

Canada Gazette Notice No. SMSE-018-10

**Consultation on a Policy and Technical Framework
for the 700 MHz Band and Aspects Related to
Commercial Mobile Spectrum**

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**Comments
of
Bell Mobility Inc.**

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EXECUTIVE SUMMARY

E1. Canada is a world leader in wireless on all fronts. Despite the significant dual challenge of an enormous geography and a small population base, Canadians have access to several HSPA + networks, more than is available to the citizens of any other G8 country. Indeed as of 2010, 96% had access to HSPA + networks. Canada's HSPA + networks are world-class and support among the fastest wireless speeds available anywhere. This achievement has resulted from billions of dollars of infrastructure investment, by the industry, with hundreds of millions of dollars in network improvements and enhancements invested annually.

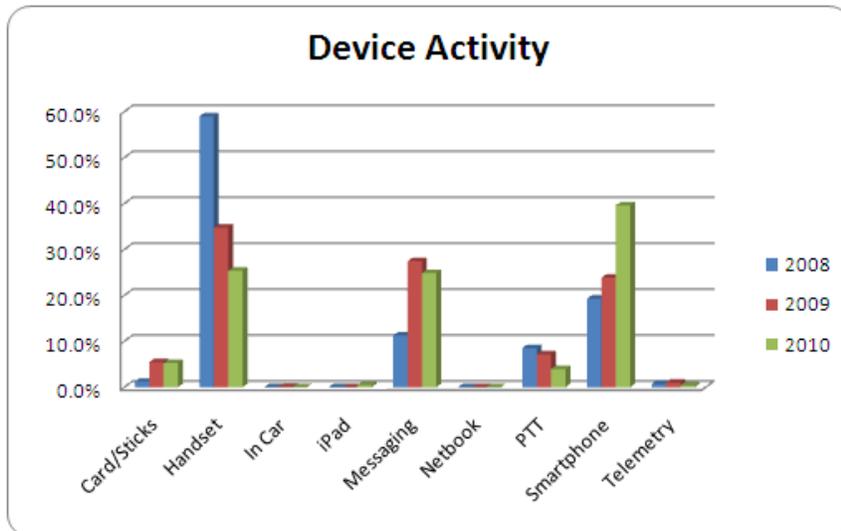
E2. The wireless industry makes a significant contribution to the Canadian economy. A report prepared by OVUM Consulting titled *The Benefits of the Wireless Telecommunications Industry to the Canadian Economy* found that wireless communications generate a total economic value of \$39 billion for the Canadian economy – over \$16 billion in terms of direct contribution to gross domestic product (GDP), an additional \$14 billion benefit due to the economic flow through to contributing suppliers in the supply chain and close to \$9 billion in consumer surplus.

E3. Bell Mobility is at the forefront of these Canadian wireless achievements. Through thousands of distribution points across Canada, Bell Mobility offers Canadians the widest array of leading edge wireless devices including smartphones, Turbo Hubs, Turbo Sticks and tablets. Bell Mobility's world-class network is supported by billions of dollars of investment in its networks as well as in wireless R&D and, most recently, the development of mobile applications. As of year-end 2010, the Company had over 7.2 million wireless subscribers and employed thousands of Canadians.

E4. As Professor Leonard Waverman and Kalyan Dasgupta have observed in a report titled *Time to Set Aside Caps that Don't Fit: The Limits of Spectrum Policy in Canada*, attached as Appendix 1 to these comments, "the deployment of new HSPA+ networks, for instance, puts Canada well ahead of several European nations and the United States in the 'mobile broadband race'." They go on to conclude that "the high capital intensity of the Canadian wireless industry relative to its international peers also seems incompatible with a view of a passive oligopoly that is behind the international leading edge of mobile deployments," and that "in fact, a sober analysis would suggest that Canada has come to be something of a leader in deployment of advanced data networks, something that it could not have claimed in 2004."

E5. Industry Canada's Consultation comes at a pivotal juncture in the evolution of global telecommunications networks. We are witnessing the transformation of telecommunications capability, and in particular spectrum-based telecommunications capability, into an instrument of national competitiveness and productivity. At an amazing speed, wireless networks have evolved from primarily conveyors of voice traffic to true broadband networks which will be a pillar of Canadian economic growth and productivity in the digital age. As discussed further in these comments, Bell Mobility is observing dramatic evidence of this transformational shift in its HSPA + network traffic which far exceeds all expectations and forecasts.

E6. Explosive wireless data growth, enabled by Bell Mobility's billions of dollars of investment in its network, is a reality in Canada driven by a virtuous circle of affordability, variety of devices, richer content, faster speeds and DSL/Cable like service offerings. To demonstrate this phenomenal growth, Bell Mobility has observed the following trends as demonstrated in the following chart:



E7. Typical of the explosive growth in mobile data is the fact that in 2008, the average smartphone user on Bell Mobility's network used approximately 15 MB of data per month. By 2010 this had increased to 300 MB per month representing a 1900% increase for the same average user. It is widely acknowledged that the industry faces a pending spectrum crunch in the very near future. Bell Mobility is currently using or plans to use its entire existing spectrum and does so in a spectrally efficient manner. However, we do not have sufficient spectrum to meet the expected continued exploding wireless data requirements of our several million customers. Nor do we have sufficient spectrum to deploy the promise of wireless broadband

into rural and remote areas of Canada. Further, given the national focus of our network deployment and the extensive use of leading edge smartphones by our customers, Bell Mobility is quickly using up all of its available spectrum. The new entrants' business model, focused on urban deployment and reliance on voice and text phones, does not use really as much spectrum.

E8. The new entrants, having recently launched and serving a much smaller customer base, have no such spectrum shortage at the present time. Indeed, WIND Mobile, one of the larger new entrants, as recently as July 2010 stated in its submission to Industry Canada's Digital Economy consultation that, "WIND's own business requirements are not such that it is immediately in need of spectrum beyond that already licensed to it."

E9. Wireless spectrum is the essential ingredient which, if properly employed, can enable Canada to fully exploit the opportunity and promise of the wireless broadband economy. The critical issue for Canada is to ensure that we seize this opportunity and not squander it. 700 MHz spectrum, which is in very limited supply, is ideally suited and is absolutely key to enabling national wireless carriers to build-out 4G/LTE in urban and rural areas, due to its propagation and other technical characteristics. Given Bell Mobility's national focus, our wireless data traffic is growing in rural and remote areas as fast as it is in urban centres. Carriers who operate on a regional or urban basis do not have the same dire need for this spectrum as do the national carriers who have millions of urban subscribers, but also serve most every rural and remote corner of our country.

E10. As Professor Thomas Hazlett indicates in a report titled *Economic Issues in Spectrum Utilization*, attached as Appendix 2 to these comments, "the evidence clearly reveals that the firms acquiring the largest bandwidth holdings are those that serve the most customers and build the largest, most expensive network infrastructure." This led him to the conclusion that "this is a set of facts that is strongly consistent with the efficiency view, and strongly inconsistent with the anticompetitive view."

E11. Unlike the United States, which licensed the majority of the 700 MHz band before the opportunity of mobile broadband was well understood, Canada has the benefit of knowing what is at stake before we license the band. Citing the favourable propagation characteristics of the band, for example, the Consultation notes that deployment of broadband radio systems in the

700 MHz band will have an important role in increasing the penetration of broadband wireless services in regions with low population density.

E12. The propagation characteristics of the band are such that it provides coverage and greater reach, at a reasonable deployment cost, opening up wireless broadband opportunities for urban, rural and remote Canada. In urban areas, it provides in-building coverage of a quality that will ensure that Canadians stay connected and productive while on the move. 700 MHz is powering 4G/LTE networks in the U.S., which means that the latest mobile devices are being built to accommodate 700 MHz spectrum. Canada's wireless carriers therefore all require a fair opportunity to bid for 700 MHz spectrum, in an open auction, in order to even have a chance to acquire and take advantage of economies of scale in obtaining the latest mobile devices for use on LTE networks at home and abroad and to thereby enable the continued progression of our national business model. Handset manufacturers will simply not build attractively-priced devices to accommodate relatively small Canadian wireless operators.

E13. The Canadian wireless incumbents also need a fair opportunity to bid on 700 MHz spectrum as part of the effort to ensure that they can offer their millions of subscribers the ability to roam onto U.S. LTE networks as they are deployed in the U.S. and Canada. Without a fair opportunity to access 700 MHz spectrum, or with the imposition of spectrum caps or set-asides, one of Canada's national carriers will be permanently disadvantaged, resulting in its customers not being able to roam in the U.S., being able to use leading edge mobile devices at affordable cost or to benefit from the productivity and benefits afforded by 4G/LTE.

E14. It is Bell Mobility's firm belief that all Canadian wireless operators should be permitted to participate in an open 700 MHz auction, with a view to ensuring that the spectrum is deployed to its highest value uses. It is certainly the case that national wireless carriers who operate in urban and rural areas must at least have an opportunity to fairly access such spectrum.

E15. That having been said, Industry Canada must not lose sight of the fact that 2.5 GHz spectrum, of which there is considerably more available than 700 MHz spectrum, is very suitable to the needs of carriers who operate on a regional or urban basis. In this regard, it is undeniable that recent wireless entrants, reflecting their business model, do not target rural and remote areas in bringing their services to market. As of February 2011, even a cursory review of the service rollouts of the three wireless new entrants shows none has plans to serve rural and remote Canadians. Wind Mobile's network is operational solely in the Greater Toronto

Area, Hamilton, Ottawa, Calgary, Edmonton, and Vancouver. Mobilicity's network is operational solely within the Greater Toronto Area, Ottawa, Edmonton and Vancouver. Finally, Public Mobile Inc.'s home network currently covers Greater Montréal and Toronto.

E16. It is noteworthy then that Industry Canada has already commenced the consultation process which will see 2.5 GHz spectrum made available in the near future. Bell Mobility believes that the new entrants' current spectrum holdings, given the focus of their present business model, are more than sufficient to carry them until the 2.5 GHz spectrum is auctioned.

E17. In short those entities with a commitment to serving all Canadians, with a track record of investing in Canada, creating jobs in Canada and introducing technological innovations to all Canadians in all parts of Canada, including rural Canada, must be given a fair opportunity to access 700 MHz spectrum. That means there can be no set-asides imposed on the 700 MHz auction. Unlike the AWS spectrum, there simply is not enough available 700 MHz spectrum to make a set-aside workable.

E18. Any attempt to establish a set-aside will severely restrict the spectrum available and seriously risks diminishing the broadband capability of millions of Bell Mobility's existing customers, while hampering our ability to deploy broadband capability to rural and remote Canada. As opposed to the AWS auction, where there was 100MHz of useable mobile spectrum available for bidding, the 700 MHz band has only 50 MHz of FDD paired spectrum, located in the lower A,B,C and upper C spectrum blocks. Of the 50 MHz of spectrum available, only a subset is currently supported by a viable ecosystem. With a spectrum set-aside, Industry Canada would in effect dictate that one major Canadian operator will likely not even have the chance to obtain the spectrum it needs. This will be very damaging.

E19. The U.S. did not employ a set-aside in their 700 MHz auction and as a result we are seeing the deployment of LTE networks by the largest carriers in that country with plans for national coverage. This is largely being undertaken by Verizon and AT&T who, not hampered by set-asides or spectrum caps, acquired the majority of 700 MHz licences, paying more than \$16 billion of the total auction proceeds of \$19 billion. If we want to achieve the same national 4G/LTE network coverage for all Canadians, an open auction is required in Canada. With AT&T and Verizon's national deployment commencing in the U.S., Canada now risks falling behind unless we ensure that national carriers in this country have fair access to 700 MHz spectrum.

E20. If the government establishes an auction framework that provides fair access to spectrum to any provider who seeks to bid, without any preferential rules that favour any new entrants or particular providers or that needlessly drive up the costs of spectrum, then Canada will have taken the first positive steps towards seizing the opportunity and promise of mobile broadband throughout Canada. To accomplish this, it is essential that those providers who serve the vast majority of Canadians and who have demonstrated their commitment to Canada through their enormous investments and employment, in both rural and urban areas, have a fair and equal opportunity to bid on 700 MHz spectrum.

E21. The new entrants are large, well capitalized entities and are more than financially capable of participating in the auction without government assistance. For example, the enterprise values for the recent wireless entrants are: (i) Quebecor – approximately \$7.5 billion; (ii) Shaw – approximately \$15 billion; and (iii) Orascom – approximately \$8 billion without VimpelCom and \$33 billion with VimpelCom. Indeed, Quebecor is a regional carrier focused on Quebec, while Shaw is a regional carrier focused on Western Canada. The enterprise value of the national carrier TELUS, at approximately \$21 billion, is lower than the combined enterprise value of Quebecor and Shaw at \$22.5 billion, whose combined networks will not cover nearly as much geography as the networks of TELUS. The transfer of wealth from the shareholders of one large company to the shareholders of another large company does not improve economic efficiency, nor does it benefit Canadians.

E22. The Canadian wireless industry has, in the past, benefited from the relative freedom from regulation. Traditionally, this less-interventionist policy approach has allowed Canada's wireless companies to adapt and grow, be competitive and deliver innovative wireless services to Canadian consumers at affordable prices. As noted above, competition has resulted in billions of dollars being invested by Canada's wireless network providers. This investment has resulted in Canada being a world leader in the provision of wireless services. The combination of network quality and affordable prices has resulted in Canadians having among the highest average voice minutes per month.

E23. Despite the clear benefits of a less interventionist regulatory approach, over the last 2 to 3 years Industry Canada has alarmingly become more and more interventionist in its approach to the wireless sector. This is worrisome and inappropriate.

E24. The spectrum set-aside in the AWS auction increased the costs to the Canadian wireless industry by hundreds of millions of dollars through the reduction in the supply of spectrum for incumbents, and the creation of gaming opportunities for new entrants which allowed them to bid on both restricted and unrestricted spectrum. Moreover, the imposition of the set-aside was neither minimally intrusive nor efficient, counter to Industry Canada's own principles as outlined in its 2007 Spectrum Policy Framework. The average price paid in the U.S. AWS auction was \$0.54/MHz-Pop, and the analyst consensus for the Canadian AWS auctions was \$0.41/MHz-Pop. The actual outcome in the Canadian AWS auction resulted in the new entrants paying an average of \$1.27/MHz-Pop and the incumbents paying an average of \$1.78/MHz-Pop. The incumbents ended up paying over three times what was paid in the U.S.

E25. When Industry Canada developed its AWS auction policy, its intention was to introduce further competition into the Canadian wireless market, and not to permanently disadvantage one of the national carriers. Given the very limited amount of 700 MHz spectrum available, a set-aside in the 700 MHz auction will permanently disadvantage at least one of the three national carriers. This surely cannot be the cornerstone of Canadian spectrum policy.

E26. Bell Mobility strongly believes that Canada's vibrant wireless market has benefited from the relative freedom from regulation, and given the current state of competition in the Canadian wireless market, spectrum auctions should not be used as a vehicle to make artificial adjustments to the level of competition in the market.

Summary of Bell Mobility's Position:

E27. There should be no spectrum set-asides, caps or other new entrant concessions as part of the 700 MHz auction.

E28. The band plan should be harmonized with the U.S. 700 MHz band plan. This will, among other things, ensure that Canada can take advantage of the U.S. 700 MHz equipment ecosystem as well as facilitate roaming between Canada and the U.S. Band plan harmonization will also assist with cross-border coordination and facilitate interference avoidance.

E29. Bell Mobility notes that the 2010 U.S. National Broadband Plan recommended that an additional 500 MHz of spectrum be made available for broadband use in the United States over the next ten years. This of course takes into account the fact that the U.S. had already licensed

its 700 MHz spectrum in 2008. As a result, and using the U.S. forecast as a proxy, Bell Mobility estimates that, beyond the Canadian 700 MHz band, up to an additional 500 MHz of spectrum will be required to accommodate broadband demand throughout Canada beyond 2015.

E30. Developments in the marketplace have outpaced the need for regulatory intervention to ensure open access requirements. Even the U.S. Federal Communications Commission (FCC), which originally imposed a very limited open access requirement on the 700 MHz "C" block as part of its 2008 auction has, in its December 2010 Net Neutrality decision, declined to extend any further such measure to wireless networks noting, among other things, the growth of the open platform Android operating system.

E31. Regarding auction timing, Bell Mobility supports the Department's Option 1 proposal which is to conduct an auction for licences in the 700 MHz band first, followed by an auction for licences in the 2500 MHz band approximately one year later. Bell Mobility also considers, however, that the date as well as auction and licensing rules for the 2500 MHz auction must be established prior to the 700 MHz auction.

E32. Bell Mobility notes that the U.S. 700 MHz band plan includes an allocation of 10 MHz of spectrum for the public safety sector in that country. Therefore, consistent with the recommendation to harmonize with the U.S. 700 MHz band plan, Canada should follow suit and include a 10 MHz public safety allocation in its band plan. Bell Mobility further notes that the U.S. is currently considering its treatment of the "D" block and that there may be an opportunity for public safety to acquire additional spectrum as a result of that proceeding. In light of this, Bell Mobility recommends that Industry Canada should defer its consideration of the "D" block in Canada until such time as we are aware of the licensing approach chosen in the U.S. Industry Canada can then hold a separate consultation in Canada to consider the appropriate Canadian policy.

INTRODUCTION

1. Bell Mobility Inc. (Bell Mobility) is pleased to respond to the Department's Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum – Notice No. SMSE-018-10, as published in the *Canada Gazette* Part 1, 4 December 2010 (the Consultation).

