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Indigenous Broadband Policy Advocacy in Canada's Far North

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Abstract: In 2012, Canada's communications regulator, the Canadian Radio-television and Telecommunications Commission (CRTC), initiated a consultation on infrastructure and services in the northern territories. The consultation included the CRTC's first public hearings in the far North, where remote and sparsely populated communities are currently served by a single terrestrial incumbent and a few satellite operators. The CRTC invited comment on the existing regulatory framework and subsidy scheme applied to the terrestrial incumbent, as well as its proposed modernization plan. It therefore presented an opportunity to comment on issues of affordability, quality of service, aging infrastructure and lack of competition.

A national group of indigenous broadband policy advocates seized on this opportunity to intervene in the broadband development process. The First Mile Connectivity Consortium, a nonprofit coalition of academic researchers and First Nations technology organizations, argued that Aboriginal organizations themselves could provide telecommunications services in many northern communities. They articulated three core points: open access to transport networks; subsidy support for First Nations community networks; and the need for indigenous communities to be consulted on infrastructure development and service upgrades taking place in their territories.

This case study demonstrates how research and advocacy can be introduced in regulatory proceedings. While the results of the intervention are yet to be determined, FMCC's participation illustrates how a coalition of diverse organizations can marshal research and experience to influence policies that can support indigenous communities as providers as well as consumers of communications services including broadband. It also laid the groundwork for intervention in future regulatory and policy proceedings.

1. Introduction

In this paper we consider how indigenous peoples in Canada and their partners are shaping the structural conditions guiding broadband development in their territories. The digital divides these groups face both arise from and contribute to historic and ongoing socio-economic challenges (Bredin, 2001; O'Donnell, Milliken, Chong & Walmark, 2010; Sandvig, 2012). Broadband

infrastructures are platforms for the delivery of public services and economic development opportunities, among other elements of indigenous self-government (Whiteduck, Beaton, Burton & O'Donnell, 2012). Yet these people lack substantive opportunities to participate in the creation of digital policy. In this context, seemingly technical choices about access and service provision hold socio-economic and political implications (Bendrath & Mueller, 2011; Castells, 2009; Crawford, 2013). We consider these issues by describing how a group of indigenous peoples and their partners mobilized during recent regulatory hearings in Canada's far north.

In 2012, Canada's telecommunications and broadcasting regulator, the Canadian Radio-television and Telecommunications Commission (CRTC), initiated a review of infrastructure and services in the country's northern territories. The consultation included the CRTC's first public hearings in the region, which includes many remote and primarily indigenous communities. Connected through a patchwork of terrestrial and satellite transport links and aging last-mile networks, these diffuse and sparsely populated settlements are currently serviced by a single incumbent telecommunications carrier and a few specialized satellite operators (Fiser & Jeffrey, 2013). The CRTC invited comment on the existing regulatory framework and subsidy scheme applied to the incumbent, and its proposed modernization plan. These topics provided participants the opportunity to raise issues of affordability, aging infrastructure, lack of competition, slow speeds, and poor quality of service. A national group of indigenous broadband policy advocates seized on this opportunity to intervene in the regulatory process. This case study illustrates how research and advocacy initiatives can feed into and broaden policy considerations at a regulatory hearing.

2. Indigenous Digital Policy Advocacy in Canada

These activities are preceded by a long history of indigenous engagement in media and telecommunications policy in Canada. Aboriginal efforts to engage in policy formation are complicated by historic and modern treaties and self-government agreements (Borrows, 2010; Youngblood Henderson, 2000). Furthermore, people living in remote communities often lack the financial, technical, institutional, and human resources that might support their participation. Yet these challenges have not precluded their involvement in policy advocacy. For example, Aboriginal peoples asserted their self-determination in the formation of Canada's national broadcast policy, leading to the formal recognition of Aboriginal rights in the 1982 *Broadcasting Act* (see David, 2012; Roth, 2005). Indigenous peoples also engage in telecommunications policy development (CRTC, 2005; Jansen & Bentley, 2004).

This history began with Wa-Wa-Ta (later Wawatay) Native Communications Society. Established in 1974 to serve the First Nations of northwestern Ontario, Wawatay's services began with a bilingual newspaper and expanded into several community radio stations and interactive communications networks. When Bell Canada began to expand telephone service into remote communities, Wawatay became the advocate for the communities and a source of expertise on northern communications. However, the incumbent carrier's quality of service was often poor, with outages, billing errors, and no staff who could communicate with indigenous subscribers. Regulatory proceedings held by the CRTC to review Bell's requests for rate increases became a vehicle for First Nations subscribers to improve their services. Wawatay, with the assistance of expert witnesses and participants from northern communities, intervened

in the proceedings. Bell stated that it was unable to hire Native language speakers to work at its regional offices and therefore could not provide services in those languages. Wawatay responded that bilingual interpreters could be located in the North and provide services by telephone. The CRTC subsequently required the establishment of a service called “Translataphone” which northern customers calling Bell's customer service could use to reach a Native language speaker. Bell was also required to fund a bilingual version of the northern Ontario telephone directory (Hudson, 1984).

