes the construction work and technology required to deliver connectivity to support broadband-enabled public and community service applications. Broadband infrastructure includes the following elements:

- Local First Mile networks, or community network infrastructure, delivered through wireless or fibre cables. These physical networks support community-based, broadband-enabled public and community service applications and can be owned and managed by the community.
- Backbone networks, delivered through terrestrial fibre or satellite. These physical networks are typically provided by private sector telecommunication companies, (with exceptions such as the Northern Indigenous Community Satellite Network (**NICSN**) and The Eeyou Communications Network/Réseau de Communications Eeyou (**ECN**). Local First Mile networks connect to these backbone networks to access most online applications.

30. A First Mile approach to Basic Service in the area of broadband infrastructure would provide support for First Nations and Inuit communities to:

- Build or upgrade the physical (local/First Mile and regional/backbone) broadband infrastructure required to serve each community's needs.
- Have the option to own and operate this physical (First Mile and backbone) broadband infrastructure.
- Receive equitable access to the full range of network services available in other parts of the country.

31. **Connectivity Services** refer to the abilities of community-based service providers to deliver the broadband-enabled public and community service applications made possible through broadband infrastructure. This includes the technical teams that manage the bandwidth that service providers require to do their work, and the operations and maintenance of the broadband infrastructure once it is in place. A First Mile approach to Basic Service in the area of connectivity would include support for communities to:

- Secure equitable access to technologies, funding and local capacity to support sustainable broadband-enabled public and community service applications, including tools for government, health, education, economic development, and culture and language.

- Build and operate an aggregated community network connectivity delivery model that enables access to affordable circuits and services, if that is the community's choice.
- Secure resources to support qualified, affordable, accessible local technical support services, accompanied with the development of local capacity, economic and employment opportunities.

32. The different ways that telecommunications services and infrastructures are developed and managed in communities has bearing on this question. For example, in our intervention to the Commission's satellite inquiry (TNC 2014-44), we distinguished between two types of network design:

    - A community-based model where a Point of Presence (PoP) to an external provider connects a locally-managed community network. This infrastructure model allows community members to set up a local or regional organization to manage and control telecommunications services. It both supports and enables economic development initiatives such as Internet Service Providers and/or data centres.
    - A decentralized residential consumer model that connects an external telecommunications provider directly to individual households. This infrastructure constrains the ability of local organizations to manage and develop services since it precludes the development of community-run networks, applications and services.

33. Community rather than household networking models allow community members to utilize telecommunication infrastructures and services as common resources that provide opportunities for the economic development initiatives that arise from local management, distribution and use of telecommunications services. This arrangement also involves partnerships with the telecommunications service providers from whom community organizations purchase equipment, bandwidth and other services and infrastructures. If community networks deliver telecommunications services to households and organizations in these regions, they can and do purchase bandwidth from existing telecommunications service providers — though sometimes at prices that make it difficult to deliver adequate Quality of Service (**QoS**) and speed to these consumers.

CRTC Q1c: Identify and explain the barriers that limit or prevent Canadians from meaningfully participating in the digital economy (e.g. availability, quality, price, digital literacy, and concerns related to privacy and security). Identify which segments of the Canadian population are experiencing such barriers.

Response to Q1C: Barriers to participation: availability, affordability, quality, digital literacy

34. Numerous barriers limit or prevent Canadians from meaningfully participating in the digital economy. Here we focus on barriers facing members of rural, remote, and Northern communities and their organizations. In our answer we consider issues of availability (in terms of access and affordability), quality, and digital literacy.

Availability

35. Availability includes both the access gaps and the affordability gaps that exist across Canada's regions and localities. The OECD has noted: "Broadband is viewed as an enabler of productivity and economic growth, but its impact on economies will depend on broadband being used by business and consumers, which requires access to broadband at low prices and good quality".[10]

36. The Commission has determined that clear access divides exist and persist between:

- communities in the north and communities in the south;
- communities within the North; and
- organizations and households within these communities.

37. A clear and persistent access gap exists between northern and southern Canada. The Commission's recent Satellite Inquiry (TNC 2014-44) determined that roughly 18,000 households in the three territories and the northern regions of the provinces lack access to broadband Internet service at the Commission's target speeds (cited in TNC 2015-134, para 30). The Commission also noted that terrestrial-served communities in rural and remote areas are facing challenges in achieving broadband targets (ibid, para 31).

38. According to the CRTC's most recent data, while the national average for household broadband availability at speeds greater than 5 Mbps was 95 percent in 2013, only 29 percent of households in Nunavut had access to broadband at speeds of 5 Mbps, and none had access to speeds faster than 9.9 Mbps.[11] Access to basic broadband was

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[10] OECD Communications Outlook 2009. Paris: OECD, 2009. Emphasis added.

[11] CRTC (2014). *Communications Monitoring Report 2014,* Ottawa: CRTC, October 2014. Tables 5.3.12 & 5.3.13

higher for members of the communities in the Yukon and Northwest Territories, but still fell short in comparison to the availability of higher speeds in any of the provinces.

39. The CRTC also launched an inquiry into satellite services that recently released its final report, providing additional evidence of access divides in the North (TNC 2014-44). The Satellite Inquiry Report stated that approximately 18,000 households in the three territories and the northern regions of the provinces lack access to broadband Internet service at the Commission's target speeds. The Commission also noted that terrestrial-served communities in rural and remote areas are facing challenges in achieving broadband targets.[12]

40. The Commission's findings in this area echo the findings of numerous reports issued in the past five years on connectivity in rural, remote and northern regions of Canada. These include the Arctic Communications Infrastructure Assessment[13] and a report on northern telecommunications and broadband connectivity published by the Conference Board of Canada's Centre for the North.[14]

41. In addition to the clearly defined north-south access gap, an access gap also exists between and within the many dispersed communities situated in the North. As outlined in the Satellite Inquiry Report, discrepancies persist between satellite-served and terrestrial-served communities. This gap is reflected for example in differential service levels within Northwestel's terrestrial serving area, seen for example between Hay River and K'atl'odeeche First Nation. The Commission's Satellite Inquiry Report notes that 89 communities rely on the community aggregator model of satellite service to access high-speed Internet. None of these communities meet the Commission's 5/1 Mbps target speeds, and 17 of these communities have available download speeds below 1.5 Mbps. As shown below on Map 2 (reproduced from the Satellite Inquiry Report), many of these communities are in the northern parts of the provinces and the populations of these communities are primarily Indigenous.

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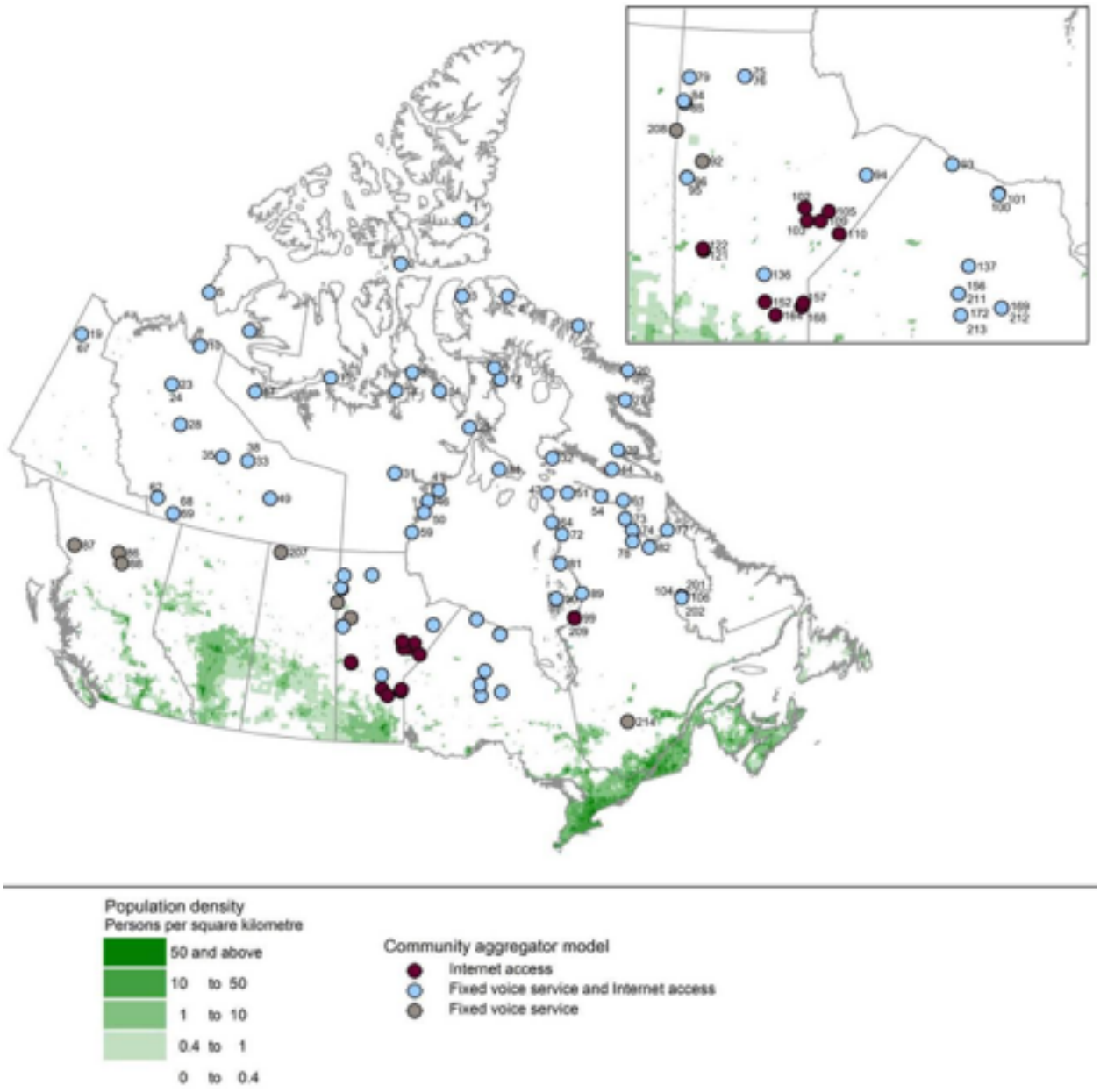
[12] CRTC (2014). *Satellite Inquiry Report*, Ottawa: CRTC, October 2014. Available at: http://www.crtc.gc.ca/eng/publications/reports/rp150409/rp150409.htm

[13] Imaituk. (2011). *A Matter of Survival: Arctic Communications Infrastructure in the 21st Century*. Ottawa: Northern Communications & Information Systems Working Group. Retrieved from: http://www.aciareport.ca/resources/acia_full-v1.pdf

[14] Fiser, A (2013). *Mapping the long-term options for Canada's North: Telecommunications and broadband connectivity.* The Conference Board of Canada. Available at: http://www.conferenceboard.ca/e-library/abstract.aspx?did=5654

Map 2: Communities served by Satellite using Community Aggregator Model



42. Within these communities, access divides exist among individual households, businesses and organizations. This highlights a last-mile – or in our terminology, First Mile – challenge. Access divides inside communities impact the ability of Northerners to utilize the telecommunications services required to participate in the emerging digital economy.