2. The stated intent of the Consultation is to establish a policy and technical framework that will govern the auction of spectrum in the band 698-806 MHz, also referred to as the 700 MHz band. The Consultation seeks comments regarding general policy considerations related to commercial mobile broadband spectrum use, competition issues and on the use of the 700 MHz band. The Consultation also invites comments regarding use of portions of the 700 MHz band for public safety broadband applications. Bell Mobility believes that these issues are critical, especially given the very limited amount of spectrum available in the band.

3. This Consultation comes at a pivotal juncture in the evolution of global telecommunications networks. We are witnessing the transformation of telecommunications capability, and in particular spectrum-based telecommunications capability, into an instrument of national competitiveness and productivity. At an amazing speed, wireless networks have evolved from primarily conveyors of voice traffic to true broadband networks which will be a pillar of Canadian economic growth and productivity. As discussed further below Bell Mobility is observing dramatic evidence of this transformational shift in its HSPA + network traffic which far exceeds all expectations and forecasts. Wireless spectrum is the essential ingredient which, if properly employed, can enable Canada to fully exploit the opportunity and promise of the wireless broadband economy. The critical issue for Canada is to ensure that we seize this opportunity and not squander it.

4. Canada is a world leader in wireless on all fronts. Despite the significant dual challenge of an enormous geography and a small population base, Canadians have access to several HSPA + networks, more than is available to the citizens of any other G8 country. Indeed as of 2010, 96% had access to HSPA + networks. Canada's HSPA + networks are world-class and support among the fastest wireless speeds available anywhere. This achievement has resulted from billions of dollars of infrastructure investment by the industry, with hundreds of millions of dollars in network improvements and enhancements invested annually.

5. Bell Mobility, Canada's foremost wireless carrier, has been building and operating advanced wireless networks throughout Canada since the very inception of the industry. A

Canadian company, Bell Mobility, has deployed world-leading technologies including most recently its HSPA + network which boast among the fastest wireless speeds available in the world. Bell Mobility offers the largest array of wireless devices available in Canada including leading edge smartphones, Turbo Hubs, Turbo Sticks and tablets. Its products and services are distributed throughout Canada at thousands of corporate, dealer and retail outlets. As of year-end 2010 the Company had over 7.2 million wireless subscribers and employed thousands of Canadians. Bell Mobility's commitment to Canada is demonstrated by the billions of dollars of investment over the past twenty-five years, along with over \$80 million invested in R&D alone in 2010. Bell Mobility also has a track record of distributing its leading edge, innovative products and services to rural areas at the same time as it does to urban areas.

6. 700 MHz spectrum, which is in very limited supply, is ideally suited and is absolutely key to enabling national wireless carriers to build-out 4G/LTE in urban and rural areas, due to its propagation and other technical characteristics. Carriers who operate on a regional or urban basis do not have the same dire need for this spectrum as do the national carriers who have millions of urban subscribers, but also serve most every rural and remote corner of our country. The new entrants, having recently launched and serving a much smaller customer base, have no such spectrum shortage at the present time. Indeed, WIND Mobile, one of the larger new entrants, as recently as July 2010, stated in its submission to Industry Canada's Digital Economy consultation that "WIND's own business requirements are not such that it is immediately in need of spectrum beyond that already licensed to it."¹

7. Unlike the United States, which licensed the majority of the 700 MHz band before the "bigger opportunity" of mobile broadband was identified, Canada has the benefit of knowing what is at stake before we license the band. For example, citing the favourable propagation characteristics of the band, the Consultation notes that:

As a result, deployment of broadband radio systems in the 700 MHz band will have an important role in increasing the penetration of broadband wireless services in regions with low population density.²

8. Bell Mobility strongly agrees with this statement. Indeed, as addressed below, our deployment plans for rural and remote regions is fundamental to our 700 MHz strategy. Further, through our Bell Canada corporate parent, we have access to the experience and expertise of

¹ WIND Mobile, *Submission to the Digital Economy Strategy*, July 13, 2010, paragraph 30.

² Industry Canada, *Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum*, Canada Gazette, Part 1 Notice No. SMSE-018-10, 4 December 2010, page 2.

an entity that has provided service in some of the most remote areas of Canada for decades. In short, entities with a commitment to serving all Canadians, with a track record of investing in Canada, creating jobs in Canada and introducing technological innovations to all Canadians in all parts of Canada, must be given a fair opportunity to access 700 MHz spectrum. That means there can be no set-asides imposed on the 700 MHz auction. Unlike the AWS spectrum, there simply is not enough available 700 MHz spectrum to make a set-aside workable.

9. Any attempt to establish a set-aside will severely restrict the spectrum available and seriously risks diminishing the broadband capability of millions of Bell Mobility's existing customers, while hampering our ability to deploy broadband capability to rural and remote Canada. As opposed to the AWS auction, where there was 100MHz of useable mobile spectrum available for bidding, the 700 MHz band has only 50 MHz of FDD paired spectrum, located in the lower A,B,C and upper C spectrum blocks. Of the 50 MHz of spectrum available, only a subset is currently supported by a viable ecosystem. With a spectrum set-aside, Industry Canada would in effect dictate that one major Canadian operator will not even have a chance to obtain the spectrum it needs. This will be very damaging.

10. Bell Mobility anticipates that there will be demand from various parties for preferential access to 700 MHz spectrum. It is noteworthy that the U.S. did not employ a set-aside in their 700 MHz auction and as a result we are seeing the deployment of LTE networks by the largest carriers in that country with plans for national coverage. This is largely being undertaken by Verizon and AT&T who, not hampered by set-asides or spectrum caps, acquired the majority of 700 MHz licences, paying more than \$16 billion of the total auction proceeds of \$19 billion. If we want to achieve the same national 4G/LTE network coverage for all Canadians, an open auction is required here in Canada. With AT&T and Verizon's national deployment commencing in the U.S., Canada now risks falling behind unless we ensure that national carriers in this country have fair access to 700 MHz spectrum.

11. It is undeniable that the new entrants do not target rural and remote areas in bringing their services to market. Bell Mobility believes however that the record of the deployment of AWS spectrum, since that Canadian auction was conducted in 2008, clearly demonstrates that the majority of those parties have no interest, intention or, in some instances, financial or technical capability to deploy their networks to rural and remote Canada. To the contrary, the BCE Inc. (BCE) companies have the financial and technical wherewithal as well as the operational experience to ensure that all areas of Canada, including rural and remote areas, are

12. The United States (U.S.) has also raised the spectre, given the tremendous and unprecedented growth in mobile broadband data traffic, of a looming "spectrum crunch". The U.S. FCC Chair has noted that, rather than an enormous opportunity enhancing national competitiveness and productivity, the spectrum shortage could instead seriously handicap that capability. At the January 2011 International Consumer Electronics Show (CES) the FCC Chair characterized the situation in this way:

If we don't tackle the spectrum crunch now, network congestion will grow, and consumer frustration will grow with it. We'll put our country's economic competitiveness at risk, and squander the opportunity to lead the world in mobile.³

13. One area where Canada differs significantly from the United States is that we have not yet licensed the 700 MHz band. Unlike the United States, we have the benefit of knowing the national opportunity that mobile broadband presents before we licence this valuable spectrum. In the 700 MHz band we have the benefit of having available spectrum ideally suited to expanding the opportunity of mobile broadband to all parts of Canada, including rural and remote areas. If the government establishes an auction framework that provides fair access to spectrum to any provider who seeks to bid, without any preferential rules that favour any new entrants or particular providers or that needlessly drive up the costs of spectrum, then Canada will have taken the first positive steps towards seizing the opportunity and promise of mobile broadband throughout Canada. To accomplish this it is essential that those providers who serve the vast majority of Canadians and who have demonstrated their commitment to Canada through their enormous investments and employment, in both rural and urban areas, have a fair and equal opportunity to bid on 700 MHz spectrum.

14. The Canadian wireless incumbents need a fair opportunity to bid on 700 MHz spectrum as part of the effort to ensure that they can offer their millions of subscribers the ability to roam onto U.S. LTE networks as they are deployed in the U.S. and Canada. Without a fair opportunity to access 700 MHz spectrum, or with the imposition of spectrum caps or set-asides, at least one of Canada's national carriers will be permanently disadvantaged, resulting in its

³ Prepared Remarks of Chairman Julius Genachowski Federal Communications Commission, 2011 International Consumer Electronics Show, 7 January 2011, available at http://www.fcc.gov/Daily_Releases/Daily_Business/2011/db0107/DOC-303984A1.pdf.

customers not being able to roam in the U.S., being able to use leading edge mobile devices at affordable cost or to benefit from the productivity and benefits afforded by 4G/LTE.

15. It is Bell Mobility's firm belief that all Canadian wireless operators should be permitted to participate in an open 700 MHz auction, with a view to ensuring that the spectrum is deployed to its highest value uses. It is certainly the case that national wireless carriers who operate in urban and rural areas must at least have an opportunity to fairly access such spectrum. That having been said, Industry Canada must not lose sight of the fact that 2.5 GHz spectrum, of which there is considerably more available than 700 MHz spectrum, is very suitable to the needs of carriers who operate on a regional or urban basis. It is noteworthy then that Industry Canada has already commenced the consultation process which will see 2.5 GHz spectrum made available in the near future. Bell Mobility believes that the new entrants' current spectrum holdings, given the focus of their present business model, are more than sufficient to carry them until the 2.5 GHz spectrum is auctioned.

16. In the following sections Bell Mobility will provide, where applicable, its comments regarding the specific questions posed in the Consultation document. To facilitate the use of these comments, the Department's specific question which is being addressed is captioned at the outset of those comments.

DRIVERS FOR SPECTRUM DEMAND

17. The Consultation notes that the global popularity of accessing the Internet by wireless devices at broadband speeds continues to grow. This is in fact an understatement. In January of this year Deloitte Canada released its *Technology, Media & Telecommunications (TMT) Predictions* identifying the ten most significant developments that would impact on Canadian businesses in 2011. The number one development, identified by Deloitte, was that in 2011 Canadians would purchase more smartphones and tablets than [desktop] personal computers. Clearly, a paradigm shift has taken place in Canada in that mobile devices, using the spectrum resource, are quickly becoming the dominant method of accessing the Internet for both individual and commercial applications. Such developments are already exerting enormous pressure on the ability of currently licensed spectrum to keep up with the resulting traffic demand. Since the launch of its HSPA + network, in late 2009, Bell Mobility has seen this transformation reflected in dramatic and unprecedented growth in its wireless data traffic. Bell Mobility's HSPA + network in its first six months of operation, for example, experienced traffic volumes that our EVDO network had taken almost five years to reach. Further, by the tenth

month of operation traffic volume on the new HSPA + network had actually doubled that of our almost five year old EVDO network. In fact, actual HSPA + data traffic volumes were, by late 2010, running at 1000% above forecast.

4-1. What is the general need for additional commercial mobile spectrum at this time and what do you anticipate the future needs to be?

18. As indicated above, explosive wireless data growth, enabled by Bell Mobility's billions of dollars of investment in its network, is a reality in Canada driven by a virtuous circle of affordability, variety of devices, richer content, faster speeds and DSL/Cable like service offerings. To demonstrate this phenomenal growth, Bell Mobility has observed the following trends as demonstrated in the following charts:

Chart 1

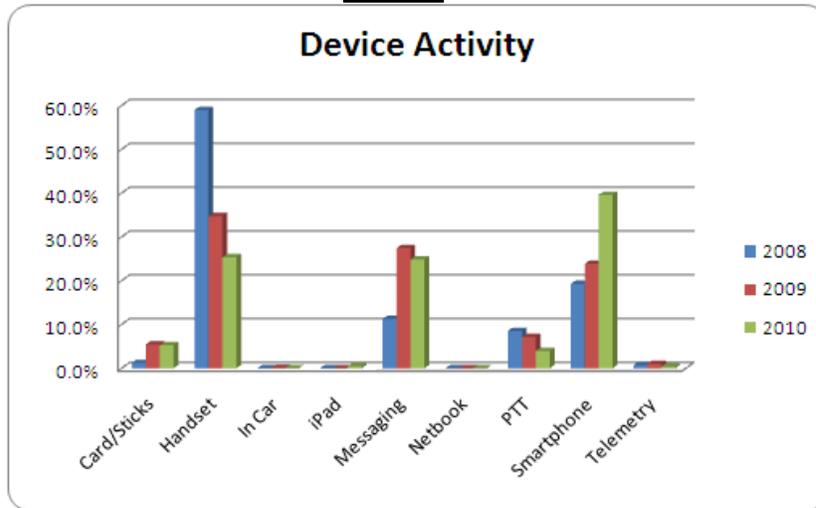
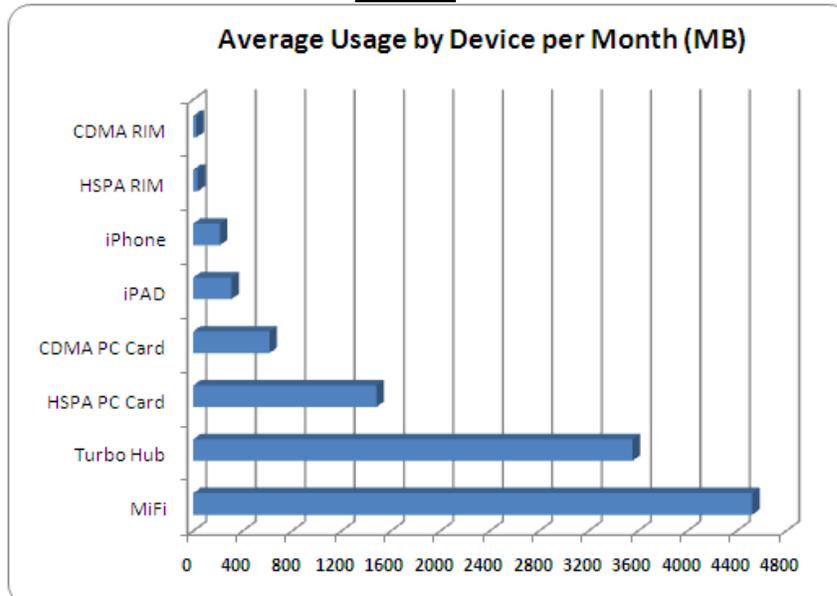
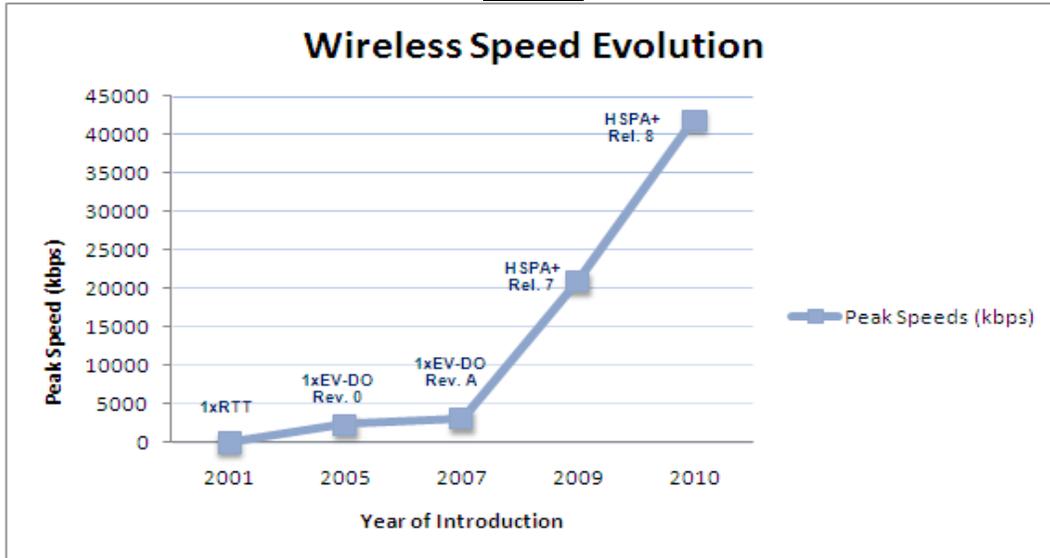


Chart 2



19. As demonstrated in Chart 1 above, smartphones have increased from 19% of new device activations in 2008 to 40% of new device activations in 2010, exceeding handsets for the first time. At the same time, messaging devices are expected to continue to decline in 2011, also to be replaced by entry level smartphones. Regarding device usage, the affect of smartphones on network traffic, as demonstrated in Chart 2, has been nothing short of phenomenal. Further, each smartphone user is increasingly using significantly more data per month. In 2008, for example, the average smartphone user on Bell Mobility's network used approximately 15 MB per month. This compares to 300 MB per month in 2010 representing a 1900% increase for the same average user. Tablets, such as iPad and Netbooks, in-car MiFi units and machine to machine (M2M) telemetry devices, while they represent a small percentage of device activity today, are expected to be very significant growth areas both in terms of number of units addressing the network and usage per unit. Today, for example, iPad usage is 43% higher than that of the iPhone and MiFi units represent the highest usage of any mobile device at 4.5 GB per month. Similarly, laptop/PC use with USB dongles or external modems, such as the Turbo Hub, currently generate the second highest usage on the network at 3.6 GB per month.

