

# Is Broadband Basic Service?

By: Michael De Santis  
Public Interest Advocacy Centre  
1204 - ONE Nicholas St.  
Ottawa, ON  
K1N 7B7

July 2010

*With Funding from Industry Canada*

**Copyright 2010 PIAC**

Contents may not be commercially reproduced.

Any other reproduction with acknowledgment is encouraged.

The Public Interest Advocacy Centre  
(PIAC)  
Suite 1204  
ONE Nicholas Street  
Ottawa, ON  
K1N 7B7

Canadian Cataloguing and Publication Data

**Is Broadband Basic Service?**

**ISBN**

**1-895060-92-3**



## **Acknowledgement**

The *Public Interest Advocacy Centre (PIAC)* received funding from Industry Canada's Contributions Program for Non-profit Consumer and Voluntary Organizations. The views expressed in this report are not necessarily those of Industry Canada or of the Government of Canada.

The Assistance with research and editing of this report provided by Michael Janigan is also gratefully acknowledged.

## **Table of Contents**

**Acknowledgment 3**

**Executive Summary 5**

**Is Broadband Basic Service? 5**

**Introduction 7**

**The Importance of Broadband 9**

**Basic Service in the EU and Member States 14**

**2005 Review on the Scope of Universal Service 17**

**Second Periodic Review of the Scope of Universal Service (2008) 18**

**Annual Review of the European Electronic Communications Market for 2008 19**

**France 20**

**Spain 22**

**Finland 22**

**Australia 23**

**Japan 26**

**United States 29**

**Canada 38**

**Conclusion 44**

**Appendix A 47**

**Appendix B 50**

## **Executive Summary**

### **Is Broadband Basic Service?**

The internet has revolutionized the way Canadians work, learn and play. Businesses rely upon it increasingly to market and sell products and deliver services. Schools rely upon it to deliver curricula and for the vast amount of information it contains. Healthcare professionals need it to deliver critical healthcare services, particularly to rural and remote areas. It would likely be very difficult for children of Canada's newest generation to imagine a world without the internet, given how pervasive its effects are.

A great deal of the internet's rapid rise to prominence is thanks to high bandwidth or broadband connections. These connections allow data and content to travel swiftly internet users and providers. Indeed, many of the internet applications we take for granted today such as online video services, streaming music and radio programming and multiplayer online gaming would not be possible without a broadband connection. Broadband is an essential component to realizing the full potential of the internet. Unfortunately, PIAC is gravely concerned that access to broadband internet services is not uniform in Canada. Many consumers, particularly those in rural or remote areas, are not able to harness the full potential of the internet. Others may be unable to access existing connections because of lack of resources. This 21<sup>st</sup> century version of the "Digital Divide", between broadband-connected Canadians and Canadians without such broadband connections could have a very serious effect on Canadian consumers and the country as a whole.

Broadband is so important that some countries such as Finland and Spain have declared it a legal right. Other countries such as Japan, Australia and the United States have comprehensive policies to ensure that customers have access to broadband services. Furthermore, the European Union has a detailed policy on the provision of broadband service for consumers throughout Europe. No such regime exists in Canada and PIAC believes that Canadian consumers, particularly those in rural or remote areas, are worse off because of it.

The importance of broadband has long been recognized by the federal government. In 1995, the federal government created the Information Highway Advisory Council to study the economic, social and cultural advantages broadband could provide to Canadians. Later, in 2001, the National Broadband Task Force, an initiative of the Government of Canada, was established by the Minister of Industry. The initiative sought "to map out a strategy for achieving the Government of Canada's goal of ensuring that broadband services are available to businesses and residents in every Canadian community by 2004." Sadly, this goal was never achieved.

Other federal projects such as the Broadband for Rural and Northern Development Pilot Program, the National Satellite initiative and Canada's Economic Action Plan have undertaken to provide broadband service for Canadians where it does not currently exist. To date, there remains no right or guarantee for Canadian consumers to receive broadband service, regardless of where they live.

The idea that telecommunication service must be made available to all consumers is an established principle in Canadian telecommunication policy. The CRTC released its Telecommunication Decision 99-16. In this decision, the CRTC established the Basic Service Objective for telephone service. This created a minimum level of service that must be made available to consumers, regardless of their place of residence. Services such as touch-tone dialing, access to emergency service and long distance, directory assistance and a copy of the telephone directory. The Basic Service Requirement unfortunately does not apply to broadband internet services.

Canada was considered a world leader in broadband availability by the OECD as early as 2003. Today, our ranking amongst OECD members has dropped sharply to the bottom quartile of the list. PIAC is concerned that Canadian consumers are not guaranteed access to broadband services the way consumers in many other countries are today. Access to broadband has important economic, social and cultural ramifications for Canadians and without it, Canadian consumers risk falling behind in today's increasingly online interconnected world. PIAC believes that broadband should be considered an essential service and be made available to all Canadian consumers, regardless of their place of residence. This would be accomplished by a basic service regime similar to that for basic telephony outlined by Telecommunication Decision 99-16. The chief characteristics of any such plan would be that it would be comprehensive, competitively neutral, flexible enough to accommodate technological developments, and subject to effective market or regulatory discipline with respect to costs. Current proceedings, now underway in the CRTC at the time of the issuance of this report, may help to enable such an outcome.

## **Introduction**

The internet has revolutionized the way Canadians work, learn and play. Businesses rely upon it increasingly to market and sell products and deliver services. Schools rely upon it to deliver curricula and for the vast amount of information it contains. The internet has also enabled content providers to entertain millions, with Youtube and iTunes being particularly striking examples. It would likely be very difficult for children of Canada's newest generation to imagine a world without the internet, given how pervasive its effects are.

A great deal of the internet's rapid rise to prominence is thanks to high bandwidth or broadband connections. These connections allow data and content to travel swiftly internet users and providers. Indeed, many of the internet applications we take for granted today such online video services, streaming music and radio programming and multiplayer online gaming would not be possible without a broadband connection. Broadband is an essential component to realizing the full potential of the internet. Unfortunately, access to broadband internet services is not uniform in Canada. Many consumers, particularly those in rural or remote areas, are not able harness the full potential of the internet. The "Digital Divide", as this phenomenon is known, could have a very serious effect on Canadian consumers and the country as a whole.

Minimum standards for broadband service for all Canadians must be established by making creating a basic or universal broadband service requirement for Canada. This fact has been promoted by the Canadian Radio-television and Telecommunications Commission (CRTC). The CRTC published a report on February 2010 entitled "Navigating Convergence: Charting Canadian Communications Change and Regulatory Implications". Contained within this report was an appendix pertaining to universal broadband access. This section outlined a number of reasons why broadband should be a universal service available to all Canadians. Here are the reasons offered by the CRTC:

- improved education and new opportunities for post-secondary education; students and teachers have access to more education materials; students living in rural and remote areas have increased distance-learning choices;
- improved health care via e-health applications, enabling better collaboration and sharing of patient files; this is of particular benefit to patients in rural and remote areas, enabling medical professionals in these areas to have access to diagnostic services and consultation with colleagues in urban areas;
- new business and improved business opportunities including telecommuting, e-commerce and online marketing; broadband access is also leading to improved productivity and competitiveness of resource-based, agricultural and manufacturing industries, ultimately boosting GDP;

- better access to government services (such as e-tax filing), improved access to information about public policy issues and increased opportunities to participate in civic activities;
- access to news and information. The Internet is becoming a key way to obtain news and information, taking market share away from traditional media and providing access to a wider source of international information;
- greater diversity of voices and another platform for Canadian content; the broad range of entertainment services and applications enabled by broadband access provides new methods of cultural expression; and
- the potential to remove location as a restriction for participation in society, which enables better social inclusion for individuals living in remote communities.<sup>1</sup>

The Report also mentions how universal broadband access brings benefits not just in the domestic sphere, but the international sphere as well. Universal broadband allows Canadians to better participate in the global information society.<sup>2</sup>

The concept of a universal telecommunication service is not a new one. There was a time when basic wireline telephone service was somewhat of a rarity. However, consumers and policymakers were aware of the numerous benefits offered by access to telecommunication services, even at the turn of the 20<sup>th</sup> century. In fact, basic service or universal service, was a term invented by AT&T Chairman Theodore Vail in 1907, when describing his company's wire line telephone service:

Universal Service is concerned with the making available of the provision of a certain defined set of telecommunications services as widely as possible, both geographically and socially. Historically such provision was seen as lying with the incumbent, however successful they were perceived to be in terms of meeting their obligations! In a liberalized market, such service provision needs to continue to be guaranteed through a mechanism that will not distort the competitive conditions under which providers operate. The scope of universal service will also inevitably evolve over time, as politicians try to ensure that the benefits of the new technologies are made available to the society as a whole.<sup>3</sup>

The question now remains whether the scope of universal service should now include broadband internet service for consumers. This report will demonstrate how other countries have already adopted similar policies for their citizens and how Canada should adopt a similar policy to serve its own citizens as well.

---

<sup>1</sup> "Navigating Convergence: Charting Canadian Communications Change and Regulatory Implications" Convergence Policy, Policy Development and Research, CRTC, February 2010.

<sup>2</sup> Ibid

<sup>3</sup> Walden, Ian and Angel, John, *Telecommunications Law and Regulation*, Oxford University Press second edition 2005

## **The Importance of Broadband**

In order to understand broadband well, it is important to consider the type of internet service that preceded it. When internet service began to achieve broad consumer acceptance in the 1990's, the most common way for consumers to connect was using a modem, phone line and "dial-up" service. This dial-up service required a consumer to consciously and deliberately connect their computer each time they wished to access the internet. This connection offered very low upload and download speeds by modern standards and also occupied a consumer's phone line for the duration of time they wished to be connected.

Broadband offered a much more compelling internet experience for the consumer in a number of ways. Most obvious was the exponential increase in speed possible over a broadband connection. Downloading large files or consuming bandwidth hungry content such as music or video was now a pleasant experience, unlike over dial-up where the process could take hours or even longer. Even simple browsing on the internet could be a slow, tedious experience over a dial-up connection. Furthermore, broadband allowed consumers to have an "always-on" internet connection, as opposed to dial-up when users had to manually connect and disconnect each time they wished to go online. The always-on quality of broadband also allowed consumers to unwire their internet and experience it in different ways. The proliferation and near ubiquity of wireless routers allows many devices such as laptops, personal digital assistants, streaming audio and video players and some televisions to connect to the internet easily and rapidly. This revolution in the way consumers connect to the internet to work, learn and play would have been impossible without the advent of broadband services delivered to the home.

In many ways, the implementation of broadband architecture mimics the way that wire line telephone service was installed in Canada around the turn of the 20<sup>th</sup> century. In 1885, Bell's patents were voided by the federal patent commissioner. This move forced the company to open up to competition. Bell resisted and employed predatory pricing schemes and exclusionary service contracts to drive away its competition.<sup>4</sup> In 1906, both the federal and provincial governments of Canada began to regulate telephone service and many of these practices ended. In spite of the end of these practices, most of the large telephone service providers such as Bell had a monopoly-like control over their respective markets and favoured larger, urban markets over smaller rural ones. In fact, a witness before the federal Select Committee on Telephone Systems in 1905 stated that

---

<sup>4</sup> A chequered progress: Farmers and the Telephone in Canada, 1905-1951 (p.2).

...this branch of telephony [rural telephony] has in the past been absolutely neglected and discouraged in Canada by existing companies, for the reason that it does not prove such a lucrative business as the exchanges in the towns and cities.<sup>5</sup>

The Select Committee had been formed largely as a result of an energetic lobby group that argued rural telephone service was a necessity as it reduced isolation and allowed farmers to participate more actively in local markets. As time progressed, telephone service was gradually deployed around the Canadian countryside. According to Robert M. Pike, some methods used to encourage investment in telephone infrastructure were more successful than others. He notes that Saskatchewan's policy of controlling major exchanges and trunk lines, with assistance provided to a network of rural cooperatives was the most effective way of encouraging telephone deployment.<sup>6</sup> Less effective were the centralized public control policies of Manitoba and Alberta and the lightly regulated private systems of Quebec and the Maritimes.

This comparison is instructive and will be examined later in this report with respect to broadband deployment. The history of wire line telephone service could provide useful context and pertinent examples for the broadband basic service debate.

In Canada, broadband's importance was recognized as far back as 1995. That year saw the creation of the Information Highway Advisory Council. Canada has seen a number of important broadband projects since that time, both at the federal and provincial levels. Here are some examples:

- The National Broadband Task Force, an initiative of the Government of Canada, which was established in 2001 by the Minister of Industry. The initiative sought "to map out a strategy for achieving the Government of Canada's goal of ensuring that broadband services are available to businesses and residents in every Canadian community by 2004.";
- The Broadband for Rural and Northern Development Pilot Program is another example. This was announced by Industry Canada in 2002 to assist communities without high-speed data services access, focusing specifically on First Nations, rural, remote and northern communities. This program was promoted as the first step toward the Government of Canada's commitment to high-speed connectivity for all Canadian communities by 2005;

---

<sup>5</sup> Claude Fischer, "Technology's Rear: The Decline of Rural Telephony in the United States 1920 to 1940" *Social Science History* 11(1987):295-327.

