

**INDUSTRY CANADA
CONSULTATION ON A POLICY AND TECHNICAL
FRAMEWORK FOR THE 700 MHz BAND AND ASPECTS
RELATED TO COMMERCIAL MOBILE SPECTRUM
CANADA GAZETTE, PART I, NOVEMBER 30, 2010 (SMSE-018-10)**

COMMENTS OF SHAW COMMUNICATIONS INC.

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A. EXECUTIVE SUMMARY

A New Mobile Wireless Market

The future of commercial mobile services has never been as exciting as it is today. There has never been more potential to enhance the consumer's mobile experience through innovative devices and broadband applications. A new mobile wireless market is emerging.

The new mobile wireless market requires an ever-increasing amount of spectrum. As a result, the Government of Canada needs to release additional spectrum for commercial purposes as quickly as possible. However, releasing spectrum will not, by itself, ensure that consumers have access to the full potential of the new mobile wireless market, including innovation, choice, better deployment and service and price discipline. There also has to be sufficient competition in the wireless market. As a result of the spectrum set-aside and other measures to promote competition in the 2008 AWS auction, the competitive landscape has started to improve. However, significant barriers to entry remain in the market. Chief among them is access to spectrum and spectral diversity.

Shaw Communications Inc. ("Shaw") is poised to enter the wireless market early next year, and we intend to provide significant benefits to consumers through increased competition, innovation and more choice. The potential synergies between Shaw's wireline and wireless services will benefit Canadian consumers in large metropolitan areas, but more importantly, in small and medium sized communities, including those with insufficient broadband access or competition.

Ongoing Barriers to Competition

The best approach to promoting entry in the Canadian wireless market is through light-handed regulatory measures that remove barriers to entry, such as spectrum caps and clear rules for mandated roaming and tower and site sharing. In setting the framework for the AWS auction, the Government of Canada recognized the barriers to entry in the wireless market and took affirmative measures to address them. In order to promote "lower prices, better service and

more choice for consumers and business”, the auction policy set aside spectrum for exclusive bidding by new entrants and imposed mandatory roaming and site-sharing rules.

The AWS auction was highly successful in opening the market to several new entrants. However, to date, the new entrant footprint has been confined primarily to serving urban consumers and to providing voice or less-intensive data services. Deployment has been challenging for a number of reasons, including stalled negotiations with incumbents on site-sharing and roaming.

In addition, new entrants face considerable cost and technical disadvantages as a result of the very high concentration of spectral resources across several bands controlled by the incumbents. As the Government acknowledged in 2008, a critical barrier to entry in the wireless market is access to spectrum. Spectrum is a finite resource managed by the Government in the public interest. The 700 MHz and 2500 MHz consultations offer the Government a rare opportunity to level the playing field, and the Government must therefore implement measures in the 700 MHz auction to ensure new entrants are able to increase the amount and diversity of their spectrum holdings. Specifically, no participant in the 700 MHz auction should be able to acquire more than 2 paired blocks of 700 MHz spectrum, whether contiguous or not. However, if any participant already holds spectrum in frequencies below 1GHz, that participant can only acquire 1 paired block of 700 MHz spectrum. This spectrum cap mechanism will fairly accelerate the rollout of new services by all carriers and will also prevent spectrum hoarding and auction gamesmanship by the wireless incumbents.

Bell and Telus should be considered one bidder for purposes of the 700 MHz auction. The series of arrangements between them have resulted in a completely integrated national wireless network and an understanding between them relating to the post-auction market structure.

Band Plan

We recommend that the Department harmonize the 700 MHz band plan with the United States band plan. However, in order to maximize the number of spectrum blocks available for bidding, the Government should split the upper “C” block into two blocks as described in our submissions.

In the United States, there continues to be uncertainty on whether all or any portion of the “D” block will be allocated for public safety purposes. As a result, it would be premature for the Government to commit at this time to following the US in that regard. The Department should wait until that issue is resolved in the US and then consider carefully, with stakeholder input, all policy issues relating to the allocation of spectrum for public safety purposes. Given the rapid growth in demand for spectrum, the Government needs to ensure that spectrum is allocated efficiently.

A Unique Opportunity for Rural Deployment

700 MHz spectrum, like other low-frequency spectrum, facilitates signal propagation over longer distances. This allows for much more efficient deployment, particularly in rural areas, because fewer cell-sites are required. If new entrants are not able to acquire 700 MHz spectrum, they would face significant cost disadvantages compared to their incumbent counterparts, who hold 800 MHz spectrum. As a result, the new entrants’ incentives to compete in those areas would diminish, and consumers in underserved areas may not gain full access to a new mobile wireless market that is truly competitive.