Chart 3



20. Further contributing to the popularity of wireless data are the improved speeds, as demonstrated in Chart 3, at which wireless networks now operate. In 2007, for example, Bell Mobility's network was upgraded to the 1xEV-DO Rev. A standard which supported peak speeds of 3.1 Mbps on the forward link. Subsequently, with the introduction of Bell Mobility's full overlay HSPA+ network in November 2009, peak speeds jumped to 21 Mbps. Even more dramatic is the increase achieved with dual carrier HSPA+, launched just one year later in 2010,

which allows users to realize peak speeds of 42 Mbps. Altogether, this represents an increase in network speed of 1155% in just 3 years. Further, from a sampling of users over a one month period, results show that smartphone customers primarily accessed Apple Services, web browsing, email, social media and YouTube. PC card and modem users accessed web browsing, peer to peer, YouTube and social media.

21. In turn, as overall data demand accelerates so does the need for new technology that can handle higher volumes more efficiently, while also enhancing the customer experience through faster data speeds. New technologies will coexist with current technologies as an 'overlay' such that existing customers do not have to replace their devices and those that would like to upgrade their device can transition over to the new technology. In this regard, new technologies require new and distinct spectrum to be used primarily because: 1) the existing spectrum is fully utilized by the current technology and the existing users relying on it; and 2) in most cases, the evolving device ecosystem has been developed on new spectrum only.

22. Bell Mobility submits that the above demonstrates that wireless data usage on its network is experiencing unprecedented and explosive growth. Given Bell Mobility's national focus, our wireless data traffic is growing in rural and remote areas as fast as it is in urban centres. The growth is being fuelled by ever increasing mobile device capability supported by ever increasing network speed. This in turn is driving even further user demand and usage. It is clear therefore that there is a general demand for the licensing of more commercial mobile spectrum simply to keep up with this explosive growth. In the absence of sufficient spectrum Bell Mobility's over seven million customers will experience delays and frustration in using their mobile devices and Canada will have squandered the opportunity presented by mobile broadband.

23. Regarding future needs, Bell Mobility notes that, initially, it requires at least an opportunity to fairly access a sufficient quantity of 700 MHz spectrum in order to: (1) in urban areas, avoid the frustration and unproductive use of smartphones and similar advanced mobile devices due to demand congestion in the wireless network as discussed above; and (2) in rural areas, deploy the opportunity and promise of mobile broadband to those areas given the unique propagation characteristics of the 700 MHz spectrum as noted in the Consultation.

24. Bell Mobility notes however that the mobile data growth being experienced is of such magnitude, e.g. as noted in paragraph 13 above a 1900% increase in monthly data usage per

smartphone users 2010/2008, that additional spectrum over and above the 700 MHz will be required as mobile usage increases exponentially. In this regard, Bell Mobility notes that the 2010 U.S. National Broadband Plan recommended that an additional 500 MHz of spectrum be made available for broadband use in the United States over the next ten years. This of course takes into account the fact that the U.S. had already licensed its 700 MHz spectrum in 2008. As a result, and using the U.S. forecast as a proxy, Bell Mobility estimates that, beyond the Canadian 700 MHz band, up to an additional 500 MHz of spectrum will be required to accommodate broadband demand throughout Canada beyond 2015.

Sections 4-2 to 4-5

Pursuant to the Department's direction, at page 12 of the Consultation, Bell Mobility's responses to questions 4-2 to 4-5 inclusive are considered proprietary and have been submitted to the Department in confidence as Appendix 3.

700 MHz BAND PLAN ISSUES AND CONSIDERATIONS

5-1. Based on the criteria listed above, which of the four band plan options should be adopted in Canada? Why is this option preferred over the other options? If Option 3 (APT band plan) is selected, what should the block sizes be?

In providing your responses, include supporting arguments, including potential benefits to wireless subscribers.

25. Industry Canada should substantially adopt the U.S. band plan, including any adjustments that may occur to the U.S. band plan between now and the licensing of the Canadian 700 MHz band. As the Consultation notes, the supporting arguments for adopting the U.S. band plan include:

- Harmonization of equipment specifications to the maximum extent possible, thus enabling economies of scale and greater equipment availability for consumer and infrastructure equipment;
- Facilitating international roaming;
- and
- Facilitating cross-border frequency coordination.

26. Clearly the first two items above offer significant benefits to Canadian customers in the form of greater device availability, at lowest possible cost, and ease of roaming when travelling in the U.S. whether on business or for pleasure.

27. Bell Mobility further notes that it participated in the Radio Advisory Board of Canada's (RABC) submission in response to the Consultation. In this regard, Bell Mobility supports the position of the RABC in recommending to the Department the adoption of Option 1 – harmonization with the U.S. band plan. The RABC's position reflects the fact that adoption of a band plan other than that harmonized with the U.S. would result in serious uncertainty regarding equipment availability, dislocation to public safety users, the potential for cross-border interference and compatibility issues related to U.S. roaming. Bell Mobility therefore also supports the RABC's rationale for this recommendation which is quoted here in part:

5.1.3 The RABC recommends that the Department adopt Option 1 which is to harmonize with the U.S. band plan. While Option 1 is not "perfect" it is the only option that will work due in part to the ready availability of standards and equipment. The RABC further recommends that IC should keep step with the U.S. band plan, including guardbands, should the U.S. choose to make modifications before the Canadian auction begins.

The following is the rationale for this recommendation.

5.1.4 The RABC concurs with the Department that Option 3 "maximizes the available contiguous spectrum in the 700 MHz band given that there is a total of 90 MHz of paired spectrum available to be licensed". However, if this band plan is adopted, Canadian industry would face an uncertain timeframe for available equipment designed for this band plan. More importantly, adopting this band plan would introduce significant dislocation to existing public safety users, cross-border interference issues and U.S. roaming issues. Therefore, the RABC recommends that the Department not adopt Option 3.

5.1.5 While Options 2a and 2b are initially appealing as a means to maximize the "usable" amount of spectrum, in practice they would introduce several problems due to:

- Potential interference from adjacent TV stations (below 698 MHz) requiring at least 1 MHz guardband.
- Potential interference from blocks D and E (716 MHz – 728 MHz) both within Canada (depending on Canadian use of D and E) and from cross-border interference necessitating at least 1 MHz guardband.

Rationale for Adoption of Option 1

(1) Spectral Efficiency:

5.1.6 In the lower 700 MHz portion, because of interference from TV channel 51 and potential interference from the lower D block, 1 MHz guardbands are required at 698 MHz and 716 MHz rendering the actual available spectrum from 699 MHz – 715 MHz. Thus only 16 MHz of the allocated 18 MHz is available for operation.

5.1.7 Taking into consideration the need for the guardbands, with Option 1 (three 6 MHz blocks), any combination of 5 MHz and 10 MHz channels can be fitted into the 3 blocks of 6 MHz resulting in 15 MHz of spectrum used over the allocated total of 18 MHz.

5.1.8 Again taking into consideration the need for guardbands, with option 2a (one 8 MHz and one 10 MHz), only a 1.4 MHz and 5 MHz channels can fit into the 8 MHz block; a 3 MHz plus a 5 MHz channels can be fit into the 10 MHz block. This would result in 14.4 MHz of spectrum used over the allocated total of 18 MHz.

5.1.9 Similarly including consideration for guardbands, with option 2b (one 3 MHz and three 5 MHz blocks), only a 1.4 MHz channel can be fit into the 3 MHz block. Either two 5 MHz channels or a 10 MHz channel can be fit into the next two 5 MHz block. A 3MHz channel can be fit into the last 5 MHz block. This would result in 14.4 MHz of spectrum used over the allocated total of 18 MHz.

5.1.10 In a commercial implementation for the US market, it is likely that equipment is designed to support only 5 MHz and 10 MHz channelization. In this situation, Option 1 would still be able to support three 5 MHz channels, or a 5 MHz and 10 MHz channels, i.e., 15 of 18 MHz is used.

5.1.11 Option 2a and Option 2b would only be able to support two 5 MHz channel fitting into each of the 8MHz and 10MHz block. Similarly, Option 2b would only be able to support two 5 MHz channels fitting into the middle 5 MHz blocks. Therefore both options 2a and 2b would provide 10MHz of spectrum usage over the total of 18 MHz. Thus Option 1 will be significantly more spectrally efficient than either Options 2a or 2b.⁴

5-2. The band plans presented in the options above include guardbands. Should the Department auction the guardbands, or should these frequencies be held in reserve for future use such that they are technically compatible with services in the adjacent bands?

28. Guardbands provide isolation from interference and in that manner contribute to spectral efficiency. Bell Mobility also notes the Consultation's comment that there currently is uncertainty concerning the availability of radio equipment that can be deployed in the frequency range used in the guardbands at this time. As a result, Bell Mobility recommends that guardbands should not be auctioned. Rather, it is important that the guardbands be kept in place to ensure spectral efficiency.

Also comment on any related aspects not addressed above or other possible options, including combinations of options.

29. Bell Mobility has no further comments in this regard.

⁴ Radio Advisory Board of Canada (RABC), Submission in Response to Canada Gazette Notice No. SMSE-018-10, 10 February 2011, pages 10 to 12.

Options for use of 758-768 MHz Paired with 788-798 MHz for Public Safety and/or Commercial Systems

5-3. Do public safety agencies need spectrum for broadband applications? If so:

- (a) How much and for which type of applications?**
- (b) What are the anticipated deployment plans and the possible constraints, if any, in implementing these plans?**
- (c) Is there suitable alternate spectrum to the 700 MHz to meet these broadband requirements?**

30. Bell Mobility notes that the U.S. 700 MHz band plan includes an allocation of 10 MHz of spectrum for the public safety sector in that country. Therefore, consistent with the recommendation to harmonize with the U.S. 700 MHz band plan, Canada should follow suit and include a 10 MHz public safety allocation in its band plan. Bell Mobility further notes that the U.S. is currently considering its treatment of the "D" block and that there may be an opportunity for public safety to acquire additional spectrum as a result of that proceeding. In light of this, Bell Mobility recommends that Industry Canada should defer its consideration of the "D" block in Canada until such time as we are aware of the licensing approach chosen in the U.S. Industry Canada can then hold a separate consultation in Canada to consider the appropriate Canadian policy.

5-4. Comments are sought on the need for public safety broadband radio systems to be interoperable:

- (a) between various Canadian public safety agencies;**
- (b) between Canadian and U.S. public safety agencies.**

31. Communications interoperability to enable public safety entities to communicate across various jurisdictions, in order to exchange voice and data with one another via a radio communication system, continues to be a key issue in both Canada and the U.S.

32. Today's commercial systems are currently able to facilitate such interoperability between public safety entities. With future technologies such as LTE together with their proposed enhancements, the key issue of priority/pre-emption will also be readily available for public safety use.

5-5. What are the challenges faced today by public safety agencies to have cross-border radio interoperability in other frequency bands?

33. Bell Mobility has no comment regarding this question.

5-6. Notwithstanding your responses to questions 5-3 to 5-5, the Department seeks comments on whether public safety broadband needs can be met by using commercial systems with priority access rights for public safety, at commercial rates.

- (a) Your views and comments are invited on priority access rights, including pre-emption, and on the feasibility of such a system.**
- (b) What public safety technical and operational requirements cannot be met by commercial systems, from either a public safety or commercial operator point of view?**
- (c) What specific rules, if any, should be mandated by the Department to make such a system viable?**

34. Bell Mobility continues to be of the view that commercial systems do have a role to play in the provision of public safety services. We note that a ubiquitous public safety system would be cost prohibitive and would take significant time to build. The most cost effective and timely use of broadband by public safety, in Bell Mobility's view, requires the use of commercial services for the foreseeable future.

35. With its approach to private mobile radio networks, Bell Mobility has proven that a carrier can operate a network in the best interests of the public safety agencies. In fact, this approach of sharing a common platform can facilitate interoperability among public safety users and provide an effective method of improving spectrum efficiency as compared with the mode where each agency operates its own system. Moreover, new technologies implemented using best in class practices and carrier expertise can be key elements leading to interoperability.

36. Bell Mobility believes that the capabilities (i.e. priority/pre-emption for example) inherent in technologies such as LTE will allow for public safety to be able to utilize existing and future commercial services to meet most of their narrowband and broadband service requirements.

37. Additional benefits afforded by commercial systems include:

- Immediate availability
- Larger pool of spectrum available (less chance of blocking)
- Cost effectiveness
- Wide area coverage
- Wide array of user devices
- Ever expanding number of applications

- Network speed
- Ever greening
- Technology ecosystem and evolution

38. A key concern raised regarding the use of commercial systems is that they would not be able to satisfy the priority access requirement of a public safety network. The LTE standard has been designed to provide a robust priority access system that includes up to 15 different levels of access prioritization, including ones specific to public safety.

39. New networks are based on IP infrastructure, so concepts of blocking associated with traditional cellular technologies do not apply. Priority can be assigned to data resources by the scheduler within the LTE system ensuring fast delivery of all critical information.

40. Therefore, in Bell Mobility's view, LTE does include and is able to provide the necessary capability for granting public safety the required level of priority on commercial networks.

41. As the LTE standard does not specify the priority level assignments to be used by the radio resource scheduler, the collective Canadian public safety community will have to come to consensus on these priority level assignments, be it for a Commercial or public safety network. In Bell Mobility's view, this cannot be left to negotiation between individual agencies and carriers. We note that the U.S. has tasked the Emergency Response Interoperability Center (ERIC) with this requirement.

42. "Talk around" is not available currently within the LTE standard, however commercial multiband systems have a much greater probability of maintaining connection with an end-user than a single band system, thus lessening the requirement for "talk around". Voice talk around is still available through the public safety narrowband systems.

43. Public safety's ability to use 700 MHz (and service to the public at large, including 9-1-1) will be limited by the available footprint of networks. We believe that it will be some time before the public safety network can duplicate the coverage of the commercial networks, thus the immediate expansion of the commercial footprint into rural areas should be encouraged, whether by financial incentive or spectrum appropriate to rural coverage.

44. Bell Mobility does not believe that specific rules should be mandated by the Department to make such a system viable. Given that LTE technology is able to accommodate the vast majority of public safety service requirements, commercial operators and public safety entities should be left to reach suitable arrangements without regulatory intervention. As stated previously, we note that the U.S. is utilizing the ERIC to establish common rules for implementation of priority access as opposed to using the FCC. Such an approach ensures that the 700 MHz public safety broadband wireless network will be fully operable and interoperable nationwide, both day to day and during emergencies.

5-7. Comments are sought on the need for regional (local, provincial, etc.) dedicated broadband networks to provide access to all public safety agencies, and the institutional⁵ feasibility of implementing such a system.

45. While Bell Mobility is not averse to public safety having access to and deploying such a network, as outlined above, we believe that for the next five, perhaps ten or more years, the most cost effective and timely use of broadband by public safety, for both their mission critical and non-critical requirements, requires the use of commercial network services.

46. Bell Mobility recognizes that public safety may have certain mission critical requirements (such as voice talk around), and that a dedicated regional broadband network to provide access to all public safety agencies may be beneficial. However, Bell Mobility is of the view that the majority of public safety service requirements can be accommodated on commercial networks, and delivered more effectively (in both performance and cost) than on a private network. Bell Mobility has more than 25 years experience constructing and servicing a reliable wireless network coast to coast that covers 96% of the population. Consequently, we employ significant teams of experts to design, build and maintain these systems to peak performance.

47. The construction of a national network is a major undertaking for anyone, requiring a huge infusion of capital, and significant time to deploy. Maintenance and replacement costs should not be underestimated as they are significant.

5-8. Is there a need for a dedicated national interoperability broadband network to provide access to all public safety agencies? The Department seeks comments on the institutional feasibility of implementing such a system.

Provide supporting arguments for your responses to the above questions.

⁵ Governance, licensing structure, financing, technical and operational, etc.

48. Refer to Response 5-7.

5-9. If band plan Option 1, 2a or 2b in section 5.1 is chosen, which one of the three options described above should be adopted and why is this option preferred over the other options? Provide supporting rationale.

49. As indicated in our response to Question 5-1, Bell Mobility actively participated in the development of the RABC's response to this Consultation. As recommended by the RABC, Bell Mobility supports the adoption of the band plan in Option 1 as this option is considered to be significantly more spectrally efficient than either Options 2a or 2b.

50. As outlined in our response to Question 5-3, Bell Mobility recommends that the Department defer its consideration, decision and licensing of D block spectrum until the situation in the U.S. has been resolved. Once the U.S. has decided on the services for which D block spectrum will be licensed, the Department should hold a separate consultation to consider the licensing of D block spectrum in Canada.

5-10. If commercial operators are mandated to support public safety services what tier size should be applied in order to ensure adequate public safety coverage?

51. Bell Mobility does not believe that commercial operators should be mandated to support public safety services. However, as outlined in our response to question 5-7, Bell Mobility is of the view that as it is very likely that the public safety community will not have 700 MHz networks initially deployed outside of the major centres, consequently, reliance on commercial networks will inherently meet their roaming requirements in the suburban and rural areas of the country. As a result, we suggest that the largest tiers would be the most favourable to support this kind of roaming.

52. The propagation characteristics of 700 MHz are lower attenuation, better penetration ability and better refraction around obstacles than that of higher frequency bands. However, this positive characteristic has a negative side in that adjacent cell interference levels are more difficult to control. Interference is a major limiting factor to reliability and performance.

53. This issue is further complicated where interference is intersystem between adjacent operators. All efforts should be made to maximize the tier size and minimize these overlapping intersystem zones.