More recently, indigenous peoples have advocated in digital policy arenas. In 1994, Industry Canada established the Information Highway Advisory Council (IHAC) to direct national broadband development. While IHAC's action plan, *Building the Information Society: Moving Canada into the 21st Century* (1996) supported universal, affordable and equitable access, critics argued it offered few concrete suggestions on how to overcome socio-cultural barriers, including those in remote, northern, and indigenous communities (Bredin, 2001; Shade, 2010). In 2001, Industry Canada launched the National Broadband Task Force, which guided subsequent federal initiatives. Although dominated by representatives from industry and government, the Task Force included some civil society organizations. The Task Force members agreed that digital technologies could support social as well as economic goals, and that government could play a role in deploying infrastructure in regions that lacked a business case for private sector development. At this time, regional indigenous technology organizations emerged to initiate their own broadband development projects in the remote regions of Canada's boreal forests, and the Arctic regions above the tree line (See Map 1) (Whiteduck, T., 2010).

Map 1: Aboriginal Peoples of North America's Boreal Region
 (source: <http://www.borealbirds.org/ethnobotany.shtml>)



In 1996, First Nation organizations began working with the Government of Canada and telecommunications carriers to develop local Internet connections to schools (First Nations SchoolNet) and public internet access sites (Community Access Program) in First Nations across

the country (Fiser, 2004). At the 1999 Indigenous Peoples Summit of the Americas, Assembly of First Nations (AFN) National Chief Matthew Coon Come noted the digital divides that indigenous peoples face, and their opportunities to appropriate new technologies. In 2003, the AFN began working with government departments to develop the Aboriginal Canada Portal that Indian and Northern Affairs Canada started building in 2001 (Alexander, 2001/2009; O'Donnell et al., 2010). However, lack of infrastructure meant that many northern residents could not access the portal's content. First Nations organizations worked with the AFN to develop a broadband infrastructure strategy. Participants at three Connecting Aboriginal Canadians forums from 2002 to 2004 concluded that while the federal government must support their work through appropriate funding programs, development must be driven by communities, and offer opportunities for local engagement and control (O'Donnell et al, 2010). They also identified several challenges that First Nations faced. These included low awareness and planning capacity, few opportunities to participate in policy and regulatory decisions, a lack of technical capacity, and conflicting jurisdictional responsibilities among governments (AFN Chiefs Committee on Economic Development, 2010).

In 2005, Keewaytinook Okimakanak presented the Prime Minister of Canada with its e-Community strategy concept paper. The group's telecommunications organization, K-NET (KO-KNET) worked with other First Nation organizations and First Nation leaders to move the 2008 e-Community resolution forward at the annual AFN chiefs' assembly in Quebec City. Over time the First Nations connectivity strategy coalesced into the 'e-Community ICT model' (Whiteduck, J., 2010), which was formally presented at the 2009 Aboriginal Policy Research Conference¹ and re-affirmed in AFN Resolution 2011-09. It encompasses five broad themes: capacity building; broadband infrastructure and connectivity; human resources; information management; and service delivery. Several First Nations have begun to implement the model in their communities (see <http://e-community.knet.ca/>).

In Canada's far North, Inuit peoples are also engaged in communications and digital advocacy. In the 1970s, the Inukshuk project (named for the stone cairns that serve as guideposts in the Arctic) linked Inuit communities in three Arctic regions with videoconferencing and Inuktitut-language programming on the experimental Communications Technology Satellite (CTS or Hermes). Although the experiments lasted only nine months, they not only fostered communications among isolated Inuit but also demonstrated that remote communities could produce their own content. Inuit leaders used this experience to lobby for funding for Inuit broadcasting, resulting in the establishment of the Inuit Broadcasting Corporation (IBC) in 1981 (Hudson, 1990). In 1994, IBC hosted a symposium to discuss if, how, and why the Canadian Arctic should be connected (Blair Christensen, 2003). Through consultations held in 27 communities, Inuit debated issues of digital divides, impacts of connectivity on culture and language, capacity-building, maintenance and use of technologies, participation, and funding. Using television, community meetings, fax machines and phone-in sessions, hundreds of people

¹ The Aboriginal Policy Research Conference was established by several partners, including the University of Western Ontario, Strategic Research and Analysis Directorate of Indian Affairs and Northern Development Canada (now AADNC), and the National Association of Friendship Centres. Set up to build bridges between research and policy, the event was held three times - in 2002, 2006, and 2009 (see: <http://www.aprci.org/>).

participated in these consultations. The Nunavut Implementation Commission utilized the group's final report during the formation of the territory in 1995, arguing "the road to Nunavut is along the information highway" (Alia, 2010).

To this end, from 1999 to 2001, the Government of Nunavut's Department of Sustainable Development convened the Nunavut Broadband Task Force. In 2002, the group produced *Sivumuqpalianiq: Moving Forward: Strengthening our Self-Reliance in the Information Age*, which supported the creation of the Nunavut Broadband Development Corporation (NBDC). The organization lobbied the federal government to obtain bandwidth and facilities for all 25 Nunavut communities through the for-profit Qiniq network. In 2008, NBDC released its 5-year business plan, called *Managing Bandwidth -- Nunavut's Road Ahead*, and the following year signed a 5-year Contribution Agreement with Infrastructure Canada. The federal government (through the northern economic development agency CanNor) also announced funding to develop a strategic connectivity plan covering all three northern territories, and provided support for community broadband projects.