The 700 MHz auction provides the Department with a unique opportunity to bring competition to underserved areas by promoting new entrant access to spectrum through the spectrum cap mechanism described above. To accelerate rural deployment, the Department should also impose roll-out obligations on 700 MHz licensees in line with the five-year targets that were established for AWS spectrum. In recognition of the costs and challenges associated with

deployment in certain areas, the Department should also provide rebates on auction fees to bidders that deploy HSPA+/LTE systems in certain areas and within certain time-frames.

Timing of 2500 MHz and 700 MHz Auctions

Shaw encourages the Department to move ahead with the 700 MHz auction as quickly as possible. A separate auction for 2500 MHz spectrum should follow. However, Shaw believes the time period between the two auctions needs to be much shorter than one year in order to meet spectrum demand.

Roaming and Site-Sharing

The 700 MHz auction policy framework should include mandated roaming and tower and site sharing requirements. The rules applicable to spectrum licensees in AWS and other commercial bands provide a starting-point. However, they need to be clarified and more detailed because of delays, refusals and general foot-dragging that some of the new entrants have experienced in their negotiations with wireless incumbents. This has contributed to new entrant deployment taking longer than expected. The roaming rules should be revised so that they mandate seamless hand-off and in-territory roaming for 10 years from the date of the issuance of the licence. We understand that Industry Canada will hold a separate consultation on mandatory roaming and tower and site sharing, and we will make submissions in that consultation.

Foreign Ownership

As part of the Government's foreign ownership consultation, we expressed support for Option 1, which would increase the cap on direct foreign investment in telecommunications and broadcasting operating entities from 20% to 49%. This option would allow all players to benefit from increased foreign capital and would be competitively neutral. However, any relaxation in the foreign ownership rules would not obviate the need for measures to promote competition in the wireless market. In addition, assuming that the foreign ownership rules remain in place for any upcoming spectrum auction, the Department must ensure, prior to the auction, that

each prospective participant is Canadian for purposes of the foreign ownership rules. The current process allows non-Canadians to bid in the auction. This has caused confusion and undermines the effectiveness and fairness of the auction for everyone.

Conclusion

Competition is essential to ensure that consumers have the fullest and most cost-effective experience in the new mobile wireless market. New entrants are a critical source of competition in the wireless marketplace. 700 MHz spectrum is the life-blood new entrants require to maintain and to grow their presence in the wireless market. If new entrants are unable to acquire more spectrum, including low-frequency spectrum, the wireless incumbents will have insurmountable cost and technical advantages. This will challenge the new entrants' incentives and ability to compete, and, ultimately, the consumer would suffer. A smaller number of providers competing in the market would lead to higher prices, less innovation and no competitive deployment in underserved areas. Without sustained facilities-based competition from the new entrants, the Government will likely have to undertake more explicit and detailed remedial regulation, which would be contrary to the Government's policy of relying on market forces.

If the success of the AWS auction is to be lasting, the Government must continue to take measures to ensure that new entrants overcome the absolute barrier to entry caused by their low spectral holdings and diversity. We believe spectrum caps, in combination with the other measures outlined above, offer the most fair and effective light-handed regulatory solutions. A spectrum cap, along the lines of what Shaw proposes, allows incumbents to bid, but it also ensures there is a level playing field for competition.

B. INTRODUCTION

1. Shaw Communications Inc. (“Shaw”) is pleased to submit these comments in response to Industry Canada’s *Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum*, SMSE-018-10, dated November 30, 2010 (the “Consultation Document”).

2. Shaw is a diversified communications and media company, providing consumers with broadband cable television, High-Speed Internet, Home Phone, telecommunications services (through Shaw Business), satellite direct-to-home services (through Shaw Direct) and engaging programming content (through Shaw Media). Shaw serves 3.4 million customers, through a reliable and extensive fibre network. Shaw’s entry into the wireless market will provide significant benefits for consumers in Western Canada through increased competition and more choice for consumers. The potential synergies between Shaw’s wireline and wireless services will benefit consumers in large metropolitan areas and in small and medium sized communities, including communities with insufficient competitive broadband access. Shaw feels that it can make a truly substantial and unique contribution to the current and future market landscape.