Affordability

43. Northern community members also face an affordability gap for telecommunications services. Benefits from broadband require high levels of adoption - not just availability. Regarding effective use of broadband infrastructure and services, there is no guarantee that 'if you build it, the users will come'. In contrast, affordability is recognized by regulatory institutions around the world as a key barrier to adoption and utilization of broadband. For example, in the U.S, the Federal Communications Commission (**FCC**) and the National Telecommunications and Information Administration have both noted the importance of affordability in closing digital divides. In 2013, the U.S. Department of Commerce noted that 28 percent of all households listed affordability as a reason for not using the Internet at home and that 62 percent of low-income households stated that affordability of Internet service was the primary deterrent to their home Internet use.[15]

44. Furthermore, affordability is a common barrier in remote, rural, and northern regions. Alaska – a region similar to the regions we highlight in this submission - has the lowest rural broadband adoption rate of any state. In 2012, Professor Heather Hudson directed a study at the Institution of Social and Economic Research (ISER) that involved interviews with 340 members of 65 remote Indigenous communities in Southwest Alaska where broadband service was soon to be installed. While there was general enthusiasm about broadband, the primary concern among the 45 percent of households who were not sure if they would sign up for broadband when it became available was cost – and specifically, monthly subscription and data overages or other charges.[16] Like their counterparts in the Canadian North, many Alaska Natives have only seasonal incomes or are not employed, and their cost of living is high. We therefore expect that concerns about pricing among Aboriginal community members in the Canadian North are similar to those of remote Alaskan residents.

45. A just-completed study by Professor Hudson undertaken after broadband was installed in this region of southwest Alaska found that pricing appears to be a significant barrier to adoption and utilization of software and services available over terrestrial broadband. Small businesses, governments, and Native organizations all stated that because of high prices, they must limit their use of broadband, and could not take advantage of some services that would be beneficial, including webinars and videoconferencing. The study concluded that investment in infrastructure alone was not sufficient if pricing was a barrier to usage: “Although broadband is now available, the problems of affordability

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[15] National Telecommunications and Information Administration & Economics and Statistics Administration (2013, June). *Exploring the Digital Nation: America’s Emerging Online Experience*. Washington, DC: U.S. Department of Commerce.

[16] “Toward Universal Broadband in Rural Alaska: Part 1: An Analysis of Internet Use in Southwest Alaska; Part 2: Literature Review.” Institute of Social and Economic Research, University of Alaska Anchorage, November 2012. Available at http://www.iser.uaa.alaska.edu/Publications/2012_11-TERRA.pdf

could result in an ongoing 'bandwidth divide'between rural and urban Alaska, and between rural Alaska and other parts of the U.S…."[17]

46. In northern Canada, a region where jobs are few and the cost of living is high, it is critical to meet the challenge of ensuring that telecommunications services are affordable. The central importance of addressing this challenge is enshrined in the *Telecommunications Act,* which states that rendering "reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada" is among the primary objectives of Canadian telecommunications policy.[18] Implementing this goal requires consideration of both the cost of services (including installation and activation fees, monthly charges and usage charges) and the ability of community members to pay for them, as measured by cost of living statistics in the North.

Monthly Charges

47. The CRTC's most recent *Communications Monitoring Report* confirms the alarming situation that residents in most southern urban centres can choose between four to seven service providers who offer 5 Mbps broadband Internet access service at prices as low as $25 per month (up to a maximum of $72 per month), whereas residents of Whitehorse, Yellowknife, and Iqaluit only have access to one service provider offering 5 Mbps service. Residents of Whitehorse and Yellowknife pay no lower than $63 per month, while urban Iqaluit residents are asked to pay $180 per month for 5 Mbps service — a price that would surely be unaffordable for all but the most affluent members of society.[19]

48. Instead, those who need to access the Internet in Iqaluit are left with a choice between several lesser options from Northwestel, ranging from 512 Kbps-down / 128 Kbps-up (2 GB data cap) service for $59.95 per month to 2.5 Mbps down / 512 Kbps-up (20 GB data cap) for $129.95 per month.[20] For comparison, plans offered to Ontario residents by Bell range from 15 Mbps-down / 3.5 Mbps-up (50GB data cap) for $55.95 per month, and 50 Mbps-down / 7.5 Mbps-up (250 GB data cap) for $75.95 per month. Put simply, urban residents of the north are paying substantially more than urban residents in the south, for considerably less when it comes to Internet access services.

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[17] Hudson, H. et al. (2015, June). *After Broadband: An Analysis of Organizational Use of Broadband in Southwest Alaska.* Institute of Social and Economic Research, University of Alaska, Anchorage.

[18] Canada, *Telecommunications Act.* S.C. 1993, c. 38. §7(b), emphasis added.

[19] CRTC, *Communications Monitoring Report 2014,* Figure 5.3.2.

[20] Note that the quoted prices do not include additional hidden fees — such as dry loop fees or requirements to purchase other services, such as telephone service, which are often required before a person can subscribe to Internet access service, and can substantially inflate the advertised price for service. See: "Great Packages and Rates" http://www.nwtel.ca/personal/internet/packages

49. According to the CRTC's data, rural residents fare even worse. Affordable access to 5 Mbps broadband Internet access services reflects a sharp rural-urban divide both in the south and in the north. Rural customers in the Yukon pay $90 per month (where service is available), compared to $63 per month for urban residents, while rural Northwest Territories residents can pay up to $500 per month! Similarly, rural Nunavut residents are asked to pay $370 per month – even more than their urban counterparts in Iqaluit who already pay an astronomical $180.[21] Although the CRTC reports that in 2013 broadband of speeds between 5-9.9 Mbps were *available* to 90% of Yukon residents, 87% of Northwest Territories residents, and 29% of Nunavut residents, clearly, these services are not *affordable* by any reasonable measure.[22]

50. For speeds below 5 Mbps in rural and remote areas, the situation is similar. For instance, the prices that Northwestel charges residents of Gjoa Haven, Nunavut range between $79.99 per month for 1 Mbps-down / 256 Kbps-up (275 MB daily data cap) to $149.99 per month for 2 Mbps-down / 512 Kbps-up (425 MB daily data cap) service.

51. Similar to the north-south divide, rural residents within the north are paying substantially more for lower quality service than their urban counterparts.

Mobile services

52. Affordability must not be limited to a pre-defined set of services, but should encompass additional services as they become available. For example, we are concerned with the affordability of services including mobile and/or fixed wireless (WIMAX, HSPA, 4G LTE), which often include download caps and can be priced out of reach for many households. Such challenges are evident in purchasing wireless services in the North: according to the most recent CRTC data, overall wireless 'penetration' rates in the North were only 64 percent in 2013, compared to the national average of 79 percent, and 'average revenue per user' in the North for the same year was $134.55 per month – more than double the national average of $60.67.[23] Combined, these figures paint a bleak picture in which Northerners who do require mobile service pay dearly for it, while many more than the national average go without service in the first place.

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[21] CRTC, *Communications Monitoring Report 2014,* Figure 5.3.3.

[22] CRTC, *Communications Monitoring Report 2014,* Table 5.3.13.

[23] CRTC, *Communications Monitoring Report 2014*, Table 5.5.13. "Penetration" is a measure of subscriptions per 100 inhabitants, and is the standard measure used to track mobile adoption. "Average revenue per user," while not a direct reflection of prices, does reflect the average a customer pays for service per month. While the CRTC does collect information on Mobile device penetration by region (Figure 5.5.9), the North is inexplicably excluded from the chart.

Installation and activation fees

53. Installation and activation fees in northern and remote regions are illustrated in the reports mentioned earlier, including those published by Imatiuk (2011) and the Centre for the North (2013). For example, the Centre for the North report states that installation fees for satellite connectivity in the North range from $49.95 for a 1.5 Mbps/384 Kbps Northwestel package to $499 for a 1,000/256 Kbps package from NetKaster [24]

Usage charges, including data caps

54. One of the major factors limiting the utility of northern broadband plans is telecommunications service providers' use of monthly or daily data caps. While the CRTC reports that the *national* weighted average data cap for residential 1.5 - 4 Mbps broadband plans was 68.22 GB per month in 2013,[25] in the Northwest Territories, 1 Mbps plans currently come with a 10 GB monthly cap. In Iqaluit, Northwestel's data caps in that speed tier are currently set between 15-20 GB per month. Rural and remote Internet users in Nunavut face even more punitive limits in the form of daily data caps, set between 275 - 425 MB per day.[26] For comparison, lower-priced Bell plans for Ontario customers typically come with between 50-250 GB monthly data caps, with the option to purchase unlimited service for an additional fee of between $10-$30 per month.

55. Monthly data caps that can be exceeded with normal use over the course of several hours and daily data caps that can be exceeded in less than an hour severely limit the usefulness of Internet services for rural, remote, and northern Internet users, and represent a significant hidden cost as well. For people in these communities, they represent a clear barrier to participation and innovation in the digital economy.

56. In cases where users exceed these data caps, one of two things can happen: they must either reduce or cease use of a service that they have paid for, or they must face exorbitant overage fees. For example, the Centre for the North report noted that Qiniq's policy has been to throttle services once usage caps are exceeded, while Northwestel charges overage fees ranging from $2.00 per GB for urban customers on the highest tier plans to $25 per GB for Iqaluit customers on the lowest tier plan. Rural customers in Nunavut must purchase extra usage on a daily basis at a rate of $10 per 275 MB.[27] For

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[24] For a detailed chart of satellite installation costs in the North, see: Fiser, A (2013). *Mapping the long-term options for Canada's North: Telecommunications and broadband connectivity.* The Conference Board of Canada. Available at: http://www.conferenceboard.ca/e-library/abstract.aspx?did=5654

[25] CRTC *Communications Monitoring Report, 2014,* Table 5.3.7.

[26] Northwestel, "Great packages and rates," http://www.nwtel.ca/personal/internet/packages

[27] Northwestel, "Important information for your satellite Internet," http://www.nwtel.ca/media/images/internet/user_guide.pdf

comparison, Bell currently charges Ontario customers $3 per GB in excess of the data cap, regardless of service tier.

57. It must be noted that, under Northwestel's current data pricing, customers who generate more network traffic pay substantially less per GB than customers who subscribe to low tier plans: this runs counter to the pricing principle established in Telecom Regulatory Policy CRTC 2009-657 *Review of the Internet traffic management practices of Internet service providers* (**TRP 2009-657**), namely that economic Internet traffic management practices "match consumer usage with willingness to pay, thus putting users in control and allowing market forces to work." It is clear that in the case of the data limits employed by Northwestel, users are not in control and market forces are failing. The result of this situation is that Internet access, which is expensive to begin with, becomes unaffordable should a subscriber dare to actually use the services he or she pays for.

58. Affordability includes price but also ability to pay, which can be measured using proxies of average income and cost of living. In Nunavut, for example, unemployment is 16.8 percent, while the cost of living in is 1.6 to 3 times that in other provinces and territories.[28] Also, the population is very young, with 51 percent under the age of 25, so there are many young dependents to support and fewer people established in their careers.[29] Rural-urban divides are also evident in these indicates: for example, family incomes in Dene communities in the Northwest Territories are less than 45 percent of the average family income in Yellowknife.[30] These figures are similar for people living in the remote communities in the northern regions of provinces.

59. Professor Heather Hudson addressed the issue of affordability in an undertaking requested by the Commission in TNC 2012-669 in which she included examples from the Federal Communications Commission (FCC), National Telecommunications and Information Administration (NTIA), Organization for Economic Cooperation and Development (OECD) and the International Telecommunication Union (ITU).[31] In 2011, the Broadband Commission for Digital Development issued a report entitled "Broadband Targets for 2015," which set an affordability threshold stating that "entry-level broadband services should be made affordable […] amounting less than 5% of average monthly income" by 2015.[20] This figure has been taken as a reference in the ITU's recent "Measuring the Information Society Report" (2014).