These various digital advocacy initiatives took place in a dynamic political context. In 2007, the newly elected Conservative government initiated broadband policy aimed at addressing digital divides and providing economic development opportunities. Federal initiatives such as *Broadband Canada: Connecting Rural Canadians* instrumentalized these goals by providing subsidies for private sector entities to build and operate infrastructure, which critics argued undermined local network sustainability and service delivery in remote communities (Alexander, 2009; Moll, 2012; Raboy & Schtern, 2010; Rideout, 2008). Aboriginal organizations also criticized these policy shifts, partly because they were not consulted during planning and implementation (AFN Chiefs Committee on Economic Development, 2010). For example, in June 2010, Industry Canada announced its plans to develop a national digital economy strategy, supported by recommendations from the Senate Standing Committee on Transport and Communications in their *Plan for a Digital Canada*. Several Aboriginal groups criticized the government's lack of consultation regarding this plan, but some did submit position papers and identified principles to drive the digital economy (see for example Nunavut Broadband Development Corporation, 2010; Whiteduck, J., Burton, Whiteduck, T., & Beaton, 2010).

A research project conducted at that time confirmed that many staff in First Nations and Inuit technology organizations believed they lacked substantive opportunities to contribute to digital policy (McMahon, O'Donnell, Smith, Woodman Simmonds & Walmark, 2010). Parallel to these developments, Aboriginal Affairs and Northern Development Canada (AANDC) was tasked with developing a national Aboriginal connectivity strategy. As of late 2013, the federal government also has yet to publicly release the digital economy strategy, and so it is unclear whether the plan will take into consideration the points raised by the Aboriginal parties.

3. The First Mile Connectivity Consortium

Over the past 20 years, various groups have used the term "First Mile" to describe locally-driven broadband infrastructure projects, contrasting this approach to the "last mile" link from service providers to subscribers in telecommunications networks (see Paisley & Richardson, 1998; Stover, 2000). First Mile initiatives encourage rural and remote user communities to generate

and operate their own infrastructures. Applied to the context of politically autonomous indigenous communities, they provide a way to re-frame broadband policy and regulatory frameworks to fit their diverse laws, customs, values, and institutional arrangements (McMahon, O'Donnell, Smith, Walmark, Beaton & Woodman Simmonds, 2011; McMahon, 2011).

In 2010, a coalition of university-based researchers, First Nations regional technology organizations, and individual First Nations mobilized around the First Mile concept. Calling themselves the First Mile Connectivity Consortium (FMCC), the group's membership extended across Canada, concentrated in rural and remote regions of Ontario, Quebec, British Columbia, Northwest Territories, and Atlantic Canada. Despite the group's diversity, its members share a common interest in showcasing how broadband policy can support community development, highlight local innovation, and overcome digital divides. The FMCC builds on past and ongoing partnerships between Aboriginal communities and university-based researchers, including First Nations Innovation/VideoCom, the Canadian Research Alliance for Community Innovation and Networking (Longford, Clement, Gurstein, & Shade, 2012), and Research on ICT with Aboriginal Communities (Walmark, O'Donnell & Beaton, 2005). The FMCC's work also builds on that undertaken by the indigenous organizations described earlier. It began with a partnership between Simon Fraser University and the University of New Brunswick and four First Nations regional socio-technical institutions. These partners received financial support through the Social Sciences and Humanities Research Council of Canada (SSHRC). As of 2013, the group continues as part of the First Nations Innovation Project, with SSHRC funding to 2017.

The FMCC has developed several resources to support digital advocacy. A national report combined a literature review and interviews with 23 individuals involved in First Nations and Inuit broadband development. It found that these diverse groups collectively sought to re-frame broadband development policy to enable community development. Following the report's release, the FMCC created a website with information on First Mile projects across Canada (see: <http://firstmile.ca>). As of fall 2013, the website features almost 80 stories. Through the First Nations Innovation Project, the FMCC team has also published more than 50 academic articles. The conceptual framework of the First Mile, and the online platform established by the FMCC, provided a foundation and resources that researchers and First Nation groups used to intervene in regulatory hearings in Canada's far North.

4. Canadian Policy and Regulatory Structure

The CRTC is responsible for telecommunications regulation throughout Canada. In the U.S., intrastate telecommunications is the responsibility of state governments, while interstate telecommunications is a federal responsibility (under the Commerce Clause of the U.S. constitution). In comparison, Canada has only one centralized regulator. The CRTC's responsibility is also limited to regulation, whereas the Federal Communications Commission (FCC) undertakes both regulation and policy directives, such as the drafting and implementation of the *National Broadband Plan*. In Canada, a federal department, Industry Canada, is responsible for telecommunications policy as well as trade and commerce, science and technology, and other industry-related functions. Its administrative structure is somewhat analogous to the National Telecommunications and Information Administration within the U.S. Department of Commerce. Other federal agencies that may be involved in funding indigenous

communications and broadband initiatives include: the Canadian Northern Economic Development Agency (CanNor), which focuses on the country's far North; FedNor, which focuses on northern Ontario; Aboriginal Affairs and Northern Development Canada (AANDC), which is tasked with developing a national Aboriginal connectivity strategy; Health Canada, which provides funding for telehealth infrastructure and operations in rural and remote indigenous communities; and Canadian Heritage which provides funding for arts and cultural industries, including broadcasting and digital media.