3. The future of the commercial mobile market for consumers is exciting, with unlimited potential for innovation and competitive offerings. Highly sophisticated applications and devices, such as tablets and smart-phones, are increasingly mainstream, which drives consumer demand for even more sophisticated applications and devices. We are now seeing explosive growth in the adoption and use of broadband mobile data services and applications, including most significantly broadband internet access and streaming video. At the same time, consumers seek and deserve competitive pricing for their mobile services. Consumers in less urban areas also deserve similar competitive offerings, low prices and innovation. In order to ensure that all these consumers’ needs are met, there has to be intensive and broadly-based competition in the mobile wireless market.

4. In November 2007, the Honourable Jim Prentice announced that Industry Canada would be conducting an auction for Advanced Wireless Services (AWS) spectrum as well as other spectrum in the 2 GHz band that would be designed specifically to promote new entry in the market. The auction rules made a total of 90 MHz of spectrum available to potential bidders with 40 MHz of spectrum specifically set aside for new entrants. According to the Minister,

We are looking for *greater competition in the market* and further innovation in the industry. At the end of the day, *our goals are lower prices, better service and more choice for consumers and business*. That is why we are setting aside a portion of radio spectrum exclusively for new entrants into the market.¹ (emphasis added)

5. This decision was based on an extensive consultation process which yielded a tremendous amount of evidence on the benefits to consumers of promoting additional entry into Canada's mobile wireless market, including lower prices, increased consumer choice and higher rates of product and service innovation. It was also based on the findings and recommendations of the Telecommunications Policy Review Panel ("TPRP") which had concluded in a separate consultation process that the performance of Canada's wireless sector was lagging in several key areas. In particular, the Panel concluded that

The smaller number of mobile providers in Canada – and the fact that all three national wireless service providers are also owned by large telecommunications service providers that also provide wireline services – may mean that there is less competition in the Canadian wireless market than in the U.S. market, which consequently has resulted in *higher prices, less innovation, lower uptake and lower rates of usage*.² (emphasis added)

6. Industry Canada's auction was a success with several new entrants now providing competitive services and consumers reaping the benefits of better service, lower prices and more choice. Although the ongoing competitive presence of these entrants will depend in part on their ability to overcome several key challenges, it will also depend on their ability to gain additional spectrum so they can grow their businesses and compete with the wireless

¹ Industry Canada, *Government Opts for More Competition in the Wireless Sector*, Press Release, November 28, 2007.

² Telecommunications Policy Review Panel, Final Report, March 2006, page 1-21. [hereafter, "TPRP Report"]

incumbents on the same technical and cost footing. Unlike wireline telecommunications and other industries, the mobile wireless industry features a unique barrier to facilities-based entry: in order to compete an entrant requires radio spectrum. Spectrum is a scarce public resource. It is important to note in this regard that the wireless incumbents hold over 85% of all licensed commercial mobile spectrum, including spectrum in lower frequency bands such as the 800 MHz band, which is critical to the cost-effective roll-out of mobile broadband services to both urban and rural consumers, but particularly for remote consumers in underserved areas.

7. It is also important to note that the wireless incumbents have combined their spectrum resources and network technologies as a means of increasing the overall amount of spectrum to which they have access. For example, Bell and Telus have entered into a series of agreements and arrangements that have resulted in the creation of a completely integrated national wireless network that has been continuously upgraded over the past few years to reflect the latest commercial mobile wireless technologies. Indeed, in October 2008, Bell and Telus agreed to transition their jointly built network to the next generation of long term evolution (“LTE”) broadband technology. These arrangements, which include fully seamless roaming and resale provisions, clearly contemplate how these two companies intend to structure their operations and conduct their businesses in the post-auction market structure.

8. At the same time, the demand for commercial mobile spectrum is growing exponentially because of the evolving needs and habits of consumers noted above. Indeed, nearly every study conducted on this phenomenon shows that we will soon face a situation of spectrum exhaust unless additional commercial mobile spectrum is made available.

