



September 8, 2017

Via GC Key

Mr. Claude Doucet, Acting Secretary General
CRTC
1 Promenade du Portage
Les Terrasses de la Chadière
Central Building
Gatineau, QC
K1A 0N2

Dear Mr. Doucet:

Subject: Intervention of the Internet Society Canada Chapter re: Telecom Notice of Consultation CRTC 2017-259 -- **Reconsideration of Telecom Decision 2017-56 regarding final terms and conditions for wholesale mobile wireless roaming service**

1. Please find below the Internet Society Canada Chapter (ISCC)'s comments on the above noted proceeding. ISCC wishes to be considered an intervener in this process.
2. ISCC supports expanding the definition of "home network" to include Wi-Fi based services, including those provided over carrier Wi-Fi as well as by other mobile virtual network operators (MVNOs). In ISCC's view, doing so would allow new service providers to enter with innovative offerings, improving competitiveness and affordability.
3. Mobile services delivered over Wi-Fi are already a part of the landscape in Canada and around the world. But while citizens of countries like the United States enjoy competitive mobile services from companies like Google and

Republic Wireless, such services remain unavailable to Canadians, due to the business decisions of the highly concentrated wireless industry.

4. The Competition Bureau recently recognized that the coordinated behaviour of the three national carriers has resulted in substantially higher prices than would prevail in areas where the national carriers face competition from a strong regional provider. While the growth of the new entrant regional providers (i.e. Videotron, Freedom/Shaw, Eastlink) as well as the prairie telcos and Tbaytel have led to an improved situation in their respective territories, Canadians outside these areas, particularly in rural, remote, and Northern parts of the country, are left without much choice.
5. ISCC believes that, by expanding the definition of home network to include Wi-Fi based MVNOs, the Commission would pave the way for improvements in affordability for all Canadians – not just those who live in urban areas. Such a decision would be particularly beneficial for low income Canadians, for whom mobile services are least affordable but no less necessary.
6. ISCC is skeptical of claims that allowing Wi-Fi based MVNOs access to mandated wholesale roaming would result in decreased investment in mobile facilities. Total national carrier investment in mobile facilities has increased markedly over the past decade, despite the entry of new regional competitors. The regional competitors, in turn, are now each part of the well-capitalized operations of vertically integrated communications conglomerates. And in the wireline industry, where wholesale access to independent providers has been the status quo continuously, investment continues to increase. The policy of allowing resale in wireline has resulted in a beneficial increase of market activity, and ISCC is of the view that a similar approach to wireless would have similar results.

Below, please find our response to the Commission's specific questions:

Q1. What other forms of connectivity could technically constitute a home network?

7. In Telecom Decision CRTC 2017-56, the Commission confirmed that the wholesale roaming service mandated by the Commission was intended to provide the end-users of other wireless carriers with only incidental access to the national wireless carriers' (i.e. Bell, Rogers, and Telus) networks. In that same decision, the Commission also clarified that public Wi-Fi does not form part of a home network for the purpose of establishing what constitutes incidental use of an incumbent's network under the wholesale roaming tariffs. The Commission noted that public Wi-Fi is provided over facilities that are not owned or operated by wireless service providers, and that there are not necessarily any contractual or other arrangements between the owners and operators of Wi-Fi networks and

the service providers that use them to deliver telecommunications services to retail end-users. The Commission also noted that the availability, quality, and reliability of such facilities could not be assured in any meaningful way. Finally, the Commission determined that including public Wi-Fi in the definition of “home network” would undermine the policy objectives of mandated wholesale roaming, since it would discourage wholesale roaming customers from investing in their facilities.¹

8. The nature of the considerations that led to the Commission’s decision not to include Wi-Fi-based networks in the definition of “home network” are market-, policy-, and/or regulatory-based, not technical. As demonstrated by the successful (albeit short-lived) operations of Ice Wireless’ affiliated mobile virtual network operator (“MVNO”) Sugar Mobile, it is technically feasible for telecommunications service providers (“TSPs”) who base their service offering primarily on Wi-Fi access in combination with virtual telephony and/or data services to integrate mobile wireless roaming into their service offerings on an incidental basis, in much the same way as facilities-based wireless service providers (“WSPs”) such as Videotron or Shaw/Freedom Mobile do on a regular and ongoing basis.