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[28] Nunavut Bureau of Statistics (2015, April 1). Available at http://www.gov.nu.ca/eia/information/statistics-home

[29] ibid.

[30] Northwest Territories Bureau of Statistics (2015). Available at: http://www.statsnwt.ca

[31] Hudson, H. (2012). "Undertaking on Affordability submitted on behalf of the First Mile Connectivity Consortium, CRTC Consultation 2012-669.

Quality

60. Quality of Service (**QoS**) is a key concern for community members in these regions, particularly concerning data caps, capacity, and latency. We heard from several parties about this issue and presented our findings at previous hearings, such as during our intervention for TNC 2012-669. At that time, we learned that the community radio station in Kugluktuk, Nunavut, a hamlet at the mouth of the Coppermine River served by satellite, was unable to get access to an affordable and stable 64 Kbps upload link required to stream their content. They offered to contribute $100,000 toward the cost of a dedicated link between their station and the provider's equipment, but were told there is no business case to justify this link. Others have complained about service outages and actual speeds far below advertised speeds. Latency, such as over geostationary satellite connections, slows access to online information and services, and hinders interactive communications services such as Skype, health and emergency services, and other videoconferencing applications.

Digital Literacy

61. Northern community members require the appropriate digital literacy to make effective use of the telecommunications services and facilities they require to meet their needs. The definition of 'digital literacy' must extend beyond an individual's ability to use a computer, software like Microsoft Word, or social media. It must also include digital literacies that support the planning, management and maintenance of telecommunications services. Given their isolated locations —- and the lack of on-site technical specialists to operate and maintain facilities and services – the Commission must support initiatives directed toward ensuring remote community members can build capacity in the digital literacies needed for these tasks. This includes the ability to conduct local Internet performance monitoring tests – a key issue given the Commission's interest in ensuring that robust data is available on the quality of services in these regions.

62. To this end, researchers affiliated with the FMCC are working on several projects to help individuals and organizations to conduct ICT planning initiatives and monitor broadband quality and usage. In northern Ontario, community members are invited to use the eCommunity Facebook group to share ideas on how they are using technology in their communities where they can, to share ideas, stay connected to other people and plan together for the future of community-owned networks. Community members are encouraged to post discussions about technology and other services – including cell phones, Internet and anything else that happens online. KNET staff provide support by sharing network updates and opportunities.[32]

63. Another example of digital literacy capacity-building initiatives is underway in two Algonquin First Nations in Quebec: Timiskaming and Long Point. In this project,

[32] For more information, see: http://e-community.knet.ca/

university-based and community-based researchers are collaborating to develop a Community Informatics (CI) methodology to research and build digital literacies at the First Mile. In this context, a First Mile research methodology encourages projects that emerge from the locally-determined needs of collaborating communities. The researchers created a research process to identify knowledge, skills, data and outcomes that are relevant to the needs of community members. The partners are now exploring the potential to develop online Community ICT Research Toolkits. Any First Nation (or other community) interested in conducting research on digital literacies will be able to access these resources free of charge on the First Nations Education Council's website, and adapt them to their local context. The partners are also considering integrating these ICT Research Toolkits in high school research projects.

64. In a third example, university-based researchers are now working with the Eeyou Communication Network (**ECN**) to develop a community-based Internet performance monitoring methodology. This initiative uses a web-based performance monitoring tool developed by the Canadian Internet Registration Authority (CIRA) that is available at: http://performance.cira.ca/ The partners are currently piloting this project with one community in the region of Eeyou Istchee in northern Quebec. They plan to generate a community reporting process that will complement the Commission’s ongoing efforts to monitor Internet performance in rural, remote and Northern communities.

CRTC Q1d: Identify and explain any enablers that allow Canadians to meaningfully participate in the digital economy (e.g. connected devices and applications).

Response to Q1d: Digital enablers

65. As noted in our answer to Q1a, Canadians require access to public services including health services, education, commerce, governance and many other related services to participate meaningfully in a wide range of social, economic and cultural activities. In the emerging network society, these services are increasingly delivered through digital applications and devices.

66. Further, users point out that many applications they require are now based “in the cloud.” Therefore, accessing these applications requires adequate, stable, high-quality broadband. If users are subject to data caps and overage charges, interacting with cloud-based applications can be prohibitively expensive, creating a barrier to meaningful participation in the digital economy.

67. This situation is arguably more pressing in dispersed, remote and isolated communities that lack roads or affordable transportation links, since cloud computing offers an alternative to face-to-face collaboration at work. As noted in response to Question 1a, most of these communities lack local access to services such as hospitals, high schools, or banks, which makes their telecommunications infrastructure needs particularly important.

68. Broadly speaking, the examples presented above demonstrate how digital services and infrastructures support community members living in rural, remote and Northern regions to participate in the digital economy. Many more examples of these kinds of applications are available, should the Commission require more information on this topic.

CRTC Q1e: As Canada's digital economy continues to grow and evolve during the next 5 to 10 years, which telecommunications services are Canadians expected to need to participate meaningfully? Specify how your responses to parts a) through d) above would change based on your answer.

Response to Q1e: Future telecommunications services

69. Given the rapidly evolving nature of the telecommunications infrastructures, services, applications and devices that are driving the emergent digital economy, it is difficult to predict what types of services will be required in the future. For this reason "future telecommunications services" must be defined in a flexible manner, and scalable benchmarks should be put in place that take into account not just increases in community member demand for network capacity but also the significant advances in the ability of network equipment suppliers to provide that capacity at decreasing costs.

70. The Commission should be cognizant that innovation occurs at all layers of telecommunications services — ensuring that basic services provide users with sufficient capacity is a stepping stone to enabling innovation from the physical layer of telecommunications services all the way up to the application layer. Setting standards for the basic telecommunications services that Canadians are entitled to receive should enable innovation. As we noted in response to question 1b, in remote and Northern regions, community members and organizations should be engaged in shaping and developing emerging telecommunications services and infrastructures.

CRTC Q2: The Commission's current target speeds for broadband Internet access service are a minimum of 5 Mbps download and 1 Mbps upload, based on uses that consumers should reasonably expect to make of the Internet. Are these target speeds sufficient to meet the minimum needs of Canadians today? If not, what should the new targets be and what time frame would be reasonable to achieve these new targets?

Response to Q2: Target speeds

71. The Commission's current minimum access speed targets are not adequate for users today. Consider the targets set by our neighbours to the south. In January 2015, the Federal Communications Commission (FCC) upgraded the definition of "broadband" from 4 Mbps to 25Mbps for downloads, and 1 Mbps to 3 Mbps for uploads [33] In Canada, we have not yet met the FCC's previous targets. In fact, the federal government even appears to be moving backward in some satellite-dependent northern areas, such as Nunavut and Nunavik, where the Connecting Canadians program reduced the target speed from 5 Mbps to 3 Mbps.[34]

72. Furthermore, it is clear that many service providers in Northern Canada do not even meet the CRTC's existing targets. For example, in TNC 2012-699, Northwestel committed to provide a level of service consistent with the Commission's target to the 58 terrestrial communities in its northern service areas. However, the company only committed to speeds of 1.5 Mbps up / 384 Kbps down in the 38 satellite-served communities. The Commission's Satellite Inquiry (TNC 2014-44) further highlighted this challenge in its findings in its final report:

> Internet speeds in satellite-dependent communities are well below those available in communities served by terrestrial facilities, and are, in most cases, below the Commission's target speeds of 5 megabits per second (Mbps) download and 1 Mbps upload. Mobile wireless services offered in satellite-dependent communities, if available, typically use older, less advanced technology with low data speeds compared to what is available elsewhere in Canada.[35]

73. The CRTC should increase its target to match the US target of 25 Mbps download and 3 Mbps upload within the next three years. These new targets should reflect actual and not simply advertised speeds. However, speed is bound to remain a moving target as technologies and applications change. We therefore recommend that the CRTC review its targets at least every three years.

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[33] Holpuch, A. (2015, 29 January). "FCC raises threshold for high-speed internet as service providers cry foul. *The Guardian.* Available at: http://www.theguardian.com/business/2015/jan/29/fcc-increases-broadband-speed-threshold).

[34] Industry Canada (2015). Digital Canada 150: Northern Component. Available at: http://www.ic.gc.ca/eic/site/028.nsf/eng/00591.html

[35] CRTC (2014). *Satellite Inquiry Report*, Ottawa: CRTC, October 2014. Available at: http://www.crtc.gc.ca/eng/publications/reports/rp150409/rp150409.htm Page 6.

74. The Commission should also engage and support Northern community members to help monitor the performance of telecommunications services and infrastructures in their regions. We applaud the Commission's recent work with the SamKnows Internet performance monitoring equipment and processes across Canada. However, the process by which participants were selected has not been transparent. The CRTC should clarify whether its current broadband measurement initiative accurately and comprehensively represent service levels in all regions of the country, and if not, what remedial steps it will take.

75. We suggest that the Commission also consider complementary monitoring initiatives in order to ensure that it is getting an accurate picture of the Canadian broadband performance landscape. For example, researchers affiliated with the FMCC are currently working with remote communities to develop a "First Mile Approach to Internet Measurement" that will support community members to undertake their own performance tests using an open source tool development by the Canadian Internet Registration Authority (CIRA).[36]

CRTC Q3: Which services should be considered by the Commission as basic telecommunications services necessary for Canadians to be able to meaningfully participate in the digital economy? Explain why.

Response to Q3: Which services should be considered basic telecommunications services?

76. In Telecom Decision 99-16 *Telephone Service to High Cost Serving Areas* (TD 99-16) the Commission established the basic service objective, which includes:

- individual line local touch-tone service;
- 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.

77. All Canadians, including those living in remote and Northern regions, require universal access to reliable and affordable telecommunications services. Today, basic telecommunications services include broadband Internet access, and the CRTC's policies and regulations must be updated to account for this fact. Other OECD countries already recognize broadband as an essential telecommunications service. For example, Finland, which also has many small isolated northern communities and is a member of

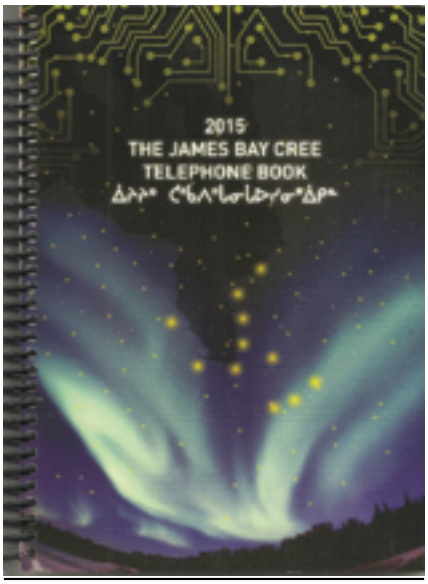
[36] For more information, please see: www.cira.ca

the Arctic Council, was the first country to declare broadband Internet access a legal right.[37] Other countries have followed and now include broadband a basic service.

78. Community members and community organizations must be able to access a basket of core Basic Services, including:

- Voice telephony (both local and long distance) on individual lines or circuits
- Broadband services with requirements for speed, minimal latency, and quality of service
- Services specified in TD 99-16: 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;
- A directory with contact information for fixed and mobile telephone listings that is available in Indigenous languages and alphabets in regions with significant Indigenous populations. For example, directories in syllabics are already provided in northern Ontario, Nunavut and the James Bay region of Quebec (see Image 1).[38] Hard copy directories should be updated and provided annually. Directory information should also be provided online with annual updates. Printed directories are required because not all community members will be able to access online directories, and some may prefer hard copies.