54. An emergency situation occurring in one of these overlap zones would have difficulty with interference mitigation, not to mention greater complication and latency with terminal to terminal communication where terminals were connected to different networks.

5-11. If the APT band plan (see Option 3 in Section 5.1) is adopted: (a) Given that the APT band plan requires a 55 MHz duplexing separation, can Canadian public safety services operate their current narrowband systems in this band plan configuration? If not, what are possible alternatives to address public safety needs?

55. Bell Mobility does not recommend adoption of the APT band plan and therefore has no comment regarding this alternative.

Tier Sizes for 700 MHz Auction of Commercial Spectrum

5-12. The Department seeks comments on whether the auction of 700 MHz commercial spectrum should be based on uniform tier sizes across all spectrum blocks, or a mixture of tier sizes.

56. Bell Mobility submits that auction of 700 MHz commercial spectrum should be based on uniform tier sizes across all spectrum blocks. Bell Mobility believes that uniform tier sizes will contribute to the spectral efficiency of the Canadian 700 MHz band particularly if licensed uniformly on a minimum Tier 2 basis as recommended below. The Consultation notes that the propagation characteristics of the 700 MHz band are most conducive to high mobility applications due to low over-the-air propagation losses and the feasibility of small size antennas enabling the development of personal portable communication devices. Bell Mobility strongly agrees with the Consultation, therefore, when it states that licensing 700 MHz spectrum using larger geographic areas would result in, among other things, more effective use of radio spectrum - a key consideration for Canada especially given the limited amount of spectrum available in this band. Further, interference issues are minimized and cross-border coordination facilitated by the use of uniform, larger service areas.

57. Bell Mobility also agrees with the Consultation's comment that mobile wireless networks are capital-intensive undertakings. Larger geographic service areas would certainly enable the deployment of efficient, large-scale networks due to economies of scale. The Consultation is again correct when it notes that considerable capital and operational costs are required for items not directly related to the provision of wireless coverage in the field (e.g., research and development, network interconnection, operation and support systems, marketing, etc.). As the

Consultation states, such costs need to be supported from services marketed to a sufficiently large subscriber base leading the Consultation to further note that a large or national footprint may be an asset when marketing high mobility services.

58. Licensing on the basis of smaller tiers will significantly diminish the economies of scale discussed above and the enumerated benefits flowing from them. In order to position 700 MHz spectrum as the cornerstone of a national competitive advantage in the digital age, Industry Canada should licence this unique band in a manner which optimizes its use for the deployment of mobile broadband capability throughout Canada.

5-13. Based on your answer above, what tier size(s) should be adopted?

Provide supporting arguments for your responses to the above questions.

59. The Department should license the 700 MHz spectrum on the basis of Tier 2 service areas at a minimum. The primary benefit of Tier 2 service areas includes facilitating spectral efficiency and mitigating interference issues both domestically and at the border. While Bell Mobility considers that larger service areas are always more efficient, they are especially so in the case of 700 MHz, given that larger service areas enable licensees to take advantage of the propagation characteristics of this band.

Treatment of Existing Spectrum Users

Effective immediately, no new broadcasting certificates will be issued for LPTV stations in TV channels 52-59 (698-746 MHz).

The Department proposes that the displacement of the incumbent LPTV stations be subject to a notification period of one year for LPTV stations located in urban areas or in specific geographic areas, such as along highway corridors; and a period of two years for LPTV stations in all other areas. A displacement notification can be issued only after technical determination is made concluding that continued operation of the incumbent LPTV station would impede the deployment of new licensed systems in the 700 MHz band.

5-14. The Department seeks comments on the transition policy proposed above.

60. Bell Mobility supports the proposed transition policy and timeframes.

5-15. The Department seeks comments regarding its proposal to permit low-power licensed devices, including wireless microphones, to operate in the band 698-764 MHz and 776-794 MHz only until March 31, 2012.

61. Bell Mobility supports the proposal to permit low-power licensed devices, including wireless microphones, to operate in the band 698-764 MHz and 776-794 MHz only until 31 March 2012.

CHANGES TO CANADIAN TABLE OF FREQUENCY ALLOCATIONS

6-1. The Department seeks comments on its proposed changes to the Canadian Table of Frequency Allocations for the band 698-806 MHz.

62. Bell Mobility supports the proposed changes to the Canadian Table of Frequency Allocations for the band 698-806 MHz as outlined in the Consultation.

Spectrum Utilization Policy

6-2. The Department seeks comments on the spectrum utilization policy proposed above.

63. Bell Mobility supports the proposed spectrum utilization policy including the proposal to refer to commercial radio systems deployed in the 700 MHz band as Mobile Broadband Services (MBS). Bell Mobility also supports the continued application of the liberalized spectrum use policy such that, subject to technical compatibility considerations, there will be no restrictions on the services offered under MBS.

PROMOTING COMPETITION

Possible Need to Promote Competition

7-1. The Department seeks comments on the current state of competition and its anticipated evolution, including the impact on consumers in the Canadian wireless services market:

- (a) in general;**
- (b) in terms of its contributions and interaction to the broader Canadian telecommunications services market;**
- (c) in comparison with wireless markets of other jurisdictions.**

7-2. Provide views, and any supporting evidence, on the impacts of government measures adopted in the AWS auctions, including the impacts on consumers and on the state of competition. In particular, what has been the impact, if any, of such measures on industry concentration, barriers to entry or expansion of services, and the availability of new or improved service offerings and pricing plans?

64. The Canadian wireless market has, in the past, benefited from the relative freedom from regulation. Traditionally, this less-interventionist policy approach has allowed Canada's wireless companies to adapt and grow, in order to be competitive and deliver innovative wireless services to Canadian consumers at affordable prices. Competition between wireless network providers has resulted in billions of dollars being invested in new technologies and services. This investment resulted in Canada being a world leader in the provision of wireless services. For example, 96% of Canadians now have access to HSPA+ networks that can offer mobile broadband speeds up to 21 Mbps; Canada's wireless service prices compare favourably to similar countries; and Canada has among the lowest wireless service revenues as a percentage of GDP. As a result of the combination of network quality and affordable prices, Canadians have among the highest average voice minutes per month.

65. Perhaps most significantly, mobile broadband innovation is no longer the exclusive privilege of urban Canadians. Both rural and urban Canadians have access to mobile high-speed broadband capabilities through innovative products such as the Turbo Stick and Turbo Hub. However, if Canada's national wireless network providers do not get equivalent access to 700 MHz spectrum in both rural and urban areas, deployment of next generation wireless infrastructure will be significantly slower (or not happen at all) and will result in diminished business productivity and competitiveness for Canadian businesses located outside of the urban areas.

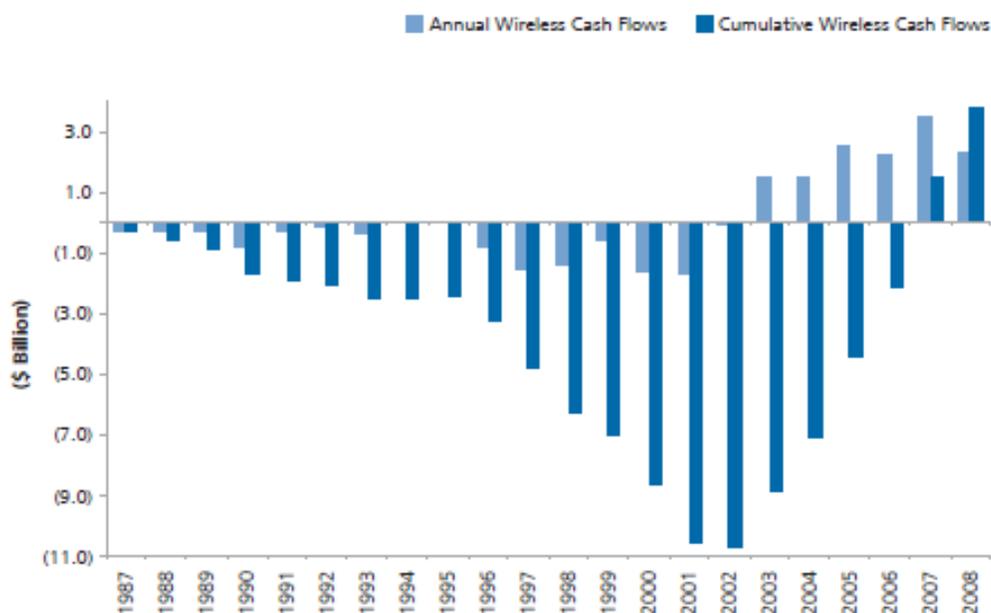
66. Despite the clear benefits of a less interventionist regulatory approach, as mentioned above, over the last two to three years Industry Canada has alarmingly become more and more interventionist in the wireless sector. This is a particularly worrisome and inappropriate trend. While some will argue that regulatory measures were required in the AWS auction, the benefits achieved were far from costless. The spectrum set-aside in the AWS auction increased the costs to the Canadian wireless industry by hundreds of millions of dollars through both the reduction in the supply of spectrum for incumbents, and the creation of gaming opportunities for new entrants which allowed them to bid on both set-aside (i.e. restricted) and non-set-aside (i.e. unrestricted spectrum). The imposition of the set-aside was neither minimally intrusive nor efficient, counter to Industry Canada's own *Spectrum Policy Framework for Canada* (or *Policy Framework*).⁶ In short, spectrum auctions should not be used as a vehicle to make artificial adjustments to the level of competition in the market.

⁶ Industry Canada, *Spectrum Policy Framework for Canada*, 2007, page 3.

Canada is a World Leader

67. In the early days of the industry, the Government decided that the wireless industry would develop most effectively if driven by market forces. This, despite the fact that at that time there was no industry, there were no customers and certainly there was no guaranteed rate of return. As figure 1 shows, there would be years of massive investment, significant risk and the accumulation of significant operating losses. This does not include the \$4.26 billion spent in the AWS auction nor the subsequent network investments that are required to implement the use of that spectrum. As the figure shows, the inclusion of these investments would once again result in a negative cumulative cash flow for the wireless industry.

Figure 1 Canadian Wireless Industry Cash Flow, 1987-2008



Source: NERA Economic Consulting, *Regulatory Policy Goals and Spectrum Auction Design: Lessons from the Canadian AWS Auction*, Figure 4.

68. The Canadian wireless industry has changed significantly over the last two decades. The industry has matured, much of the start-up risk has been removed, and the business model has been proven. In Canada, there are now more wireless connections than local wireline connections⁷, and the wireless market revenues now contribute 41% of total telecommunication revenues.⁸ The wireless industry also makes a significant contribution to the Canadian economy. A report prepared by OVUM Consulting titled *The Benefits of the Wireless*

⁷ Table 5.1.8, CRTC *Communications Monitoring Report 2010*, available at <http://www.crtc.gc.ca/eng/publications/reports/policymonitoring/2010/cmr2010.pdf>.

⁸ CRTC *Communications Monitoring Report 2010*, page 153.

Telecommunications Industry to the Canadian Economy found that wireless communications generate a total economic value of \$39 billion for the Canadian economy – over \$16 billion in terms of direct contribution to GDP, an additional \$14 billion benefit due to the economic flow through to contributing suppliers in the supply chain and close to \$9 billion in consumer surplus.⁹ The wireless industry also makes significant contributions to employment – over 294,000 people are employed in Canada as a result of the wireless industry and the value added per employee in the wireless sector is estimated to be \$195,000 per year, compared to \$71,000 per year for the average Canadian employee.¹⁰

69. Yet Industry Canada's Consultation requests comments on whether more should be done to improve the level of competition. This urge to micromanage the wireless market is being driven by inaccurate claims by some that the industry is not competitive enough. This misperception is fuelled by reports featuring sensational titles and little evidence. These claims are being made by those who stand to benefit from government intervention. The reality is that the Canadian industry shows all the markings of intense competition. It is a lively market in which competitors gain and lose ground every quarter.

70. Canada is not falling behind. A recent article in the National Post¹¹ newspaper reported that Canada's wireless providers have done far better than their U.S. counterparts in investing for the coming explosion of wireless data. Mark Henderson, Chief Executive of wireless equipment maker Ericsson Canada, is quoted in the report as follows: "I think Canadian carriers have done a great job of keeping up with some of the most advanced data networks you see today. We're world class at this point." Greg MacDonald, a telecom analyst at National Bank Financial is also quoted in the story as follows: "We have high penetration of data at attractive rates. And for a country of this size, the coverage we have is phenomenal." This conclusion was echoed in a similar earlier story that appeared in the Financial Post: "...there is a lingering perception (perhaps based on now-dated studies) that Rogers, Bell Canada and TELUS provide somehow inferior wireless services relative to carriers in other countries. That is simply no longer true."¹²

⁹ OVUM Consulting, *The Benefits of the Wireless Telecommunication Industry to the Canadian Economy*, April 2010, available at http://www.cwta.ca/CWTASite/english/pdf/OVUM_Study.pdf, page 1.

¹⁰ Ibid., pages 21 and 22.

¹¹ *Are we ready for the data tsunami?* Friday 10 July 2010 National Post. Available online at: <http://www.financialpost.com/ready+data+tsunami/3258593/story.html>.

¹² "US Wireless carriers playing catch-up to Canada", 2 July 2010 Financial Post.

71. As Professor Leonard Waverman and Kalyan Dasgupta have observed in a report titled *Time to Set Aside Caps that Don't Fit: The Limits of Spectrum Policy in Canada* (or Waverman-Dasgupta Report), attached as Appendix 1 to these comments, "the deployment of new HSPA+ networks, for instance, puts Canada well ahead of several European nations and the United States in the 'mobile broadband race'."¹³ They go on to conclude that "the high capital intensity of the Canadian wireless industry relative to its international peers also seems incompatible with a view of a passive oligopoly that is behind the international leading edge of mobile deployments,"¹⁴ and that "in fact, a sober analysis would suggest that Canada has come to be something of a leader in deployment of advanced data networks, something that it could not have claimed in 2004."¹⁵

72. In terms of pricing, Canada's wireless service prices compare favourably to similar countries. This is shown in figures 2 to 4 prepared by Wall Communications Inc. for the Canadian Radio-television and Telecommunications Commission (CRTC).¹⁶ Furthermore, figure 5 which shows an analysis by Bank of America Merrill Lynch which finds that Bell Mobility and Rogers had lower priced data plans for Apple's iPad than U.S.-based service providers and some of the lowest announced in the entire world.¹⁷

¹³ Waverman, L. and K. Dasgupta, *Time to Set Aside Caps that Don't Fit: The Limits of Spectrum Policy in Canada*, February 2011, paragraph 49.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Wall Communications Inc., *Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions: 2010 Update*, 16 April 2010, (Wall Report) available at http://www.crtc.gc.ca/PartVII/eng/2009/8663/c12_200907321.htm. Figure 2 presents results for Level 1 service which consists of 150 minutes of use per month, no additional features, no SMS and no data service. 2010 is the first year Japan was included. Figure 3 presents results for Level 2 service which consists of 450 minutes of use per month, Voicemail and caller ID, 150 SMS and no data service. Figure 4 presents results for Level 3 service which consists of 1,200 minutes of use per month, Voicemail, caller ID and Other, 150 SMS and 1GB data service.

¹⁷ Bank of America Merrill Lynch *Canadian iPad pricing: Why it matters*, 7 June 2010, Chart 3.