9. Wi-Fi based mobile telecommunications services comparable to those previously offered by Sugar Mobile in Canada are already available in other countries such as the United States. For example, in the US, Google offers a mobile wireless service called “Project Fi” that blends Wi-Fi access with LTE roaming obtained from major US carriers. Google markets its service as follows:

“Project Fi puts you on the best available network between Wi-Fi and three 4G LTE networks”; and “...your Fi phone automatically finds you the best signal by seamlessly switching between Wi-Fi and Project Fi’s 4G LTE partners”.²

10. In addition, Republic Wireless is an American MVNO that has offered a hybrid of Wi-Fi and traditional cellular-based mobile service to US customers since 2011. Similar to Google’s Project Fi, Republic Wireless advertises that:

“Making a call over WiFi is super easy! Dial as you would on any other call. Once you’re connected to a WiFi network, save the login info. **Your**

¹ **Telecom Notice of Consultation CRTC 2017-259** -- Reconsideration of Telecom Decision 2017-56 regarding final terms and conditions for wholesale mobile wireless roaming service. Available at: <http://www.crtc.gc.ca/eng/archive/2017/2017-259.htm> Paragraphs 3 & 4.

² “Project Fi home page” and “Project Fi FAQ”, available at: <https://fi.google.com/about/> and <https://fi.google.com/about/faq/>. Accessed September 6, 2017.

Republic smartphone will connect and route calls over the saved WiFi network automatically.”³

11. The above examples (Sugar Mobile, Project Fi, and Republic Wireless) show that Wi-Fi connectivity can form the “home network” upon which the service offering is based, with traditional cellular connectivity included as a complement to the primarily Wi-Fi-based service.
12. These services have met with some success in the United States: in 2015 it was reported that Republic Wireless subscribers numbered in the hundreds of thousands,⁴ and was named the top-rated prepaid cellular provider in 2014 by Consumer Reports.⁵ Impediments to the implementation of similar services in the Canadian mobile market appear to be primarily related to the business decisions of existing licenced mobile carriers, not to technological constraints.

Q2. Should other forms of connectivity, such as Wi-Fi, be included in the definition of “home network”? If so, which ones should be included?

13. Yes, the Commission should amend its definition of “home network” to include Wi-Fi-based services.
14. It is already commonplace for Wi-Fi connectivity to be functionally integrated into mobile wireless service offerings, even in Canada. Each of the national carriers offers users with compatible devices the ability to make use of Wi-Fi calling as part of the service, to be used when mobile coverage is unavailable (or perhaps to avoid expensive data charges).⁶
15. Bell Mobility also prominently advertises that Wi-Fi access is available as part of its mobile service offering. According to Bell’s “network coverage” web page, “With over 4,000 hotspots across Canada, Bell is proud to offer all mobile users free Wi-Fi. You can find a Bell hotspot from coast to coast at participating McDonald’s, Chapters Indigo and Tim Hortons.”⁷ Telus makes a similar network

³ Republic Wireless FAQ, available at: <https://republicwireless.com/faqs/>. Accessed September 6, 2017. Emphasis in original. For more information, see: <https://republicwireless.com/wifi-calling/>.

⁴ Ohnesorge, L. (2014). “Bandwidth CEO talks Republic Wireless, Motorola and jobs”, in *Triangle Business Journal*. Available at: <https://www.bizjournals.com/triangle/blog/techflash/2014/04/bandwidth-ceo-talks-republic-wireless-motorola-and.html?page=all>. Accessed September 6, 2017.

⁵ Ranii, D. (2014). “Republic Wireless Ranked Top by Consumer Reports”, in *the News & Observer*, Available at: <http://www.newsobserver.com/news/business/article10138178.html>. Accessed September 6, 2017.

⁶ Bell Wi-fi Calling: <https://www.bell.ca/Mobility/Wi-Fi-Calling>

Telus Wi-Fi Calling: <https://www.telus.com/en/on/support/article/wifi-calling-faq>

Rogers Wi-Fi Calling: <https://www.rogers.com/customer/support/article/wi-fi-calling-everything-you-need-to-know>, Accessed September 6, 2017.