<sup>6</sup> *Supra* note 2 p.6.

- The National Satellite initiative, was a joint program between Infrastructure Canada, Industry Canada and the Canadian Space Agency. It was launched in 2003 to provide high-speed broadband Internet access services via satellite to communities located in the far- and mid-north, and in isolated or remote areas of Canada. The Government of Canada contributed \$155 million toward the costs of implementing this initiative to purchase and access satellite capacity;
- There have also been various provincial initiatives to ensure access to high-speed Internet, such as, Alberta SuperNet (focused on education and healthcare), Connect Ontario, Quebec's Villages Branches program, Manitoba's Broadband Project Office, Connect Yukon, Broadband BC, Nunavut Broadband Taskforce, Newfoundland Government Broadband Initiative and Broadband for Rural Nova Scotia. Saskatchewan, Nova Scotia and Newfoundland all announced programs in late 2008 to encourage broadband facility construction; and
- Canada's Economic Action Plan, which provided \$225 million to Industry Canada over three years to develop and implement a strategy to extend broadband coverage to as many unserved and underserved households as possible, beginning in 2009-2010.<sup>7</sup>

In the CRTC Telecom Public Notice 97-42, Professor Heather Hudson gave written evidence regarding the importance of broadband to remote communities in Canada, particularly communities in Canada's northern regions. Residents of these areas have long recognized the importance of telecommunications. In the early 1970's, indigenous people living in northern and far northern areas held reliable two-way communications as their number one priority, followed by radio and television broadcasts.<sup>8</sup> These telecommunications services were important to maintain contact with relatives in other communities, to facilitate communication for the purposes of employment and education, to contact government agencies and buyers of their products such as furs, fish and handicrafts. The Chiefs of northwestern Ontario named reliable telecommunications services as their top priority. Young Inuit believed that it would be a critical tool in their ongoing struggles relating to land claims and political autonomy. An Inuit

---

<sup>7</sup> Supra note 1.

<sup>8</sup> Written evidence by Heather Hudson, CRTC Telecom Public Notice 97-42, 1997.

leader from Arctic Quebec stated that: "We need information -- masses of it. Without it, our culture won't survive."<sup>9</sup>

Professor's Hudson's research that instantaneous telecommunications services, such as broadband, can improve the ratio of output to cost for services in remote areas, increase the quality of products and services and distribute the benefits of these services more equitably throughout the area. Overall, the investment in telecommunications services has produced some very tangible results for consumers, particularly aboriginal consumers living in these remote areas. Professor Hudson sums it up well:

The investment in telecommunications in Canada's remote areas in the past two decades has resulted in many benefits for northern social, cultural, political and economic development. Native people across the North have used telecommunications in the form of telephone, fax and videoconferencing to press for land claims and greater political autonomy. Northern entrepreneurs use telecommunications to participate in fur auctions, order supplies for co-operatives, and run guiding businesses and tourist lodges. People on reserves in northwestern Ontario can complete high school via correspondence with audio conferencing tutorials; while students in Rankin Inlet download a virtual frog dissection kit and post pictures on their website of elders teaching them to sew seal and caribou clothing. Northerners also recognize the Internet's potential for economic development. Sakku Investments, the business development arm of Rankin Inlet's Inuit association, sees the Internet as the electronic road system for their business development. "As far as I'm concerned," says Sakku's CEO, "it's a driver's ed school."<sup>10</sup>

An important effect attributed to increased consumer broadband consumption is a lower unemployment rate. The Sacramento Regional Research Institute (SSRI) conducted a study between 2001 and 2006 to determine whether there was a correlation between broadband growth and the number of new jobs available. The SSRI discovered a correlation between an increase in broadband growth and an increase in available jobs. The institute discovered that for every percentage point increase in the adult population using broadband, there is a corresponding increase in employment growth by 0.075% as well as an increase in the payroll growth rate by 0.088%.<sup>11</sup> The report noted that "(b)ased on an estimate of "strong"

---

<sup>9</sup> Quoted in Hudson, Heather E. *When Telephones Reach the Village*. Norwood, NJ: Ablex, 1984. (The author did extensive fieldwork in planning and evaluating communications projects in the Canadian North in the 1970's.).

<sup>10</sup> Supra note 8.

<sup>11</sup> Cheng, Jacqui: "Study linking broadband, job creation shows need for coherent US policy" <<http://arstechnica.com/old/content/2007/11/study-linking-broadband-job-creation-shows-need-for-coherent-us-policy.ars>>.

broadband growth over the next several years (about 3.8 percent), SRRRI says that California could see a cumulative 10-year gain of 1.8 million jobs and \$132 billion in payroll.”<sup>12</sup> These are some impressive figures and this study sheds some important light on one of the very important effects broadband internet can have on a community.

Broadband internet also provides great benefits to individuals with disabilities. In December of 2009, the United States Chamber of Commerce concluded a comprehensive study that examined the different benefits disabled people could derive from broadband.<sup>13</sup> The report uncovered a number of different advantages broadband had to offer. One of them was how broadband facilitated a variety of communication methods that are accessible and convenient for people with different disabilities such as email, instant messaging, text messaging and videoconferencing. Broadband also increases and improves educational opportunities and options for people with disabilities. Increasing numbers of different school curricula and learning applications are made available online and this presents a tremendous opportunity for disabled people who are less mobile or otherwise unable to leave home to attend classes. Access to broadband also increases the number of employment opportunities available to people with disabilities by enabling telecommuting. Broadband also affords them many entrepreneurial opportunities by providing a conduit to create and manage a small business and earn an income from home. Finally, broadband allows many disabled people to access the latest medical information and services. Remote telemedicine is an increasingly useful and practical way to deliver medical services and broadband makes this delivery possible.

There are also some groups that advocate for broadband using moral and religious arguments. The “Bring Betty Broadband” campaign was started by a coalition of Christian churches in the U.S. and the Islamic Society of North America. According to them, the broadband issue is about the “right to disseminate and receive information” and it is “a right that helps us to define ourselves as human beings and political actors”<sup>14</sup> The coalition submits that just distribution of access to communication and information is essential to promote economic justice.

---

<sup>12</sup> Ibid.

<sup>13</sup> U.S. Chamber of Commerce: “The Impact of Broadband on People with Disabilities” <[https://www.uschamber.com/assets/env/0912broadband\\_dis.pdf](https://www.uschamber.com/assets/env/0912broadband_dis.pdf)>.

<sup>14</sup> Anderson, Nate :“Churches, mosques say broadband is about economic justice” <<http://arstechnica.com/tech-policy/news/2009/07/churches-mosques-say-broadband-is-about-economic-justice.ars>>.

For too long, the process of reaching out and educating traditionally disenfranchised communities has been left to volunteer efforts and the philanthropic community alone. Increasing access doesn't just assist the people who are helped, we all benefit. Just as the value of a telephone increases when we can reach more people by using it, the value of the Internet for all of us increases when we are all connected.<sup>15</sup>

The coalition believes that access to broadband is a question of social justice that brings economic and democratic benefits to all who are able to connect.

An additional, interesting, take on the role of broadband internet service was recently provided by New Brunswick Member of Provincial Parliament Jack Carr. Mr Carr filed a complaint with the New Brunswick Human Rights Commission alleging that the slow speed of internet services and the high price for service was a form of discrimination against the rural residents of his constituency. Mr. Carr based this complaint on the “place of origin” rule in the province’s Human Rights Act, one of the 14 different criteria under which a human rights complaint may be advanced. This was a bold move, as the province of New Brunswick had already committed to making broadband available to the province by 2010.<sup>16</sup> Regardless, this example highlights the importance of broadband service in a community, particularly a more remote community such as the one that Mr. Carr represents.

### **Basic Service in the EU and Member States**

The European Union (EU) regulates telecommunications services on an international level, even as many of its member states regulate these services on a national level as well. In 2002, the European Union developed a comprehensive framework on electronic communications policy. The Directive was known as the “Framework Directive” and was adopted by the EU parliament and Council on March 7 2002. The Directive defines universal service as “the minimum set of services, as defined in the Universal Service Directive of specified quality which is available to all users regardless of their geographical location and in light of specific national conditions, at an affordable price”<sup>17</sup> The Framework Directive also grants the governments of the member states the duty to promote the interests of the citizens

---

<sup>15</sup> Ibid.

<sup>16</sup> Anderson, Nate: "Canadian pol: broadband not a luxury, but basic human right" <<http://arstechnica.com/old/content/2008/10/canadian-pol-broadband-not-a-luxury-but-basic-human-right.ars>>.

<sup>17</sup> Directive 2002/21/EC of the European Parliament and of the Council of March 7 2002 on a common regulatory framework for electronic communications networks and services. Official Journal of the European Communities. 24 April 2002.L 108/33-50.

of the EU by “ensuring all citizens have access to a universal service specified in the Universal Service Directive.”<sup>18</sup>

The Universal Service Directive (March 7 2002)<sup>19</sup> serves as the cornerstone of the EU regulatory landscape. The directive lays out both the substantive components of universal service, and a statement of values which underlie this policy framework. The directive bears a preamble establishing key objectives of universal service such as “a fundamental requirement of universal service is to provide users on request with a connection to the public telephone network at a fixed location, at an affordable price.”<sup>20</sup> The following are some key components of the preamble:

- Clause 1: the concept of universal service should evolve to reflect advances in technology, market developments and changes in user demand.
- Clause 8: Connections to the public telephone network at a fixed location should be capable of supporting speech and data communications at rates sufficient for access to online services.
- Clause 10: affordable price means a price defined by member states at the national level in light of specific national conditions and may involve setting common tariffs irrespective of location or special tariff options to deal with the needs of low-income users.
- Clause 16: consumers should be protected from immediate disconnection.
- Clause 12: it is important for there to be adequate provision of pay telephones.
- Clause 13: it is important to guarantee access for disabled users.

The directive states in article 1 section 1 that its aim is to ensure availability through the community of good quality and publicly available services through effective competition and choice, and to deal with circumstances in which the needs of end users are not satisfactorily met by the market. Thus, the initial articles of the directive set out that the aim of the EU should be to maintain a competitive market while still ensuring the provision of universal service. The directive imposes on member states the obligation to ensure all users within their territory have access to universal service regardless of their location within the member state. This provision of universal service is to be undertaken with an eye to efficiency, quality, and without distortion of markets (Article 3 s. 2). The substantive objective of universal service

---

<sup>18</sup> Ibid at Article 8 section 4.

<sup>19</sup> Directive 2002/22/EC of the European Parliament and of the Council of March 7 2002 on universal service and users’ rights relating to electronic communications networks and services (Universal Service Directive). Official Journal of the European Communities. 24 April 2002. L 108/51-77.

<sup>20</sup> Ibid at 52.

according to the directive is that “All reasonable requests for connection at a fixed location to the public telephone network, and for access to publicly available services at a fixed location is met by a least one undertaking (art. 4(1)). Keeping in line with the aims of ensuring flexibility and accommodation to changing technologies, article 4(2) of the directive stipulates that the connection provided shall be capable, not just of voice communications but also telephone, fax and data communications and data rates sufficient to permit functional internet access. In the directive states are given the authority to “designate one or more undertakings to guarantee the provision of universal service so that the whole of the territory can be covered.” (Article 8). There are limitations to the appointment of universal service providers; this appointment must be undertaken with a view to efficiency, objectivity, transparency and non-discrimination. The directive also imposes on member states other obligations such as:

- Monitoring the affordability of tariffs (article 9)
- Controlling expenditure and ensuring consumers do not have to pay for unrequested services (article 10)
- Monitoring the quality of service through performance assessments, and monitoring compliance (article 11)

Should the designation of an undertaking as the provider of universal service be deemed unfair, a national regulatory authority can undertake to cost out and introduce a mechanism to compensate that undertaking from public funds and/or share the net costs of providing universal service between providers of electronic communications networks and services (article 13).

A key element of the directive is article 15 which establishes a mandated review of the scope of universal service in order to periodically consider whether the scope of universal service should be changed or revised. This review is to be undertaken every three years, and the review process is established under annex V of the directive. Following a review, a report should be submitted to the European Parliament and the Council by the European Commission.

In order to monitor compliance and review the scope of universal service, the member states are obliged to undertake a market analysis in order to maintain, amend, or withdraw the obligations relating to retail markets. In line with the directive’s prioritization of universal service through effective competition, article 17 obligates member states to impose regulatory obligations on undertakings if a market analysis reveals that the retail market in question is not competitive. Such measures that may be undertaken to establish a more competitive market include: retail price cap measures, measures to control individual tariffs, or measures to orient tariffs towards costs or prices on comparable markets (Article 17(2)). This article also stresses the importance of not applying retail control mechanisms where effective competition is present (article 17(5)). Articles 20-31 of the directive deal with user rights such as: setting

minimum standards in terms of key elements of service contracts, transparency, quality, integrity of networks, operator/directory assistance, emergency call numbers, number portability, and “must carry” obligations. Also, article 34 provides an obligation for member states to ensure that transparent, simple and inexpensive dispute resolution procedures are available to deal with unresolved disputes relating to issues in the directive.