Figure 2: International Mobile Wireless Prices – Wireless Level 1 (PPP-adjusted CDN\$ per Month)

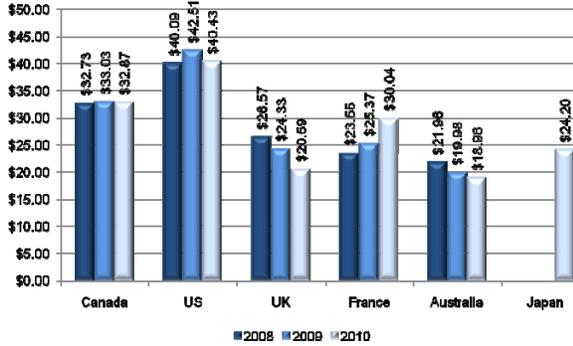


Figure 3: International Mobile Wireless Prices – Wireless Level 2 (PPP-adjusted CDN\$ per Month)

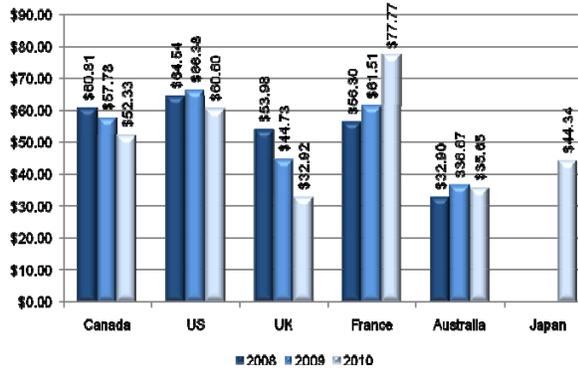


Figure 4: International Mobile Wireless Prices – Wireless Level 3 (PPP-adjusted CDN\$ per Month)

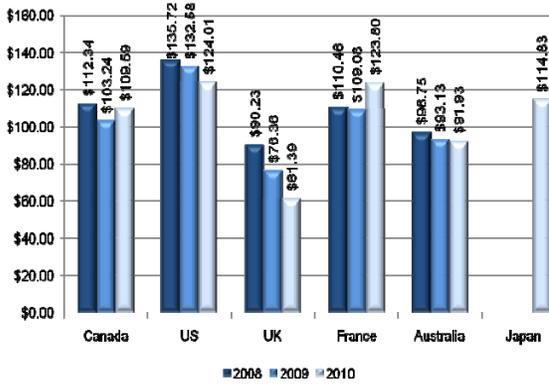
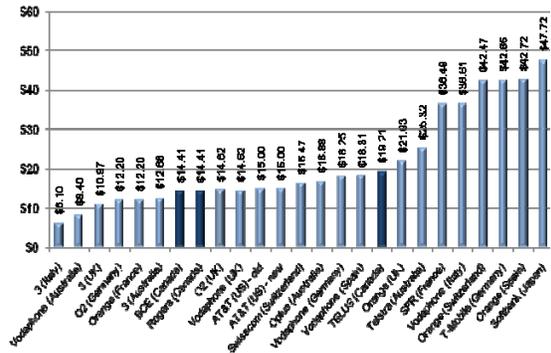


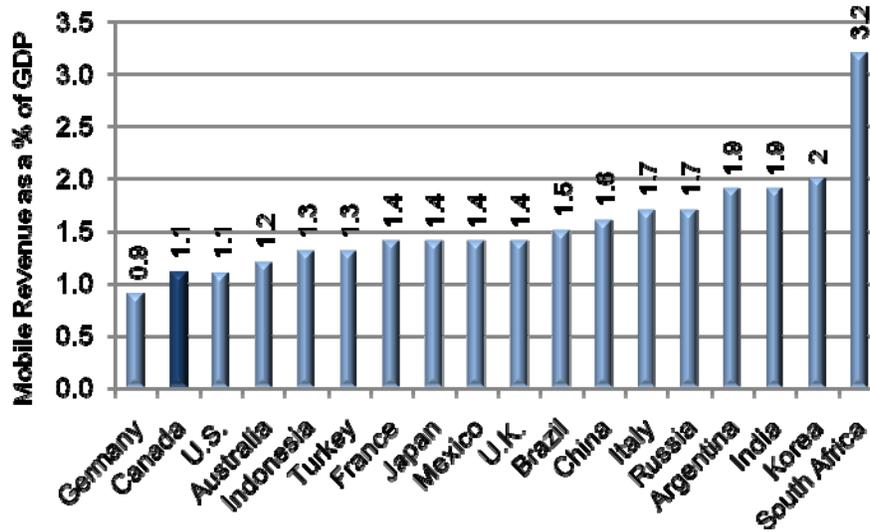
Figure 5: Entry Level iPad Plans by Carrier (US\$ / Month)



73. The relative affordability of wireless services can be seen in Figure 6 which shows that Canada's wireless service revenues as a percentage of GDP is the second lowest in the G20.¹⁸

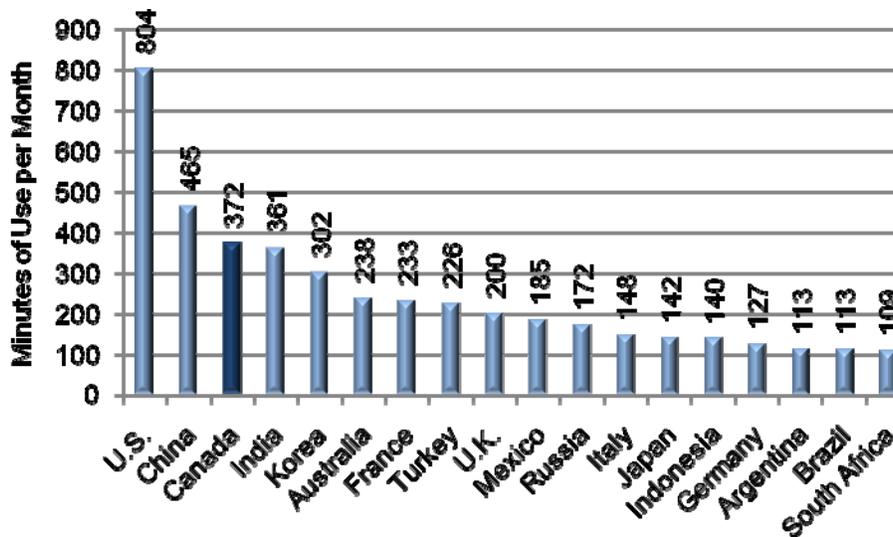
¹⁸ Mobile revenue as a percentage of GDP is equal to total service revenue divided by total GDP. Service revenues include monthly service charges and usage fees, roaming, long-distance, and subscriptions to mobile data services. Bank of America Merrill Lynch *Global Wireless Matrix 4Q10*, 23 December, 2010. Note that this is not the complete G20 since the *Global Wireless Matrix* does not track Saudi Arabia.

Figure 6: Mobile Service Revenue as a % of GDP (3Q 2010) for the G20



74. As a result of affordable prices and high quality service, Canadians continue to be heavy users of wireless services. Figure 7 shows that as of the third quarter 2010, Canadians used more voice minutes on average per month than all other G20 countries except the U.S. and China.¹⁹

Figure 7: Minutes of Use per Month (3Q 2010) for the G20



¹⁹ Bank of America Merrill Lynch *Global Wireless Matrix 4Q10*, 23 December, 2010. Note that this is not the complete G20 since the *Global Wireless Matrix* does not track Saudi Arabia.

75. In terms of the level of concentration in the Canadian wireless market, 4G Americas, an international wireless industry group, shows that Canada has 7 wireless providers that have deployed HSPA+ service (Bell Canada, Mobilicity, Rogers, SaskTel, T-Bay Tel, TELUS and Vidéotron), four more than any other G20 country.²⁰ Canada's HSPA+ networks provide more than 96%²¹ of Canadians with wireless broadband at speeds up to 21 Mbps and in some areas up to 42 Mbps.

76. These Canadian successes led the Standing Senate Committee on Transport and Communications to state in their June 2010 report entitled *Plan for a Digital Canada* (the Senate Committee Report), that there was a significant increase in the competitive intensity of the Canadian wireless market due to the Bell Canada and TELUS investment in their HSPA+ network, and that having head-to-head-to-head competition among Canada's three national network providers is good for Canadian consumers:

Before November 2009, Rogers was the only wireless service provider in Canada operating on the GSM network; Bell and TELUS operated on the CDMA network. After November 2009 and the roll-out of a competing GSM/HSPA network, all the dominant players in the Canadian wireless market could compete for GSM-compatible devices. Having head-to-head-to-head competition among the three dominant wireless service providers in Canada is good for domestic consumers, or would-be consumers, of GSM devices. There is another advantage to having Bell and TELUS able to offer GSM devices. Handset manufacturers outside Canada now see a market that is about three times larger than it was, so they are more inclined to make their devices available sooner in Canada.²²

77. Given the significant capital investments in network technology and product distribution that are required to build out the next generation of wireless services, it may be the case that the existing number of providers will not remain. Not all service providers will be able to reach a large enough scale and/or scope in order to minimize costs. This is especially true in telecommunications industries which require large fixed and sunk costs.

78. The number of firms that can efficiently operate in the market will depend on the relationship between minimum efficient scale of production (MES) and total demand. If in order

²⁰ As of 6 January 2011. See 4G Americas at <http://www.4gamericas.org/UserFiles/file/Global%20Status%20Updates/Global%20Status%20Update%20January%206%202011pr.pdf>.

²¹ The CRTC's latest *Communications Monitoring Report*, issued on July 29, 2010, indicates (at page 153) that the advanced wireless network that supports handsets, such as smartphones and turbo sticks, is available to 96% of Canadians.

²² The Standing Senate Committee on Transport and Communication, *Plan for A Digital Canada*, June 2010, available at <http://www.planpouruncanadanumerique.com/images/stories/pdf/report.pdf>, page 10.

to achieve the minimum cost of production requires producing a level of output that is a large fraction of total demand, then only a small number of firms will be able to reach the lowest cost level of production. This explains why Canada tends to have more concentrated industries relative to the United States, because in general, the level of output required to reach MES in Canada will be a larger fraction of total demand than is the case in the U.S.

79. It should not be surprising then that consolidation may occur. As the Waverman-Dasgupta Report observes, "not only has consolidation been a quite natural trend observed across the American, European and Canadian telecommunications industries, it has also likely been a beneficial trend."²³ They go on to provide a number of examples of consolidation around the world:²⁴

- In Australia, Hutchinson and Vodafone (the third and fourth players in the market) merged their operations in 2009 and the Australian Competition and Consumer Commission cited these firms' financial condition as a major constraint on their ability to continue investing and expanding their networks.
- In the European 3G licenses, several operators that were successful at auction could not eventually compete to offer services in the market, or only launched after very substantial delays, even though they had support from major "parents" such as France Telecom and TeliaSonera.
- In the United States, consolidation rather than new entry has been the norm. T-Mobile might be considered a "new entrant" since 2000, but in reality it was formed from the purchase of assets of VoiceStream Wireless by Deutsche Telekom, and VoiceStream itself had acquired the assets of several other U.S. wireless operators.
- In the Netherlands, the number of operators has gone from five to three in the last five years with the take-overs of Telfort by KPN and of Orange by T-Mobile. In the U.K., Orange and T-Mobile have also merged their operations.

80. It is unlikely that this trend is any different in Canada, especially given Canada's smaller population and larger geographic area. In fact, the purchase of Clearnet by TELUS and Microcell by Rogers are further examples of consolidation in wireless markets. This reality is not lost on existing providers who have themselves indicated that consolidation will need to occur:

- "Long term, there's only room for one new network in Canada."²⁵
Anthony Lacavera, Wind Mobile

²³ Waverman-Dasgupta Report, paragraph 55.

²⁴ Ibid., paragraphs 56 to 59.

²⁵ *A year in, Wind Mobile blows its own horn; Chairman Anthony Lacavera talks to Iain Marlow about the high point, the low point and everything in between*, Thursday 16 December 2010, The Globe and Mail.

- "I don't think there is any question in my mind that it would be good for all parties concerned that the new entrants consolidate ..." ²⁶
Alek Krstajic, Public Mobile
- "We're not pretending to be a national network."²⁷
Dave Dobbin, Mobilicity

81. However, even if the most restrictive analysis is used which only considers national providers there is nothing exceptional about the level of concentration in the Canadian market. Larger countries such as Germany, Japan and the United States do not have significantly more wireless providers than smaller countries such as Canada. As figure 8 shows, there exists regularity across countries which show that it is difficult to sustain more than four competitors in a national wireless market, and that two or three firms have a majority of the market share. As the Waverman-Dasgupta Report concludes:

Overall, the picture points overwhelmingly to a naturally concentrated market, whose boundaries are determined by the interaction between the costs of establishing a network and the demand that is available to be served. Consolidation rather than further "greenfield" entry seems to be the norm in the developed world. This strong suggestion of a natural limit on entry has profound implications for the advisability of a policy such as a set-aside ... ²⁸

Figure 8: Market Concentration

Country	National HHI	# National Competitors	Top 2 Share
USA	2220	4	55.20%
UK	2240	5	50.60%
Germany	2920	4	70.20%
Italy	3020	4	71.70%
Canada	3110	3	67.40%
Australia	3120	4	73.30%
Sweden	3370	4	75.90%
France	3390	3	78.10%
Finland	3490	3	77.00%
Japan	3590	3	77.60%

Source: FCC, 14th CMRS Report.

82. Therefore, the Department's objective must be an efficient and competitive wireless market, and not artificially maintaining a large number of new entrants, many of which have

²⁶ CEO admits upstarts have to join forces; 'We have been approached,' says source at rival, Wednesday 22 December 2010, National Post.

²⁷ DAVE Wireless to launch as Mobilicity, Tuesday 2 February 2010, The Globe and Mail.

²⁸ Waverman-Dasgupta Report, paragraph 61.

already expressly stated they intended to consolidate. Propping up new entrants, and continually providing them with new entrant concessions (particularly when the new entrants are large and well capitalized), will increase costs and reduce the overall efficiency of the market to the detriment of Canadians.

Competition in Rural Areas

83. The spectrum set-asides in the AWS auction only encouraged more entry in areas that are already well-served, and did nothing at all to help rural areas. Bell Mobility has been leading the industry by aggressively investing in its wireless networks in both rural and urban areas. This enables Bell Mobility to offer rural customers innovative services like the Turbo Hub, which connects up to 15 Internet devices in one location, with download speeds of up to 21 Mbps and upload speeds of up to 5.7 Mbps.

84. However, the race to LTE is on, with three G20 countries now offering service using LTE technologies (United States: Metro PCS, Verizon; Germany: Vodafone; and Japan: NTT DoCoMo), with more providers having indicated they intend to do so as well. Bell Mobility wants to deliver next generation LTE technology and services to all Canadians in a cost effective and efficient manner, and thus, like the United States, any build out in rural areas is inextricably linked to access to 700 MHz spectrum in both rural and urban areas.

85. It is undeniable that the new entrants do not target rural and remote areas in bringing their services to market. As of February 2011, even a cursory review of the service rollouts of the three wireless new entrants shows none has plans to serve rural and remote Canadians. Wind Mobile's network is operational solely in the Greater Toronto Area, Hamilton, Ottawa, Calgary, Edmonton, and Vancouver.²⁹ Mobilicity's network is operational solely within the Greater Toronto Area, Ottawa, Edmonton and Vancouver.³⁰ Finally, Public Mobile Inc.'s home network currently covers only Greater Montréal and Toronto.³¹

86. This has important ramifications for rural and remote Canadians. To the extent that some wireless providers get access to more and/or cheaper 700 MHz spectrum Bell Mobility (as well as other national providers) will have to use additional resources to overcome these competitive disadvantages. That is, Bell Mobility will be required to invest in additional

²⁹ <http://www2.windmobile.ca/en/pages/storesandcoverage.aspx>.

³⁰ <http://mobilicity.ca/coverage/>.

³¹ <http://www.publicmobile.ca/pmconsumer/coverage>.

infrastructure in an attempt to try and overcome the problem of not having enough 700 MHz spectrum (though even then it may not be possible). These are scarce resources that would otherwise have been allocated to rural and remote areas. Such a re-allocation of capital will affect the rollout of new digital infrastructure in other areas of the country. Ultimately, this slowing in the deployment of next generation wireless infrastructure will manifest itself in terms of diminished business productivity and competitiveness for Canadian businesses located outside of the urban cores.

Negative Impact of AWS Spectrum Set-Aside

87. It is important to recall that the Department stated in 2009 that it intended to move away from a heavy-handed regulatory approach to one that provides greater reliance on market forces:

In the mid-1990s, spectrum auctions were introduced; a significant step in the direction of greater reliance on market forces in the assignment of licences. Similarly, the decision to allow the use of secondary markets for licences obtained in an auction licensing process recognized the benefits of allowing for adjustments in the market. Since that time, Industry Canada has continued to migrate toward a spectrum management regime that is less characterized by command and control regulation and is more reliant on market forces to achieve the greatest economic and social benefits from the usage of the spectrum resource.³²

88. In fact, the Department has stressed the reliance on market forces in the enabling guidelines of their *Policy Framework*. Enabling guidelines (a) and (d) state that market forces should be relied upon to the maximum extent feasible, and regulatory measures, where required, should be minimally intrusive, efficient and effective, respectively.

89. Despite this clearly stated intention, Industry Canada has since done the opposite, and has shown an alarming trend towards intervention. The most striking example is the imposition of the set-aside in the AWS auction, which was neither minimally intrusive nor efficient.

90. The set-aside increased the costs to the industry by hundreds of millions of dollars by artificially reducing the supply of spectrum available for incumbents and by creating gaming opportunities that altered the efficient allocation of spectrum. This resulted in a disproportionate cost burden being borne by the incumbents. The gaming opportunities were the result of the

³² Canada Gazette Notice DGRB-001-09, *Consultation on Revisions to the Framework for Spectrum Auctions in Canada*, page 2.

new entrants' ability to "park" their points on both restricted and unrestricted spectrum. That is, the new entrants had the incentive to bid on spectrum that they did not actually want to buy in order to keep the prices on their desired spectrum from increasing too quickly and to maintain enough eligibility points in order to punish their rivals in later rounds.³³ As noted in a report by NERA titled *Regulatory Policy Goals and Spectrum Auction Design: Lessons from the Canadian AWS Auction* (or NERA Report):

... parking of points is not uncommon in auctions and is, by itself, not necessarily a reason for concern. However, parking of points can become a problem when combined with a set-aside provision, such as the one used in this auction. That is, the set-aside provision provides an incentive for entrants to park their points on the unrestricted spectrum rather than the restricted, even though there is no difference in terms of eligibility of where the points are parked. In an auction without set-asides, the effect of parking tends to be distributed equally among the bidders because each license bears the same probability of being used to park points. However, in the Canadian AWS auction design, incumbents did not have the opportunity to park points on the restricted licenses. This, coupled with the fact that the entrants had an incentive to park points on the unrestricted spectrum, resulted in unrestricted spectrum being disproportionately subject to the parking of points.³⁴

91. It is easy to see that the new entrants were able to effectively use the asymmetry of the spectrum set-aside rules to minimize their own costs of acquiring spectrum. That is, there were a number of circumstances where a new entrant bid on an unrestricted license even though an equivalent restricted license was available at a much lower price. By maintaining eligibility through bids on unrestricted licenses, new entrants were able to keep the price of restricted licenses lower.