As documented earlier, the road to policy change can be long and contorted, often requiring drafting legislation that may be or may not be adopted or persuading politicians or senior administrative officials to adopt policies or release funds. However policies can also be influenced through regulation. While appearing complex and legalistic, the regulatory approach to advocacy has the advantage of resulting in binding and enforceable decisions. When public hearings are included in the process, they provide an opportunity for indigenous organizations (among other stakeholders) to address commissioners directly and include their concerns in the public record. They also provide a means to obtain information from incumbent carriers about matters like quality of service, costs of providing services, and plans for service expansion or upgrades that they may not otherwise release.

Regulation can also sometimes result in *de facto* policy. For example, in 2010, one of this paper's authors appeared as an intervener at the CRTC hearings on the 'obligation to serve' (CRTC 2010-43). She advocated for "real" rather than vague "aspirational" broadband targets that included enforceable parameters like actual speeds and quality of service (Hudson, 2010). In its decision, the CRTC established a target for broadband access of a minimum of 5 Mbps download and 1 Mbps upload, and noted that "while many Canadians in urban areas already have access to broadband Internet services at or above these target speeds, such speeds are not currently available to most Canadians in rural and remote areas." It also stated that target speeds are to be actual speeds delivered, not merely those advertised, and that it expects "the target speeds set out above will be available to all Canadian homes, regardless of their geographic location" by the end of 2015 (CRTC, 2011).

5. CRTC Consultation 2012-669

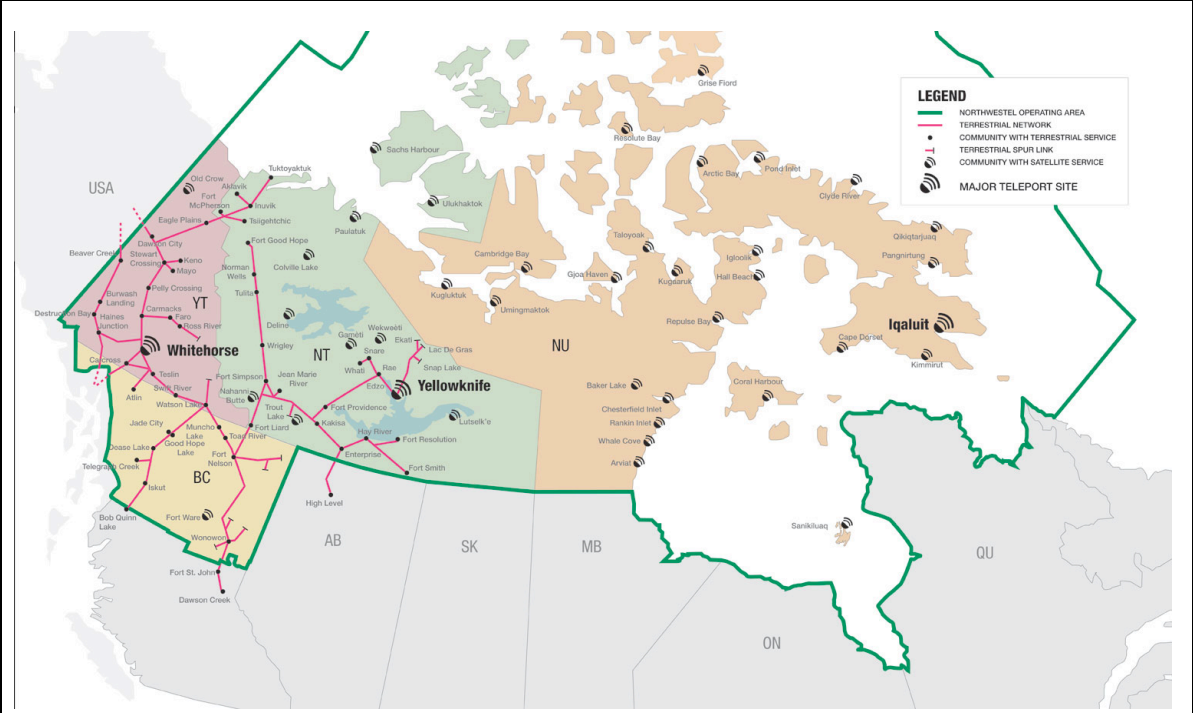
In December 2012, the CRTC announced a review of the services and modernization plans of the incumbent carrier serving the three northern territories (Yukon, Northwest Territories, and Nunavut), and the northern regions of British Columbia (see Map 2). The CRTC was concerned that Northwestel (a Bell Canada subsidiary) had failed to fulfill its regulatory obligations to provide essential services in its territory. To address these issues, the Commission invited comments, with supporting evidence and rationale, on several issues:

- whether Northwestel's modernization plan appropriately addresses concerns raised in a previous decision, *including the needs of northern residents*;
- whether the existing subsidy regime for telecommunications services continues to be appropriate for Northwestel's operating territory or *whether any modifications to either amount of subsidy or the subsidy regime itself in the North are needed*;

- whether there are other services that Northwestel should be providing to competitors in order to facilitate the implementation of local competition; and
- whether any changes are required for services used by Northwestel’s competitors to provide retail services to their customers.
- In addition, the Commission also “invites detailed comments, with supporting evidence and rationale, on other relevant issues associated with the matters identified in this notice” (CRTC, 2012a; *emphasis added*).