⁷ Bell Mobility, “Network Coverage”, Available at: http://www.bell.ca/Mobility/Our_network. Accessed September 6, 2017.

of Wi-Fi “hotspots” available in its territory,⁸ as does Freedom Mobile, which advertises that its subscribers may “Connect with Freedom Wi-Fi and enjoy over 65,000 hotspots across Western Canada during our free trial for all Freedom Mobile customers.”⁹ Each of these carrier networks allow mobile subscribers the ability to use the standard features of their service plans just as they would when using licenced spectrum-based networks. For end users, the functionality of their service may be indistinguishable as between the underlying wireless last-mile technology.

16. What companies like Sugar Mobile, Google Fi, or Republic Wireless are doing is providing an innovative service offering that reverses the traditional equation: where carriers like Bell Mobility or Freedom Mobile offer cellular coverage with Wi-Fi features as a complement, Wi-Fi based MVNOs offer comparable services such as voice and text with the ability to roam when away from Wi-Fi as a complement to the base line aspects of the service.
17. In short, carrier Wi Fi and other Wi-Fi-based MVNOs such as those described above should not be prevented from participating in the market or availing themselves of regulated roaming services on the basis of the underlying wireless technology they choose to employ. To do so would risk constraining the innovative use of technology and limiting the range of service offerings on the market, and thereby would run counter to the objectives of incentivizing innovation, increasing competitiveness, and improving affordability in Canadian telecommunications markets.

Q3. How would an expanded definition of “home network” impact the affordability of retail mobile wireless services to Canadian consumers?

18. Expanding the definition of “home network” to include Wi-Fi would contribute to improving affordability of retail mobile wireless services, particularly for low-income Canadian families and individuals.
19. When the Competition Bureau approved BCE’s acquisition of MTS in February 2017, it noted the following:

“Canadian households depend on mobile wireless services for important aspects of daily life, from basic communication needs related to work and safety, to more advanced needs related to convenience and entertainment. A significant portion of Canadian household income is spent on mobile wireless bills. This is particularly true for low income

⁸ Telus. “Free and Friendly Wi-Fi.” Available at: <https://www.telus.com/en/on/deals/home/wi-fi-hotspots> Accessed September 6, 2017.

⁹ Freedom Mobile, “Network and Coverage”, Available at : <https://www.freedommobile.ca/network-and-coverage/wifi-app> Accessed September 6, 2017.

households who spend a disproportionately large amount on these services.”¹⁰

20. The Competition Bureau’s observation regarding low-income households’ access to affordable mobile service is particularly salient in the context of the present proceeding. Indeed, the CRTC’s own data show that households in the lowest income quintile are significantly less likely to be able to afford a mobile wireless subscription than higher-earning households. In 2014 (the most recent year for which CRTC data are available), mobile penetration among the lowest-earning quintile stood at 67.4 subscriptions per 100 households, compared to 83.2 per 100 households in the next lowest quintile, 95 per 100 for the highest, and 85.6 per 100 overall.¹¹
21. This disparity can be addressed by expanding the definition of home network to include Wi-Fi based MVNOs. Doing so would enable those providers to target market niches, such as low-income households, immigrant populations, or rural and remote communities that are currently left unserved by the larger national carriers, especially in places where no regional carrier is present to discipline the coordinated pricing behaviour of the three national carriers.¹²
22. Simply put, the fact that low income households subscribe to mobile wireless services at significantly lower levels than their higher-earning counterparts is indicative of unaffordable pricing. ISCC submits that this problem can be directly addressed by permitting innovative solutions like Wi-Fi-based MVNOs to operate in the market by availing themselves of access to regulated wholesale roaming services.

Q4. How would an expanded definition of “home network” impact investment in mobile wireless network infrastructure?

23. ISCC submits that the Commission should be wary of claims that expanding the definition of home network to include Wi-Fi based MVNOs would have a negative impact on investment in the mobile wireless market. To the contrary, by enabling new service providers to address latent demand, an expanded definition of “home network” that includes Wi-Fi based MVNOs may drive increased investment in the sector.
24. The national carriers’ combined total investment in the Canadian wireless market, measured in terms of capital expenditure, has generally increased over the past 10 years, as shown in figure 1 below. This has taken place over a time