### **2005 Review on the Scope of Universal Service**

In terms of implementing the directive, transposition of the directive was to have taken place by July 24 2003. Since the adoption of the universal service directive by the EU, the European Commission has undertaken two reviews of the scope of universal service, one in 2005, and another in 2008. The purpose of these reviews was to determine whether the scope of universal service should be maintained or changed in particular to include mobile or broadband communications.<sup>21</sup> Annex V of the universal service directive provides parameters to guide the review. In reviewing the scope of universal service, the commission is to consider:

- a) Are specific services available to and used by a majority of consumers, and does the lack of availability or non-use by a minority of consumers result in social exclusion?
- b) Does the availability and use of specific services convey a general net benefit to all consumers such that public intervention is warranted in circumstances where the specific services are not provided to the public under normal commercial circumstances? (Annex V Universal Service Directive)

The 2005 review of the scope of universal service concluded that mobile communications and broadband internet access were not to be included within the scope of universal service. The Commission found that a significant majority of consumers in the member states already had access to mobile communications. The 2005 review also provided clarification on the purpose of the directive: “universal service is a not a mechanism whereby the roll-out of new technologies and services is financed by increasing the costs for all existing telephone users. Rather, it is the safety net that allows a minority of consumers to catch up with the majority of users who already enjoy basic services.”<sup>22</sup> In terms of broadband, the EC concluded in the 2005 review on the scope of universal service that by 2004, approximately 85% of the population in the EU -15 had access to a broadband network. The EC also found that a small, though growing, minority of EU consumers currently made use of broadband services. Since the majority was

---

<sup>21</sup>Report regarding the outcome of the Review of Universal Service in Accordance with Article 15(2) of Directive 2002/22/EC, COM (2006) 163, SEC (2006) 445, p. 2.

<sup>22</sup> Ibid.

not using this service, the EC concluded that it had not become necessary for normal participation in society, such that consumers lacking broadband access faced social exclusion. Despite this conclusion, the EC noted that the EU has a strategy for broadband through the eEurope Action Plan.<sup>23</sup>

### **Second Periodic Review of the Scope of Universal Service (2008)**

On September 25 2008, the EC released a communication on the review of the scope of universal service in electronic communications networks in accordance with the universal service directive. This review begins with a re-capitulation of the meaning and purpose of universal service, being “a minimum set of e-communications services available to all end users upon reasonable request at an affordable price and specified quality, independently of geographical location within a member state.”<sup>24</sup> The review also succinctly restates the current scope of universal service:

- Access at a fixed location for making and receiving local, national and international telephone call and fax communications, and data communications at data rates sufficient to permit functional internet access.
- Availability of at least one comprehensive directory and directory enquiry service compromising all fixed and mobile subscribers who wish to be included.
- Availability of public pay phones
- Specific measures ensuring access and affordability of publicly available telephone services to users with disabilities or special needs and those on low incomes<sup>25</sup>

As of 2008, 16 member states had designated providers of universal service on the basis of the directive, and the other 9 countries in the EU have ensured universal service on the basis of transitional agreements.<sup>26</sup>

In regards to the funding models for universal service, the review also reiterates the possibility for a universal service fund to be established if the national regulatory authority concludes that a designated universal service provider is subject to an unfair burden. The related net costs can be financed through public funds, or through a sector-specific fund that is

---

<sup>23</sup> Ibid at 9.

<sup>24</sup> Communication on the Second Periodic Review of the Scope of Universal Service in Electronic Communications Networks and Services in Accordance with Article 15 of the Directive 2002/.22/EC. COM (2008) 572. 25 September 2008. p. 2.

<sup>25</sup> Ibid.

<sup>26</sup> Ibid at 3.

contributed to by all undertakings active in the market.<sup>27</sup> At the time of the review, five states had activated a universal service fund. The review also notes that member states can mandate additional services beyond the minimum set of services, so long as financing of these additional services is undertaken by the states themselves and not by specific market players.<sup>28</sup>

In terms of access to broadband, the EC found that on average 93% of the population of the in the EU had access to broadband in terms of access to DSL networks. In terms of usage, the EC found that “average fixed broadband usage penetration per 100 inhabitants in the EU was 20% in January of 2008, while the rate varies significantly across member states from 7.6% in Bulgaria, to 35.6% in Denmark.<sup>29</sup> In terms of household usage, the EC found that 36% of households had fixed broadband access, while a total of 49% of households use the internet, either at narrowband or broadband speeds.<sup>30</sup> Based on these findings the EC concluded that “although broadband adoption has not yet reached levels of coverage and take-up that would qualify it for consideration under the universal service framework, it is approaching these thresholds rather quickly, whilst the number of narrowband connections is progressively decreasing.<sup>31</sup> The EC concluded that:

...although broadband is not yet used by the majority of consumers (as required by the first two considerations in annex V of the Universal Service Directive) and is therefore not encompassed by the universal service obligations as laid down and described by the present wording, take-up is approaching the threshold of use by a majority of consumers. Furthermore, it is reasonable to anticipate that in a relatively short horizon of time, narrowband will no longer answer the requirement of being sufficient to permit functional internet access (as laid down in Article 2 (4) of the directive). Thus, the situation does need to be kept under review.<sup>32</sup>

The EC concluded the 2008 review by posing a series of questions to be considered within a wider public debate in order to determine whether universal service at the EU level is an appropriate tool to “advance broadband development, and if so, when and how it should be invoked, or whether EU policy instruments, and in such case, which ones would be more efficient.”<sup>33</sup> In posing this series of questions to inform a public debate about the role of universal service in developing accessible broadband, the EC intends to accept submissions during late 2008 and early 2009, in anticipation of issuing a summary of this public consultation in the latter half of 2009, to be followed by concrete proposals in 2010.<sup>34</sup>

---

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid at 6.

<sup>30</sup> Ibid at 7.

<sup>31</sup> Ibid at 4.

<sup>32</sup> Ibid at 7-8.

<sup>33</sup> Ibid at 10.

<sup>34</sup> Ibid at 11-12.

## **Annual Review of the European Electronic Communications Market for 2008**

Each year the EC issues a report identifying key developments in the e-communications market, and in how well member states have implemented the 2002 ecommunications policy framework. In March of 2009, the EC issued its 14<sup>th</sup> annual communication pertaining to the development of the communications sector in 2008. Part of this annual report details how and to what extent member states have implemented the ecommunications directives, such as the Universal Services Directive. According to this report, several member states have decided not to designate a specific undertaking as a provider of universal service due to their position that services were adequately accessible through the market under normal commercial conditions.<sup>35</sup>

Some states have also altered their scope of universal service to include other mandatory services, for example:

- Denmark has included the provision of ISDN services, leased lines, and maritime emergency services within the scope of universal service to their designations
- Spain has passed a law to allow broadband services to be included within the scope of universal service.
- Finland has decided to adopt new broadband strategies where internet connections of an average speed of 1 mbps would be defined as universal service

France has announced a goal of ensuring broadband coverage for all of the territory by 2010 (with a designated call for tender in 2009)<sup>36</sup>

### **France**

In 1999, France unbundled its local loops by introducing new regulations to promote competition. Over ten years later, multiple competitors have emerged on the French market<sup>37</sup> and consumers have benefited with very competitive prices compared to Canada. Additionally, more regulations were introduced concerning the construction of new homes and buildings. As of December 2007, all new buildings are required to be compatible with optical fiber.<sup>38</sup> This

---

<sup>35</sup> Commission Staff Working Document accompanying the COM (2009) 140 report, SEC (2009) 376/2, volume 1 part 2, 30 July 2009, p. 44.

<sup>36</sup> Ibid at 44-45.

<sup>37</sup> Anderson, Nate: "Broadband: other countries do it better, but how?"  
<<http://arstechnica.com/old/content/2008/05/broadband-other-countries-do-it-better-but-how.ars>>.

cable is much easier and cheaper to install at the time of construction and makes broadband more readily available to French citizens.

France did not always enjoy the competitive marketplace that it now does today. Historically, France's telecommunication market has been dominated by France Telecom (FT). FT had a large stake controlled by the French government and this played an important role in blocking competitors from entering the French market.<sup>39</sup> In 1996, France created its first telecommunications regulator, the ART. The ART proved to be a relatively weak regulator<sup>40</sup> and its regulatory decisions required the approval from the Minister for Economy, Finance and Industry in order to be binding. The decisions were also possible to appeal on substantive and procedural grounds to French courts, further weakening the power of the ART. Most complaints concerning ART do not concern price abuses, but rather issues such as connection delays and the use of vague language regarding service standards rather than clear, fixed standards that would have made a market entry more predictable for new entrants.<sup>41</sup> The passage of European Commission Framework Directive 2002/12/EC required member states to adopt wholesale local loop unbundling, bit stream access and leased lines into law by July 2003.<sup>42</sup> Between February 2003 and January 2004, France's unbundled loops went from nearly none to over 250,000.<sup>43</sup> Today, FT no longer enjoys the near-monopoly it once did with only 47% of the French broadband market, as two other major competitors have emerged Iliad (Free) with 24% of the market and SFR (with Neuf Cegetel) with 22% of the market.<sup>44</sup>

France has recently announced its intention to bring 100 megabyte per second (Mbps) broadband internet to most of its citizens within the next decade. Nicholas Sarkozy, the President of France, announced in December of 2009 that he intended to spend 4.5 billion Euro to deploy ultra fast broadband within his country.<sup>45</sup> The money to finance the project is being raised by a "*grand emprunt*" or bond issue worth 35 billion Euro to finance innovative infrastructure programs and help pull France out of a worldwide recession.<sup>46</sup> Some of the funds

---

<sup>38</sup> Ibid.

<sup>39</sup> Berkman Center for Internet and Society, Harvard University: "Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world" at p.96. <[http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Berkman\\_Center\\_Broadband\\_Final\\_Report\\_15Feb2010.pdf](http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Berkman_Center_Broadband_Final_Report_15Feb2010.pdf)>.

<sup>40</sup> Ibid.

<sup>41</sup> Ibid.

<sup>42</sup> 2002/12/EC.

<sup>43</sup> OECD Regulatory Reform in France Figure 2.

<sup>44</sup> Supra note 39 at p.97.

<sup>45</sup> "Sarkozy unveils EUR4.5bn government investment in ultra-high speed broadband" [http://www.telegeography.com/cu/article.php?article\\_id=31353](http://www.telegeography.com/cu/article.php?article_id=31353).

<sup>46</sup> Anderson, Nate: "France: 70% to get 100Mbps Internet within 10 years" <http://arstechnica.com/tech-policy/news/2009/12/france-70-to-get-100mbps-internet-within-10-years.ars>.

not raised by the bond issue for infrastructure projects will be provided by banks that the French government bailed out during the recent economic crisis.<sup>47</sup> The details concerning how exactly the funds will be spent are not clear but the French government has announced that it will finance 2 billion Euro of the sum required to bring 100Mbps broadband service to 70% of the French population, with the remainder being financed by other sources.<sup>48</sup> French consumers now enjoy a very high level of service for reasonable prices. Free offers French consumers a package for 30 Euros which includes 100Mbps upload and 50Mbps download speeds, HDTV service and unlimited voice calling nationally and to 70 international countries. A package offering these services for this very reasonable price seems unimaginable in Canada and yet, it is presently available in France, as a result of basic service guarantees and strong competition.

### **Spain**

As of 2011, the citizens of Spain will enjoy the legal right to broadband service of at least 1Mbps, wherever they live.<sup>49</sup> This service will be provided at regulated rates to citizens all around the country. The former state monopoly, Telefonica, has always held the contract which provided the basic service requirement to the remote and underserved areas of the country. However, other telecommunications providers in Spain have also come forward and asked to be considered to provide basic services.<sup>50</sup>

Spain's telecommunications regulator, the CMT, has proposed that Telefonica, Vodafone and Orange pay the costs of delivering basic service. The cost of providing basic service in 2006, before the definition included broadband internet was over 75 million Euros. However, it is difficult to quantify how much it will cost to implement basic service for broadband.

### **Finland**

Finland has recently made access to broadband internet service a human right for all of its citizens. This right will take effect in July 2010, at which point all Finnish residents are entitled to a minimum of 1Mbps broadband line into their home.<sup>51</sup> This minimum level of service will rise to 100Mbps in 2015. What is even more remarkable about this development is that Finland already has 96% broadband penetration among its population. This measure was

---

<sup>47</sup> Ibid.

<sup>48</sup> Supra note 31.

<sup>49</sup> "Spain codifies the right to broadband" <<http://www.pcmag.com/article2/0,2817,2356014,00.asp>>.

<sup>50</sup> ICT Statistics Newslog: "Spain to add 1Mbps minimum speed to universal service obligation from 2011" <<http://www.itu.int/ITU-D/ict/newslog/Spain+To+Add+1Mbps+Minimum+Speed+To+Universal+Service+Obligation+From+2011.aspx>>.

<sup>51</sup> "Finland makes broadband access a legal right" <<http://www.guardian.co.uk/technology/2009/oct/14/finland-broadband>>.

enacted in order to guarantee service for citizens residing in rural and remote areas, according to the Communications Minister Suvi Linden.<sup>52</sup>

Minister Linden explained that providing this basic service would improve Finland's business environment as it will facilitate more electronic transactions.<sup>53</sup> Furthermore, the availability of broadband connections in rural and remote areas will improve rural vitality. This basic service regime for broadband could serve as a model for other countries considering implementing similar policies. Finland could serve as a particularly useful example to Canada due to its low population density and the fact that it contains large, sparsely inhabited regions in arctic and near-arctic conditions, similar to Canada.