Image 1: James Bay Cree Telephone Book (2015)



[37] Broadband Commission for Digital Development (2012). *The State Of Broadband 2012: Achieving Digital Inclusion For All.* New York: United Nations.

[38] A 2015 James Bay Cree Telephone Book was produced with grants from the Grand Council of the Crees (Eeyou Istchee), published by Beesum Communications. This phone directory has been published for at least 10 years. The Grand Council also offers a phone directory online at: http://www.gcc.ca/teldir.php

CRTC Q3a: Explain whether the underlying technology (e.g. cable, digital subscriber line, fibre, fixed wireless, mobile wireless, and satellite technology) should be a factor in defining whether a telecommunications service should be considered a basic service.

Response to Q3a: Underlying technologies

79. The basic service should be technology-neutral, in order to reflect and encourage innovation in infrastructure and services. For example, voice telephone service can be provided by various technologies, including wireline, mobile wireless and Voice over Internet Protocol (VoIP) services. The community of Slate Falls in Ontario provides a clear example of such innovation, through a locally-operated VoIP service (see paragraph 16 above). Slate Falls First Nation in Northwest Ontario provides residential Internet and VoIP telephone services through a Band-owned and operated service provider that leases backhaul from an external provider. As of 2011, community members paid $60 per month for bundled phone and Internet services (after start-up equipment costs of approximately $500). Revenues pay a local technician's salary, purchase equipment, and subsidize phone and data services (including videoconferencing) for public and community service providers.[39] Local government, community members, K-Net Services (a regional First Nations service provider and government funders all participated in the Slate Falls FNCN's design.[40]

80. The Commission must ensure that the technologies associated with providing access to basic services address the shortcomings of aging delivery systems like copper DSL, microwave and satellite. Regardless of what underlying technology people use to access telecommunications services, and regardless of geographic location, the quality of service that users can expect to receive should meet a certain baseline standard for price and quality - and enable them to develop applications like the VoIP system in Slate Falls.

81. To ensure that members of northern communities benefit from technological advances and gain access to a baseline level of consistent service quality, the Commission should encourage the use of fibre optics. When considering adjustments to the obligation to serve, the basic service objective, and the subsidy regime(s), it should be recognized that investment in fibre optic technology is likely to be the most efficient means of ensuring that telecommunications infrastructure is "future proof"; that is, that new investment is money well spent. As illustrated in the case of Slate Falls, investment in locally-controlled fibre optics best supports and enables long-term community and economic development opportunities for communities.

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[39] Additional information about the early stages of this project is available here: http://smart.knet.ca/satellite/slatefalls.html

[40] See: http://services.knet.ca/

82. We recognize the expense and difficulty of building fibre optic infrastructure in rural, remote and northern communities, and that therefore recognize this goal may need to be phased in over time. Providers that receive infrastructure subsidies (discussed in detail in response to Question 13 below) should be required to prioritize optical fibre wherever possible in upgrades or expansions of infrastructure.

CRTC Q3b: Identify, with supporting rationale, the terms, conditions, and service characteristics under which basic telecommunications services should be provided. Should any obligations be placed on the provider(s) of these services? If so, what obligations and on which service provider(s)?

Response to Q3b: Terms, conditions, and service characteristics

83. The terms and conditions that apply to service provision should apply to all service providers equally, not just facilities-based providers or ILECs. This would be in keeping with the intentions of Parliament's recent amendment to the *Telecommunications Act,* which expanded the Commission's jurisdiction to include "the offering and provision of any telecommunications service by any person other than a Canadian carrier" (i.e. non-facilities based providers, §24.1).

84. From the perspective of ordinary Canadians, telecommunications infrastructures and services are complex and rapidly changing. It can be hard to understand what the multiplicity of terms like Mbps, GB, MB, latency, fibre, coax, and DSL mean, and even harder to know how they interact to affect the type of Internet service one can expect to receive. Add in confusing legal language in contracts outlining the customer-service provider relationship, and what you have is a recipe for confusion and frustration for consumers. Earlier, we talked about the necessity of expanding the definition of digital literacy to include the provision of telecommunications services; the reality faced by consumers further underscores our point.

85. For this reason, it is paramount that basic telecommunications services are defined, laid out, and provided in a manner that is straightforward and transparent. The terms on which services are offered must be made available in a clear fashion *prior to* the signing of a contract or the installation of service equipment at a customer's premises.

86. The Commission has taken a similar approach with regard to wireless services and broadcasting distribution services. The Wireless Code came into effect in 2013, and the BDU Code consultation is currently under consideration by the Commission. It stands to reason that basic telecommunications services should be subject to similar terms and conditions.

87. It is necessary to consider the specific circumstances of basic telecommunications services when developing such a framework. However, the Commission need not start at square one in such an undertaking. In the interest of efficient and effective regulation,

we recommend that the Commission initiate a follow-up proceeding to consider the appropriateness of establishing a communications industry-wide code of conduct, under the auspices of both the *Broadcasting* and the *Telecommunications Acts*, to govern the terms and conditions upon which communications services are offered and explained to the public.

88. In the alternative, the Commission could initiate a proceeding to consider the appropriateness of establishing an overarching code which sets out a framework for terms and conditions common to all communications service providers, leaving the specifics of each industry segment to distinct codes for each.

89. In terms of this proceeding, the Commission should implement regular monitoring of Quality of Service (QoS) to ensure that service providers are fulfilling their basic service obligations. We applaud the Commission's recent actions to implement a monitoring mechanism (SamKnows) which could be used to measure whether service providers are fulfilling Basic Service obligations. This is a key initiative for community members in northern and remote regions, who have faced access and affordability gaps for too long already. We also draw attention to complementary monitoring activities, such as those being implemented by the Canadian Internet Registration Authority (CIRA). As noted earlier, we are presently working with Northern communities and their regional organizations to pilot a First Mile approach to Internet measurement using these tools. This project aims to involve members of these communities in ongoing Internet performance measurement activities. It highlights the role that digital literacy can play in monitoring and enforcing basic service obligations.

90. Evidence indicates that self-reporting of Internet performance by incumbents in remote and Northern regions is not enough. In its *Modernization Plan*, Northwestel proposed to file annual reports that update the Commission on the company's progress. But the company did not specify the communities and timeframe for upgrades, or establish QoS standards (or other objectives or milestones). The *Plan* did not provide clear metrics to measure performance or progress, which was highlighted as problematic by PIAC.[41] Therefore, the Commission should continue to support and encourage third-party and community member-led monitoring of Internet Performance as a check against self-reported performance measures by industry.

91. The Commission should also obligate service providers to provide timely installation of infrastructure and services in communities. This is to ensure that community members living in remote and Northern regions can access the telecommunications services that they require to participate in the emerging digital economy in a timely and effective

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[41] Intervention of the Public Interest Advocacy Centre and the Consumers' Association of Canada to TNC CRTC 2012-669 *Review of Northwestel Inc.'s Regulatory Framework, Modernization Plan, and related matters.* February 6, 2013. Available at: https://services.crtc.gc.ca/pub/ListeInterventionList/Documents.aspx?ID=179192&en=2012-669&dt=c&Lang=e&S=C&PA=t&PT=nc&PST=a Paragraphs 55 & 56.

manner. The ideas and energy of entrepreneurs and service providers located in these regions should not be stifled due to the tardiness of incumbents in providing the basic services they are obligated to deliver.

92. To enforce these monitoring and installation requirements, the Commission should levy administrative monetary penalties (AMPs) on telecommunications providers that fail to meet stated obligations. The proceeds of these AMPs should go into a fund accessible to organizations delivering services in remote and Northern regions.

93. The Commission should also place an obligation on service providers operating in rural, remote and Northern regions to prioritize the hiring of local community members - and to train them where necessary. This requirement can support the Commission's aim to enable these community members to participate in the digital economy. It also supports efforts to build the kind of digital literacy described in this intervention. Community intermediary organizations working in these regions already contribute to local employment by providing community members with opportunities to work skilled jobs as administrators and technicians. Given the high rates of unemployment and young population in northern regions, there is a need for skilled jobs in northern communities. By training and hiring local technicians, these organizations also support QoS guarantees by providing on-site points of contact, rather than flying in technicians on an as-needed basis. Local employees provide strong links to communities and therefore hear the requirements - and complaints – of their constituents directly. These organizations also contribute to economic development efforts to circulate revenues inside communities (such as between local customers and service providers). They can also support the Commission's performance monitoring goals.

CRTC Q3c: What should be the prices for basic telecommunications services and how should these prices be determined? Provide rationale to support your answer.

Response to Q3c: Prices for basic telecommunications services

94. We note that according to several studies, Canada's remote and Northern communities already face some of the highest average broadband prices in the developed world. We discussed the affordability gaps faced by members of remote and northern communities earlier, in our answer to question 1c above.

95. In 2011, the Broadband Commission for Digital Development issued a report entitled *Broadband Targets for 2015*, which set an affordability threshold stating that "entry-level broadband services should be made affordable […] amounting less than 5% of average monthly income" by 2015.[42] This figure has been taken as a reference in the ITU's recent "Measuring the Information Society Report,"[43] and could serve as a useful indicator for the Commission when considering how to define the affordability of services here in Canada.

96. We re-iterate these points to highlight some of the metrics that the Commission should use to determine affordability in rural, remote and Northern regions. The Commission should take these metrics into consideration when determining any price caps for basic telecommunications services. With regards to determining pricing, other jurisdictions provide guidance for determining equitable pricing for Basic Services that include a basket of services and estimates of per capita income. The International Telecommunication Union (ITU), for example, has created an ICT Price Basket, which measures the affordability of fixed and mobile telephony and fixed broadband Internet services.[44] The ITU has developed methodologies to estimate affordability by comparing broadband prices in roughly 200 economies relative to incomes as a way to measure affordability. It also notes that expenditure (budget) surveys designed to measure household expenditure are also used by a number of countries to identify household access to ICT equipment and services.[45]

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[42] Broadband Commission for Digital Development (2011). *Broadband Targets for 2015.* Available at: http://www.broadbandcommission.org/Documents/Broadband_Targets.pdf

[43] International Telecommunications Union (2014). *Measuring the Information Society Report*. Available at: https://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2014/MIS2014_without_Annex_4.pdf page 116.

[44] ibid.

[45] International Telecommunication Union. Manual for Measuring ICT Access and Use by Households and Individuals, 2009 Edition.

97. The OECD has also developed methodologies for comparing prices of Internet and broadband services.[46] A recent OECD study including data from 18 European countries, Canada and Korea showed that, controlling for other variables, low income is the single most important factor for non-access to a computer and the Internet. According to Statistics Canada's most recent *Survey of Household Spending*, nearly 100% percent of Canadian households in the highest income quintile had Internet access in 2013, compared to only 56 percent of households in the lowest income quintile and roughly 75% in the second lowest quintile.[47] This reflects affordability concerns in the North, consideration of which we must include income and cost of living as well as cost of service.

98. Based on this rationale, the Commission should ensure that prices and services purchased in northern and remote regions should be reasonably comparable to those adopted for urban regions in southern Canada.

99. The CRTC should also implement a Basic Service user subsidy for low income community members across Canada so that price is not a barrier to accessing basic services including broadband. We address the proposed subsidy in our response to Question 12 below.