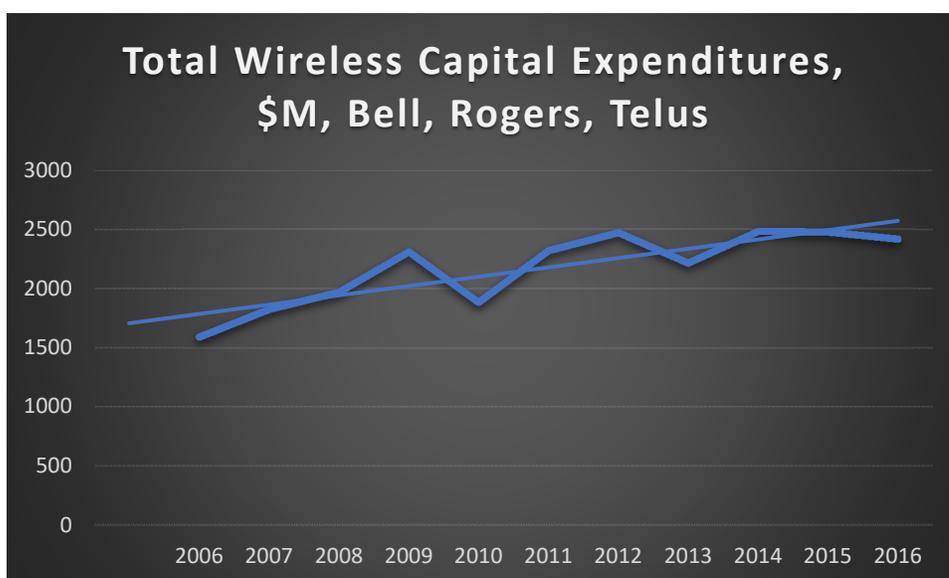
¹⁰ Competition Bureau (2017), “Competition Bureau statement regarding Bell’s acquisition of MTS”. Available at: <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04200.html> Accessed September 6, 2017.

¹¹ CRTC (2016). Communications Monitoring Report, tables 2.0.5 and 2.0.7.

¹² Ibid.

horizon that includes the entry of new regional facilities-based entrants as well as the implementation of CRTC regulations, including the extension of the ITMP Framework to mobile wireless data services,¹³ the Wireless Code of Conduct,¹⁴ and the mobile wireless wholesale roaming framework,¹⁵ among others. Throughout these proceedings, the Commission has been warned repeatedly by incumbent carriers that regulatory decisions unfavourable to their interests would have a dampening effect on investment. However, the proof of the pudding is in the eating. These carriers continue to invest at healthy rates in their networks, notwithstanding the active regulatory agenda of the previous decade.

Figure 1: Total Wireless Capital Expenditures, \$M, Bell, Rogers, Telus



Source: Company Annual Reports.

25. Healthy, sustained investment levels are even more pronounced in the wireline market, as demonstrated in figure 2 below. The example of wireline investment is perhaps even more instructive than wireless in the present case. The reason for this is that the period represented in figure 2 includes repeated Commission decisions to not only maintain but to expand access to wholesale networks for third-party non-facilities based providers such as Teksavvy and Distributel. These companies have had a complementary effect on the wireline market, bringing in

¹³ Telecom Decision CRTC 2010-445, Modifications to forbearance framework for mobile wireless data services. Available at: <http://www.crtc.gc.ca/eng/archive/2010/2010-445.htm>

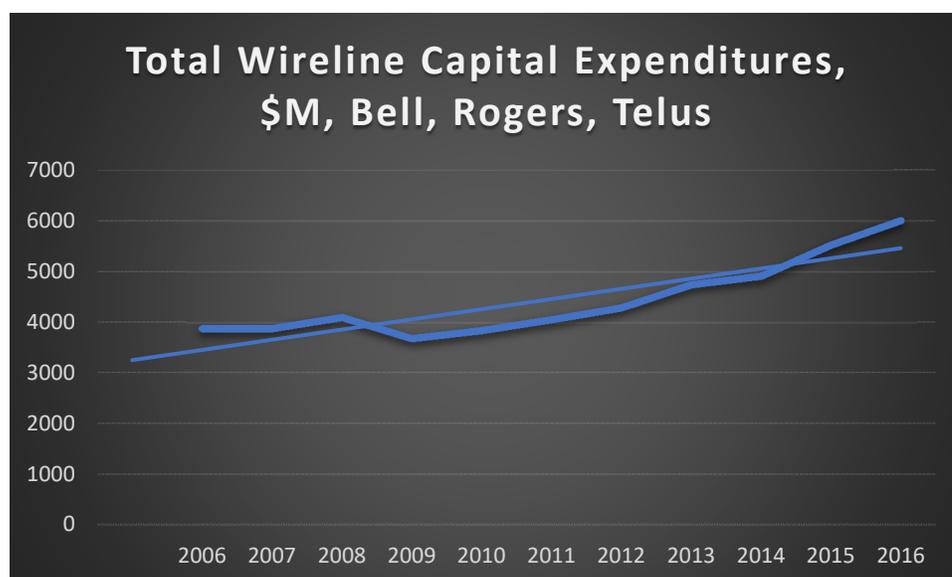
¹⁴ Telecom Regulatory Policy CRTC 2013-271, The Wireless Code. Available at: <http://www.crtc.gc.ca/eng/archive/2013/2013-271.htm>