### **Australia**

Australia does not currently have a basic service requirement for the provision of broadband internet services for its consumers. However, a report entitled "Accessible Broadband for All Australians" written by Media Access Australia, the Australian Communication Exchange and the Consumer's Telecommunication Network advocates for a basic service provision in Australia.<sup>54</sup>

The report suggests that Australia develop a national broadband plan with a goal of developing 100% coverage of broadband availability for Australian consumers. Broadband is no longer a luxury for Australians, but rather a necessity (much like it is for Canadians). The report lists a number of reasons broadband should be universally implemented, as well as important services and opportunities such as:

- Telecommuting
- Educational opportunities
- Access to government information and services
- E-health initiatives
- Social networking
- Communications applications such as Voice over IP (VOIP)

The report sums up the importance of broadband as follows:

Broadband isn't simply a useful social utility; it is now an essential service. Using a simple 'take away' test, many Australians would find their ability to access basic information and government services and work opportunities, and to interact with their social networks, would be significantly reduced without access to

---

<sup>52</sup> Ibid.

<sup>53</sup> Erhet, Christian: "Finald government declares legal right to broadband internet access" <<http://jurist.law.pitt.edu/paperchase/2009/10/finland-government-declares-legal-right.php>>.

<sup>54</sup> Media Access Australia: "Accessible Broadband for All Australians" <[www.mediaaccess.org.au/docs/CTN\\_Accessible\\_Broadband.doc](http://www.mediaaccess.org.au/docs/CTN_Accessible_Broadband.doc)>.

broadband. Given the inadequacy of regulatory arrangements applying to broadband, there is a need to ensure that broadband is 'upgraded' so that consumer protections reflect our dependence on the service.<sup>55</sup>

Of particular note to the authors of the report is how available broadband services are in Australia. The report states that government initiatives that attempted to create incentives for commercial providers did not function as planned. The first such program was the Higher Bandwidth Initiative Scheme which paid incentives to commercial ISPs to offer high bandwidth connections to regional, rural and remote areas.<sup>56</sup> A larger project called the "Connect Australia" program was designed to make broadband and wireless communication more available to Australians in rural and remote areas. \$1.1 billion Australian dollars has been spent under this program to make broadband services more available to Australian consumers.

The Accessible Broadband report identifies ADSL as the most prolific broadband service available to Australians, with service reaching 91.6% of the population.<sup>57</sup> More modern and faster broadband technologies are not as widely available to Australian consumers. ADSL2+ is only available to 46% of the population and cable is only available to 33% of Australians.<sup>58</sup> The report identified an Australian government study which indicated a number of reasons why broadband has not been widely adopted. Some of those reasons are: lack of awareness of benefits of broadband; family incomes and perceptions about high broadband costs; confusion over broadband technology and packages; misinformation from providers about what is available; ageing of the population; family make-up (e.g. whether there are children or young people in the family); literacy and education; limited use of connection; and negative experiences with dial-up and skepticism about broadband as the possible solution.<sup>59</sup>

The report also indicates that for many Australians, affordability is the ultimate barrier and that market-based approaches to broadband deployment will not be able to address this issue. This is particularly true for Australians with disabilities and universal access can only be achieved if basic service is regulated by the government. One in five Australians suffers from a disability and Australians with disabilities are less likely to subscribe to broadband service.

The report fails to mention the Australian Broadband Guarantee, which is a federal initiative to "help residential and small business premises access a metro-comparable

---

<sup>55</sup> Ibid p.6.

<sup>56</sup> Ibid.

<sup>57</sup> Supra note 42

<sup>58</sup> Ibid, p. 7.

<sup>59</sup> Ibid

broadband service regardless where they are located”.<sup>60</sup> The program attempts to provide internet service on a level comparable to what is available in well served urban areas in Australia. The Guarantee provides for a minimum of 512kbps download and 128kbps upload, 3Gb per month of data usage and a total cost of \$2500 AUD including installation and taxes for three years of service.<sup>61</sup> The program funds ISPs who have voluntarily agreed to be a part of the program with a subsidy that encourages these ISPs to make broadband services available in underserved areas.

While the Australian Broadband Guarantee represents a first step in the right direction to serving Australian consumers, it suffers from a number of deficiencies. One important problem is the standard of service guaranteed is woefully inadequate for today’s internet user. 512kbps is indeed faster than dial up service, but can hardly be considered broadband by any modern definition. Furthermore, a 3Gb cap per month would be extremely limiting for consumers and would effectively preclude many offer the excellent services broadband supports, such as VOIP telephony, streaming audio and video services and some bandwidth-intensive telehealth applications. Additionally, the upload and download speeds indicated are peak speeds and participating ISPs are allowed to have average upload and download speeds of up to 40 percent lower.<sup>62</sup> This means that the already meager speeds touted by the program may not even be available nearly half of the time the consumer wishes to use their service.

Another issue with the Australian Broadband Guarantee is that the subsidy that it offers is not available to consumers who are served by an ISP that offers an equivalent service to their residence. The subsidy is only payable once and consumers are obligated to remain with the same (and often first) provider to serve their market. This means that if a competing provider offers a new, superior service for the same price in a given market, the consumer must discontinue their subsidized service (and likely pay a higher rate) or be forced to continue using a lower quality service to maintain the same subsidized rate. This creates a difficult situation for consumers and could preclude them from obtaining the best service for the lowest price for their needs. It also serves as an impediment to providers continually trying to offer better services by reducing competition in the market and forcing customers into long term contracts for service.

Luckily for Australian consumers, their federal government is about to address the failings of the market-based approach with a new government-built optical fiber network. A

---

<sup>60</sup> Department of Broadband, Communications and the Digital Economy, Australian Government: “Australian Broadband Guarantee” <[http://www.dbcde.gov.au/broadband/australian\\_broadband\\_guarantee](http://www.dbcde.gov.au/broadband/australian_broadband_guarantee)>.

<sup>61</sup> *ibid*

<sup>62</sup> Australian Broadband Guarantee Program Guidelines 2009–10 <[http://www.dbcde.gov.au/\\_\\_data/assets/pdf\\_file/0009/118098/Australian\\_Broadband\\_Guarantee\\_Guidelines.pdf](http://www.dbcde.gov.au/__data/assets/pdf_file/0009/118098/Australian_Broadband_Guarantee_Guidelines.pdf)> at p.15.

government press release dated May 6<sup>th</sup>, 2010 by the Minister for Finance and Deregulation and the Minister for Broadband, Communications and the Digital Economy announced the construction of a new, government-backed broadband network. This network is slated to serve 90-93% of home in Australia with the remainder of homes being served by next generation wireless and satellite technologies.<sup>63</sup> This plan is projected to cost approximately \$43 billion (AUD) and take between 7-8 years to complete most of the major work.<sup>64</sup> Some speculate that this ambitious, government-led plan may be the result of poor service availability by Telestra, the Australian national incumbent carrier. Nate Anderson, a technology journalist from Ars Technica writes: "The message is clear: Australia refuses to be held back by the business decisions of a single company. As a new report on the Australian plan makes clear, there's not much attempt to make this easier on Telstra."Existing participants will need to adapt to succeed," says the government report".<sup>65</sup>

This kind of bold planning by a national government could serve as a useful example to a similarly large and sparsely populated country such as Canada. Under the Australian plan, the network would be built up using government funds, but the government itself would not become an ISP. Instead, it would sell wholesale access to its network to any and all commercial ISPs who wish to participate, without discrimination.<sup>66</sup> This would create a far more level playing field for competition, especially since the new network will install fiber right up to the residences of the retail customers.

## **Japan**

Regulation of telecommunication services in Japan dates back to 1885, when the Ministry of Communications was first established. This ministry was divided in two after the Second World War into the Ministry of Telecommunications and the Ministry of Posts. In 1952, the Ministry of Telecommunications underwent a dramatic change and was incorporated into a public corporation called the Nippon Telephone and Telegraph company (NTT). NTT became Japan's monopoly domestic telephone service provider. The year 1952 also saw the evolution of the Ministry of Posts into the Ministry of Posts and Telecommunications (MPT) who was responsible for regulating the telecommunications market. Japan underwent major reform in

---

<sup>63</sup>

Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, media release, May 6th, 2010: "Landmark Study confirms NBN vision is achievable and affordable" <[http://www.minister.dbcde.gov.au/media/media\\_releases/2010/040](http://www.minister.dbcde.gov.au/media/media_releases/2010/040)>.

<sup>64</sup> Ibid

<sup>65</sup> Anderson, Nate: "Uh-oh, telcos: 93% of Australia getting gov't-run fiber " <<http://arstechnica.com/tech-policy/news/2010/05/uh-oh-telcos-93-of-australia-getting-govt-run-fiber.ars>>.

<sup>66</sup> Ibid

its telecommunications sector in the 1980s, bringing competition to the Japanese market. This process mirrored the breakup of AT&T that was occurring in the United States at approximately the same time.<sup>67</sup> In 1996, the MPT began deregulate the Japanese telecommunication market and loosened the rules on foreign ownership in the market and introduced a new set of regulations for end-to-end connections with NTT.

Japan began to implement policies to encourage broadband development in 2001. The so-called “e-Japan Strategy” sought to transform Japan into the most advanced IT state in the world by 2006.<sup>68</sup> Japan also revealed its “e-Japan Priority Policy Programme” that set out Japan’s 5 key policy directions. These include 1) infrastructure, 2) human resources, 3) e-commerce, 4) e-government, 5) network security. Japan met the benchmarks it had set for itself with its “e-Japan” program and in 2003, Japan embarked on the “e-Japan Strategy II”. Instead of focusing on building broadband infrastructure, this second strategy sought to promote broadband usage and subscriptions by Japanese consumers.<sup>69</sup> E-Japan accomplished this task by promoting the use of broadband in the medical care, employment, government service, food and small business financing sectors. Japan launched its u-Japan strategy in 2004. This new strategy sought to make high speed internet service in Japan ubiquitous.<sup>70</sup> These initiatives all set ambitious targets and were buttressed by an effective and capable bureaucracy.<sup>71</sup> These factors helped to make Japan one of the top countries in the world for providing broadband service to consumers with the highest maximum and average broadband speeds available to consumers in OECD countries, as well as the lowest prices for high and very high speed broadband service.<sup>72</sup> These top rankings are arguably the result of Japan’s careful and effective regulation of its broadband market.

Another factor which has contributed to Japan’s top standing in broadband services is the way in which it has invested in infrastructure. Major efforts in financing Japan’s broadband network began in 2000, when the Basic IT law began and concerted efforts started to upgrade network infrastructure. The Basic IT law marked the beginning of a series of tax incentives, some of which permitted a highly accelerated depreciation of capital investments in telecommunications infrastructure and equipment.<sup>73</sup> The Japanese government also agreed to offer security for loans used by private corporations to fund broadband infrastructure

---

<sup>67</sup> International Telecommunication Union: “Workshop on Promoting Broadband”  
<<http://www.itu.int/osg/spu/ni/promotebroadband/casestudies/japan.pdf>>.

<sup>68</sup> Ibid

<sup>69</sup> IT Strategic Headquarters: “E-Japan Strategy II”  
<[http://www.kantei.go.jp/foreign/policy/it/0702senryaku\\_e.pdf](http://www.kantei.go.jp/foreign/policy/it/0702senryaku_e.pdf)>.

<sup>70</sup> Please see this Japanese Ministry of Internal Affairs and Communications website for details:  
[http://www.soumu.go.jp/menu\\_seisaku/ict/u-japan\\_en/index.html](http://www.soumu.go.jp/menu_seisaku/ict/u-japan_en/index.html)

<sup>71</sup> Supra note 39 at p. 240.

<sup>72</sup> OECD Broadband Portal, Table 1e, from EC Community Survey, as of 2007.

<sup>73</sup> Supra note 55.

improvements.<sup>74</sup> This allowed them to borrow at cheaper interest rates and helped create an incentive to deploy more broadband capacity. Consumers in rural or underserved areas were also addressed by Japanese policies providing a system of grants in 2006 for funding telecommunication infrastructure. This program has provided cash to fund build-out in different locales across the country. In 2008, the effort widened and Japan initiated its “Strategy on the Digital Divide” and set out to eliminate areas that had no broadband service available. Japan has committed 185 billion Yen to the project.<sup>75</sup>

As a result of Japan’s robust schemes to implement broadband infrastructure, it now has a very modern network available to consumers around the country. In the early days of Japanese broadband deployment, cable was the predominant technology for connecting consumers. When Japan unbundled its local loops and established new rules concerning interconnection and allocating unused “dark fiber”, DSL broadband quickly became more popular starting in the year 2000.<sup>76</sup> With the rise of DSL based broadband, more competitors began to appear on the market. A new provider in Japan, called Softbank made ample use of these relaxed rules to provide faster and cheaper service than the incumbent, NTT. Eventually, the price and speed of DSL dropped to the point where it became the leading technology for broadband. This period was marked by aggressive pricing and rapid deployment of services and many players entered the market at this point, including NTT, who had previously favoured ISDN.<sup>77</sup> However, by June of 2008, fiber to the home had outpaced DSL in terms of the number of consumer subscriptions.<sup>78</sup> NTT was an early leader for the provision of fiber to the home but as it began to face facilities-based competition from utility company subsidiaries like K-Opticom and TEPCO.<sup>79</sup> Also, NTT’s fiber to the home infrastructure is subject to unbundling rules and this makes it subject to competition from other service providers. NTT remains the largest broadband provider with approximately 50% of the market for wireline access. Softbank is the next largest provider with approximately 14% of the market and it makes use of the unbundling and interconnection of NTT’s network, as do other competitors in Japan as well.<sup>80</sup>

---

<sup>74</sup> Thomas Bleha, “Down to the Wire,” Foreign Affairs, May/June 2005  
<[www.foreignaffairs.org/20050501faessay84311/thomas-bleha/down-to-the-wire.html](http://www.foreignaffairs.org/20050501faessay84311/thomas-bleha/down-to-the-wire.html)>.