Map 2: Northwestel’s Service Territory

Source: http://www.nwtel.ca/media/page_attachments/northwestel-operating-map.jpg



The FMCC decided to participate in this consultation to address the need for broadband services among indigenous communities and residents in the region, alternative forms of subsidy and eligibility for subsidies, and requirements for indigenous providers to compete in providing local services. (The CRTC also requested comments on other topics, including price caps and regulatory forbearance, which the FMCC did not address.) The Consultation included written filings from interested parties, responses to these filings, and public hearings in Inuvik (in the NWT’s Mackenzie delta), and in Whitehorse, Yukon.

In the months leading up to the hearings, the FMCC mobilized a national constituency of indigenous groups. The FMCC posted an information package on its website and sent letters to indigenous community members and organizations. People from communities inside Northwestel’s service area could provide evidence on issues such as the availability, quality, and price of broadband services. The FMCC also contacted indigenous service providers, including some operating outside of Northwestel’s service area. As a result of this outreach, the FMCC received several letters of support, including from the Assembly of First Nations, the Eeyou

Communication Network / Réseau de Communications Eeyou (ECN) in the Eeyou Istchee region of Quebec (which also participated in the hearings), and the Kativik Regional Government (KRG) of the Inuit region of Nunavik in northern Quebec. These letters stressed the importance of engagement and collaboration in broadband development and digital policy. KRG described the broadband services it provides to 14 communities and stressed that although located outside of Northwestel's service area, similarities between Nunavik and Nunavut make it appropriate to support the FMCC's intervention. The regional government noted that:

“The Nunavik experience has shown that a regional organization is at least as capable as a large private sector corporation of providing broadband services that are adapted to the region's specific needs and providing its consumers with reliable and affordable services.” (Kativik Regional Government, 2013).

To formulate its arguments, the FMCC drew on empirical research from the First Nations Innovation Project and the First Mile website to demonstrate how Aboriginal organizations could operate their own networks. While Northwestel's *Modernization Plan* is an ambitious and comprehensive initiative, the group argued it “fails to leverage significant opportunities that may support the long-term economic and social development of affected rural and remote northern communities” (First Mile Connectivity Consortium & K’atl’odeeche First Nation, 2013a). They noted that the definition of “quality of service” could be broadened beyond speed and access to also incorporate how local governments, public service providers, entrepreneurs, and residents develop and use infrastructure.

6. Participation in the Northern Hearings

The public hearings took place in June 2013. The CRTC's initial call for participation stated that it would consider providing videoconferencing and teleconferencing links (CRTC, 2012a). The FMCC seized on this opportunity, pointing out that these services enabled representatives from remote communities to participate, test the services Northwestel makes available to northern communities, and demonstrate the videoconferencing services offered by Aboriginal providers. To this end, the group organized a panel of in-person and remote participants, and arranged for a First Nations provider to manage the videoconference. However, citing the costs and availability of technical staff, the CRTC declined to provide the service or participate in the service offered by the First Nations provider. While the decision was disappointing, it provided the FMCC with a strong example of the challenges that remote participants face and demonstrated the constraints of price and bandwidth in Northwestel's service area.

Several parties joined the FMCC at the hearings. Given the lack of videoconferencing, three of the interveners spoke via audioconference. The FMCC representative, an expert witness, and a representative of a First Nations communications provider testified in person in Whitehorse. In addition to difficult communications logistics, the interveners faced two major procedural challenges. First, they had to frame their arguments within the parameters of the consultation by ensuring that their testimony addressed the issues and the region specified by the Commission. Organizations from northern Quebec and northern Ontario reiterated the position taken in the letter from KRG: that the conditions in their regions are very similar to those in Northwestel's service area and how their positions on subsidies and competition could apply there. The second

challenge was to provide rationales for the CRTC to act on the FMCC's recommendations in this consultation rather than deferring them to future proceedings.

The CRTC scheduled the ECN to testify the first day in Inuvik by audioconference. Established in 2012, the nonprofit regional broadband network interconnects 14 communities in Northern Quebec, including the nine Cree communities of Eeyou Istchee, through a 1,500 km optical fiber network. The ECN provides services for health, education, and IP telecommunications, and is also a wholesaler of data and Internet transit services to regional organizations. Their network creates jobs for local residents and is a vehicle for capacity-building in the region. Along with expressing its support of the FMCC, the ECN suggested the CRTC consider establishing a support fund for First Nations Community Networks (FNCNs) and a licensee to disburse the funds. It also called on the regulator to enforce open access to transport infrastructure (Glustein, Melançon & Loon, 2013). The ECN suffered from being the first to testify without any context from the FMCC's testimony. The Commissioners questioned how their arguments were relevant to the focus of the hearings (Northwestel's service area). The ECN responded that their region faces similar challenges to Northwestel's territory and stated that organizations like theirs could provide examples of First Nations providing broadband infrastructure and services in high-cost serving areas.

Two days later, the second phase of the hearings opened in Whitehorse. The FMCC began by summarizing the main arguments of its written submission. While the coalition was generally in favour of modernization by Northwestel, the group expressed concerns about the details of the publicly available version of the *Plan*, such as the commitment of speeds of "up to" 1.5 Mbps up / 384 Kbps down in the 38 satellite-served communities and the affordability of services such as 4G mobile wireless (First Mile Connectivity Consortium & K'atl'odeeche First Nation, 2013b).