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[46] OECD (2010, March 18). Working Party on Communication Infrastructures and Services Policy. Revision of the Methodology for Constructing Telecommunication Price Baskets. Report DSTI/ICCP/CISP(2009)14/FIN
See also OECD (2010, May 21). Working Party on Communication Infrastructures and Services Policy Broadband Bundling: Trends and Policy Implications.

[47] Statistics Canada (2013). *Survey of Household Spending*. Available at: http://www.statcan.gc.ca/daily-quotidien/150122/dq150122b-eng.htm

CRTC Q4: Can market forces and government funding be relied on to ensure that all Canadians have access to basic telecommunications services? What are the roles of the private sector and the various levels of government (federal, provincial, territorial, and municipal) in ensuring that investment in telecommunications infrastructure results in the availability of modern telecommunications services to all Canadians?

Response to Q4: Market forces and government funding

100. In TRP 2011-291, the Commission determined that the deployment of broadband Internet access services, including in rural and remote areas, should continue to rely on market forces and targeted government funding. Following this logic, the Commission decided that broadband should not be included as part of any basic service objective or supported through a funding mechanism to subsidize its deployment (see TNC 2015-134, para 23).

101. However, given its findings with regard to Northwestel's inadequate infrastructure and services and the high cost of satellite transport, the Commission has since shifted its position. The Commission has recognized that without its intervention, the digital divide between satellite-served and terrestrially-served communities will not only persist, but will increase.

102. In Telecom Regulatory Policy CRTC 2011-771 *Northwestel Inc. — Review of regulatory framework* (**TRP 2011-771**), the Commission stated its concerns regarding Northwestel's failure to render reliable telecommunications services of high quality in its northern service areas. Given these conditions, the Commission instituted additional regulatory oversight and suggested that local competition be introduced in Northwestel's serving territory. Subsequently, in Telecom Regulatory Policy CRTC 2013-711 *Northwestel* Inc. — Regulatory Framework, Modernization Plan, and related matters (**TRP CRTC 2013-711**) the Commission determined that Northwestel possesses persistent market power and therefore re-introduced the regulation of terrestrial Internet services in the region.

103. As recently as this year, the Commission has had to intervene to ensure that Northwestel's tariffed services remain affordable for Northern Residents (TD CRTC 2015-78, *Northwestel Inc. — Tariffs for terrestrial retail Internet services)*.

104. Therefore, we support the Commission in efforts to establish a mechanism to support the provision of modern telecommunications services in Northwestel's operating territory and other rural and remote areas.

105. Traditionally, governments - through their own budgets or designated Universal Service Fund (USF) resources - have identified unserved regions and provided subsidies to incumbents or "carriers of last resort" to extend facilities, and in some cases to subsidize prices if these areas are considered unprofitable. Although this approach can accomplish universal service goals, it has several potential flaws. First, the incumbent or designated

carrier may have no incentive to be efficient or innovative in its choice of technology and its installation and maintenance if these costs are directly subsidized. Second, the carrier may have no incentive to maintain adequate quality of service (QoS) if it assumes these areas are unlikely to generate significant revenue. And third, the carrier may demand special treatment or concessions in a liberalized environment because of its universal service obligations.

106. This approach has been used in Canada to subsidize Northwestel as the incumbent with an obligation to serve. But as noted above, in such cases the carrier may have little incentive to be efficient (despite price caps). We have presented evidence of this occurring in Northern Canada. For example, during the 2010 CRTC hearing on the obligation to serve and other matters, which led to TRP 2011-291, Northwestel stated that it would cost $425,000 to upgrade its switch in Gjoa Haven. The company is now proposing similar upgrades in other remote communities as part of its modernization plan. During the Northwestel hearings (TRP 2011-291), the FMCC was able to get two quotes for similar equipment including estimated tax, shipping and installation costs that were from 35 to 40 percent less expensive that prices quoted by Northwestel.[48] Also noted above was Northwestel's failure to meet the 5 Mbps benchmark by this year in many of the northern communities it serves.

107. Given this situation, market forces and existing government funding are not adequate to ensure affordable, adequate, accessible broadband services in rural, remote and Northern communities. For example, concerning government funding, we drew attention to the case of Natuashish, a relocated northern community with very poor communications services. Today, the people living in communities like Natuashish cannot access basic telecommunication services, despite funding set aside by Industry Canada for that purpose. Further, funding available from government agencies including Industry Canada, FedNor, Aboriginal Affairs and Northern Development Canada, and others, to service providers operating in remote and Northern regions is mainly focused on capital expenditures, and does not support ongoing operating costs.

108. To date, private sector and various government initiatives have resulted in infrastructure investment in some remote and northern regions, but have left others at best underserved, as we have pointed out above. Additional funding will be required to expand and upgrade essential infrastructure. However, funding will also be required to subsidize the provision of services in regions where operating costs are high and revenues relatively low. We discuss proposed solutions in Q13 below.

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[48] Telecom Notice of Consultation CRTC 2010-43: Obligation to serve and other matters. Written Final Comments of Canada Without Poverty, Option consommateurs and Rural Dignity of Canada ("The Consumer Groups"), November 2010. (Since the modern switches are basically computers with specialized software, they are very compact. One vendor said the components would fit in three 50 pound boxes for shipping, which could be carried in a bush plane.)

CRTC Q5: What should be the Commission's role in ensuring the availability of basic telecommunications services to all Canadians? What action, if any, should the Commission take where Canadians do not have access to telecommunications services that are considered to be basic services?

Response to Q5: What role for the Commission in ensuring availability?

109. As noted above, Section 7 of the *Telecommunications Act* sets out Canada's telecommunications policy objectives, which include:

- facilitating the development of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;
- rendering reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada; and
- responding to the economic and social requirements of users of telecommunications services (emphasis added).

110. Competition coupled with new approaches to subsidies can result in accessible, affordable telecommunications infrastructure and services throughout the rural, remote and Northern regions of Canada. Recent decisions issued by the Commission point to this policy direction.

111. An example of the Commission's role can be found in its recent actions concerning services provided by Northwestel. For example, in TRP 2011-771, the Commission stated its concerns regarding Northwestel's failure to render reliable telecommunications services of high quality in its northern service areas. Given these conditions, the Commission instituted additional regulatory oversight and suggested that local competition be introduced in Northwestel's serving territory. Subsequently, in Telecom Regulatory Policy CRTC 2013-711 *Northwestel* Inc. — *Regulatory Framework, Modernization Plan, and related matters* (TRP CRTC 2013-711) the Commission determined that Northwestel possesses significant and persistent market power and therefore re-introduced the regulation of terrestrial Internet services in the region. As recently as this year, the Commission has acted to ensure that Northwestel's tariffed services remain affordable for Northern Residents (TD CRTC 2015-78, *Northwestel Inc. — Tariffs for terrestrial retail Internet services)*.

112. The CRTC's inquiry concerning fixed satellite services is also an example of its role in examining barriers to providing basic services that include broadband and are affordable for northern residents (TNC 2014-44).

113. On the one hand, the Commission must act to constrain the existing market power of dominant firms such as Northwestel and Telesat, as it has in the examples given above. On the other, it must act to foster progressive policy solutions designed to promote an efficient, innovative telecommunications environment that serves the needs of all

Canadians. The community intermediaries who are providing and who will provide service in rural, remote, isolated, and northern communities form an integral part of this goal, and the Commission should take steps to ensure that they are able to meet the needs of the communities they serve.

CRTC Q6: In Telecom Regulatory Policy 2011-291, the Commission stated that it would closely monitor developments in the industry regarding the achievement of its broadband Internet target speeds to determine whether regulatory intervention may be needed. What action, if any, should the Commission take in cases where its target speeds will not be achieved by the end of 2015?

Response to Q6: Target speed monitoring

114. We applaud the Commission's recent actions to implement a permanent monitoring mechanism (SamKnows) to measure whether service providers are fulfilling Basic Service obligations. This is a key initiative for community members in northern and remote regions, who have faced access and affordability gaps for too long already. We also draw attention to complementary monitoring activities, such as those being implemented by the Canadian Internet Registration Authority (CIRA). We are presently working with Northern communities and their regional organizations to pilot a First Mile approach to Internet measurement using these tools. This project aims to involve members of these communities in ongoing Internet performance measurement activities.

115. Evidence indicates that self-reporting of Internet performance by incumbents in remote and Northern regions is not sufficient. In its *Modernization Plan*, Northwestel proposed to file annual reports that update the Commission on the company's progress (para 83). But the company did not specify the communities and timeframe for upgrades, or establish Quality of Service standards (or other objectives or milestones).[30] The *Plan* did not provide clear metrics to measure performance or progress, as highlighted by PIAC.[49] Therefore, the Commission should continue to support and encourage third-party and community member-led monitoring of Internet Performance as a check against self-reported performance measures.

116. Paired with these monitoring requirements, the Commission should adopt and enforce sanctions including financial penalties on telecommunications providers that fail to meet stated obligations. The proceeds of these financial penalties could go into the Northern Infrastructure and Services Fund (described in our answer to Question 13), which is accessible to organizations delivering services in remote and Northern regions.

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[49] Intervention of the Public Interest Advocacy Centre and the Consumers' Association of Canada to TNC CRTC 2012-669 *Review of Northwestel Inc.'s Regulatory Framework, Modernization Plan, and related matters.* February 6, 2013. Available at: https://services.crtc.gc.ca/pub/ListeInterventionList/Documents.aspx?ID=179192&en=2012-669&dt=c&Lang=e&S=C&PA=t&PT=nc&PST=a Paragraphs 55 & 56.

CRTC Q7a: In Telecom Regulatory Policy 2013-711, the Commission stated its intention to establish a mechanism, as required, in Northwestel's operating territory to support the provision of modern telecommunications services. Such a mechanism would fund capital infrastructure investment in transport facilities (e.g. fibre, microwave, and satellite), as well as the cost of maintaining and enhancing these facilities. The Commission considered that this mechanism should complement, and not replace, other investments from the private sector and governments, including public-private partnerships. Explain, with supporting rationale, whether there is a need for the Commission to establish such a mechanism in Northwestel's operating territory. As well, explain whether there is a need for such a mechanism in other regions of Canada.

Response to Q7a: A Northern transport funding mechanism is needed

117. We have provided details in our introduction above that conditions in the northern parts of the provinces including Nunavik and Nunatsiavut. are similar to those in Northwestel's operating territory. See Map 1. Despite their diversity, these areas face similar challenges, including access and affordability gaps to telecommunications services including broadband, in part because they lack the conditions to support a feasible business case. The CRTC's Satellite Inquiry Report also notes that 89 communities rely on the community aggregator model of satellite service to access high-speed Internet, and that many of these communities are in the northern parts of the provinces (cited in TNC 2015-134, para 30). See Map 2. The Commission also noted that terrestrial-served communities in rural and remote areas are facing challenges in achieving broadband targets (ibid, para 31).

118. The Satellite Inquiry Report states: "… the Nunavut Broadband Development Corporation (NBDC) submitted that the major cause of the lack of competitive satellite offerings in the North is the short-term nature (generally under 5 years) of government funding. In the NBDC's view, this does not incent providers of telecommunications services to purchase satellite capacity for periods longer than the government funding timelines. The NBDC further submitted that a mechanism to provide long-term, stable, and scalable funding to support the delivery of telecommunications services in the North would be the most effective measure to encourage competitive entry." We agree with NBDC.