¹⁵ Telecom Regulatory Policy CRTC 2015-177, Regulatory framework for wholesale mobile wireless services. Available at: <http://www.crtc.gc.ca/eng/archive/2015/2015-177.htm>

new innovative service offerings, serving customers ignored by the major incumbent carriers, and introducing vigorous price competition.

26. These competitors are, for all intents and purposes, the wireline analogue to the type of Wi-Fi based MVNOs contemplated by this proceeding. The sustained presence of non-facilities based competitors in the wireline market has not produced a dampening effect on investment. Indeed, the trends show that capital expenditures in that market have increased substantially. ISCC submits that there is no reason to believe that things would be any different in the wireless market should the Commission expand the availability of regulated roaming services to Wi-fi based MVNOs.

Figure 2: Total Wireline Capital Expenditures, \$M, Bell, Rogers Telus.



Source: Company Annual Reports.

27. With regard to the new entrant mobile providers (i.e Freedom Mobile/Shaw, Eastlink, and Videotron), a lack of publicly available information regarding historical levels of capital investment renders a meaningful analysis difficult if not impossible. However, ISCC notes that each of these wireless service providers are affiliated with large regional, well-capitalized vertically-integrated telecommunications and broadcasting conglomerates. Each has made significant investments in their respective wireless divisions, and appear poised to continue making inroads in their respective territories. In the case of Freedom/Shaw, a decision to expand the definition of home network to include Wi-Fi based connectivity could provide the opportunity to expand service even further into the

Prairie provinces, where Shaw has deployed an extensive network of Wi-Fi hotspots already.¹⁶

Q5. How would an expanded definition of “home network” impact competition in the market for retail mobile wireless services?

28. ISCC is of the view that an expanded definition of “home network” would have a beneficial impact on competition in the mobile wireless market, with benefits accruing especially for low-income Canadians (see response to question 3). As discussed above, expanding the definition to allow Wi-Fi-based MVNOs to enter the market would allow new service providers to experiment with innovative offerings not currently on offer in the Canadian market.

29. The impact on competition could also have beneficial effects in areas not served by a strong regional competitor. In its assessment of BCE’s acquisition of MTS, the Competition Bureau noted the following:

“Based on an analysis of information collected during this inquiry, the Competition Bureau (Bureau) concluded that as a result of coordinated behaviour among Bell, TELUS and Rogers, mobile wireless prices in Canada are higher in regions where Bell, TELUS and Rogers do not face competition from a strong regional competitor. Conversely, the Bureau concluded that where Bell, TELUS and Rogers face competition from a strong regional competitor, prices are substantially lower. The Bureau concluded that the lower prices are caused by the presence of a strong regional competitor who can disrupt the effects of coordination among Bell, TELUS and Rogers.”¹⁷

30. It is clear that in areas where competition from strong regional competitors has taken hold, prices for mobile wireless services have come down. This is particularly evident at this time of year, as a number of regional providers have placed competitive offers on the market which have elicited a response from the national carriers and/or their respective flanker brands.¹⁸

31. However, there remain many parts of the country that are outside the new entrants’ respective operating footprints, particularly in rural, remote, and Northern parts of the country. Canadians living in these areas have no recourse against the price-raising effects of Bell, Rogers, and Telus’ collective “coordinated behaviour” as described by the Competition Bureau above. ISCC

¹⁶ See: <https://www.shaw.ca/wifi/> for more details.