<sup>75</sup> OECD, The Impact of the Crisis on ICTs and Their Role in the Recovery, July 2009.  
<<http://www.oecd.org/dataoecd/33/20/43404360.pdf>>.

<sup>76</sup> Supra note 55

<sup>77</sup> Ibid

<sup>78</sup> Ibid

<sup>79</sup> Ibid

<sup>80</sup> TeleGeography, GlobalComms Database, Country profile, Japan, updated March 2009.

## **The United States**

The United States (U.S.) was the country that invented the internet. What began as a government funded experiment evolved into a small communication network between researchers in different U.S. military installations and universities. Eventually, the internet would become more public and commercial internet service providers would offer service to consumers. The United States was home to some of the very first ISPs on earth.

The Federal Communications Commission (FCC) is the regulatory body responsible for regulating all radio spectrum, as well as all interstate and international communications originating or terminating in the U.S.<sup>81</sup> The FCC came into existence with the passage of the Communications Act of 1934. This law was amended by the Telecommunications Act of 1996<sup>82</sup> which declared the mission of the FCC to

... make available so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, rapid, efficient, Nation-wide, and world-wide wire and radio communication services with adequate facilities at reasonable charges.<sup>83</sup>

In 1997, the FCC created the Universal Service Fund (USF). This fund collects money from telecommunication providers for the purpose of providing telecommunication services at reasonable rates to underserved areas. The USF funds four programs to serve four different groups.<sup>84</sup> They are a high cost group for consumers that are forced to pay higher prices for service, a low income group, which provides basic telephone service for 7 million low income consumers, a rural healthcare group to provide telephone and internet to healthcare facilities in remote areas and a group to provide internet access for public schools and libraries. Not all of the groups served by the USF are entitled to internet service and there is no explicit requirement to provide broadband to these groups. This is unfortunate, as dial-up internet is an increasingly difficult way to access the internet with the proliferation of multimedia and bandwidth intensive websites.

Despite a clear intention on the part of the FCC to make telecommunication services as widely available to American consumers as possible, the FCC avoided taking a firm stance on the issue of broadband availability until very recently.

---

<sup>81</sup> See 47 U.S.C. § 151 and 47 U.S.C. § 154 for details on exactly how the FCC was empowered by Congress to regulate.

<sup>82</sup> amendment to 47 U.S.C. §151

<sup>83</sup> Ibid

<sup>84</sup>Please see the Universal Service Administrative Company's website for details:  
<http://www.universalservice.org/about/universal-service/fund-programs/default.aspx>

The FCC publishes regular reports on the state of telecommunications and broadcasting in the US, as well as the policy goals of the Commission. One such report is the annual Performance and Accountability report. The most recent 2008 report sets out some of the FCC's policy objectives. These objectives are consistent with the Telecommunications Act of 1996 and the Government Performance and Results Act of 1993. The FCC identified 6 major areas of interest for policy reform for its 2006-2011 Strategic Plan. Among the priority areas were broadband and competition:

All Americans should have affordable access to robust and reliable broadband products and services. Regulatory policies must promote technological neutrality, competition, investment and innovation to ensure that broadband service providers have sufficient incentive to develop and offer such products and services.

Competition in the provision of communication services, both domestically and overseas, supports the Nation's economy. The competitive framework for communications services should foster innovation and offer consumers reliable, meaningful choice in affordable services.<sup>85</sup>

Starting in 2009, the US began to embark on a clearer path with respect to broadband policy. On February 17, 2009, President Barack Obama signed the *American Recovery and Reinvestment Act of 2009* into law. This law was designed to help stimulate the US economy and address the rising unemployment in the US. The law allotted \$7.2 billion USD for broadband development. 4.7 billion dollars was allotted to bring broadband to un-served and underserved areas and to facilitate broadband use and adoption. The other 2.5 billion was allotted to the FCC to develop a national broadband plan within a year.<sup>86</sup> In order to promote public participation in the creation of the broadband plan, the FCC solicited comments from the public, starting in April 2009 through to February 2010.

A groundbreaking report was released by Harvard University's Berkman Center for Internet and Society on February 16<sup>th</sup>, 2010. The report was entitled *Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world*, and it analyzed the state of broadband in a number of different countries in Europe, Asia as well as Canada. It examined the regulatory practices and policies for broadband in different countries, such as competition, access, public investment and pricing versus speed. The report made a number of important conclusions about the state of broadband in the U.S. as well as in the world more generally. The report states that:

Our most surprising and significant finding is that 'open access' policies—unbundling, bitstream access, collocation requirements, wholesaling, and/or functional separation—are almost universally understood as having played a core role in the first generation transition to broadband [dial-up to broadband] in most

---

<sup>85</sup> Federal Communications Commission: "Fiscal Year 2008 Performance and Accountability Report" p.12 <<http://www.fcc.gov/Reports/ar2008.pdf>>.

<sup>86</sup> *American Recovery and Reinvestment Act of 2009*, Pub.L. No.111-5, 123 Stat. 118.

of the high performing countries; that they now play a core role in planning for the next generation transition [faster and always available connectivity]; and that the positive impact of such policies is strongly supported by the evidence of the first generation broadband transition.<sup>87</sup>

Additionally:

We find that in countries where an engaged regulator enforced open access obligations, competitors that entered using these open access facilities provided an important catalyst for the development of robust competition which, in most cases, contributed to strong broadband performance across a range of metrics...[T]he highest prices for the lowest speeds are overwhelmingly offered by firms in the United States and Canada, all of which inhabit markets structured around “inter-modal” competition—that is, competition between one incumbent owning a telephone system, and one incumbent owning a cable system. The lowest prices and highest speeds are almost all offered by firms in markets where, in addition to an incumbent telephone company and a cable company, there are also competitors who entered the market, and built their presence, through use of open access facilities.<sup>88</sup>

The report offers a number of examples and comparisons between broadband providers in different countries to illustrate this point. France Telecom, the incumbent provider, was forced to open up its lines to smaller competitors, whereas Germany’s providers were not. As the report states:

Germany began the year 2002 with double the level of broadband penetration per 100 inhabitants that France had. By 2006 France had slightly overtaken Germany by that measure (although not in penetration per households). Average advertised prices in Germany are substantially higher across every category of service, from very low speeds to very high speeds. France is among the countries in the first tier of speed availability, with substantial availability of 100Mbps service. Germany is in the second tier, with offerings of 50Mbps characterizing the top range available to residential subscribers. A review of the company histories of those companies that generated the competitive environment in the two countries strongly suggests that unbundling and open access played a significant role in entry. A review of the regulatory histories and political economy of the two countries suggests that that difference, in turn, was driven by political will, regulatory engagement, and determination around the implementation of the network access framework that the EC passed in 2002.<sup>89</sup>

The report also examined how Japan’s regulatory environment helped make it one of the leading countries for broadband service in the world today:

What is clearly true is that unbundling enabled Yahoo!BB to enter the market with lower prices, aggressive marketing, free DSL modems and installation, and innovative new services, most disruptive of which was bundling free VoIP with broadband access as early as 2001. Today Yahoo!BB has slightly over a third of the DSL market, NTT has another third, and the remainder is shared among other providers, mostly KDDI and eAccess. Moreover, Softbank is now moving to invest in fiber, and has become a major

---

<sup>87</sup> Supra note 39 at p.11.

<sup>88</sup> Supra note 39 at p.12.

<sup>89</sup> Supra note 39 at p. 101.

player in fixed mobile convergence by buying Vodafone's Japanese operations in 2006. In this case, unbundling or open access operated exactly as anticipated—it created low entry barriers for an entrant who was able to introduce extensive service innovations, create a brand, and become an aggressive competitor which helped drive investment away from monopoly rent- extraction devices, like NTT's ISDN policy. That entrant continues to be a major force in the market almost a decade later.<sup>90</sup>

Canada did not fare well in comparison to other countries examined in the report. The report was particularly critical of how Canada's attempts to impose unbundling were not well executed.

Canada in particular offers an example of half-hearted efforts to impose unbundling, and increasingly heavy reliance on competition between local telephone and cable incumbents. Its results, as our benchmarking study shows, have been weaker than those of other countries we review here.<sup>91</sup>

The Berkman report offered an outsider's perspective on what kind of regulations lead to a country's success or failure in providing broadband services to its citizens. The fact that it was not produced by either regulatory bodies or organizations employed by the telecommunications industry makes it unique. The report served as a prelude to the FCC National Broadband Plan (the Plan) that was released on March 17<sup>th</sup>, 2010.

The FCC National Broadband Plan is a very substantial document at over 300 pages. The Plan sets out the US's broadband competition and investment policy as well as "national purposes" for broadband service. These national purposes include health care, education, the environment, the economy, civic engagement and public safety. The report also takes a somewhat philosophical tack as well by advocating for broadband as an essential tool for business opportunities and citizenship.<sup>92</sup> The Plan reveals some surprising facts as well. Nearly 100 million Americans have no access to broadband internet today. 14 million Americans are not able to access broadband where they live and 10 million American school children need it as a primary research tool for homework.<sup>93</sup>

The Plan begins by setting some ambitious and broad reaching goals for broadband in the U.S. Those goals are:

1. Providing at least 100 million homes affordable broadband access with 100mb/s download and 50mb/s upload speeds by 2020. 100 million homes should have 50mb/s download and 20mb/s upload by 2015.

---

<sup>90</sup> Supra note 39 at p. 84.

<sup>91</sup> Supra note 39 at p. 79.

<sup>92</sup> Supra note 39 at p.3.

<sup>93</sup> Ibid.

2. The U.S. should lead the world in mobile innovation, with the fastest and most extensive wireless networks of any nation
3. Every American should have affordable access to broadband service and the means and skills to subscribe if they so choose.
4. Every American community should have affordable access to at least 1 gigabit per second broadband service to anchor institutions such as schools, hospitals and government buildings.
5. Every first responder should have access to a nationwide, wireless, interoperable broadband public safety network
6. Every American should be able to use broadband to track and manage their real-time energy consumption.<sup>94</sup>

Implementing these recommendations requires some significant policy changes regarding broadband innovation and competition. The Plan goes into detail about how it will regulate the provision of broadband services to consumers.

One recommendation in the Plan proposed was that the FCC and the U.S. Bureau of Labor Statistics collect more detailed and accurate data on actual availability, penetration, prices, churn and bundles offered by broadband service providers to consumers and businesses and should publish analyses of these data.<sup>95</sup> This data will help the FCC make more informed policy decisions regarding broadband deployment, adoption and competition issues. Another recommendation was that the FCC coordinate its efforts with the National Institute of Standards and Technology to establish a technical broadband measurement standard and create a methodology and a process to update this standard.<sup>96</sup> This is a positive step, as the methodology employed by the FCC has been criticized by some members of the industry for reporting ISP speeds as too low.<sup>97</sup> This recommendation is linked with another that states that “[t]he FCC should continue its efforts to measure and publish data on actual performance of fixed broadband services.”<sup>98</sup> The FCC should publish a formal report and make the data available online”. This type of approach has been used with considerable success in the United Kingdom, New Zealand and Singapore. The Plan also recommends the development of broadband performance standards for mobile services, multi-unit buildings and small business users.

---

<sup>94</sup> Supra note 76, p. 9-11.

<sup>95</sup> Supra note 76, p.43.

<sup>96</sup> Supra note 39 at p. 45.

<sup>97</sup> Lasar, Matthew: “Cable ISPs: new broadband test makes our service look slow”

<<http://arstechnica.com/telecom/news/2010/03/cable-isps-new-broadband-test-makes-our-service-look-slow.ars>>.

<sup>98</sup> Supra note 39 at p.45.

A major issue that the Report seeks to address is the availability of broadband services. The Report states that the FCC should conduct a comprehensive reform of universal service and intercarrier compensation in three stages to close the broadband availability gap. This proposed reform would occur in a series of stages<sup>99</sup>:

- Stage One (2010-2011): Lay the foundation for reform.
  - This includes improving the Universal Service Fund (USF) performance and reliability, as well as creating the Connect America Fund (CAF) and the Mobility Fund.
  
- Stage Two (2012-2016): Accelerate reform.
  - The FCC should begin making payments to the CAF, broaden the disbursements to the USF and begin reducing the per-minute rates for intercarrier compensation.
  