119. As NBDC points out, such a long term funding mechanism could actually encourage entry by competitive satellite system providers. Such a mechanism could also encourage investment in long term, scalable terrestrial infrastructure such as microwave and optical fibre.

120. As similar conditions apply in the northern parts of several provinces and in Nunavik and Nunatsiavut, the funding mechanism should also be available for infrastructure investment in these regions.

121. This approach to funding transport infrastructure and services has worked in other jurisdictions. For example, in Alaska, U.S. federal funds for capital investment in rural broadband plus operating subsidies implemented as part of the Connect America Fund have resulted in investment in terrestrial broadband (optical fibre and microwave) linking more than 70 primarily Indigenous communities in southwest and Northwest Alaska.[50]

CRTC Q7b: What impact would the establishment of such a mechanism have on private sector investment and government programs to fund the provision of modern telecommunications services?

Response to Q7b: Transport mechanism would be beneficial

122. We stress that any new subsidy mechanism for community intermediary organizations would not discourage private sector investment. Rather, it would provide new incentives for backbone providers to extend their networks in rural, remote and Northern regions. Private sector organizations can partner with community intermediary organizations to develop and deliver telecommunications services. Those organizations operate within the regions being served, and know the diverse and specific contexts and requirements of community members living in those regions best. By enabling these organizations to share both the obligation to provide basic services and any subsidies to do so, the Commission can encourage them to play to one another's strengths, rather than continue to prop up what has become an ineffective and inefficient status quo. As stated in our response to Question 7a, the approach also encourages competitive providers such as other satellite operators and optical fibre entities to invest in these regions.

123. Such a funding mechanism would complement other government programs for telecommunications development by ensuring stability and certainty in a funding system that otherwise tends to be limited in scope and duration. Too often, existing and previous government programs have provided taxpayer dollars to large incumbent providers that have no incentive to maintain or upgrade their facilities adequately once installed because they assume the residents and communities served will generate minimal revenue. The individual and community consumers of telecommunications end up losing out, and unable to contribute to the digital economy or access core services like health and education.

124. Community intermediary organizations already partner and interconnect with backbone providers such as Telesat and Bell Aliant, engaging with them to purchase bandwidth and other services and infrastructure. For example, KNET in northern Ontario builds broadband infrastructure in partnership with a variety communities and strategic partners. From 1999 to 2001, it led upgrades to digital radio, satellite, and data services. It also supported the development of a wide-area computer network to connect Band

[50] See: Terra project status. Available at: http://terra.gci.com/maps-locations/terra-project-status-march-2015

office programs, health services, and education services in each member community. Construction of First Nation cable plants connecting local buildings began in 2001 and there are now 24 of these First Nation-owned cable networks working with KO-KNET.

125. In 2005, KNET and two Indigenous partners in Quebec and Manitoba launched the Northern Indigenous Community Satellite Network (NICSN). This project has demonstrated that with the proper funding, a regional satellite network can be owned, managed, operated, and maintained as a community intermediary organization. In 2007, the NICSN group secured bandwidth until 2019, with support from the federal government (Infrastructure Canada and Industry Canada) and in-kind contributions from their satellite provider, Telesat Canada. KO-KNET is now working with several formerly satellite-served First Nations to transition to fiber infrastructure through a Bell Aliant fibre build involving 24 remote First Nations. One of the most ambitious infrastructure projects launched by KO-KNET and its partner First Nations is Keewaytinook Mobile, or K-Mobile. This community-owned cellular and data services network incorporates a billing system that allows K-Mobile customers to manage their own service plans.

CRTC Q8: What changes, if any, should be made to the obligation to serve and the basic service objective?

Response to Q8: Changes to the obligation to serve and basic service objective: broadband

126. As it currently stands, the obligation to serve requires ILECs 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.[51] This obligation is in place to ensure that Canadians who reside in underserved or unserved areas have access to the telecommunications services they require to participate in society.

127. Today, that requirement extends beyond access to *telephone* service — Canadians now require broadband service in order to meet the needs of their daily lives. The obligation to serve, therefore, must be updated to reflect this new reality, by removing the explicit reference to "telephone service" and replacing it with "basic telecommunications services" as defined by the Commission as a result of this proceeding.

128. Similarly, we believe that the basic service objective, which defines the services which all Canadians are entitled to receive, needs to be updated to include broadband (for more details, see our response to Question 9). We argue that providing these services must become an *obligation*, not merely an objective. While the Basic Service Obligation should apply to those providers serving Canadians in urban areas, improving access to affordable, adequate Basic Service is particularly important in those high cost areas

[51] TNC CRTC 2015-134, paragraph 13, emphasis added.

where providers have little incentive to provide high quality services that are frequently updated to meet the needs of their residential, organizational, and community customers.

129. This obligation must be enforceable. The Commission should impose financial penalties on carriers that do not meet their basic service obligations. As an ultimate sanction against severe and repeated infractions, the Commission could force the offending carrier to forfeit its licence for the under-served territory. This is to ensure that a carrier will not simply withdraw from providing service to single communities or sub-regions that are deemed insufficiently profitable or too expensive to service. With this point we aim to block opportunities for service providers to “cherry pick” which customers they are willing to serve.

130. Further, the current obligation to serve and the local service subsidy regime have failed to meet the needs of communities in the regions represented by the FMCC. As argued throughout this intervention, the Commission’s own research demonstrates that this framework is not working. Therefore, the Commission needs to reconfigure its subsidy mechanism to recognize and support the community intermediary organizations operating in these areas. These organizations best understand the needs of their communities, and they have the strongest incentive to meet obligations to provide services to them.

131. In contrast, the large ILECs have failed to provide high quality of service, upgrade their facilities, or to train and hire local residents to install and maintain their equipment in areas that lack a strong business case to do so. Therefore, the Commission should make a subsidy available to community intermediary organizations by setting up a Northern Infrastructure and Services Fund (NISF), as described in greater detail in our response to Question 13.

132. We also note that the “Basic Service” obligation and the obligation to serve should contemplate the needs of communities as well as those of individual community members. Communities as well as individuals are consumers, citizens, and creators, and utilize telecommunications infrastructures and services in those ways. This recognition involves providing transport to the intermediary organizations set up by - and accountable to - these communities. It also recognizes that Basic Services encompass a community focus as well as a home (household focus) in terms of developing and managing telecommunications infrastructure. While access to Basic Services is typically defined in terms of households, we emphasize the need to also provide those services to community organizations: health, education, and social service agencies such as clinics, schools, libraries, and businesses.

CRTC Q9: Should broadband Internet service be defined as a basic telecommunications service? What other services, if any, should be defined as basic telecommunications services?

Response to Q9: Broadband is a basic service

133. The Commission's definition of “Basic Service” must include broadband. When the Commission first engaged with the issue in 1999 (Telecom Decision CRTC 99-16 *Telephone service to high-cost serving areas* (TD 99-16) broadband was an emerging technology; today it is a fundamental element of the telecommunications system. As the Commission has noted, access to broadband is necessary for Canadians to participate in the digital economy. We note that IP technology is increasingly used to deliver voice as well as data and video services. Chairman Blais has publicly endorsed IP technology as the best means to address future needs.

134. We provided evidence above in response to Question 1 above that access to broadband is critical for social and economic development of northern and Indigenous populations. We also addressed the need for a revised definition of Basic Services in Question 3 above.

135. Along with broadband, the definition of ‘Basic Service’ should include the following components:

- Voice telephony (both local and long distance) on individual lines or circuits
- Additional services, including access to emergency services, Voice Message Relay Service, and privacy protection features (as specified in TD 99-16);
- A directory with contact information for fixed and mobile telephone listings that is available in Indigenous languages and alphabets in regions with significant Indigenous populations. Hard copy directories should be updated and delivered annually to communities. Directory information should also be provided online with annual updates. Hard copies of directories are necessary because not all community members will be able to access online directories, and some may prefer hard copies.

136. Affordability should also be included as a component of basic service. The Commission implicitly recognized the importance of affordability in 1999 when it included in basic service “the capability to connect to the Internet via low-speed data transmission at local rates” at a time when rural residents typically had to pay long distance rates to reach an ISP. This component should take into account the limits that are often placed on Internet services (data caps), which in effect amount to rates that limit the utility of Internet services, particularly for low-income users.

CRTC Q10: What changes, if any, should be made to the existing local service subsidy regime? What resulting changes, if any, would be required to the existing regulatory frameworks (e.g. price cap regimes)?

Response to Q10: Expand eligibility beyond ILECS, to include community intermediaries

137. In TRP 2011-291, the Commission noted that "In 2002, the new subsidy regime was implemented to subsidize the provision of basic residential service in HCSAs" (para 14). In other words, the objective is to ensure that Canadians have access to basic services, not simply to ensure that for-profit providers can recover their costs for delivering those services.

138. As stressed throughout this intervention, the existing local subsidy scheme is simply not working. Both the testimony of interveners and the Commission's findings in TNC 2012-66 and TNC 2014-44 have pointed out that many communities in Northwestel's service area and in the northern parts of the provinces will not meet the CRTC's broadband targets by 2015. Evidence provided by numerous parties in TNC 2012-66 showed that quality of service was generally inadequate. Our research further shows that service is also inadequate in many communities in the northern parts of the provinces.

139. The subsidies designed to provide telecommunications infrastructure and services in these regions are currently provided only to ILECs, because they have the obligation to provide residential wireline local telephone services. However, since these communities are costly to serve and generate comparatively little revenue, private sector telecommunications providers have little incentive to respond to the practical needs of these communities, beyond the bare minimum required by regulation, and may not meet even those requirements. We have addressed this point in more detail elsewhere in our intervention.

140. We therefore propose that the CRTC establish a subsidy scheme that allows for local and regional community intermediary organizations that provide telecommunications services to access these subsidies. As we have shown above, these organizations are already providing services - but they lack access to funding that is currently available only to ILECs. Further, these organizations are responsible to the communities they serve, rather than to shareholders who have no stake in the availability, affordability or quality of telecommunications services. Therefore, community intermediary organizations have strong incentives to meet the basic service needs of these communities.

141. Since local and/or regional telecommunications providers that operate as community intermediary organizations are demonstrably willing to offer services in HCSAs, and can do so more efficiently and at less cost to their community members than large southern-based ILECs, they too must be eligible for subsidization. To decide otherwise would not only be unfair – it would also restrict opportunities for local and regional innovation, and

economic development. We discuss the specific details of our proposal for a new subsidy scheme to support these organizations in our response to Question 13 below.

142. Concerning **price caps**, we believe that the Commission should still require them as a mechanism to ensure that the newly defined basic services are *affordable* - including to individual, organizational and community consumers in rural, remote and northern regions. Given high transport costs, especially for satellite capacity (as noted in TNC 2014-44), it is important for the Commission to ensure that the prices that end users pay are reasonably comparable to those available in urban areas. For more details on this issue of affordability, see our discussion in response to Questions 1c and 3c.

CRTC Q11: What changes, if any, should be made to the contribution collection mechanism? Your response should address, with supporting rationale, which TSPs should be required to contribute to the NCF, which revenues should be contribution-eligible and which revenues, if any, should be excluded from the calculation of contribution-eligible revenues.