The FMCC then articulated three main arguments. First, First Nations can offer competitive services through First Nations Community Networks, which can support the CRTC's mandate to encourage universal broadband access, affordable service, and competition. FNCNs can also support local employment by providing residents with opportunities to work as administrators and technicians of infrastructure and associated services, and circulate revenues inside communities. The group provided evidence of FNCNs from existing initiatives across Canada. To support these initiatives, the FMCC suggested the Commission regulate open access to incumbent facilities to allow interconnections to backhaul and transport links (First Mile Connectivity Consortium & K'atl'odeeche First Nation, 2013b).

Second, the CRTC should call for public comments to establish a subsidy mechanism to support FNCNs. Eligible funding might include (but not be limited to) entities that: are owned and/or operated by a community-based entity; employ local residents; and provide telecommunications, Internet, and other services to residents and local institutions (First Mile Connectivity Consortium & K'atl'odeeche First Nation, 2013b). The subsidy mechanism could be based on modifications to the existing regulatory framework and include a portion of the National Contribution Fund (NCF), currently available only to incumbents like Northwestel.

Finally, the FMCC submitted that "the development of any modernization plan in the North must engage with affected individuals and communities", particularly in light of the long-term and

ongoing lack of adequate consultation in this area (First Mile Connectivity Consortium & K’atl’odeeche First Nation, 2013a). The FMCC pointed out that even at the public hearings, several factors restricted the ability of remote participants to join, such as the cost and limited availability of videoconferencing.

Next, the expert witness from Alaska testified on the need for broadband for northern social and economic development and the importance of affordability as well as availability of broadband services. She summarized the results of a recent study on Internet and broadband in 65 villages of Southwest Alaska that are very similar to remote northern Canadian communities (Hudson, Hanna, Hill, Parker, Sharp, Spiers & Wark, 2012). She then addressed the issue of subsidies raised by the CRTC, stating that “competition coupled with new approaches to subsidies can result in modernized facilities and services that are both available and affordable throughout the North” (Hudson, 2013a). One example of such reforms comes from the FCC, which has established an Office of Native Affairs and Policy (ONAP) to work with federally-recognized Tribal governments and Native organizations through regulatory action, consumer information, and community outreach. The FCC has undertaken other recent initiatives to expand broadband in remote and Tribal areas including:

- A Remote Areas Fund “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” (Hudson, 2013a).
- The Connect America Mobility Fund for mobile voice and broadband in high cost areas, with licences awarded by reverse auction.
- Mobility Fund for Tribal Areas, a special allocation under the Connect America Mobility Fund to provide \$50 million capital plus up to \$100 million per year for tribal areas.
- Broadband Lifeline Pilot Program, which subsidizes the price of voice services for low income residents, including those living on tribal lands. Two tribally-owned carriers are participating in a pilot program to determine whether Lifeline should be extended to broadband.
- Spectrum over Tribal Lands: The FCC has established a rulemaking proceeding designed to improve Tribal access to spectrum and to promote greater utilization of spectrum over tribal lands. It also seeks to foster the establishment of tribally-owned wireless carriers.

Indigenous operators can participate in these programs, and the FCC encourages tribal entities to become certified as Eligible Telecommunications Carriers (ETCs) to this end. It has also implemented a requirement that communications providers receiving subsidies to serve tribal lands must “meaningfully engage” with tribal governments. In Alaska, carriers must now consult with tribal governments and Native organizations in the regions they serve. These funding programs, efforts to support indigenous providers, and requirements to consult with carriers serving Tribal areas address many of the concerns raised by the FMCC.

The Commission then heard from two First Nations technology organizations from regions outside Northwestel's service area. Keewaytinook Okimakanak is a nonprofit organization established by the Chiefs of six remote First Nations in Northwestern Ontario. Its telecommunications service, KO-KNET (the Kuh-ke-nah Network) provides access and services to remote Cree and Ojibway communities in northern Ontario, and other communities across Canada (Carpenter, 2010; Fiser & Clement, 2012). It also contracts with health care providers to provide telehealth networks, and with the Ontario Ministry of Education to support an online high school (Keewaytinook Internet High School) for students in remote communities. KO-KNET also provides computer training and skills development for community members, and supports FNCNs. In addition, it manages a not-for-profit, satellite-based, carrier class network to Native communities in northern Ontario, northern Quebec, and northern Manitoba, and also provides videoconferencing, Internet telephony (VOIP), and mobile telephone services in some northern Ontario communities.

The KO-KNET representative testified on the organization's experiences providing broadband services to rural and remote communities, and supporting them in developing and managing their own networks. He described two examples of FNCNs in northern Ontario: Fort Severn and Slate Falls. After a long history of community-driven technology development, Fort Severn set up a locally-owned cellular phone service called Keewaytinook Mobile. Slate Falls has transitioned to a new regional fiber network operated by an incumbent telecom provider, but continues to operate its own Voice-Over-IP telephone service. This local enterprise employs a full-time technician and provides significant cost savings to public and community services, while offering affordable residential Internet and telephony services (Beaton, 2013). (Midway through this testimony, a loud garbage truck outside the hearing room drowned out the speaker's voice. Unable to see either the truck or the reactions of people in the room, he continued talking until someone told him about the situation. Symbolically, this drove home his point that the lack of videoconferencing affected his ability to participate equitably in the hearings.)