- Stage Three (2017-2020): Complete the transition
  - The FCC should manage the USF to keep its size at 2010 levels, minimizing the impact on consumers, should provide all funding for broadband availability through the CAF and should phase out the per minute rates for origination and termination of telecommunications traffic.

The Report also proposes that Congress should consider additional funding for broadband deployment, that it also consider expanding grant/loan programs and that the FCC work more closely with state, municipal and Tribal governments to promote broadband connectivity.

The Report also addresses the principle of universal or basic service in the context of broadband service in the U.S. The current federal level universal service programs in the U.S. were created after the *Telecommunications Act of 1996* was passed. In 1996, only 23% of American consumers had dial-up internet service at home and broadband was virtually unheard of for consumers.<sup>100</sup> The USF was not created with implementing broadband services in mind, aside from helping to install it into schools, libraries and rural health facilities. This is why the current regulatory scheme will not help increase the availability of broadband in a significant way. The USF must be reconstituted from a fund that primarily supports voice communication to one which supports a broadband platform capable of handling many applications, including

---

<sup>99</sup> Supra note 39 at p.135-136.

<sup>100</sup> Supra note 39 at p.140.

voice. The Report recommends that the FCC move first to maximize the number of homes unserved by broadband starting with those homes that will require the smallest investment to fulfill this goal. This will allow a greater number of households to be served quickly for the same limited investment and will also allow the FCC to develop more experience and knowledge about delivering broadband to areas that are hardest to serve. The USF High Cost program will have to be extensively reformed to close the broadband availability gap and the U.S. government will gradually have to withdraw its support for telephone-only networks and provide funding for networks that support many applications, including voice.<sup>101</sup>

The report also states that the Intercarrier Compensation program (ICC) was implemented before the existence of broadband networks. Because of this fact, the ICC system has not changed to reflect the changes in the market as well as consumer behavior. Carriers continue to charge rates above cost, despite the fact that VOIP telephony obviates any need for carrier switching. As the U.S. and the rest of the world evolves towards an IP based communication network the levying of charges based on per minute usage will not be sustainable in a broadband world where per gigabit or unlimited pricing schemes reign.<sup>102</sup> As a result, broadband providers have been moving slowly towards IP interconnection arrangements for IP traffic, because the current system of providers' rates above costs creates disincentives to convert all networks to IP technology. The FCC should start a staged transition towards reducing the per-minute rates for intercarrier compensation until there is eventually a uniform rate per carrier.

Another issue the Report identifies with respect to broadband is not a technical problem, but rather, a human problem. Broadband adoption is an important factor in the creation and implementation of broadband networks. Broadband adoption is particularly low in some vulnerable groups that were identified in the Report. The average rate of household broadband use is 65%. This figure drops to 50% for rural households, 42% for people with disabilities, 40% for low income households, 35% for older Americans over 65 years and as low as 24% for those who never completed high school.<sup>103</sup> The three main reasons that the Report ascribes to the problem of adoption of broadband are cost, digital literacy and relevance.

The issue of cost is most often cited as the reason why non-adopters do not have broadband service in their home. Some 36% of FCC survey respondents stated that this was the reason they did not have broadband service in their home.<sup>104</sup> Because of this, the Report

---

<sup>101</sup> Supra note 39 at p.143.

<sup>102</sup> Supra note 39 at p.142.

<sup>103</sup> Supra note 39 at p.167.

<sup>104</sup> Supra note 39 at p. 168.

recommends the FCC expand its telephone access programs (Lifeline and Link-Up) to make broadband more affordable for low income households. This could be done by requiring telecommunications carriers to permit Lifeline customers to apply their discounts to any service or package that includes basic voice service. The FCC should also integrate the expanded Lifeline and Link-Up programs with other state and local e-government efforts. Additionally, the FCC should facilitate pilot programs that will produce actionable information to implement the most efficient and effective long term broadband support mechanism. The Report also recommends that the FCC consider free or very low cost wireless broadband service, following a similar principle to free, over the air television broadcasts. The wireless broadband signals could be accessed by a device the consumer would have to purchase inexpensively, much like a television antenna. Advertising-based models could finance these free networks, much as it supports free over the air television broadcasts.

Digital literacy is another obstacle to broadband adoption and is the reason that 22% of non-adopters say is preventing them from subscribing to broadband services in their home. Digital literacy is a continually changing idea, with no set definition. The Report identifies it in a general sense as a skill set that allows an individual to use information and communications technology “to find, evaluate, create and communicate information. It is the sum of the technical skills and cognitive skills people employ to use computers to retrieve information, interpret what they find and judge the quality of that information.”<sup>105</sup> The Plan also recommends that the federal government launch a digital literacy program that creates a Digital Literacy Corps, increases the capacity of digital literacy partners and creates an Online Digital Literacy Portal. This proposed Digital Literacy Corps would provide training and outreach services for communities that have not adopted broadband. The Report also suggests that Congress, the Institute of Museum and Library Services (IMLS) and the Office of Management and Budget (OMB) should work in concert to support institutions that act as partners in building the digital literacy skills of people within local communities. Congress should consider increasing its funding to the IMLS to improve connectivity, upgrade hardware and train personnel of libraries and other community-based organizations. The OMB consulting with IMLS should develop guidelines to ensure that librarians and CBOs have the training they need to help patrons use next-generation e-government applications.

The relevance to some consumers of receiving broadband service in one’s home is another issue that is impeding its widespread adoption. The Report identifies 19% of non-adopters say they do not believe that digital content delivered of broadband networks is a compelling enough reason to justify purchasing the service.<sup>106</sup> As the Report states:

---

<sup>105</sup> Supra note 39 at p.174.

<sup>106</sup> Supra note 39 at p. 178.

Many Americans may not feel broadband can help them achieve specific purposes and do not view online resources as helpful to their lives. Others seem satisfied with offline alternatives. These respondents say, for example, that the Internet is a “waste of time”. The country has a unique opportunity to spur adoption by making broadband content relevant to these non-adopters.<sup>107</sup>

In order to counteract this tendency, the Report recommended that the National Telecommunications and Information Administration (NTIA) should examine how public-private partnerships could improve broadband adoption. Private entities that could be useful partners include hardware manufacturers, software companies and broadband service providers. These parties could work with federal agencies in non-adopting communities to educate consumers on the use of broadband. These same partnerships could also be useful to increase the relevance of broadband for older Americans.

Despite the FCC’s clear intention to reform the broadband market in the U.S., acting upon these objectives may prove more difficult than previously anticipated. On April 6<sup>th</sup>, 2010, a U.S. federal appeals court ruled on a lawsuit commenced by Comcast, one of the largest broadband providers in the United States. At issue in the case was whether the FCC had the right to prevent Comcast from discriminating against certain kinds of traffic over its network. Comcast had earlier asserted the right to “throttle” or artificially slow down Bittorrent traffic, which is traffic generated by a popular peer-to-peer application used for file sharing. The FCC ordered Comcast to discontinue the practice and Comcast appealed. In a unanimous 3-0 decision of the Court, Judge David Tatel ruled that the FCC did not in fact have the legal authority to regulate Comcast’s network management practices.<sup>108</sup>

This unfortunate decision raises some difficult questions regarding how the FCC will be able to implement some of its recommendations for broadband reform. One issue facing the FCC now is they will be able to implement some of their funding recommendations, such as diverting funds from the USF away from telephone service to broadband service. This decision suggests that the FCC may not have the authority to do so. The final answer is not yet clear as it was not clear at the time of this writing whether the FCC would choose to appeal the decision or find a way to work around it. Also, the decision raises the possibility that Congress may pass a law that circumvents this decision and allows the FCC more authority to decide how to regulate internet services.

---

<sup>107</sup> Ibid.

<sup>108</sup> *Comcast Corporation v. Federal Communications Commission and United States of America*, 2010 FED App.08-1291 (D.C. Cir).

## Canada

In Canada, one of the principal cornerstones of the basic service obligation, as the package of interrelated policies is generally termed – the obligation to serve- was formalized in CRTC Telecom Decision 86-7 in paragraph 4.2 of that Decision. Other Commission Decisions have clarified what is the basic telecommunication service that must be provided under the obligation to serve, and how must it be provided. In PN 95-49 (cited in Telecom Decision 96-10), the Commission affirmed that one of its objectives was to determine how best to ensure that local service remains accessible and affordable in compliance with the objectives set out in sec 7 of the *Telecommunications Act*.

In Decision 99-16, the Commission set out the Basic Service Objective (BSO). This is a level of service that all telecommunications providers must make available to consumers in Canada. The BSO consists of a variety of services that telecommunications service providers must make available to all customers. An excerpt of Decision 99-16 explains the minimum services below:

The Commission considers that the level of service now available to the vast majority of Canadians should be extended to as many Canadians as feasible in all regions of the country. Accordingly, the Commission is hereby establishing the following basic service objective for local exchange carriers:

- Individual line local service with touch-tone dialing, provided by a digital switch with capability to connect via low speed data transmission to the Internet at local rates;
- Enhanced calling features, including access to emergency services, Voice Message Relay service, and privacy protection features;
- Access to operator and directory assistance services;
- Access to the long distance network; and
- A copy of a current local telephone directory

The basic service objective is independent of the technology used to provide service, and may change over time as service expectations evolve.<sup>109</sup>

---

<sup>109</sup> CRTC Telecom Decision 99-16.

Each of these features is essential to consumers. Touch-tone dialing is a necessity to access different services over the telephone, such as telephone banking or government services. The ability to connect to low speed internet is growing less and less useful by the day. Consumers need guaranteed access to high speed broadband connections for a multitude of economic, social and health related reasons. Access to emergency services, such as 911 service, are essential to the health and security of consumers. Operator and directory assistance make the telephone network more accessible to consumers, particularly those less familiar with the phone network. Access to the long distance network makes telephone service a tool to connect to the rest of Canada and the world, a particularly important feature for businesses. Finally, a copy of the current phone directory allows consumers to make the best use of their telephone service by allowing them to find and contact others.

Finally, in Decision CRTC 2000-745, the contribution regime was established for the purpose of enabling the delivery of the basic service objective of Decision 99-16 at the affordable access rate objective affirmed in Decision 96-10.

As CRTC Telecom Decision 99-16 notes:

19. In assessing the options available to achieve these goals, the Commission must consider the sometimes competing policy objectives that are set out in section 7 of the Telecommunications Act (the Act), such as:

(a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;

(b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;

(c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications;

(f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective; and

(h) to respond to the economic and social requirements of users of telecommunications services.<sup>110</sup>

We thus have the framework of our current universal service obligation in Canada that consists of delivering basic service to everyone in a serving area. Basic service is currently defined as a form of local land line service with touch tone dialing as set out in Decision 99-16. Where necessary, contribution is made available in accordance with CRTC 2000-745 to enable the delivery of basic service.

There has been clearly some erosion of the centrality of the local land line service identified as basic service in Decision 99-16. There may well be other means than the current basic service formula to meet the connectivity needs described by the FCC at paragraph 9 herein. At the same time, broadband service has become an important network for the delivery of a wide range of services including telephony.

The fact that a different network or technology, such as broadband, may be required to now meet the societal needs associated with the original basic service objective, does not mean that the concept of universal service has become irrelevant. The experience in the United States and Europe seems to point to a conclusion that the basic service requirement can require additions without being subversive of the overarching objective.

Some commentators have taken the position, notwithstanding the regulatory and common law position, that the principle of obligation to serve consistent only with the preservation of a natural monopoly, and that it has no relevance in the context of an environment in which competition has been supplanting regulation.<sup>111</sup> This view has been strongly challenged by those that view the obligation not as simply a financial obligation on the part of service provider to subsidize service but also to extend service to meet reasonable demand. In CRTC proceeding 2010-43, expert evidence filed by the Consumer Groups from Dr. Barbara Cherry of the University of Indiana traces the development of the obligation to serve in common law and concludes that it remains relevant in a regulatory environment where forbearance from regulation has been pursued as a goal:

For telecommunications services, the carrier of last resort obligation has been an important component of universal service policy to ensure that less desirable or unprofitable customers would continue to be served. The application of a carrier of last resort obligation in a competitive environment requires coordination with modification of universal service policy.<sup>112</sup> It is for this reason, as stated in Section 3.2, that application of a carrier of last resort obligation under a policy of forbearance requires careful

---

<sup>110</sup> Ibid

<sup>111</sup> See Ryan, M.H., *Canadian Telecommunications Law and Regulation*, (2009), release 2, pp.6-67-6-73

<sup>112</sup> See Cherry and Wildman (1999).

evaluation — beyond a simple assertion of symmetric application among ILECs and CLECs — for appropriate implementation.<sup>113</sup>

Excerpts from Dr. Cherry’s testimony are set out as Appendix A to this report.

It is also clear that the traditional mechanisms for maintaining and financing the basic service obligation, primarily through an obligation to provide basic service in the form of single land-line telephony, cannot be the principal means of maintaining and financing basic service in the future. The same regulatory bargain that drove the establishment of basic service provided by the incumbent monopoly provider is no longer in place. The Governor in Council’s Policy Direction, which has triggered the necessity for a review of the components of the Commission’s basic service obligation, also contemplates that any obligation should now be symmetrical and competitively neutral<sup>114</sup>. We have appended to this report, excerpts from the evidence of regulatory expert John Todd, filed in CRTC proceeding 2010-43, that outlines a regime that is competitively neutral and provides the required cost discipline to enable its implementation.