9. It is extremely important for the Department to make more commercial mobile spectrum available in order to address this explosive growth in demand for mobile spectrum. At the same time, however, the Department must do so in a manner that ensures consumers have access to the full experience of a dynamic, competitive marketplace that includes pricing discipline, better service and greater customer choice. If new entrants cannot gain access to

700 MHz spectrum, they will not have sufficient spectrum resources to grow their businesses or meet the constantly evolving demands of their consumers for data intensive services and applications. Nor will they have the spectrum necessary to compete on a level-playing field with their incumbent counterparts in the delivery of LTE-based broadband services in rural and urban areas. Relative to their incumbent counterparts, new entrants have less spectrum in fewer bands. This increases new entrant deployment costs and limits a new entrant's flexibility to take advantage of the various characteristics in different frequency bands to optimize the customer's experience.³ In particular, radio frequencies in the 700 MHz and 800 MHz bands are better able to penetrate thick walls in buildings, reducing dead spots and allowing for more cost-effective deployment and better services in urban areas. In addition, radio frequencies in the 700 MHz and 800 MHz bands can be transmitted over much longer distances using fewer sites (and, therefore, at much lower cost), which makes this spectrum uniquely suited to rural broadband programs. At the present time, the only parties that hold commercial mobile spectrum in lower frequency bands are the wireless incumbents who hold spectrum in the cellular and ESMR bands. In order for a truly competitive market to emerge, the playing field must be levelled.

10. In addition, in order to offer their customers the best possible mobile experience, new entrants require access to the latest and most advanced devices. Practically speaking, this means new entrants require access to 700 MHz spectrum, but the wireless incumbents may not. As noted in a recent report of the Seaboard Group, "the swath of next-generation mobile devices geared for the 700/800 MHz frequencies will work on Bell/Telus and Rogers networks, even without incumbent 700 MHz spectral allotments."⁴ LTE adoption by Verizon and AT&T is driving vendor supply. For Canadian carriers, access to the equipment and handsets sold on that scale is critical to maximize selection and minimize per-unit cost. Bell/Telus and Rogers already use technologies and frequencies that are similar to Verizon and AT&T, respectively, as a result of their shared histories.⁵ This highlights the advantages these wireless incumbents

³ See the Seaboard Group, *Over the Rainbow: Thoughts on the Canadian 700 MHz Discussion* [hereafter, the "Seaboard Report"], February 2011, page 16.

⁴ *Ibid*, page 6.

⁵ *Ibid*, page 5.

already have and points to a potential disadvantage from a new entrant customer's perspective. If new entrants are unable to acquire 700 MHz spectrum, their customers' experience will likely be significantly compromised as a result of a limited device ecosystem, higher costs and cross-border roaming issues.

11. In order to ensure new entrants can compete on the same footing as the incumbents using similar spectrum resources, a framework needs to be established for the auction of spectrum in the 700 MHz band which allows these companies to increase and diversify their spectrum holdings while at the same time maximizing the value of this spectrum. Ultimately, this will promote competition in the Canadian wireless market and bring lower prices, better service and greater innovation and choice to Canadian consumers.

12. For these reasons, as well as those discussed more fully below, Shaw supports the following light-handed regulatory measures to remove ongoing barriers to entry faced by the facilities-based wireless new entrants. First, Shaw supports a spectrum cap mechanism in the upcoming auction of 700 MHz spectrum which places a cap of one paired block of 700 MHz spectrum on any carrier holding spectrum in frequencies below 1GHz in the license territory plus a cap of two paired blocks of 700 MHz spectrum, whether contiguous or not, on all other auction participants including new entrants. For reasons noted above and described more fully below, Bell and Telus should be treated as "associated entities," and therefore as one bidder, for purposes of these caps.

13. This mechanism will ensure that new entrants can gain access to a spectrum resource that is absolutely essential to their ability to offer urban and rural consumers more choice on a cost-effective basis, while at the same time allowing the incumbents to participate in the auction and supplement their already extensive spectrum holdings.

14. This mechanism will also ensure that consumers in rural and less urban areas can have access to the full potential of the commercial mobile market, including mobile broadband, at competitive prices. To further that end, Shaw also proposes that the Department impose roll-

out obligations on 700 MHz licensees in line with the five-year targets that were established for AWS spectrum.⁶ In recognition of the costs and challenges associated with deployment in certain areas, the Department should offer rebates on auction fees to bidders that deploy HSPA+/LTE systems in the specific areas and on the specific conditions described below.

15. Shaw also supports extending the mandated roaming and site-sharing rules to 700 MHz licensees. These rules should be amended to include a requirement that wireless incumbents provide inter-network connectivity as required to support automatic seamless digital roaming. Shaw also supports an extension to the in-territory roaming requirement applicable to AWS licensees for an additional 5 years, and a 10-year in-territory roaming requirement applicable to 700 MHz licensees. Again, these measures are intended to remove barriers to competitive entry that will foster new entrant competition and consumer choice and innovation.