The next FMCC presenter was the First Nations Technology Council (FNTC). Created by and for the 203 First Nations in British Columbia (some of which fall within Northwestel's service area), FNTC provides connectivity, capacity building, information systems, and other technology services and support functions. It also promotes the use of technology as a tool that First Nations use to improve quality of life for their citizens. The representative recognized that providing services to northern rural and remote communities is challenging and expensive but stressed that access to information and knowledge increases the ability of rural and remote northern communities to develop as active and productive participants in the Canadian economy. First Nations can participate in the provision and maintenance of infrastructure in ways that invest in the northern, sparsely populated regions of the country and the indigenous communities that are permanent residents there. He also stated that the traditional and inherent relationship that First Nations have with their territories is as stewards, caretakers, managers, defenders and beneficiaries. He concluded that the First Nations have more than a right to be customers, clients and end-users of technology: they also have a right to become service providers that support long-lasting and sustainable benefits for their communities (Leech, 2013).

The panel concluded with a presentation from a representative of the KFN Community Network, which serves the K'atl'odeeche First Nation (KFN), a community of approximately 325 people

living near Hay River in the Northwest Territories. In 2008, KFN began utilizing wireless and server technology to establish local First Nation owned infrastructure on top of existing copper infrastructure installed by Northwestel in the early 1980s. The new system connected to the Internet by DSL links provided by the incumbent carrier. In 2009, KFN's IT manager convinced local leadership to draft a proposal to CanNor that focused on three objectives: fiber technology; a fiber feasibility study on Aboriginal ownership; and cost savings through shared network services. Increased bandwidth enabled KFN to provide local services and reduce travel costs, while lowering expenses for individual administrative Internet accounts. The Band received funding from CanNor to build a community-owned, 48-strand dark fiber network, which now interconnects facilities like the First Nation Band administration office, school, health clinic, local adult education center, day care center, and Elder care facility. They also hired and trained local technicians to install and manage the network, established a community website, provided videoconferencing links in the Band office, and conducted a feasibility study for a community fiber network.

Through its studies, KFN concluded that the community Wi-Fi and fiber infrastructure still faces huge technical and speed issues due to bottlenecks caused by the DSL and aging copper infrastructure that connects its network to transport networks. At that time, Northwestel's existing maximum DSL speeds in KFN were advertised as 4MB down and 512KB up, and sections of KFN remain underserved. In 2010, KFN submitted an additional proposal for a 2-year commitment, with 80% investment from CanNor and 20% investment from KFN. This proposal addressed the connection problem through 12 km of 48-strand dark fiber that the Band would build, own and operate (and included additional training and certification for locals for this purpose). It also funded a feasibility study on leasing infrastructures to incumbent carriers, other backbone providers, or cellular operators. The proposal also suggested CRTC-licensed FNCNs could potentially save industry millions of dollars through government grants and First Nation partnerships.

KFN framed its FNCN as a model for sustained economic development in the far North. Partnerships between government and private sector entities support the construction and operations of infrastructure, which can be leased to businesses or other organizations. Other First Nations communities in the NWT have the opportunity to take ownership of broadband infrastructure and services to generate long-term investment and economic development in the region. Linking these contemporary developments to a history of negotiation with Canadian economic and political institutions, the representative stated:

“KFN has resided in its traditional lands for many generations, being the first economic driver for the fur trade industry in 1800's up to the late 1970s.... Aboriginal people are the primary drivers and backbone of the long-term economy of the NWT. Large business has built their wealth on the backs of the Dene people in the NWT. KFN can participate within the new economy such as the telecommunication industry, and we feel that Northwestel has overlooked building meaningful and long-term economic relationships with KFN” (Fabian, 2013).

7. Follow-up to the Northern Hearings

The expert witness received several questions on affordability from the Commissioners and was subsequently asked to submit an undertaking (additional written testimony) on affordability. The undertaking included data on incomes and the cost of living in remote Aboriginal communities and on the pricing of services in Northwestel's service area compared with elsewhere in Canada. She described U.S. telecommunications policies that address affordability, and metrics developed by the OECD, ITU and others to develop benchmarks for it. Data on incomes and cost of living in the Canadian North and pricing of Northwestel services could be used to develop a similar measure of affordability (Hudson, 2013b). (The CRTC at present has no metrics or regulatory requirements concerning affordability. In contrast, the U.S. *Telecommunications Act* of 1996 and the *National Broadband Plan* make specific reference to "affordable" services, although affordability is not defined.)

The public proceedings concluded with a final submission in July that summarized key points, outlined recommendations, and included rationale why CRTC should act on the FMCC's recommendations. More than once during the hearing, Commissioners questioned whether they were being asked to adopt regulations to address social policies rather than telecommunications policies. The FMCC rejected this arbitrary distinction, stating that the CRTC was simply being asked to fulfill its mandate under the *Telecommunications Act* by implementing regulations that would contribute to the objectives of the *Act* as they apply in Northwestel's service area. Namely, the CRTC is tasked to "facilitate the development of a telecommunications system that serves to:

- "safeguard, enrich, and strengthen the social and economic fabric of Canada and its regions;
- render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada
- enhance the efficiency and competitiveness...of Canadian telecommunications; ... [and]
- respond to the economic and social requirements of users of telecommunications services" (Telecommunications Act, 1993).