¹⁷ Competition Bureau (2017). Competition Bureau statement regarding Bell’s acquisition of MTS. Available at: <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04200.html> Accessed September 6, 2017.

¹⁸ See for instance: Behar, R. (2017). Fido boosts data buckets, aligns with Rogers’ \$70 per 1GB overage rate. Available at: <https://mobilesyrup.com/2017/08/02/fido-boosts-data-buckets-rogers-70-per-1gb-overage/> ; Chhabra, S. Koodo offered user 8GB/\$49 through retention program. Available at: <https://mobilesyrup.com/2017/08/28/koodo-offered-user-8gb49-retention-program/> ; Bonifacic, I. (2017). Videotron launches new \$66, \$77, \$88, and \$99 Premium plan promotions. Available at: <https://mobilesyrup.com/2017/08/09/videotron-august-promotional-plans/> All accessed September 6, 2017.

submits that an expanded definition of “home network” could enable new service providers to inject much-needed competition in areas where the national carriers face no pressure from an independent alternative.

Q6. How should the Commission weigh any potential positive impact on affordability against any potential negative impact on investment?

32. ISCC is of the view that the Commission should place a heavy emphasis on the potential benefits of expanding the definition of home network to include Wi-Fi-based service providers. ISCC is not convinced that doing so would have a negative impact on investment in wireless facilities. To the contrary, to the extent that increasing the availability of competitive options draws additional people into the market who otherwise would not subscribe (or could not, for affordability reasons), the net effect on investment may be positive.

Q7. If an expanded definition of “home network” were to be adopted:

Should the Commission impose usage limits to ensure that the end-users of any alternative wireless service provider do not access the national wireless carriers’ networks on a permanent basis? How could such usage limits be established and operationalized?

33. No, the Commission should not impose usage limits beyond what are already in place in the wholesale mobile wireless tariffs with respect to incidental use/permanent roaming. Such limits are necessarily hard to define, and enforce. The Commission could establish a complaints-based mechanism to address potential problems, or offer to act as an arbitrator if necessary.

Should the Commission subject alternative wireless service providers to a different tariffed wholesale roaming rate for access to the national wireless carriers’ networks? If so, how could such a rate be determined?

34. To the extent that the network components required by Wi-Fi-based MVNOs would be the same as those contemplated by the pending wholesale mobile wireless tariffs, which will be established according to established Phase II principles, there should be no departure from the rates available to facilities-based mobile wireless service providers. To do otherwise would unduly privilege facilities-based providers over resellers, contrary to section (b)(iv) of the Policy Direction, which reads:

“(b) the Commission, when relying on regulation, should use measures that satisfy the following criteria, namely, those that

(iv) if they relate to network interconnection arrangements or regimes for access to networks, buildings, in-building wiring or support structures, ensure the technological and competitive neutrality of those arrangements or regimes, to the greatest extent possible, to enable competition from

new technologies and not to artificially favour either Canadian carriers or resellers.”¹⁹

35. Establishing separate tariffed rates for what amounts to the same service, would be unduly burdensome and disproportionate to its purpose.

Are there any other regulatory measures that could be imposed to mitigate potential negative impacts of requiring the national wireless carriers to allow roaming by customers of alternative wireless service providers on the carriers’ networks?

36. As discussed above, ISCC is not convinced that there would be any negative impact of requiring the national wireless carriers to allow roaming by customers of alternative service providers on the carriers’ networks. To the contrary, the increased demand for network access could result in a net increase in revenue for the industry, and prove beneficial for Canadians who could not otherwise afford access to service, save for the presence of innovative MVNOs.

To what extent should alternative wireless service providers have to comply with existing regulations (e.g. provision of 9-1-1, registration with the Commission, and consumer safeguards) to qualify for access under the tariff?

37. Alternative wireless service providers contemplated by this proceeding should have to comply with all existing regulations regarding safety, privacy, conduct, consumer safeguards, etc., in order to qualify for access. To do otherwise would risk the safety of the users of those services and would run counter to a number of the Telecommunications Act’s policy objectives and the Commission’s regulatory and policy initiatives.

All of which is respectfully submitted.

END OF DOCUMENT

¹⁹ Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives. SOR/2006-355. Available at: <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2006-355/page-1.html>