Response to Q11: Expand eligibility to include retail Internet services

143. In TNC 2015-134, the Commission notes that: "TSPs, or groups of related TSPs, with annual Canadian telecommunications revenues of $10 million or more are requested to contribute to the NCF. Contributions are 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 paging services) and other amounts (e.g. intercompany payments) are currently excluded from the calculation of a TSPs contribution-eligible revenues". According to TNC 2015-134, retail Internet revenues are not currently eligible in these contributions 52– despite the fact that they account for growing annual revenues for telecommunications companies — although it is unclear whether this item would include such services as mobile broadband.[53]

144. In this consultation, the Commission is effectively asking whether the level of these contributions should be changed. We believe that the Commission should expand the eligible contributions because under the expanded definition of Basic Services we propose above, which includes broadband delivered over fixed or mobile facilities, additional funding will be required, and retail Internet services - and associated revenues - are now a fundamental and growing element of telecommunications services. In TNC 2015-134, the Commission notes that: "In 2013, revenues for the retail telecommunications service industry were approximately $41 billion, and these revenues continue to grow annually, primarily due to the increasing use of wireless and Internet

52 TNC CRTC 2015-134, paragraph 19.

[53] See Decision CRTC 2000-745 *Changes to the contribution regime*, beginning at paragraph 85.

services".[54] In the 2014 *Telecommunications Monitoring Report,* the Commission notes that: "the total annual revenues from the provision of telecommunications services in Canada is $44.3 billion."[55] In fact, in 2013 retail wireline Internet revenues grew to equal local wireline voice revenues for the first time, and previous growth trends strongly suggest that Internet revenue has likely surpassed local voice since then.[56]

145. We endorse the position of the Eeyou Communication Network (ECN)[57] in their submission to this proceeding, which argues that all revenues of all telecommunications services should be subject to the telecommunications revenue-eligible fee for the subsidy regime[58] - with a key exception. The Commission should maintain the exemption for telecommunications providers with revenues under $10 million. This exemption is designed to encourage competition, particularly among smaller organizations and community intermediary organizations.

146. The Commission should allocate these new funds to an independently-managed non-profit national fund, publicly licensed by the CRTC, which we describe in response to Question 13 below.

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[54] TNC CRTC 2015-134, paragraph 2.

[55] Central Fund Annual Report (2014). Available at: http://www.crtc.gc.ca/public/cisc/docs/4quarter2014.pdf

[56] CRTC Communications Monitoring Report 2014, table 5.1.1.

[57] Eeyou Communication Network (ECN) is a member of the First Mile Connectivity Consortium (FMCC).

[58] This recommendation is consistent with the Commission's determinations in Decision CRTC 2000-745, which states: "The Commission notes that applying contribution against the broadest possible range of telecommunications services would spread the contribution burden across various sectors of the marketplace. This approach would be competitively equitable, result in a lower revenue-percent charge being applied to each service, and be more administratively efficient by eliminating the need for a detailed review and classification of all telecommunications services" (para. 87).

The logic behind this determination still stands, and is arguably stronger today than it was 15 years ago.

CRTC Q12: Should some or all services that are considered to be basic telecommunications services be subsidized? Explain, with supporting details, which services should be subsidized and under what circumstances.

Response to Q12: Basic services that should be eligible for subsidy; consider needs-based subsidies

147. All basic services that we have identified in Questions 3 and 9 above, including broadband, should be eligible for subsidy. Throughout this intervention we have referred in detail to the high costs of providing these services in northern and remote regions. Without subsidies, these services might not be available, and definitely would not be affordable for these communities.

148. We address subsidies to providers of local services which would include the revised basic services in response to Question 10 above. The CRTC should also introduce a subsidy for low income subscribers — based not on geography, but on need. Residents in northern regions would qualify for such a subsidy, in addition to low income residents in other regions. This subsidy would help to address the higher cost of living and the variable employment opportunities in Canada's isolated remote and Northern communities, but also recognizes the financial hurdles facing low-income Canadians in all areas of the country.

149. An example of a subsidy for low-income subscribers is the U.S. Lifeline program which subsidizes voice service by landline and more recently by mobile phone. The FCC has now announced its intention to extend this program to include broadband. While abuses of the Lifeline program have recently been publicized, the benefits of this program have been significant, and the FCC has taken steps to improve enforcement.[59] It has also expanded eligibility for residents living on or near Tribal lands, and established an additional subsidy tier for low- income residents living on Tribal lands.[60]This program is particularly beneficial for residents of remote and northern communities. For example, representatives of Alaska Native communities Alaska believe that this policy will help to make broadband more affordable in rural Alaska.

CRTC Q13: If there is a need to establish a new funding mechanism to support the provision of modern telecommunications services, describe how this mechanism would operate. Your response should address the mechanism described in Telecom Regulatory Policy 2013-711 for transport services and/or any other mechanism necessary to support modern telecommunications services across Canada.
Response to Q13: Establish a Northern Infrastructure and Services Fund.

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[59] Federal Communications Commission. Report and Order: In the Matter of Lifeline and Link Up Reform and Modernization, adopted January 31, 2012. .

[60] Federal Communications Commission. Report and Order: In the Matter of Lifeline and Link Up Reform and Modernization, adopted January 31, 2012, para 151.

150. We propose a new Northern Infrastructure and Services Fund (NISF) to replace the current National Contribution Fund (NCF). This new mechanism would also include funding to implement support for transport services as described in Telecom Regulatory Policy 2013-711, but would not be limited to Northwestel's territory. Rather the fund would include other northern and remote regions. The details of these proposals are presented in our responses to the questions below.

151. In response to Question 7, we pointed out the need for a funding mechanism to support capital infrastructure not only in Northwestel's territory but in other northern and isolated regions. In response to Questions 8 and 10, we stated that the current combination of obligation to serve and subsidies for incumbent ILECs is not working to provide modern, reliable and affordable communications services to households, organizations and communities in these regions. Below, we offer specific proposals for how a new mechanism - the NISF - could address these challenges.

152. In general, any subsidy scheme should:

- Apply to both fixed and mobile infrastructures and services;
- Be technology neutral (available for any technological solution that meets specified requirements); and
- Be open to any provider that can demonstrate that it can provide facilities and/or operate services in the designated areas.

CRTC Q13a: What types of infrastructure and/or services should be funded?

Response to Q13a: Fund modern telecommunications infrastructure and services required by communities

153. Requirements for any subsidy program should specify benchmarks such as coverage, bandwidth, quality of service, target price, etc. – but not technology. For example, voice service can be provided by wireless as well as wireline technologies and over IP networks; Internet access can be delivered by various forms of licensed and unlicensed wireless, as well as over DSL, fibre, cable, and satellite.

154. The proposed Northern Infrastructure and Services Fund (NISF) for community intermediary organizations and others operating in remote and Northern regions should include (but not be limited to):

- Regional transport infrastructure;
- Local loop (last-mile or First Mile) infrastructure;
- Training for community members in operations and management of telecommunications services;

- Training for community members in digital literacies, including Internet Performance Measurement; and
- Strategic planning and research.

155. The basic services identified in Question 9 above should be included as eligible services; notably broadband should be added to voice services.

156. In addition to infrastructure and basic services, the proposed NISF should also provide funds for:

- Training for community members in operations and management of telecommunications services;
- Training for community members in digital literacies, including Internet Performance Measurement; and
- Strategic planning and research.

157. Funds should be made available to enable providers to train northern residents and to upgrade their technical skills, and for digital literacy activities. Funds would also be available for research and planning to identify future needs, monitor service quality, and participate in policy and regulatory activities. Training local residents not only provides jobs in isolated remote and Northern communities, but also reduces the costs of operating and maintaining facilities. Rather than relying on technical crews who fly in from distant cities to do repairs, local residents can be employed to develop and manage telecommunications infrastructure and services. We have many examples of community intermediary organizations working with community members in these communities in this way. We note the testimony of Lyle Fabian of K'atl'odeeche First Nation (KFN) at the Northwestel hearing in Whitehorse, which described how KFN provided training for KFN members hired for construction of a local fibre optic network, as well as operation and maintenance of the network.[61] Other FMCC members including KNET and the First Nations Education Council have hired and trained residents from the rural, remote and northern communities that they serve. Training can also support community-level monitoring of Internet performance, as discussed above in response to Question 3b. .

[61] See: Oral testimony of Lyle Fabian on behalf of K'atl'odeeche First Nation, TNC 2012-699 http://www.crtc.gc.ca/eng/transcripts/2013/tt0619.html

CRTC Q13b: In which regions of Canada should funding be provided?

Response to Q13b: Extend funding beyond Northwestel's territory

158. As noted throughout this intervention, the Commission should extend the regions eligible for funding beyond Northwestel's territories (Yukon, Northwest Territories and Nunavut) to include the northern parts of the provinces and in the regions of Nunavik and Nunatsiavut. See our response to Question 7a for more details on these regions.

159. We note that in the U.S., the FCC has implemented several funds and policies targeted for remote and tribal regions. It established the Connect America Fund (CAF) to ensure that voice and broadband service is available throughout the nation.[62] This Fund replaced previous high cost subsidies for voice service to include broadband services over fixed and mobile networks and ensuring that rates for voice and broadband services are "reasonably comparable in all regions of the nation". Within the CAF, the Commission created a Remote Areas Fund with a budget of at least $100 million annually "to ensure that even Americans living in the most remote areas of the where the cost of providing terrestrial broadband service is extremely high, can obtain service." The Connect America Mobility Fund also allocates $300 million for mobile voice and broadband in high cost areas, plus $500 million/year ongoing support.

160. A special allocation under the Connect America Mobility Fund is to provide $50 million capital plus up to $100 million/year for tribal areas to support the build-out of current and next-generation mobile networks in areas where these networks are currently unavailable. In 2013, the FCC held a reverse auction for Phase I of the Tribal Mobility Fund, which distributed $50 million in one-time support for mobile service providers serving tribal lands lacking 3G or 4G service.[63] Phase II of the Mobility Fund will offer $500 million annually for ongoing support of mobile services, with up to $100 million of this amount designated annually and exclusively for support to Tribal lands. Thus, these funds provide both capital and operating support. It employs reverse auctions to award the license to the carrier requiring the lowest subsidy. It should also be noted that Indigenous providers can participate in the auctions, individually or in joint ventures and partnerships. In fact, the FCC encourages them to do so, as a means to support economic and community development in Tribal communities.

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[62] Federal Communications Commission. "Connect America Fund Report And Order And Further Notice Of Proposed Rulemaking." Washington, DC, released November 18, 2011.

[63] See FCC, Mobility Fund Phase I Auction — Winning Bids Sorted by State and County. http://wireless.fcc.gov/auctions/901/reports/901winning_bids_by_state_county.pdf

CRTC Q13c: Which service providers should be eligible to receive funding, and how should eligibility for funding be determined (e.g. only one service provider per area, all service providers that meet certain conditions, wireless service providers, or service providers that win a competitive bidding process)?

Response to Q13c: Expand eligibility to include community intermediary organizations

161. As noted above the CRTC should expand the definition of service providers associated with basic service obligations – and associated subsidies – to include those organizations that already provide or could provide services in remote and northern regions. The proposed Northern Infrastructure and Services Fund (NISF) should be open to community intermediary organizations that can demonstrate the capability to:

- Fulfill the Basic Service objectives;
- Be owned and/or operated by an entity directly accountable on an ongoing basis to communities located in the region;
- Employ local community members as technicians or administrators;
- Provide telecommunications services to members of communities and their local institutions; and
- Provide regular Internet Performance monitoring reports to the Commission.