The FMCC also challenged the assertion by some interveners that action, or perhaps even discussion, on changes to subsidy schemes and requirements for broadband services should be deferred to a national policy review, and that any changes could delay or derail implementation of Northwestel's *Modernization Plan*. The FMCC agreed with several interveners, including the Nunavut Broadcasting Development Corporation (NBDC), who stated that Northerners should not be forced to wait any longer. The group also challenged some Commissioners' suggestions that they could not act on subsidies because other federal agencies needed to be involved in any long term strategy for financing investment and addressing operating subsidies across the remote North. The FMCC stated that it did not expect the CRTC alone to solve all of the funding problems. Rather, they believed that the CRTC has a mandate and opportunity to tackle some of these issues by implementing incentives for investment, efficiency, and innovation and instituting competitive subsidy programs available to all qualified providers. Addressing issues clearly within the scope of this consultation did not preclude addressing national subsidy policies and obligations of providers at a future forum.

The FMCC added that proactive regulatory responses could also be justified on the grounds that Northwestel's territory is unique in the remoteness of most communities it serves. While there are areas in territories served by carriers in other parts of Canada that include small and/or isolated communities, Northwestel's *entire* service area consists of isolated and remote communities. The group concluded:

“We provided this testimony not simply to point out how modern telecommunications are critical for development of remote Aboriginal communities and how Aboriginal communities and organizations can be providers as well as consumers of these services, but to identify specific steps the CRTC could take to address these issues in the context of this hearing on Northwestel and its service area. To expand the model of Aboriginal provision of telecommunications services described in our testimony, Aboriginal providers need the opportunity to compete and access to the subsidies currently available only to Northwestel. They also require access to existing transport infrastructure that has been built using public and subsidized funds” (First Mile Connectivity Consortium, 2013).

The FMCC put forward the following specific recommendations:

1. **Open the NCF:** As a first step, the CRTC should open the NCF in Northwestel's territory to competition from any provider able to provide the required services, including Aboriginal providers. They suggested a mechanism of competitive bids for least-cost subsidies could be used.
2. **Guarantee Open Access:** The CRTC should guarantee Open Access to transport infrastructure. A regulatory framework that encourages open access to publicly subsidized transport facilities is in the best interest of local communities.
3. **Require Consultation:** Meaningful and documented consultation with Aboriginal communities should be required as a condition for approval of any revised version of Northwestel's plan. The group draw attention to the FCC's requirements in the US that providers receiving subsidies to serve tribal lands must “meaningfully engage” with tribal governments.
4. **Broadband Availability:** The CRTC should require that Northwestel meet the Commission's national requirements of providing *actual* download speeds of 5 mbps and upload speeds of 1 mbps by the end of 2014 in all the communities in its service area including those served by satellite.
5. **Quality of Service:** The CRTC should require more thorough monitoring of Northwestel's quality of service. Regular monitoring of actual upload and download speeds and services outages should be required.
6. **Develop Pricing Benchmarks:** Rates for telecommunications services in Northwestel's service area should be reasonably comparable to national averages. The CRTC should

designate one or more baskets of services to be used for comparing prices between Northwestel's service area and other regions.

7. External Review: The CRTC should require an annual external review or audit to document progress on the plan and specifics on how NCF subsidies have been spent.

8. Conclusions and Lessons Learned

The direct results of the FMCC's participation in the CRTC's consultation are not yet known, since the CRTC has not released its decision. However, at this point, we can identify several other outcomes arising from this process. First, the FMCC's participation in the hearing made the Commissioners and senior staff in attendance aware of the experiences of indigenous organizations in providing telecommunications and broadband services. They also learned of the potential for more indigenous-owned and -operated networks in the far North. Questions from the Commissioners, the Chair's willingness to extend time for the presentations, and the request for an undertaking on affordability indicated their interest and attention. The FMCC's evidence also provided arguments and rationale to justify decisions regarding subsidy schemes during this proceeding, rather than deferring consideration to future CRTC proceedings or intergovernmental reviews.

The hearings also provided the indigenous organizations and their partners with experience in digital policy advocacy. Participation in the consultation, including the hearings, helped familiarize the indigenous organizations with the mandate and structure of CRTC proceedings. It also provided them with firsthand experience in presenting well-documented and relevant evidence in a CRTC proceeding associated with a regulatory review. More generally, the FMCC participants learned how to strategically use knowledge held by indigenous peoples and research on indigenous communications and technology development in the regulatory process. These experiences will help provide a foundation for a long-term approach to digital policy advocacy in Canada.

Finally, participation in the public hearings provided significant visibility for the involved First Nations organizations and the challenges indigenous peoples face in their efforts to leverage digital policy to support community and economic development. Media coverage included a national news story in the *Globe and Mail* based on KFN's testimony, CBC North radio interviews carried across the region, and feature stories in Whitehorse newspapers.

In the coming years, these efforts will provide resources for future engagement in Canada's emerging digital policy and regulatory framework. The FMCC's involvement in the hearings established research, testimony, and expertise that can be used to support indigenous engagement in a national review of basic services planned by the CRTC for 2014-15. The regulator's Three Year Plan for 2013-16 states: "The CRTC will undertake, by means of a public hearing, a comprehensive review to determine what services (e.g., voice, broadband) are required by all Canadians to fully participate in the digital economy and whether there should be changes to the subsidy regime and national contribution mechanism" (CRTC, 2012b). This review will provide another opportunity for the FMCC and its members to intervene in the regulatory process and to argue for broadband development policy framed from the First Mile.

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