There exists considerable public policy support for a basic service obligation that includes broadband. The Canadian government’s Broadband Task Force in 2001 recommended an action plan that would have seen access to broadband in all Canadian communities by 2004. The Telecommunications Review Panel Report of 2006 urged the creation of a national strategy for adoption of ICTs, noting the effect of improved broadband connectivity as “a prime means of spreading the social and economic objectives of information technology”.<sup>115</sup> It too recommended that government “immediately commence a program to ensure that affordable and reliable broadband services are available in all regions of Canada, including urban, rural and remote areas, by 2010 at the latest.”<sup>116</sup>

The time for Canada to act is now. Canada had an early lead in broadband adoption compared to other countries. In fact, in 2000, 31% of Canadian broadband subscriptions were broadband subscriptions.<sup>117</sup> In the 2003 OECD survey of broadband penetration, Canada ranked second per 100 inhabitants, behind South Korea.<sup>118</sup> Despite this strong start, Canada quickly

---

<sup>113</sup> Testimony of Barbara Cherry, CRTC Telecom Notice 2010-43, p.25

<sup>114</sup> Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives SOR/2006-355, sec. 1 (b)(iii)

<sup>115</sup> Telecommunications Review Panel Final Report 2006 p. 7-43

<sup>116</sup> Ibid, Recommendation 8-1

<sup>117</sup> CRTC Communications Monitoring Report August 2009, p. 213-226.

<sup>118</sup> OECD Communications Outlook 2003

lost its status as a broadband leader. Despite the CRTC's policy of unbundled access, the Canadian market is not typified by unbundled competition but rather, by facilities-based competition.

Generally speaking, consumers have a choice between two competitors, one telephone-based and one cable-based. These companies maintain a particular operating area and do not tend to compete directly with one another. In fact, the market share of revenue captured by incumbent telecommunications providers declined quite sharply from 23% of market share in 2003 to 12% of market share in 2007.<sup>119</sup> Additionally, the revenue earned by out of territory providers, both incumbent and non-incumbent providers dropped from 16% in 2004 to 8% in 2008.<sup>120</sup> This data strongly suggests that some competition may have been occurring previously, however, this trend is reversing and providers are partitioning off their respective markets. By controlling distinct markets, the major incumbents are reducing competition between themselves to the detriment of consumers.

Despite Canada's local loop unbundling, there has not been a major competitive entry into the Canadian broadband market outside of the major incumbent providers. This could be the result of a very early presence of strong competitors in the market, as the incumbent providers managed to introduce broadband services very rapidly into the Canadian market. Another factor could be the way the CRTC has regulated providers. The CRTC has adopted a "costs plus markup" approach which has not been adopted by other countries. This helps to insulate the incumbent players from competition as all manner of costs are covered as well as a healthy margin for profit.

Whatever the reason for the lack of competition within the Canadian market, there is no question that it is having a very negative effect on the prices of services available to consumers. According to the Berkman report, as of September 2008, the monthly price of an unbundled local loop in Canada (excluding remote and dense urban areas) was 70% higher than in South Korea and Denmark, almost 50% higher than in Italy, 30% higher than in Japan, France, or Norway, and 25% higher than in Finland or the UK. Canada has the highest monthly charge for access to an unbundled loop in any OECD country.<sup>121</sup> Furthermore, the report identifies Canada's major weakness in terms of price versus level of service:

---

<sup>119</sup> Supra note 39 at p. 110.

<sup>120</sup> Ibid.

<sup>121</sup> Ibid.

In terms of prices, Canada ranks 21st for the lowest speeds and 23d for middling speeds. It ranks next to last in prices of high speeds (only the Slovak Republic has higher prices in that tier of service), and it does not appear in the rankings for prices of very high speeds, because there were no offerings of service speeds of 35Mbps or higher in Canada in September of 2008. Our company level pricing study for the highest-speed offers in the countries we observe here locates almost all of the Canadian companies in the cluster with the slowest speeds and highest prices.<sup>122</sup>

This situation is unacceptable for Canadian consumers. Broadband is becoming a more essential tool for communication, business, health and education with each passing day. Canadians need to have access to affordable broadband services, no matter where they live. One way to ensure this would be the creation of a basic service requirement for broadband in Canada

---

<sup>122</sup> The October 15, 2009 Harvard Berkman Centre Report "Next Generation Connectivity" noted on page 11.

## **Conclusion**

The internet has quickly evolved from an academic curiosity to an unstoppable force on the earth's economic, political and social landscape. A critical component to the internet's success has been the rise of broadband and the ever increasing speeds it offers. High bandwidth web applications such as streaming audio and video, teleconferencing and telepresence and voice over IP telephone service would be impossible but for broadband internet. Canadian consumers are increasingly reliant upon such services. However, without a basic service requirement, many Canadian consumers will not be able to access broadband and will be left behind.

The importance of broadband access has been recognized by different countries around the world. Many developed states have implemented broadband basic service regimes to ensure consumers have access to broadband service, no matter where they are located within a state's borders. On July 1<sup>st</sup>, 2010, Finland will make access to broadband a human right for its citizens. This is all the more remarkable when Finland's geography, which includes vast tracts of sparsely populated, arctic land. Finland's unremarkable 1Mbps standard will be elevated to 100Mbps by 2015. This is a truly impressive standard given Finland's geographic and demographic characteristics. Spain has also followed suit to Finland and has declared that broadband will become a legal right to its citizens as of 2011. France already has excellent broadband and related services available to its consumers and for very reasonable prices. France is seeking to widen the availability of its services and provide high quality 100Mbps service to as many consumers as possible. Australia does not presently have a basic service requirement for all of its citizens but has instead opted to build its own publically financed broadband network. This network will serve 90-93% of the homes in Australia with the remaining number to be served wireless and satellite technology.<sup>123</sup> The United States has just published an ambitious broadband plan that outlined a comprehensive strategy to reform its market for broadband internet service. They plan to provide at least 100 million homes with 100Mbps broadband service, wire all schools, hospitals and government offices with 1Gbps and a complete rebuilding of the public safety network.<sup>124</sup> It is clear that other countries are taking the issue of broadband availability very seriously and devoting considerable resources to addressing it.

---

<sup>123</sup> Supra note 57.

<sup>124</sup> Supra note 76 at p.9-11.

Upon comparison to other countries, Canada is falling behind. Canada has no comprehensive broadband policy and no broadband basic service requirement. Canada's efforts to create greater competition in the broadband marketplace have been criticized as "half-hearted".<sup>125</sup> It is time for Canada to step up and create a broadband basic service requirement to better serve its consumers and its economy. Canada was an early leader in broadband adoption, coming in second to South Korea in OECD broadband surveys in 2003.<sup>126</sup> Only seven years later, we are far behind, but there is still time to catch up.

The federal government has long recognized the importance of broadband access to Canadian consumers. The Broadband Task Force has recommended as early as 2001 that Canada make broadband services available to all Canadian communities. The Telecommunications Review Panel Report came to a similar conclusion and recommended that broadband services be made available to all communities in Canada. The most effective way to ensure that Canadians in all communities receive broadband services, whether they are urban, rural or remote, is to establish a basic service requirement for broadband and allow the CRTC to regulate a standard that must be provided to all Canadian consumers.

The framework for a basic service provision thankfully already exists with CRTC Telecom Decision 99-16. Canadian telecommunications providers have been subject to its requirements for over a decade. Telecom Decision 99-16 sets out a number of criteria to ensure that the service delivered under the basic service directive is accessible and of sufficient quality to consumers. It is clear that the idea of a basic service requirement in Canada is not a new one. The basic service requirement has made telephone service available to consumers living in many rural and remote areas all across the country. This service has brought them countless benefits ranging from the economic, political and social. If this definition or a similar one providing a broadband basic service requirement were to come into effect, consumers would greatly benefit. A broadband basic service requirement would need a similar set of criteria in order to succeed. Most important of these requirements would be a minimum standard for upload and download speeds. Other important standards to consider would be average wait times for technical service and price controls to keep the service accessible to all consumers.

The United States serves as a useful model for service standards, as their broadband market is similar to ours. The North American broadband market is typified by large telephone

---

<sup>125</sup> Supra note 65 at p.79.

<sup>126</sup> Supra note 106

and cable incumbents, both of which are able to deliver high speed internet services. The U.S. National Broadband Plan sets incremental targets to achieve certain levels of service that could serve as a useful example. Given the nature of the Canadian market, any basic service requirement that is implemented must be equally applicable to both telephone and cable broadband providers. The requirement should also not create any sort of greater burden or hardship on one type of provider over another. The federal government and the CRTC should be mindful of these considerations if they choose to implement a broadband basic service requirement.

The widespread adoption of the telephone revolutionized Canadian society in many different ways. A similar revolution is already underway with the internet and a significant segment of Canadian consumers risk being left behind without a broadband basic service requirement. The time for action is now. Canadian consumers deserve nothing less.

## Appendix A

Excerpts from Testimony and legal opinion of Barbara Cherry **J.D., Ph.D.**

**filed in**

### **In CRTC Telecom Notice 2010-43 – Obligation to Serve**

Introduction...

“Classifying a firm or industry under the heading public service impose[s] an explicit set of obligations on that firm or industry. In this respect the public service concept differs from other types of regulation and has important policy consequences” (Stone, 1991, p. 28). These obligations include the duty to serve. In CRTC Telecom Notice 2009-575 (par. 3), the Commission described the obligation to serve as including the obligation to provide service to: existing customers; new customers requesting service where the carrier has facilities (including the requirement to act as carrier of last resort); and new customers requesting service beyond the limits of the carrier's facilities.

There is an important common law history underlying designation of a firm or industry that bears the obligation to serve. It is critical that this legal history be properly understood and interpreted in order to guide the Commission’s consideration of the obligation to serve in the present proceeding.

The common law history of the obligation to serve has often been misunderstood. Some modern commentators focus on a modern concept of economic criteria and overlook the importance of the historical social criteria for imposing this special obligation on an industry or firm. In particular, some erroneously interpret legal history by claiming that common law imposition of a duty to serve requires the existence of monopoly. As will be discussed, under the common law the imposition of the duty to serve was originally, and often continues to be, independent of the existence of monopoly.<sup>127</sup>

Furthermore, the legal history shows that the scope of the duty to serve has evolved over time. Public service companies must serve not only within existing capacity, but also have an affirmative obligation to extend their facilities within their service area and usually have a barrier to exit. History also shows that industries to which the common law duty to serve may be imposed changes over time, such as due to changes in transportation and communication technologies. During the nineteenth century, the common law duty to serve was imposed on new technologies such as railroads, telegraphy, telephony,

---

<sup>127</sup> This is true however monopoly is defined — actual, natural, virtual or practical.

as well as gas and electric utilities. The extension of the duty to serve to new technologies and services is relevant to inquiry as to whether the duty should be extended to broadband service.

#### **4.2. Duty to Provide Broadband Service**

Turning to the issue in the present proceeding as to whether a carrier may be required to provide broadband service, Ryan concludes: “It follows that the law does not require a carrier, or authorize the Commission to require a carrier: (a) to provide broadband service to locations within an existing service territory if the required facilities are not in place” (first full paragraph on p. 3, emphasis in original). This unequivocal statement is inconsistent with both the common law and *Metcalfe Telephones Limited v. McKenna*. The issue, rather, requires evaluation of circumstances under the now prevailing public policy choices, which may also vary among carriers particularly given the statutory requirements of the *Bell Canada Act*. Canada’s current policy is reflected in the policy goals embodied in section 7 of the *Telecommunications Act* and the Governor in Council’s Policy Direction “to rely on market forces to the maximum extent feasible as the means of achieving the telecommunications policy objectives” (at para. 1(a)(i)).

Such evaluation will be a challenging endeavor for the Commission, as the policy choices have changed from those based on exclusive franchises in *Metcalfe Telephones Limited v. McKenna*. In this regard, it bears emphasizing that under the common law *both* common carriers and public utilities have the duty to serve which includes the duty to extend facilities “within its service territory” in order to meet reasonable demand. Since telecommunications carriers in Canada are both common carriers and public utilities, inquiry as to the “existing service territory” of a carrier needs to take into account telecommunications carriers’ dual classification. Moreover, it is my understanding that broadband service is considered a telecommunications service in Canada. If so, then a telecommunications carrier that already provides broadband service to *some* customers within its service territory, can be required to provide broadband service to others within the service territory in order to meet reasonable demand.

A further factual inquiry, of course, will then be what is “reasonable demand”. As to this inquiry, the prevailing universal service policy may be determinative. Without any explicit funding support, reasonable demand requires that customers be willing to pay compensatory rates.

The core of the duty to serve itself should be properly understood. It is not a requirement that the utility serve for inadequate compensation; it is an obligation to serve everyone who makes a reasonable request for service and who tenders reasonable compensation under rules of general applicability, including, of course, any rate differentials authorized by the regulatory agency. *In other words, the duty to serve, properly conceived, is a*

*prohibition against arbitrary, ad hoc, and selective refusals to deal*’ (Payton, 1981, p. 146, emphasis added).