16. With respect to the band plan, Shaw favours alignment with the United States band plan (i.e., Option 1). However, we feel that it would be premature at this time for the Department to decide on its approach to the “D” block, particularly as to whether any portion of the sub-bands 758-768 Mhz and 788-798 MHz should be allocated for exclusive public safety use. Shaw favours a “wait and see” approach which would be informed, though not necessarily governed, by the FCC’s approach to “D” block spectrum in the United States.

17. In the sections of this submission which follow, Shaw provides its comments on these and other issues in response to questions posed by the Department in the Consultation Document. For ease of reference, our comments conform to the headings and question numbers adopted by the Department in its Consultation Document.

C. COMMERCIAL MOBILE SERVICES

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?*

⁶ See the AWS Policy Framework, Annex 2 – Roll-out Targets.

18. To meet growing and shifting consumer needs, the demand for additional commercial mobile spectrum has been increasing significantly. Over the past few years, there has been a tremendous surge in consumer use of mobile wireless data services which has been fuelled in large part by the rapid adoption and popularity of smartphone devices, such as the iPhone, as well as other portable devices such as laptops and tablets.

19. According to Cisco, global mobile data traffic grew 2.6 fold in 2010, nearly tripling for the third year in a row.⁷ Furthermore, mobile data traffic is forecast to increase by anywhere from 26 to 29 fold in the next five years⁸ with mobile video accounting for almost two thirds of this traffic by 2015. In fact, mobile video has the highest growth rate of all data applications measured and is expected to more than double every year between 2010 and 2015.⁹ In 2011 alone, mobile video traffic will account for 50.2% of all mobile data traffic.

20. This surge in demand for mobile data services and applications is placing a significant strain on the amount of spectrum that has been allocated for commercial mobile uses. Indeed, last year's mobile data traffic (237 petabytes per month) was estimated to be three times the size of the entire global Internet in 2000 (75 petabytes per month).¹⁰

21. In the face of these numbers, there is a serious risk of spectrum exhaust. Indeed, the Federal Communications Commission has examined mobile data usage in the US and has forecast a deficit of commercial mobile spectrum of 300 MHz by 2014.¹¹

22. Although consumer usage patterns in Canada lag those in the United States, there is no doubt that Canada will also face a spectrum deficit in the coming years by an amount that is

⁷ Cisco, *Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010-2015*, February 1, 2011, page 1.

⁸ *Ibid*, page 1. See also Yankee Group, "Spectrum Rich Players are in the Driver's Seat for Mobile Broadband Economics", June 2009; and also Cisco, *Hyperconnectivity and the Approaching Zettabyte Era*, June 2, 2010, page 2.

⁹ *Ibid*, page 2.

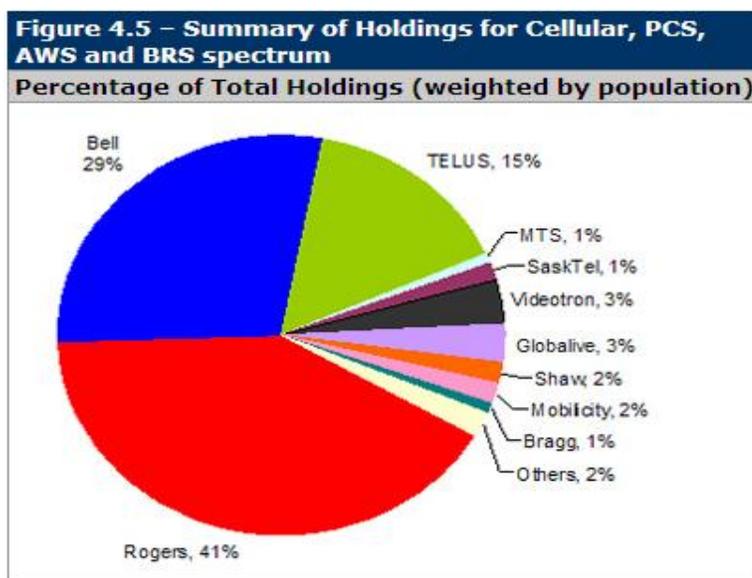
¹⁰ *Ibid*, page 1.

¹¹ FCC, *Mobile Broadband: The Benefits of Additional Spectrum*, OBI Technical Paper No. 6, October 2010, page 26.

likely equivalent to the 300 MHz estimated by the FCC.

23. It should be noted, however, that this deficit will not be felt as acutely by the “spectrum haves” (*i.e.*, the incumbent wireless carriers) as it will by the “spectrum have nots” (*i.e.*, new entrants). This is because the incumbent wireless carriers hold vast storehouses of spectrum in every single one of the commercial mobile bands, including the cellular, PCS, AWS and 2500 MHz bands, as well as other bands that are capable of supporting mobile services and applications, such as the ESMR and 2.3 GHz bands.