92. The NERA Report highlights 17 licenses where new entrants were bidding on unrestricted licenses even though equivalent restricted licenses were available at a fraction of the cost. For example:³⁵

- Service Area 304 (Cape Breton): Bragg continually bid up the price of the unrestricted block despite the fact that the identical set-aside block was available for as little as one seventh the price.

³³ Ausubel, L.M., P. Cramton, and P. Milgrom, (2006), "The Clock-Proxy Auction: A Practical Combinatorial Auction Design", in P. Cramton, Y. Shoham, and R. Steinberg (eds.), *Combinatorial Auctions*, MIT Press, Chapter 5, paragraphs 115-138.

³⁴ NERA Economic Consulting, *Regulatory Policy Goals and Spectrum Auction Design: Lessons from the Canadian AWS Auction*, 17 April 2009, available at http://www.nera.com/67_5461.htm, page 31.

³⁵ *Ibid.*, pages 29 to 31.

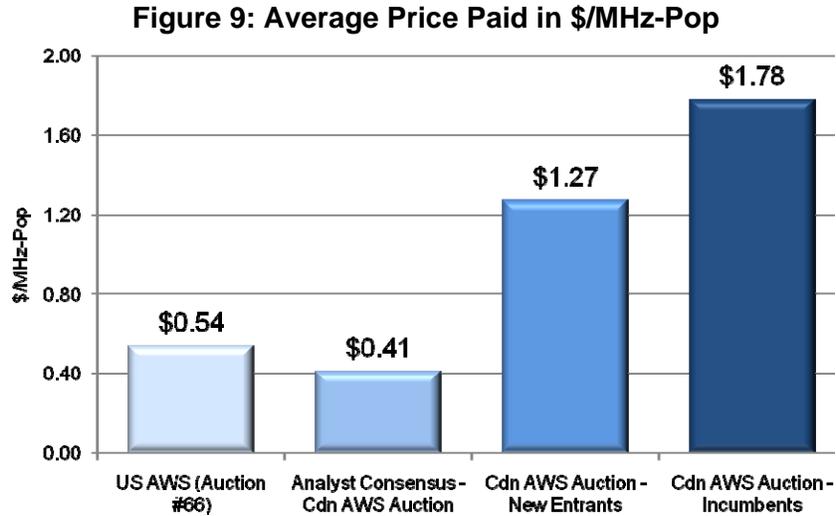
- Service Area 302 (Prince Edward Island): Bragg drove up the price of the unrestricted licenses even though it could have bid on the same license at one-tenth the price.
- Service Area 317 (Abitibi): Globalive submitted a single bid for the unrestricted block despite the fact that the equivalent set-aside license was available for less than one-third the price.
- Service Area 329 (Niagara-St. Catharines): SaskTel submitted a single bid on the unrestricted license even though an equivalent restricted license was available at a 50% discount.
- Service Area 346 (Lethbridge): Globalive bid up the value of the unrestricted block yet never bid on the equivalent restricted block even though it was available at one-third the price.
- Service Area 356 (Thompson/Cariboo): Globalive bid on the unrestricted block without ever bidding on the restricted one.
- Service Area 357 (Prince George): Globalive bid on the unrestricted block without ever bidding on the less expensive identical set-aside block, which was available for about half the price.

93. Therefore, the combination of the restricted supply of spectrum and the gaming opportunities created by the spectrum set-aside used in the AWS auction resulted in the record high prices paid for the unrestricted spectrum. As the NERA Report concludes:

While Industry Canada's objective to maximize social welfare was well intentioned, it failed to consider the side effects of its preferential treatment. Most significantly, the set-aside provision allowed entrants to bid on unrestricted spectrum with no intention of purchasing it, but with an objective of increasing the incumbent bidders' spectrum prices. This and other auction design flaws contributed heavily to the record high prices paid for the unrestricted spectrum licenses. Although the set-aside spectrum also sold at a premium, the premium was significantly lower than the one paid for unrestricted spectrum. Furthermore, given the attractive roaming and tower sharing provisions granted to the winners of the set-aside spectrum licenses, at least part of this overpayment can be attributed to the fact that it was worth more to entrants.³⁶

94. As Figure 9 shows, the average price paid in the U.S. AWS auction was \$0.54/MHz-Pop, and the analyst consensus for the Canadian AWS auctions was \$0.41/MHz-Pop. The actual outcome in the Canadian AWS auction resulted in the new entrants paying an average of \$1.27/MHz-Pop and the incumbents paying an average of \$1.78/MHz-Pop. The incumbents ended up paying over three times what was paid in the U.S.

³⁶ Ibid., page 42.



95. Not only did the set-aside restrictions increase the cost of spectrum licenses for the incumbents, the definition of a "new entrant" creates a situation where new entrants can exploit spectrum as an entry barrier. Given the fact that spectrum licensing is at the provincial and sub-provincial level, there is an opportunity to create market power at the regional level. For example, if a wireless provider has spectrum in Ontario but limited or no spectrum in Québec, it cannot use its spectrum in Ontario to provide a competitive constraint on the services in Québec. Thus, the Department's own policies in the AWS auction can lead to decreased regional competition, especially if set-asides are used again to limit the amount of spectrum available. As noted in the Waverman-Dasgupta Report in the case of Vidéotron:

This issue has been compounded by Industry Canada's AWS policies. In that instance, the set-aside itself has created spectrum-related barriers to entry at the regional level. In Quebec, for example, Videotron successfully blocked all other entrants from obtaining spectrum in that market. One firm now has 40% of the AWS spectrum that it won in a "protected" setting, and as a result both entrant firms and possibly one incumbent firm have been precluded from the chance to offer LTE services over their separate network in Quebec using the AWS spectrum. ... In the only market that it intends to serve with its own network, Videotron has no spectrum constraints for the foreseeable future, while competition from other firms has been constrained. Yet persisting with the market definition that Industry Canada used in 2008, and indeed applying it not just to a set-aside but to a spectrum cap, would continue to allow Videotron to obtain spectrum in ways that potentially restrict the choices available to Quebec customers. The only possible beneficiaries in this case are Videotron's owners, and not Quebec customers.³⁷ [Footnotes omitted]

³⁷ Waverman-Dasgupta Report, paragraphs 126 and 127.

96. Micromanagement of the wireless market is not an indication of greater reliance on market forces. Though some might think it is desirable to protect firms at an early stage of entry, protecting an industry, once engaged, can be never ending. Bell Mobility strongly believes that Canada's vibrant wireless market has benefited from the relative freedom from regulation. Given the current state of competition, it is Bell Mobility's firm belief that a spectrum auction should not be used as a vehicle to make artificial adjustments to the level of competition in the market.

7-3. In light of the current conditions in the Canadian wireless service market(s), is there a need for specific measures in the 700 MHz and/or 2500 MHz auction to increase or sustain competition?

97. An unrestrained auction is a highly efficient, market-based approach for spectrum management. Auctions tend to assign spectrum to those best able to use it. License applicants that are best able to put the spectrum to use are likely to be the ones that bid the highest. Auctions are also a transparent means of assigning licenses since all parties can see won the auction and why.

98. Reliance on market forces is a long standing policy of the Department. Indeed this was the very reason why Canada adopted spectrum auctions as an assignment method in the late 1990's. Industry Canada's summation of the Department's rationale for introducing spectrum auctions as expressed in its *Consultation on Issues Related to Spectrum Auctioning*, August 1997, is instructive when it states that:

...Auctions substitute real world investors and consumers for public servants in the determination of who has the better business plan, the most innovative ideas, the most highly beneficial services, the right technology and the best management team.³⁸

99. The Department again recognized the benefits of competitive spectrum auctions in its *Framework for Spectrum Auctions in Canada*, October 2001, wherein it noted:

In February 1996, Industry Canada announced its intention to introduce the use of spectrum auctions where reliance on market forces to select licensees was deemed to be in the public interest. A spectrum auction is a market-based tool that allows the Government to identify those entities who value the spectrum the

³⁸ Industry Canada, *Consultation on Issues Related to Spectrum Auctioning*, August 1997, page 7.

most and who will therefore be assumed to put that spectrum to its most efficient use.³⁹

100. Since spectrum auctions are market-based, any intervention in the auction process designed to assist new entrants (e.g., spectrum set-asides), significantly conflicts with the intent and spirit of the *Policy Framework's* enabling guidelines (a) and (d) which state that market forces should be relied upon to the maximum extent feasible, and regulatory measures, where required, should be minimally intrusive, efficient and effective, respectively. Such intervention would, in Bell Mobility's view, perpetuate an antiquated command and control regime and would constitute unwarranted micromanagement of the wireless sector. Market forces, in short, will ensure that those willing and able to put the spectrum to its best use will bid for, and acquire spectrum.

101. The circumstances in the Canadian wireless market simply do not warrant interventionist measures. While entry-assisting policies such as spectrum set-asides were not required in the AWS spectrum auction, they are certainly not required now due to the entry of Vidéotron, DAVE, Public Mobile and Globalive. These existing spectrum license holders currently have the financial strength to bid for spectrum in the 700 MHz auction and need no government protection. For example, the enterprise values for: (i) Quebecor – are approximately \$7.5 billion; (ii) Shaw – approximately \$15 billion; and (iii) Orascom – are approximately \$8 billion without VimpelCom and \$33 billion with VimpelCom. Indeed, Quebecor is a regional carrier focused on Quebec, while Shaw is a regional carrier focused on Western Canada. The enterprise value of the national carrier TELUS, at \$21 billion, is lower than the combined enterprise value of Quebecor and Shaw at \$22.5 billion, whose combined networks will not cover nearly as much geography as the networks of TELUS.⁴⁰ The transfer of wealth from the shareholders of one large company to the shareholders of another large company does not improve economic efficiency, nor does it benefit Canadians.

102. In consideration of the present circumstances, there is absolutely no need or rational basis for any artificial regulatory measures intended to increase or sustain competition in either the 700 MHz or the 2500 MHz spectrum auctions. As demonstrated throughout these comments, the circumstances existing in the Canadian wireless market simply do not warrant the interventionist measures raised for consideration in this Consultation. There is no evidence of the failure of competitive market forces that would justify continued government intervention.

³⁹ Industry Canada, *Framework for Spectrum Auctions in Canada*, October 2001, page 1.

⁴⁰ Enterprise values as of 13 January 2011.

To the contrary, the available evidence suggests that the Canadian wireless industry is a competitively functioning market that does not require fixing.

103. The adoption of market-based spectrum assignment processes, such as unrestrained spectrum auctions, will determine those parties who value the spectrum most. As a result, Canada should continue to rely on real world investors and consumers, as opposed to bureaucratic judgment, for determining who values the spectrum the most and hence who will put the spectrum to its most efficient and best use. Bell Mobility submits that such an approach clearly is in the public interest and is critical for the rapid deployment of a national 4G/LTE network.

7-4. The Government of Canada has undertaken a consultation on potential changes to the foreign investment restrictions that apply to the telecommunications sector. How would the adoption of any of these proposed changes impact your responses to the questions above?

104. As described above, Bell Mobility firmly believes that the Canadian wireless market is competitive and does not require any more interventionist measures. This is the case regardless of the potential changes to the foreign investment restrictions. Therefore, the adoption of any of the proposed changes to the foreign investment restrictions would not impact our responses to the questions above.

Specific Mechanisms Applicable to the 700 MHz and 2500 MHz Auctions

7-5. If the Department determines that there is a need for measures to promote competition, which of the above mechanisms would be most appropriate and why should this mechanism be considered over the other? Comments should also indicate if further restrictions should apply so that policy objectives are met, for example, over a given time period?

In light of your response above, and recognizing that pending decisions on the specific band plan, spectrum for public safety system, tier sizes and open access requirements could influence your response:

7-6. (a) If the Department were to implement spectrum aggregation limits (caps):

- (i) Should the cap apply to the 700 MHz band only or be broader?**
- (ii) What should the size of the cap be?**
- (iii) Should bidders and their affiliates or associates share the cap?**
- (iv) How long should the cap remain in effect?**

(b) If the Department were to implement a set-aside in the 700 MHz auction:

- (i) Who should be entitled to bid in the set-aside block(s) and should the entitled bidders be restricted to bidding on the set-aside only?**
- (ii) How much spectrum should be set-aside and which block(s) should be set-aside?**
- (iii) If the set-aside were to include multiple blocks of spectrum, should they be contiguous?**
- (iv) What restrictions should be put in place to ensure that policy objectives are met (for example, should trading of the set-aside spectrum be restricted for a given time period)?**

105. When Industry Canada developed its AWS auction policy, its intention was to introduce further competition into the Canadian wireless market, and not to permanently disadvantage one of the national carriers. Given the very limited amount of 700 MHz spectrum available, a set-aside in the 700 MHz auction will permanently disadvantage at least one of the three national carriers. This surely cannot be the cornerstone of Canadian spectrum policy.

106. There is not enough spectrum available in the 700 MHz auction to have a spectrum set-aside. With the smaller amount of spectrum available, the imposition of a spectrum set-aside or spectrum cap will have an even greater effect on the auction's ability to efficiently determine who is best able to use the spectrum. The problem is that the capacity restraints are far more restrictive than they were in the AWS auction. The scarcity of spectrum in the short to medium term means that mechanisms, such as set-asides and caps, will result in spectrum not going to the most productive users and will lead to curtailed output and innovation. There is a real chance that some firms with a genuine capability to expand innovative new services will suffer spectrum-related constraints, while other firms have large amounts of spectrum relative to their short-term needs, and may prove unviable in the long term. While the lack of investment and innovation will be a negative consequence felt by all Canadians, it will be particularly problematic for rural Canada since it is only the national incumbent wireless network providers which have demonstrated the ability and desire to invest outside of urban cores.

107. Wireless spectrum is the essential ingredient which, if properly employed, can enable Canada to fully exploit the opportunity and promise of the wireless broadband economy. The critical issue for Canada is to ensure that we seize this opportunity and not squander it. 700 MHz spectrum, which is in very limited supply, is ideally suited and is absolutely key to enabling national wireless carriers to build-out 4G/LTE in urban and rural areas, due to its propagation and other technical characteristics. Carriers who operate on a regional or urban basis do not have the same dire need for this spectrum as do the national carriers who have millions of urban subscribers, but also serve most every rural and remote corner of our country.

108. As Professor Thomas Hazlett indicates in a report titled *Economic Issues in Spectrum Utilization* (or Hazlett Report), attached as Appendix 2 to these comments, "the evidence clearly reveals that the firms acquiring the largest bandwidth holdings are those that serve the most customers and build the largest, most expensive network infrastructure."⁴¹ This leads him to the conclusion that "this is a set of facts that is strongly consistent with the efficiency view, and strongly inconsistent with the anticompetitive view."⁴²

109. The Consultation raises concerns that in order to protect or enhance competition in the Canadian wireless market, mechanisms such as spectrum set-asides or spectrum caps are required in order to ensure that large providers do not bid too aggressively for spectrum in order to "warehouse" or "hoard" spectrum and restrict output. However, having "holding inventories" of spectrum is fully consistent with efficient spectrum use, since it allows network operators to implement capital investments on infrastructure more efficiently and effectively. Moreover, it is simply too costly for wireless providers to obtain spectrum that it is not going to put to productive use. As a result, Bell Mobility submits that "warehousing" or "hoarding" of spectrum by large national wireless network providers in order to reduce competition and restrict output is simply not an issue. All mechanisms such as spectrum set-asides will do, is decrease the opportunity for 700 MHz spectrum to be put to productive use for both rural and urban Canadians.

110. Furthermore, asymmetric Government policies such as spectrum set-asides or spectrum caps which only apply to certain bidders; can result in a number of unintended consequences. There exist numerous examples of how government manipulation of auction rules in an attempt to promote competition has resulted in negative unintended consequences, which in some cases has resulted in substantial reductions in social welfare.

111. A heavy burden of proof rests with Industry Canada to indicate how intervening in the market will increase social welfare and economic efficiency. It is competition rather than government intervention and regulation which provide the most efficient means of obtaining the socially optimal level of output at minimum resource cost, distributing it to those that value it the most. Competition will force wireless network operators to reduce costs, increase quality, and/or introduce new products in order to gain a competitive advantage over its rivals.

⁴¹ Hazlett, T., *Economic Issues in Spectrum Utilization*, February 2011, page 7.

⁴² *Ibid.*

112. Applying a spectrum set-aside or spectrum cap varies from the competitive market-based approach inherent in spectrum auctions and begins to reinsert bureaucratic judgment into the equation. Bell Mobility strongly believes that it would not be in the public interest to set-aside any spectrum in the 700 MHz spectrum auction, nor should an auction spectrum aggregation limit (spectrum cap) be placed on the amount of spectrum that can be acquired by any single wireless service provider including its affiliates.

"Hoarding" or "Warehousing" Spectrum is Not a Concern

113. The Consultation raises concerns that in order to protect or enhance competition in the Canadian wireless market, mechanisms such as spectrum set-asides or spectrum caps are required in order to ensure that large providers do not bid too aggressively for spectrum in order to "warehouse" spectrum and restrict output. However, the benefits of outbidding an entrant are dubious especially if outbidding results in a significant cost disadvantage relative to other wireless operators in the market. No one operator can afford to significantly increase its cost relative to the other operators in the market and still remain competitive. Thus, a wireless operator will not want to spend hundreds of millions of dollars more than its rivals in order to acquire spectrum which it will not put to productive use.