162. Preference should be given to community and regional organizations based in the North (as defined above) either as stand-alone providers or in partnership with other entities. In such cases, the northern organization would be required to be the majority partner. One of the functions of these organizations is to bridge the gap between remote communities and federal and provincial government agencies by contributing to policy development and helping central government agencies maintain communications with people living in remote communities. They also work with local communities and private sector telecommunications companies to set up and operate industry standard broadband infrastructure, and deliver a host of online applications. These community intermediary organizations manage and support public and community services, including online education, training in digital literacy, and e-health. This work is the result of close consultation and engagement with their members.

163. First Nations across the country have established community intermediary organizations to provide technology support services to their constituent populations. This work was supported by a federal policy framework designed to expand connectivity in rural and remote communities in the late 1990s and early 2000s. The “Connecting Canadians” policy framework, and associated programs like First Nations SchoolNet and the Community Access Program, contracted a national network of First Nations organizations to administer programs on a regional basis. Through these developments, aside from the Atlantic provinces (collectively administered by Atlantic Canada’s First Nation Help Desk), by 2010 every province in Canada had its own First Nation community intermediary.

164. These organizations operate complex digital networks and applications while enabling their constituents to assert self-determined development goals. They also work with local communities and private sector telecommunications companies to set up and operate industry standard broadband infrastructure, and deliver a host of online applications. These community intermediary organizations are owned and controlled by First Nations, and compete for government contracts to provide services to their member communities. They manage and support public and community services, including online education, training in digital literacy, and e-health. The work of First Nation community intermediaries is supported nationally through the Assembly of First Nations (AFN).The activities of the AFN and the First Nation community intermediaries are collectively guided by a conceptual framework called the e-Community ICT model. This strategic planning initiative aims to establish a skilled public service in every First Nation and outlines the role of digital networks and technologies in achieving that goal..

165. As an example of a community intermediary organization based in and providing infrastructure and services to northern Ontario, KNET contracts with many organizations, including First Nations, governments, and private companies. Its budget and strategic plan are developed in collaboration with the leadership of the KO First Nations, and most of the organization's staff are First Nation people from the region. Operations are funded through business contracts for network, training, and other services. Surplus revenues are dedicated to capacity building and network upgrades among member First Nations.

166. Training is a primary focus of KO-KNET's services. Specific projects include youth summer technology camps and professional training in digital literacies for teachers and school administrators, community water plant operators, 39 tele-health technicians, and other local professionals. KO-KNET also works with institutions including Confederation College and Brock University to develop and deliver distance education via videoconferencing. These initiatives translate into local skilled employment in First Nations, through jobs such as cable plant technicians and videoconferencing coordinators.

167. For more information KNET, see our response to question 7b.

168. As we have pointed out in responses above, incumbents operating in rural, remote and northern regions do not always fulfill their obligation to serve – but still remain the only entities entitled to receive the subsidy to provide Basic Service. At the same time, community intermediary organizations are already providing Basic Service to customers in rural, remote and northern regions, and are therefore fulfilling the obligation to serve. However under the Commission's current rules these organizations are unable to access the subsidy.

169. Therefore we argue that the Commission should open the subsidy and establish a new funding mechanism to support these community intermediary organizations and to encourage collaboration between for-profit and nonprofit telecommunications service providers operating in rural, remote and northern regions.

170. These community intermediary organizations have a strong “community service case” to be responsible to their constituents, and have no legal obligation to be generate profits for distant shareholders. They can therefore provide telecommunications services in areas that otherwise lack a business case to do so. Rather than remit profits to shareholders, community intermediary organizations invest any excess revenues to improve services, such as by purchasing equipment, advancing networks, and/or lowering rates.

171. For-profit companies benefit from the work of community intermediary organizations by gaining and maintaining them as customers for their transport facilities and services. Collaboration between backhaul service providers and nonprofit providers already takes place in several regions. For example, as discussed in our response to Question 7b, KNET leases capacity from backbone providers to provide services in northern Ontario. In the Northwest Territories, K’atl’odeeche First Nation (KFN) testified in Whitehorse in 2013 that they had installed a local optical fibre network, and had dark fibre that they were willing to lease to providers. In his testimony at that hearing, Lyle Fabian stated: “KFN believes that future telco business on this infrastructure would provide huge returns to the community. A small leasing cost paid to the community network could save millions of dollars in upgrade costs, support local competition, lower prices for customers, and provide a long-term business opportunity inside the community.”[64]

172. Community intermediary organizations also contribute to local employment by providing community members with opportunities to work skilled jobs as administrators and technicians. Given the high rates of unemployment and the young population in northern regions, there is a need for skilled jobs in these rural and remote communities.

173. By training and hiring local technicians, these organizations also support the goal of maintaining high Quality of Service (QoS) by providing on-site points of contact, rather than flying in technicians on an as-needed basis. Local employees provide strong links to communities and therefore hear the requirements - and complaints – of their constituents directly. These organizations also contribute to economic development efforts to circulate revenues inside communities (such as between local customers and service providers). Recipients of the fund will be required to submit annual monitoring data of quality of service and demonstrate that they have hired local residents and provided training where necessary.

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[64] See: Oral testimony of Lyle Fabian on behalf of K’atl’odeeche First Nation, TNC 2012-699 http://www.crtc.gc.ca/eng/transcripts/2013/tt0619.html paragraph 2837.

CRTC Q13d: How should the amount of funding be determined (e.g. based on costs to provide service or a competitive bidding process)?

Response to Q13d: Competitive proposals or reverse auctions

174. The potential mechanisms for determining funding for the subsidy mechanism (the Northern Infrastructure and Services Fund) that we propose in our response to Question 13 include:

- **Competitive proposals:** This approach encourages new entrants in addition to incumbents and large vendors to provide equipment and services for schools. Proposals would have to specify benchmarks for service quality, monitoring, and hiring and training of local employees, as well as proposed prices for their services.
- **Reverse Auctions or other competitive bids for subsidies:** Providers could also submit bids for subsidies, with the lowest bid receiving the subsidy. This approach can foster competition in unserved regions, and creates incentives to minimize subsidies. Several countries use reverse auctions to create incentives for efficient investment in rural areas. This approach is being used in the U.S. for the Mobility Fund auctions to serve rural, remote and Tribal regions.

CRTC Q13e: What is the appropriate mechanism for distributing funding? For example, should this funding be (i) paid to the service provider based on revenues and costs, or (ii) awarded based on a competitive bidding process?

Response to Q13e: Establish an independent administrator and consultation process

175. The Northern Infrastructure and Services Fund (NISF) that we propose will be a licensed body governed by representatives from affected northern, remote and rural regions. This organization will enable community members and their representatives to have voice in the way that public funds are spent to develop and deliver basic services in their regions.

176. Concerning the structure of the proposed independent body, we draw an analogy to the Community Radio Fund of Canada (CRFC) (www.communityradiofund.org). The CRFC is certified by the Commission to administer and distribute funds from Canadian Content Development Contributions to campus and community radio organizations. It is designated by the Commission to receive both voluntary and mandatory contributions from commercial radio broadcasters as a part of their licensing obligations.

177. The CRFC is currently available to all non-commercial, community, and community-based broadcasters in Canada, and their representative associations (as determined in CRTC Public Notices CRTC 2000-12, 2000-13, and 2010-499). It reviews applications from eligible entities and makes funding decisions according to published criteria. To avoid potential conflicts of interest, this review is undertaken by a committee of

individuals with no direct link to applicants (or the associations representing them). Recipients of funds must use the subsidy to support stated policy objectives.

178. The NISF will be an independent organization governed by an elected Board of Directors with strong ties to rural, remote and northern regions. This organization would be tasked to review proposals and distribute funding in an open and transparent manner. It would provide annual reports to the Commission that outline its decisions and rationale.

179. We stress that the distribution of any subsidies used to support Basic Services in the rural, remote and Northern communities addressed in this intervention must flow through an independent organization that is accountable to the members of these communities. Therefore, to administer this subsidy mechanism, the NISF should employ a proposal-based model, similar to that used in the Commission's existing regulatory framework. At present, in order to access its portion of the National Contribution Fund (NCF), Northwestel is required to generate Service Improvement Plans. (As outlined in CRTC Decision 2000-246 and CRTC Decision 2005-54). A similar but somewhat simplified approach should be used in a transparent process that clearly demonstrates how capital and operational funds from the NISF will be spent to support and improve telecommunications infrastructures and services in remote and northern regions.

180. This process benefits the CRTC by reducing the administrative burden of distributing subsidies to community intermediary organizations operating in remote and northern regions on a case-by-case basis. It supports communities by increasing accountability for the public funds spent in their regions to improve and deliver basic telecommunications services. Put simply, this process enables members of these communities gain more control over where and how funds are spent to support the BSO. It recognizes Section 7 of the *Telecommunications Act*, which notes that Canadian telecommunications policy objectives include a need to "safeguard, enrich and strengthen the social and economic fabric of Canada and its regions". It directly supports capacity-building initiatives already underway in these communities, and develops digital literacy among community members with regards to the ongoing development, operations and maintenance of telecommunications services and infrastructures.

CRTC Q13f: Should any infrastructure that is funded be available on a wholesale basis, and if so, under what terms and conditions?

Response to Q13f: Subsidized infrastructure should be available on a wholesale basis

181. Yes, infrastructure that receives funding from the proposed NISF should be required to be made available on a wholesale basis so that community providers and others can lease capacity for resale.

182. Wholesale access provisions, in particular regarding bottleneck facilities such as transport infrastructure to and within rural, remote, isolated, and northern communities, are a fundamental means of ensuring that the benefits of competition and innovation extend to users of telecommunications services. The Commission is involved in ongoing development of these provisions in many areas of the Canadian telecommunications industry. In the context of the present proceeding, it would be beneficial to apply the lessons learned and methods developed in order to ensure that these benefits extend to those living in rural, remote, isolated, and northern communities.

CRTC Q13g: Should the Commission set a maximum retail rate for any telecommunications service that is subsidized?

Response to Q13g: Rates must be just and reasonable

183. Yes, as noted above in our response to Question 10, maximum pricing should apply throughout the region (see our discussions of affordability above and in response to Questing 3c) regardless of whether subsidized or not to ensure that pricing is affordable.

184. We note that the CRTC has recently re-regulated the pricing of retail Internet in Northwestel's service area in the remote and Northern regions that we consider in this intervention (see TNC 2012-66).

CRTC Q13h: Should this mechanism replace the existing residential local wireline service subsidy? If so, explain how the existing subsidy should be eliminated, including details on any transition period. In addition, explain whether the small ILECs and/or Northwestel should be subject to any special considerations or modifications for this transition period.

Response to Q13h: Replace the existing fund with the NISF, with a transition period

185. Our proposed Northern Infrastructure and Services Fund (NISF) would contain a component that replaces the current wireline subsidy. We propose a three-year transition period to implement the NISF and allow for transition by the ILECs.

Conclusion: Request to Participate in Public Hearing

186. We thank the Commission for the opportunity to contribute to this consultation and request the opportunity to participate in the public hearing beginning on April 11, 2016, in Gatineau, Quebec. We believe it is important to participate in the hearing in addition to filing written submissions because our members and expert witnesses have firsthand knowledge of the northern regions that are key to many issues addressed in this consultation, including the needs of the communities, community-based models for providing telecommunications, subsidy models, and practical issues that must be addressed in providing basic communications services including broadband in these regions. Further, they can explain the results of our ongoing research on these regions and answer any questions from the Commissioners concerning our submission. Some may wish to participate by videoconference from northern locations.

Respectfully,
First Mile Connectivity Consortium
Rob McMahon, PhD
Coordinator

*****END OF DOCUMENT*****

cc

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