Thus, to prevent arbitrary, ad hoc, and selective refusals to deal, the Commission can order a telecommunications carrier to extend facilities to provide broadband in its service territory to customers willing to pay compensatory rates.

Furthermore, the scope of customers to be served within a service territory could be expanded through explicit universal service funding support. With regard to the potential for funding support for broadband service, Ryan concludes:

The Commission has the power under section 46.5 of the Act to create a fund to support “continuing access” to “basic telecommunications services” and to require all service providers to contribute to that fund; but, in my opinion, this provision does not authorize the Commission to create a fund to support the building of broadband service into territories unserved by broadband. This section is intended to ensure that *existing* services remain affordable, not to support the introduction of *new* services. (fourth full paragraph on p. 3, emphasis in original)

His categorical conclusion that section 46.5 does not authorize the Commission “to create a fund to support the building into territories unserved by broadband” is both misleading and a misstatement of the law. It is insufficiently articulated to reflect the nuances of the scope of telecommunications carriers’ duty to serve, and does not recognize the contextual analysis necessary to determine what are service territories. Ryan’s conclusion is also internally inconsistent. For example, in par. 3 (in his Introduction), Ryan states that broadband service is an “existing service” as he has defined the term for purposes of his opinion. Thus, if broadband is an existing service and thereby not a new service, then his objection to applying 46.5 to broadband does not apply. Finally, “basic telecommunication services” is not defined in the *Telecommunications Act*, but is to be determined by the Commission. Therefore, the Commission could revise the definition of basic telecommunications services to include broadband service.

## Appendix B

In this excerpt from his evidence, Mr. Todd outlines possible structures to accomplish the basic service goal for broadband.

### 2. **TWO MARKET SEGMENTS, TWO DIFFERENT CHALLENGES**

In “determining its role, if any, regarding access to high-speed Internet services” (NC 2010-43, para. 16), the Commission will need to examine in the current proceeding whether high-speed Internet access should be incorporated into the obligation to serve, the basic service objective, the local subsidy regime and the associated contribution mechanism. In doing so it will be important to take into account the different stages of market evolution that have been achieved to date in these two segments of the telecommunications market (i.e., basic service as currently defined vs. high-speed Internet service).

The existing regulatory regime includes a definition of the basic service objective that includes individual line local Touch-Tone service and access to low-speed Internet at local rates, combined with the obligation to serve and the existing contribution/local subsidy regime. To the extent that all incumbent local exchange carriers (ILECs) and other telecommunications service providers (TSPs) are in compliance with the existing regulatory regime, it follows that the purpose of reviewing the existing contribution/ subsidy mechanisms is (i) to assess the need to continue with a mechanism that subsidize local service in high-cost service areas (HCSAs), and (ii) to identify and correct any inequities in the contribution and local subsidy regimes so as to ensure appropriate competitive neutrality. There is no need to alter the contribution/subsidy regime to stimulate investment to expand access to basic service as currently defined provided that appropriate Quality of Service Standards are maintained and enforced.

In contrast, the central issues related to reviewing the contribution/local subsidy regime in the context of including HSI service relate to the need for, and design of, a regulatory regime that would complement the inclusion of access to high-speed Internet service in an updated definition of basic service. Since high-speed Internet service is not currently ubiquitous, one key consideration is whether and to what extent the existing local subsidy regime needs to be expanded to address costs related to HSI service, given the existing of other initiatives and sources of funding for the expansion of high-speed Internet service.<sup>128</sup> Consistent with the objectives of the Telecom Act, it will be appropriate to

---

<sup>128</sup> For example, as part of Canada's Economic Action Plan, \$225 million was provided to Industry Canada over three years to develop and implement a strategy to extend and improve broadband coverage. The goal of this investment, under The Broadband Canada: Connecting Rural Canadians Program, is to extend broadband service to as many remaining unserved and underserved Canadian households as possible, beginning in 2009-2010. Particulars of other Federal and Provincial programs can be found at : [http://www.ic.gc.ca/eic/site/719.nsf/eng/h\\_00032.html](http://www.ic.gc.ca/eic/site/719.nsf/eng/h_00032.html)

implement a subsidy regime that allows TSPs to comply with an expansion of the basic service objective to include high-speed Internet access at affordable rates without requiring internal subsidies or otherwise compromising competitive neutrality.

As well, another source of funding for broadband expansion arises from Telecom Decision CRTC 2008-1, regarding use of existing deferral accounts to improve access to telecommunications services for persons with disabilities and to expand broadband services to rural and remote communities. In Decision 2008-1 the CRTC authorized the incumbent ISPs (phone companies) to spend broadband expansion money out of a deferral account created with telephone charges in excess of the price cap (in excess of \$600M). In the Deferral Accounts broadband rollout proceeding (Follow-up proceeding to Use of deferral accounts to improve access to telecommunications services for persons with disabilities and to expand broadband services to rural and remote communities, Telecom Decision CRTC 2008-1), the ISPs provided information on their proposed broadband build-out plans, including some indication of what they think the costs are, where they wish to go in first, and what technology they plan to use.

Hence, the critical issue for a HSI subsidy regime will be that it may have to support significant investment in providing HSI service in areas where HSI service is not currently available. In contrast, the existing subsidy/contribution regime is focused primarily on bridging the difference between the cost and affordable rates for local service that is currently available in HCSAs.

Recognizing that the challenges being addressed in the context of existing basic service and high-speed Internet service are different, it should be recognized at the outset of this investigation that a separate and distinct contribution/subsidy mechanism may be appropriate for furthering the goal of universal access to high-speed Internet service should that goal be endorsed by the CRTC.

A further consideration in designing a subsidy regime that supports the inclusion of HSI service in the definition of basic service, is that it may be necessary to accommodate a period of transition. The CRTC will have to establish a time frame for upgrading facilities in areas that are currently unserved or underserved in terms of high-speed Internet service. This time frame will have to balance off the desire to ensure that high-speed Internet service is available in all regions of the country as soon as possible against the concern that the upgrades be rolled out in a cost-effective manner. Given the expectation that costs will continue to decline over time, possibly fairly quickly given the focus that the telecommunications industry is currently giving to upgrading competitive data services in the low cost and highly competitive markets in across Canada and around the world, it makes sense to design a contribution/subsidy regime that is consistent with targeting areas in which HSI access can be provided most economically (i.e. lowest cost per line) to be upgraded first. At the same time, deployment of HSI service in higher cost areas should not be delayed more than is required for efficiently upgrading all unserved and underserved areas.

## **2.1 DESIGNING A HIGH-SPEED INTERNET SERVICE SUBSIDY**

The Commission chose to implement a cost-based (accounting) subsidy regime in its 97-42 decision in part because a market-based regime (e.g., bidding process) was unwarranted for the relatively small market regions that were designated as HCSAs. The effort involved in determining the

cost of service for HCSAs was deemed to be moderate. Conceptually, the same rationale might be used to justify a cost-based approach for implementing a HSI service subsidy. In practice, however, the task of determining the subsidy requirement for HSI service using a cost-based approach raising serious concerns that did not complicate matters in designing the existing local service subsidy regime. The design challenges include the following:

- Given the number of federal, provincial and local initiatives in support of the deployment of high-speed Internet, the gap between the potential revenue and the cost to a TSP of deploying this service will not provide an accurate indication of the level of subsidy required for economic deployment. In addition, available funding from other sources may change over time, making it necessary to update any calculation of the funding gap on a frequent basis.
- For ILECs, the determination of the level of subsidy required, if any, would also have to take into account the extent to which the cost should be funded through the Deferral Accounts Follow-Up proceeding, presumably by reducing the deferral account funding from any subsidies payable in order to avoid double recovery.
- Although access to HSI service would be included in the updated definition of basic service, HSI service would be a separate and unbundled service offering in both HCSAs and HCHSISAs. That is, customers would have the right to choose to subscribe to basic telephone service as currently defined and separately to subscribe to HSI service. They could choose either one of those service on its own, or both, corresponding to the choice available to customers in a competitively-served market with access to HSI service at this time. The actual market penetration of HSI service in markets that are currently unserved or underserved will depend on many factors including the affordability and availability of computers in that area, the actual service standards implemented by the TSPs offering HSI service in the area, etc.

It would be particularly difficult to attempt to redesign the current regime to address both the existing local subsidy issue (i.e., the difference between costs and affordable rates for basic service as currently defined) and the need to subsidize the deployment of HSI service in areas that are currently unserved or underserved in this regard. There is no evidentiary or analytic reason to believe that service areas with basic service costs that justify the current HCSA local service subsidy align with those that require a high cost of high-speed Internet service subsidy; hence, any regime that integrates a new HSI service subsidy with the current a HCSA local service subsidy would be complex, if not impractical.

Given the difficulties inherent in designing a regime that would provide appropriate subsidies for areas that the Commission designates as high cost of high-speed Internet service areas (which can be referred to using the acronym HCHSISAs) using an accounting approach similar to the one that is currently being used for the existing local service subsidy, a separate and distinct mechanism that is market-based may be most appropriate for the HSI subsidy.

It is recommended that a market-based approach be adopted along the following lines:

7. Define parameters for the HSI service that will be mandated as a component of basic service. The parameters would include the minimum upload and download bandwidth and the minimum monthly usage in GBs included in the regulated price for the service.
8. Define the maximum rate that a TSP would be permitted to charge for the defined HSI service in a HCHSISA (the “affordable HSI rate”)
9. Determine the “maximum sustainable premium” over the affordable HSI price that is observed in the Canadian telecom marketplace at this time. For example, a reasonable estimate to use as a basis for designing the HCHSI subsidy could be derived by determining the average price charged for HSI service in areas serving customers with HSI rates in the highest 5% of market rates. The maximum sustainable premium would be the difference between this high-end rate and the affordable HSI rate defined in 2, above. This differential would represent the subsidy required to reduce the current market rate for HSI service to the affordable rate set by the Commission.
10. By deduction, it can be determined that areas where HSI service is not available are unserved because high cost, low income or small scale. To be more explicit, the reasons a market is unserved may include:
  - Unit costs are higher than they are in the most expensive served areas (due to higher facilities installation costs because of remoteness or customer density, for example, or a low number of potential customers) making HSI service uneconomic for TSPs and customers at unsubsidized market prices;
  - The amount that customers can afford to pay in the unserved areas is less than the price the market will bear in the most expensive served areas (i.e., some areas may be unserved due to the low-income position of customers); and/or
  - The number of potential customers is insufficient to generate a return on investment) at a rate that the market will bear, given price elasticity considerations.
11. Based on market behaviour, it can be deduced that given all current revenue and cost factors, including existing government initiatives that are available in each area, the unserved areas require a subsidy that exceeds the differential in order to be economic. This amount is the minimum subsidy level. HCHSISAs will require a range of subsidy levels above that amount for TSPs to be able to offer HSI service.
12. An HSI service subsidy could therefore have the following design.
  - h) The subsidy would consist of two tiers: an “access subsidy” and a “connection subsidy”.

- i) For ILECs that are funding the roll out of HSI in part through the funds made available through the Deferral Account Follow-up proceeding, the total access subsidy would have to be reduced by an amount equal to that funding in order to avoid double recovery of the cost associated with providing HSI in HCHSISAs that are in excess of the amounts that would be recoverable through the rates charged customers for the HSI service.
- j) The access subsidy would be based on the number of lines within the HCHSISA that have access to HSI service without regard to the number of customers that choose the broadband service.
- k) The connection subsidy would be based on the number of lines within the HCHSISA that have subscribed to HSI service.
- l) Any TSP would have the right to apply to the CRTC for “First Mover” status in any HCHSISA and would be granted that status provided it is the first TSP to apply to provide access to HSI service in the HCHSISA and also commits to accept a set of obligations established by the Commission that would include:
  - The obligation to serve all customers wanting HSI service in the HCHSISA at the regulated price; and
  - Provision of facilities that provide access to HSI service (i.e., service can be made available to any customer within the HCHSISA with 10 working days).

The TSP with First Mover status would be the only TSP eligible to receive the access subsidy. Subsequent TSPs that enter the market on a competitive basis (i.e., second and subsequent movers) would not receive the access subsidy which would avoid subsidizes multiple, possibly redundant facilities, however, they would not have an obligation to serve.

- m) In the first year of the HSI service subsidy regime, the level of the access subsidy would be a defined percentage (e.g., 50%) of the maximum sustainable premium defined in 3, above.
  - Subsequent years, the “starting level” for the access subsidy would increase by 10%; hence, the financial reward for entering the market would increase over time.
  - Once a TSP has applied for and been accepted as the First Mover for a HCHSISA, the year 1 access subsidy for the HCHSISA would be fixed at the approved level. For that HCHSISA, would decline by 10% of the original amount in each subsequent year. The subsidy payment received by the First Mover would equal the number of lines that have access to HSI service in each year multiplied by the per line payment applicable for that year.
- n) The connection subsidy per HSI subscriber line referred to above would be an amount that is determined periodically by the CRTC based on market conditions. It would be a portable subsidy that is paid to all TSPs providing HSI service in HCHSISAs based on the number of customers they serve across all HCHSISAs. The goal would be to set the level of the connection subsidy at a level

that is high enough to attract some degree of competition in the most attractive HCHSISAs over time.