114. It is simply too costly to try and purchase enough spectrum in order to foreclose other bidders. An example of the magnitude of the cost is provided by Professor Michael Katz:

Suppose that there are 270 MHz of suitable spectrum available for license in blocks of 30 MHz each. Also suppose that a service provider needs one such block in order to be a viable competitor. Lastly, suppose that incumbents currently hold licenses to 150 MHz of spectrum in some geographic market. Any one of the four remaining 30-MHz blocks could be used by an entrant to become a new competitor. Hence, an incumbent would have to purchase licenses for all four remaining blocks in order to deter entry. Thus, if an entrant were willing to bid up to \$50 million in order to obtain a 30-MHz license, the incumbent would have to spend \$200 million to block entry through spectrum warehousing.

Of course, as the total amount of spectrum available rises, it becomes even more costly for an incumbent to attempt to deter entry by warehousing spectrum. For example, if the total spectrum available is 650 MHz, then even if incumbents held 250 MHz of spectrum and an entrant needed 100 MHz to be a viable competitor, an incumbent would have to buy licenses for four times as much spectrum as would an entrant in order to deter entry. Moreover, for the right price, another incumbent might be willing to sell some its licenses to a potential entrant, thus

increasing the amount of spectrum that an incumbent attempting to deter entry through warehousing would have to purchase.⁴³

115. As discussed in the Hazlett Report, an efficiency rationale for obtaining as much spectrum as possible is just as convincing an argument as the foreclosure argument. The Hazlett Report states that such claims of anticompetitive warehousing of spectrum "overlook a far more salient fact: large networks make very productive use of bandwidth precisely because of the complementarity of the new [spectrum] with those they already hold."⁴⁴ In fact, the report concludes that while efficiency arguments are at least as compelling theoretically as arguments that spectrum is being acquired for output restriction, the evidence clearly reveals a set of facts that support the efficiency arguments. The largest bandwidth holdings are those that serve the most customers and build the largest, most expensive network infrastructure:

Two testable implications allow us to evaluate the rival hypotheses. First, if networks with large spectrum holdings are amassing bandwidth to restrict output, then their subscriber and/or usage levels should decline relative to other networks. Alternatively, if such networks are acquiring spectrum and using it to serve more customers than rivals, then the implication is that bandwidth is being acquired for productive purposes. Second, if strategic spectrum purchases are being executed to block rivals from gaining access to spectrum, then the acquiring firms would be "hoarding" spectrum, if not by letting it sit idle, but by under-utilizing it. In that case, they amass bandwidth but economize on capital outlays relative to the expenditures undertaken by firms with no such anticompetitive motive. Alternatively, were the spectrum acquired for productive purposes, then large bandwidth owners would also be the largest investors in network infrastructure. ... The evidence clearly reveals that the firms acquiring the largest bandwidth holdings are those that serve the most customers and build the largest, most expensive network infrastructure. **This is a set of facts that is strongly consistent with the efficiency view, and strongly inconsistent with the anticompetitive view.**⁴⁵ [Emphasis added]

116. The Hazlett Report also points out that network operators that have "holding inventories" of spectrum is fully consistent with efficient spectrum use. It allows network operators to implement capital investments on infrastructure more efficiently and effectively because it can provide the time necessary to implement the optimal least cost solution:

Efficient spectrum use is also fully consistent with the existence of some level of "slack," what is known as "holding inventories" in other markets. Economical deployment lags exist. Infrastructure – base stations, backhaul, and mobile radios – make airwaves far more valuable. Because the operator will exploit this demand by charging for the use of the network, it has strong incentives to put

⁴³ Katz, M.L., "An Economic Analysis of the Rural Telecommunications Group's Proposed Spectrum Cap", 2 December 2008 (Filed as *Appendix A* to the *Opposition of Verizon Wireless*, RM-11498).

⁴⁴ Hazlett Report, page 5.

⁴⁵ Hazlett Report, pages 6 and 7.

such capital in place. But speed is a costly input; building networks more quickly costs more, all else equal. Taking due time to architect new systems, assemble labor, procure physical inputs, and arrange other assets – such as leases for preferred tower sites – generally lowers costs. It is also the case that waiting produces an important economic benefit, option value. The ability to deploy superior systems or technologies as they become available over time is one clear consideration in constructing, expanding, or upgrading wireless networks.

Hence, not all spectrum resources should always be fully committed, or used to maximize capacity, in networks. At any point in time, there will predictably be efficiency reasons to not deploy certain assets. In addition to husbanding resources on an optimal investment time path, networks are regularly built and operated so as to reserve some – indeed, abundant – slack capacity during ordinary operations. This allows not only for traffic fluctuations over standard daily or seasonal cycles, with peak times seeing higher utilization rates, but provides relatively low-cost provision of both emergency capacity (expansion) and standard growth trends. [Footnotes omitted]⁴⁶

117. Some will argue that the large national network providers have more than enough spectrum even if efficiency considerations are factored in. However, as explicitly described above, Bell Mobility's network will face significant capacity constraints in the short-term in both rural and urban areas. Furthermore, it is critical to note that Canada needs to be a part of the larger North American wireless ecosystem. 700 MHz is powering 4G/LTE networks in the U.S., which means that the latest mobile devices are being built to accommodate 700 MHz spectrum. Canada's wireless carriers therefore all require a fair opportunity to bid for 700 MHz spectrum, in an open auction, in order to even have a chance to acquire and take advantage of economies of scale in obtaining the latest mobile devices for use on LTE networks at home and abroad to thereby enable the continued progression of our national business model. Handset manufacturers will simply not build attractively-priced devices to accommodate relatively small Canadian wireless operators.

118. The Canadian wireless incumbents also need a fair opportunity to bid on 700 MHz spectrum, as part of the effort to ensure that they can offer their millions of subscribers the ability to roam onto U.S. LTE networks as they are deployed in the U.S. and Canada. Without a fair opportunity to access 700 MHz spectrum, or with the imposition of spectrum caps or set-asides, one of Canada's national carriers will be permanently disadvantaged, resulting in its customers not being able to roam in the U.S., being able to use leading edge mobile devices at affordable cost or to benefit from the productivity and benefits afforded by 4G/LTE.

⁴⁶ Hazlett Report, pages 7 and 8.

119. Therefore, Bell Mobility submits that "warehousing" or "hoarding" of spectrum by large national wireless network providers in order to reduce competition and restrict output is simply not an issue. It is simply too costly for wireless network providers to put themselves at a significant competitive disadvantage by purchasing spectrum that they do not put to productive use, especially given the amount required to try and foreclose other bidders. All mechanisms such as spectrum set-asides will do is decrease the opportunity for 700 MHz spectrum to be put to productive use for both rural and urban Canadians.

Set-Asides will Reduce the Productive Use of Spectrum for All Areas of Canada

120. Due to the need to follow the U.S. band plan, the 700 MHz auction has approximately 50 MHz of FDD paired spectrum available (located in the lower A,B,C and upper C spectrum blocks). Of the 50 MHz of spectrum available, only a subset is currently supported by a viable ecosystem. With the smaller amount of spectrum available, the imposition of a spectrum set-aside or spectrum cap will have an even greater effect on the auction's ability to efficiently determine who is best able to use the spectrum. The problem is that the capacity constraints are far more restrictive than they were in the AWS auction, especially given the most efficient use of 700 MHz spectrum requires larger blocks of contiguous spectrum. With a spectrum set-aside, Industry Canada would in effect dictate that one major Canadian operator will not even have the chance to obtain the spectrum it needs.

121. The scarcity of spectrum in the short to medium term means that mechanisms, such as set-asides and caps, will result in spectrum not going to the most productive users and will lead to curtailed output and innovation, rather than increased competition.

122. The reduction in the supply of spectrum available to the national wireless network operators also results in higher up-front payments for spectrum in the auction. This reduces the amount of capital available for subsequent network investment.

123. The negative impact on investment runs counter to what the Government would like to achieve in its Digital Economy Strategy which is continued investment in Canada's digital infrastructure by the private sector:

The private sector is also investing considerable sums in Canada's digital economy, notably in digital media, digital infrastructure and R&D. But more can be done to improve the sophistication, accessibility and affordability of Canada's digital infrastructure. More investments will be needed to provide online access

to Canadian content, build next generation networks, and acquire the skills and capabilities that will sustain Canada's future prosperity, quality of life and competitiveness.⁴⁷

124. Spectrum set-asides will not only hurt network investment, but will also hurt innovation and the development of the North American wireless ecosystem. The Canadian wireless market is simply not large enough to dictate technology development on its own (e.g. AT&T and Verizon serve upwards of 90 million subscribers each). As made clear by the Waverman-Dasgupta Report, it is Canadian incumbents which are going to remain the most significant source of investment and innovation, and spectrum policy should not interfere:

At a time when medium-term spectrum scarcities seem quite possible, it would be unwise to make the assumption that spectrum will be more productively used by unproven entrants than by proven incumbents, especially given that the major driver of spectrum demand—growth in data traffic—will largely play out on incumbent networks. Public policies such as set-asides and spectrum caps that consciously reduce the availability of an input—700 MHz spectrum—that is crucial to the North American mobile broadband ecosystem to those in a position to best utilise that input is not in the best interest of Canada and Canadians. Instead, what is required is a hard-headed recognition of the substantial limits to how much more competition can be achieved and the substantial costs of misallocating the scarce spectrum resource in the name of possibly futile competition.⁴⁸

125. While the lack of investment and innovation will be a negative consequence felt by all Canadians, it will be particularly problematic for rural Canada. As discussed above, to the extent that Bell Mobility will be required to invest in additional infrastructure in an attempt to try and overcome the problem of not having enough 700 MHz spectrum, these are scarce resources that would otherwise have been allocated to rural and remote areas. Again, this slowing in the deployment of next generation wireless infrastructure will manifest itself in terms of diminished business productivity and competitiveness for Canadian businesses located outside of the urban cores.

126. Therefore, counter to the Government's stated goal of encouraging private sector investment, Bell Mobility submits that the implementation of spectrum set-asides or spectrum caps will in fact have a significant negative impact on network investment and innovation which will be acutely felt by rural Canadians. Limiting the amount of spectrum available for national

⁴⁷ *Consultation Paper on a Digital Economy Strategy for Canada: Improving Canada's Digital Advantage; Strategies for Sustainable Prosperity*, Government of Canada, 10 May 2010, page 10.

⁴⁸ Waverman-Dasgupta Report, paragraph 140.

wireless network providers will result in some spectrum not going to the most productive users. This will lead to curtailed output and innovation, especially in rural Canada.

Government Imposed Restrictions in Auctions Can Lead to Unintended Results

127. Asymmetric policies such as spectrum set-asides or spectrum caps can result in unintended consequences. The reason is that government intervention is blunt and hence difficult to keep narrowly focused. The greater the extent of government intervention, the greater the chances of having overlapping or redundant policies which can result in outcomes that do not make society better off. The distortions caused by intervention can be compounded unless policy makers can perfectly account for all of the various ways the policies interact, which in reality is impossible to achieve because of asymmetric information.

128. Some will argue that asymmetric policies are necessary and are required in order to provide a fair outcome. However, because of asymmetric information, the Government (or any other participant) will never know the exact level of assistance required, and thus, will not be able to fully determine how the new policies will interact with existing policies. This greatly increases the chance that unintended consequences will arise, and in some cases they will have negative impacts which will far exceed any potential benefits that the policy was trying to attain.

129. For example, in the case of spectrum set-asides and spectrum caps, it is not clear that there is a way to set up these policies that will not provide an opportunity for a set of bidders to "game" the auction. As long as one set of bidders has an opportunity to bid on both restricted and unrestricted spectrum, and others do not, they will always have the opportunity to bid on both types of spectrum. This is a significant competitive advantage in the auction. The only way to remove this advantage is to ensure that all bidders are able to bid on both types of spectrum, or bidders are restricted to only bidding on one type of spectrum (i.e. either restricted or unrestricted spectrum, but not both).

130. Theoretical arguments aside, the empirical evidence provides a number of examples where government manipulation of auction rules in order to promote competition has resulted in negative unintended consequences. The most recent is the U.S. 700 MHz auction. In a peer-reviewed article titled *The 'Google effect' in the FCC's 700 MHz auction*, Professors Sandro Brusco, Giuseppe Lopomo, and Leslie Marx, found that Google was able to trigger the open platform restriction without having to purchase any of the licences. While the FCC did not

consider implementing spectrum set-asides or spectrum caps, it did implement asymmetric rules through its open platform restriction. The open platform restriction required licensees to allow customers, device manufacturers, third-party application developers, and other to use or develop the devices and applications of their choice subject to certain conditions.⁴⁹

131. As a result, Professors Brusco, Lopomo and Marx were able to demonstrate that Google was able to take advantage of the FCC's desire to implement open access without bearing any of the cost of actually purchasing spectrum :

Google bid on the nationwide package until it reached the C-block reserve price and then entered no further bids. Google's bids were sufficient to meet the reserve price for the C block and thus triggered the open platform restriction for the C-block licenses. Later in the auction, Verizon and others outbid Google by submitting bids on the individual licenses included in the nationwide package.⁵⁰

132. As discussed above, in the case of Canada, the set-aside in Canada's AWS auction resulted in gaming opportunities related to the ability of new entrants to "park" their points. That is, the new entrants had the incentive to bid on spectrum that they did not actually want to buy in order to keep the prices on their desired spectrum from increasing too quickly and to maintain enough eligibility points in order to punish their rivals in later rounds. NERA was able to conclude that "while Industry Canada's objective to maximize social welfare was well intentioned, it failed to consider the side effects of its preferential treatment."⁵¹

133. An example from the U.K., which employed set-asides in its 2000 UMTS auction, shows that the spectrum set-asides also failed to achieve the intended outcome. In a report titled *Adverse Economic Effects of Spectrum Set-Asides*, Robert Crandall and Allan Ingraham note that "the United Kingdom's set-aside to a new entrant simply subsidized the price of spectrum for a large international firm [Hutchinson] that arguably did not need a subsidy."⁵² As a result, the authors conclude that the U.K.'s set-aside policy led to an inefficient allocation of spectrum with the inefficiency cost to the U.K. (i.e. the subsidy to Hutchinson), estimated to be in the range of 450 million pounds or almost \$1 billion dollars.

⁴⁹ Second Report and Order (FCC 07-132), paragraph 195.

⁵⁰ Brusco, S., G. Lopomo, and L.M. Marx, (2009) "The 'Google effect' in the FCC's 700 MHz auction," *Information Economics and Policy*, pages 101-114, page 112.

⁵¹ NERA Report, page 42.

⁵² Crandall, R.W. and A.T. Ingraham, *The Adverse Economic Effects of Spectrum Set-Asides*, 24 May 2007, page 13.

134. The FCC also had early indications of the problems of implementing spectrum set-asides. Experience with the 1996 PCS C-block auction set-aside is perhaps the most notable example of unintended negative outcomes resulting from the application of good intentioned, but flawed, public policy. Applying Congressionally imposed FCC "designated entity" rules, the C-block was set aside for small bidders. The set-aside program simply did not work in the manner that the FCC had originally intended. Crandall and Ingraham note that:

The end result of the C-block auction was that a number of the designated entities with winning bids could finance neither these purchases nor the subsequent costs of building out their networks. They subsequently declared bankruptcy and tied up valuable spectrum without using it while bankruptcy litigation continued for nearly a decade. As a result, consumers were harmed by the regulators' inability to deliver valuable spectrum to the wireless carriers that were best suited to deploy that spectrum.⁵³

135. The empirical evidence is clear. Asymmetric government policies significantly increase the chance of unintended consequences. Because of asymmetric information, it is simply too difficult to determine the exact level of assistance required and thus, to account for all of the potential policy interactions.

Problems Also Arise with Spectrum Caps

136. It is important to recall that the Department, subsequent to a thorough public consultation, rescinded the mobile spectrum cap policy, in *Gazette Notice No. DGTP-010-04 Decision to Rescind the Mobile Spectrum Cap Policy*, August 2004. Bell Mobility submits that the Department got it right in that decision when it stated that:

The wireless industry has matured and experienced tremendous growth in subscribers, and consumers are being provided with a range of voice and data services. After nine years, the Canadian wireless industry is well established.⁵⁴

137. As noted in the Waverman-Dasgupta Report, 2004 was also the year that Rogers purchased Microcell, yet there is no evidence to suggest that the removal of the spectrum cap hurt the performance of the Canadian wireless market:

Note that 2004 was the year in which Rogers purchased Microcell, which had emerged from bankruptcy proceedings. There is no evidence to suggest that since the cap was rescinded that the Canadian wireless industry has ceased to

⁵³ Ibid., page 4.

⁵⁴ Industry Canada, *Gazette Notice No. DGTP-010-04 Decision to Rescind the Mobile Spectrum Cap Policy*, August 2004, paragraph 9.

perform well. As mentioned previously, the wireless arms of the three major firms have invested a cumulative sum of over \$10 billion in their wireless networks between 2004 and 2009, and there are approaching 6 million broadband wireless subscriptions in Canada.⁵⁵

138. As the Department reasoned in the above decision, the Canadian wireless market continues to be a mature market and the need for spectrum caps is less relevant than in the early days of the industry. As additional spectrum continues to become available the arguments in support of a spectrum cap to oversee spectrum concentration become weaker and weaker.

139. With respect to spectrum aggregation limits (or spectrum caps), it is important to note that the problems discussed above also apply. However, with spectrum caps, there also exists the practical issue of determining what the appropriate cap should be. As noted this Consultation:

Setting the right cap amount is essential. If the limit is too low, there may not be enough spectrum to satisfy the business needs of some companies. If it is set too high, it might fail to fulfill the goal of preventing spectrum concentration. Another factor to be considered when applying a spectrum cap is how it should be applied, e.g. whether the cap should apply only to the spectrum being auctioned, to spectrum that is held across one or more bands, or whether it should apply differently across various bidders. How it is applied could limit the efficient allocation of the spectrum.⁵⁶

140. However, trying to determine the size of the cap will require significant knowledge regarding how the demand for spectrum will evolve. As the Waverman-Dasgupta Report highlights:

There is also an inherent "design" problem associated with spectrum caps, one that should carry particular weight in the current wireless environment. Designers of spectrum aggregation limits by definition will need to conclude (a) how much spectrum is "enough", and (b) the degree to which spectrum holdings across different bands are perfect substitutes. Making strong conclusions about how much is "too much" or "just enough" would seem particularly foolhardy at a time when the wireless industry is characterised by rapid, but inherently uncertain, projected growth rates for data traffic. Thus one can be reasonably sure that mobile data traffic will double, treble, quadruple or even increase eight-fold over the next five years. However, will the increase in traffic be 32-fold or 16-fold? To such questions, few can know the answer. While it is possible that one can set a spectrum aggregation limit that ends up comfortably meeting the requirements of

⁵⁵ Waverman-Dasgupta Report, paragraph 112.

⁵⁶ Industry Canada, *Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum*, Canada Gazette, Part 1 Notice No. SMSE-018-10, 4 December 2010, page 38.

any and all carriers over the next few years, it is equally possible that one cannot.⁵⁷

141. It is the market that should determine the appropriate aggregation of spectrum. The public interest lies in affording all bidders the maximum flexibility to aggregate spectrum, thus enabling them to make new and innovative wireless services available to the Canadian public. This is consistent with the FCC's reasoning when it decided not to impose spectrum caps in their AWS auction:

We agree with those commenters who oppose a spectrum aggregation limit for the 1710-1755 and 2110-2155 MHz bands, and will impose no specific aggregation limitations on this spectrum. We do not agree with U.S. Cellular and RCA, who argued in favor of restricting the initial aggregation by any winning bidder to 20 or 30 megahertz in the same geographic licensing area. We believe that entities should have the unrestricted flexibility to aggregate spectrum in these bands. Parties should be afforded the flexibility at auction and in the secondary market to aggregate sufficient unencumbered spectrum for them to make available new and innovative service to the public.⁵⁸

142. Given: (i) that the industry has matured; (ii) the industry is not "hoarding" or "warehousing" spectrum; (iii) additional spectrum continues to be added; and together with (iv) the use of market-based spectrum auctions to assign the spectrum to the most efficient user, the issue of spectrum concentration, as the Department noted in its 2004 Notice rescinding the mobile spectrum cap, is no longer relevant. Based on the current evolution and competitiveness of the Canadian wireless market, spectrum caps should not be placed on the amount of spectrum that can be acquired by any single wireless service provider including its affiliates.

143. In summary, Bell Mobility's comments conclusively demonstrate that no factual basis for interference exists in the wireless sector. Market forces, in short, will ensure that those willing and able to put the spectrum to its best use will bid for and acquire spectrum. Applying spectrum set-asides or spectrum caps varies from the market-based approach inherent in spectrum auctions and begins to reinsert bureaucratic judgment into the equation. Based on the above comments and views, Bell Mobility strongly believes that it would not be in the public interest to set-aside any spectrum in the 700 MHz spectrum auction. Moreover, Bell Mobility does not believe, given the current evolution and competitiveness of the Canadian wireless market, that an auction spectrum aggregation limit (spectrum cap) should be placed on the

⁵⁷ Waverman-Dasgupta Report, paragraph 117.

⁵⁸ FCC, *In the Matter of Service Rules for Advanced Wireless Services, Report and Order*, Released 25 November 2003, paragraph 67.

amount of spectrum that can be acquired by any single wireless service provider including its affiliates.

144. A fundamental principle of the spectrum auction assignment method is the belief that such entities will therefore put the scarce spectrum resource to its most efficient and productive use for society. Bell Mobility submits that this result can only be achieved through an unrestrained, open and truly transparent spectrum auction where the entire spectrum available is open for bid to all eligible entities on the same basis. To do otherwise both circumvents the primary purpose of spectrum auctions and increases the costs to other bidders by creating artificial scarcity in the amount of contestable spectrum at auction.

7-7. Are there other mechanisms that should be considered and, if so, how should these be applied?

145. As demonstrated throughout these comments, the circumstances existing in the Canadian wireless market simply do not warrant the adoption of any other mechanisms, let alone the interventionist measures raised for consideration in this Consultation. Bell Mobility submits that there is no evidence of the failure of competitive market forces that would justify continued government intervention. To the contrary, the available evidence suggests that the Canadian wireless industry is a competitively functioning market that does not require fixing.

146. It is the adoption of market-based spectrum assignment processes, such as unrestrained spectrum auctions which will determine those parties who value the spectrum most. Again, Bell Mobility believes that Canada should continue to rely on real world investors and consumers, as opposed to bureaucratic judgment, for determining who values the spectrum the most and hence who will put the spectrum to its most efficient and best use.

7-8. The Government of Canada has undertaken a consultation on potential changes to the foreign investment restrictions that apply to the telecommunications sector. How would the adoption of any of these proposed changes impact your responses to the questions above?

147. Again, as documented above, Bell Mobility firmly believes that the Canadian wireless market is competitive and does not require any more interventionist measures. This is the case regardless of the potential changes to the foreign investment restrictions. Therefore, the adoption of any of the proposed changes to the foreign investment restrictions would not impact our responses to the questions above.

PROMOTING SERVICE DEPLOYMENT IN RURAL AREAS

8-1. In the above context, the Department seeks comments on challenges and specific problems affecting the deployment of broadband mobile services to low-density rural and remote areas.

148. Historically, the challenge of extending wireless service to low-density rural and remote areas has been the lack of a positive business case to support the significant investments required by such deployment. This is not only the case in Canada but is also the case in the U.S. where rural and remote areas also remain challenging to serve despite the vast population difference between that country and Canada. Nonetheless, Canada's wireless industry leads the world in deployment into rural and remote areas and Bell Mobility is at the forefront of that deployment.

149. LTE has the potential to take Canadian broadband deployment, both fixed and mobile, to new heights in rural as well as urban areas but access to 700 MHz, especially in rural and remote areas, is required to do so. In this regard, Bell Mobility is committed to rural broadband service deployment and plans a national LTE rollout provided there is fair and reasonable access to 700 MHz spectrum in sufficient quantity.

150. In this regard, if spectrum set-asides or spectrum caps are imposed, national LTE roll-outs are at risk which implies that rural areas will be left behind. Indeed, in Bell Mobility's view, rural LTE build-out is inextricably linked to auction rules in urban areas.

8-2. Is there a need for further regulatory measures or changes to existing regulatory rules (e.g. RP-19) to facilitate service deployments in rural and remote areas that remain unserved and/or underserved?

151. Bell Mobility's position is that it is extremely important not to have any mandated commitments or restrictions regarding service deployments in rural and remote areas that remain unserved and/or underserved as defined in RP-19. Indeed regarding RP-19, *Policy for the Provision of Cellular Services by New Parties*, the elimination of RP-19 is the only change required. In this regard, market forces, supported by Industry Canada's full sanction of secondary market measures (e.g., the ability to sub-divide and trade spectrum licences, as well as market based sub-licensing arrangements between parties) is the more appropriate approach rather than regulatory mandates.

- 8-3. Should the Department decide that measures are necessary, comments are sought on specific measures that could be adopted within the 700 MHz spectrum auction process to ensure further deployment of advanced mobile services in rural and remote areas (e.g. roll-out conditions, tier structure, etc.).**

Rationale and supporting evidence that substantiate your responses should be provided.

152. Bell Mobility believes that it is extremely important that it have a fair opportunity to bid on 700 MHz spectrum, in sufficient quantities in both rural and urban areas, to ensure that LTE is made available to all Canadians. The propagation characteristics of 700 MHz make it ideal to deploy fixed and mobile wireless broadband to rural, as well as urban, areas. Further, Bell Mobility's plan to deploy LTE capability, throughout Canada including rural areas, is inextricably linked to having access to 700 MHz spectrum on a fair and commercially viable basis. Absent fair and commercially viable access by Bell Mobility to 700 MHz spectrum will see competition continue to focus primarily on urban areas to the detriment of rural Canada.

153. Bell Mobility notes, for example, that the track record of the AWS new entrants to date is to focus on specific niche areas, whether that be a provincial area, as in the case of Vidéotron, or larger urban areas, as in the case of other new entrants. Of the Canadian licensees existing today, BCE has a track record, through its wireline businesses, of serving rural and remote areas throughout Canada. This is significant because Bell Mobility also has the technical and financial wherewithal to deploy fixed and mobile LTE networks into those rural and remote communities. 700 MHz spectrum, however, is the key to enabling that to occur. With fair and equal access to 700 MHz spectrum Bell Mobility is prepared to ensure that the promise of wireless broadband is available to all Canadians in all parts of Canada. Bell Mobility strongly believes that, in establishing the rules for the 700 MHz auction, Industry Canada has to ensure that Bell Mobility has technically and commercially viable access to sufficient 700 MHz spectrum to enable that to occur.

OPEN ACCESS

- 9-1 The Department seeks comments on whether there is a need for government intervention to promote open access, by increasing access by users to handsets and/or applications.**
- 9-2. If government intervention is needed, which of the following options should be implemented?**

Option 1: Mandated open access requirements across all future commercial mobile bands

Option 2: Mandated open access requirements for the entire commercial mobile spectrum in the 700 MHz band.

Option 3: Mandated open access requirements for the "C Block" (746-757/776-787 MHz) as in the United States.

Please provide supporting arguments for your responses, and any additional comments related to provisions of open platforms for devices and applications.

154. Bell Mobility notes that the market circumstances surrounding the concept of "open access", as addressed in the FCC's August 2007, Second Report and Order, In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, FCC 07-132, (Second Report and Order), have evolved considerably beyond those which existed at the time of the FCC's mandate. For example, it is useful to recall that in 2007, at the time of the Second Report and Order, the mobile market was not characterized by a plethora of smartphone devices and associated application stores. As a result, as addressed more fully below, more recent FCC decisions, rather than expanding its very limited 2007 "C" block open access requirement, have recognized that market and technological forces have addressed the need and indeed have done so well beyond the limited open access proposed by the FCC in 2007. It would be useful however to address the Department's options outlined above in the context of the FCC's 2007 decision.

155. Bell Mobility notes that Option 1: Mandated open access requirements across all future commercial mobile bands; and Option 2: Mandated open access requirements for the entire commercial mobile spectrum in the 700 MHz band, both would go well beyond what the FCC believed was in the public interest even at the time of its 2007 Second Report and Order. Having previously noted⁵⁹ its preference to rely on marketplace forces as the most efficient mechanism to foster competition, it is instructive that the FCC concluded in 2007 that:

While we adopt a requirement for the C Block licensees to provide open platforms for devices and applications, we decline at this time to impose these same principles or other openness obligations broadly in the 700 MHz Band, as recommended in PISC's open access and Google's broader proposals. Given the state of the record, we believe that a more measured approach is appropriate. While the open platform requirement for devices and applications in the C Block holds the potential to foster innovation, we cannot rule out the possibility that such a requirement may have unanticipated drawbacks as well.

⁵⁹ Federal Communications Commission, In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, Second Report and Order, (FCC Second Report and Order) 10 August 2007, paragraph 195.

Therefore, we think that it is appropriate to impose the open platform requirement only on a limited basis.⁶⁰

156. Further, the FCC's December 2010 determinations regarding Net Neutrality have since reinforced the view that, for wireless broadband, a measured approach is again the FCC's policy option of choice. As a result, neither Options 1 nor 2 above would be appropriate given the evolution of the highly competitive devices and mobile applications market in Canada, and recent developments in the United States only serve to reinforce this view.

157. In this regard, the issue of the treatment of open access requirements subsequently resurfaced in the FCC's 2010 proceeding regarding Net Neutrality.⁶¹ Specifically, in the FCC press release addressing its Net Neutrality decision in December 2010, the FCC noted that it intended to adopt measured steps regarding the application of openness principles to mobile broadband. Specifically the FCC's press release states that:

Mobile broadband presents special considerations that suggest differences in how and when open Internet protections should apply. . . . As of a few years ago, most consumers used their mobile phones primarily to make phone calls and send text messages, and most mobile providers offered Internet access only via "walled gardens" or stripped down websites. Today, however, mobile broadband is an important Internet access platform that is helping drive broadband adoption, and data usage is growing rapidly. The mobile ecosystem is experiencing very rapid innovation and change, including an expanding array of smartphones, aircard modems, and other devices that allow mobile broadband providers to enable Internet access; the emergence and rapid growth of dedicated-purpose mobile devices like e-readers; the development of mobile application ("app") stores and hundreds of thousands of mobile apps; . . .

. . . Further, we recognize that there have been meaningful recent moves toward openness, including the introduction of open operating systems like Android.
. . .

In light of these considerations, we conclude it is appropriate to take measured steps at this time to protect the openness of the Internet when accessed through mobile broadband.⁶²

158. Bell Mobility submits that the FCC is recognizing, in its decision, that the swift pace of technological developments in the wireless space along with market forces has outstripped the FCC's very limited C Block open access mandate adopted in 2007. Instead what we have today are very sophisticated mobile devices that openly access the Internet and have access to

⁶⁰ FCC Second Report and Order, 10 August 2007, paragraph 205.

⁶¹ FCC Acts to Preserve Internet Freedom and Openness, FCC News Release, 21 December 2010.

⁶² FCC Press release, 21 December 2010, page 4.

hundreds of thousands of mobile applications from a sector of the wireless industry that, for all intents and purposes, did not exist in 2007. As a result, in its December 2010 Net Neutrality decision the FCC again chose to adopt a measured approach to wireless broadband by declining, in light of developments in the market, to impose further requirements on the wireless sector.

159. It is also instructive that Google, one of the main proponents of the FCC's 2007 open access requirement, had subsequently moved away from its earlier support of open access proposals for wireless broadband. This occurred in August 2010 when Verizon and Google proposed a joint *Legislative Framework Proposal* for an open Internet. As noted in an August 2010 article addressing the joint proposals by Google and Verizon regarding net neutrality:

Where things really get interesting is when [Google and Verizon] touch on the wireless angle; essentially, they're admitting that the very proposals they are putting forth for wireline shouldn't apply to wireless just yet (aside from the whole "transparency" thing). It seems that the prevailing logic is that there's simply not enough spectrum for this idyllic "play fair" scenario to truly work, so fewer restrictions would be necessary for the wireless internet space to blossom as the wireless side already has. Moreover, we get the impression that these guys feel the wireless space as a whole is simply too competitive right now to withstand any red tape.⁶³

160. In light of the fast paced evolution of the wireless market regarding open device and application platforms, government intervention is not required to stimulate open access. Open access already exists in the North American wireless market and it has occurred as a result of technological developments and market forces. Indeed it is already evident and is widely accepted in Canada in the form of the Android operating system.

161. Government should not require companies to make the trade-off between an open access model and one based on providing a device subsidy. In this regard, even if handsets and devices are not interoperable across all networks, applications which are developed for particular handsets, e.g. iPad/iPhone applications, are operable across different wireless networks.

⁶³ Engadget, Google and Verizon publish joint policy proposal for "an open Internet", 9 August 2010. available at <http://www.engadget.com/2010/08/09/google-and-verizon-publish-joint-policy-proposal-for-an-open-in/>.

AUCTION TIMING

10-1. The Department is considering three options to proceed with the 700 MHz and 2500 MHz bands auction processes:

Option 1: To conduct an auction for licences in the 700 MHz band first, followed by an auction for licences in the 2500 MHz band approximately one year later;

Option 2: To conduct an auction for licences in the 2500 MHz band first, followed by an auction for licences in the 700 MHz band approximately one year later;

Option 3: To conduct one combined auction for licences in both the 700 MHz and 2500 MHz bands, which would be six months later than the first auction in the case of separate auctions.

Industry Canada is seeking views on the merits or disadvantages of proceeding with each of the various options stated above. The Department seeks to understand the magnitude of interdependencies between the two bands from a business/operational perspective. Specifically, comments are sought as to the extent spectrum in these bands is interchangeable or complementary from both a technological and a strategic perspective. In addition, views on the business and financial capabilities of participating in a joint auction for both bands are sought. Comments should include the rationale for selecting one option rather than another.

162. Bell Mobility supports Option 1 above, i.e. conducting an auction for licences in the 700 MHz band first, followed by an auction for licences in the 2500 MHz band approximately one year later. Bell Mobility also considers, however, that the date, as well as auction and licensing rules for the 2500 MHz auction, must be established prior to the 700 MHz auction.

163. Consistent with Industry Canada's *Framework for Spectrum Auctions in Canada* Bell Mobility strongly believes that potential bidders must know precisely what they are bidding for prior to deciding whether or not to participate in the auction. In this regard we are referring to bidder eligibility, conditions of licence (such as licence term, etc.) and the imposition of any regulatory mandates on the spectrum at auction (e.g. mandated site sharing and/or roaming requirements, open access requirements, etc.) Bell Mobility believes, consistent with the principles laid out in the *Framework* that any and all such requirements must be identified prior to the auction and should not be subject to change, in any manner, over the term of the licence.

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