24. This is demonstrated in the following chart, prepared by Industry Canada,¹² which shows that the incumbent wireless carriers hold 85% of all licensed commercial mobile spectrum in Canada in the cellular, PCS, AWS and 2500 MHz bands before their holdings in the ESMR and 2.3 GHz bands are taken into account.



25. As a result of this spectrum imbalance, it is more difficult and costly for new entrants to bring their best to the marketplace, in the form of pricing discipline, innovation and consumer choice. In fact, the wireless incumbents have so much commercial mobile spectrum that it is somewhat doubtful whether they require additional spectrum at this time, especially when

¹² Consultation Document, page 10.

their arrangements with each other are taken into account. Unlike Shaw, the wireless incumbents have fully launched mobile wireless operations. Yet, based on Industry Canada records as of the end of December 2010, none of Rogers, Telus, Bell, MTS or SaskTel has deployed any equipment or is making use of the AWS spectrum that they acquired in the Department's 2008 AWS auction. In addition, because of their extensive spectrum holdings, the wireless incumbents do not, and do not have to, maximize efficient use of their spectrum by, for example, re-using a given spectral block in six sectors rather than three sectors, as is the case with carriers in other jurisdictions.¹³

26. In considering their spectrum holdings, it is also important to bear in mind that the wireless incumbents have entered into a variety of agreements and arrangements with each other which maximize their use of these holdings. For example, Bell and Rogers hold spectrum in the 2500 MHz band through a joint venture partnership (i.e., Inukshuk) and have deployed services in the MCS portion of this band using a common technology platform.

27. In addition, Telus and Bell have entered into a series of network build arrangements (along with accompanying roaming and resale agreements) that have resulted in the creation of a completely integrated national wireless network that has been continuously upgraded over the past few years to reflect the latest commercial mobile wireless technologies. All of these arrangements contemplate how these two parties intend to structure their operations and conduct business in the post-auction market structure. In October 2008, Bell and Telus agreed to transition their jointly built network to a shared LTE network¹⁴ and have made several coordinated announcements since that time regarding the offering of various capabilities and services on this network, including the following:

- Introduction of iPhone 3GS – Telus announcement: November 5, 2009, Bell announcement November 4, 2009;¹⁵

¹³ See Seaboard Report, page 15.

¹⁴ See Telus, *TELUS announces evolution to fourth generation wireless*, Press Release, October 10, 2008 (available online at: http://about.telus.com/cgi-bin/media_news_viewer.cgi?news_id=956&mode=2). See also BCE, *Bell announces strategic 3G wireless network investment, maximizing consumer choice in mobile data and confirming its path forward to 4G LTE wireless*, Press Release, October 10, 2008 (available online at <http://www.bce.ca/en/news/releases/bm/2008/10/10/74991.html>).

¹⁵ See BCE, *Bell brings iPhone 3GS to Canada*, Press Release, November 4, 2009 (available online at:

- New HSPA+ network goes “live” – Telus announcement: November 5, 2009, Bell announcement: November 4, 2009;¹⁶
- Data plan for iPad with WiFi and 3G+ – Telus announcement: May 29, 2010, 2009, Bell announcement: May 26, 2010;¹⁷

28. In addition, Industry Canada records as of January 2011 covering the Montreal area in the cellular spectrum range show hundreds of Telus cell sites with Telus as the licensee. However, these cellular records are for locations within Bell’s TEL-80 license area and indicate frequency assignment in the cellular B block which is held by Bell. There are also approximately 100 records for Telus in the cellular B block around the Ottawa area, another Bell cellular license area.

29. Thus, when considering the spectrum holdings of the wireless incumbents, it is important to bear in mind that Bell and Telus have an alliance which involves almost every single commercial mobile band. Their spectrum holdings should therefore be considered in the aggregate. Likewise, Bell and Rogers have a partnership in the 2500 MHz band and, therefore, their respective spectrum holdings should be considered in the aggregate, especially when considering the auction rules for 2500 MHz spectrum.

30. The very high degree of spectrum concentration among the Canadian wireless incumbents is especially evident when compared with the holdings of other wireless carriers around the world. The following chart¹⁸ compares the spectrum holdings of each of the Canadian wireless incumbents with the spectrum holdings of the largest mobile wireless carriers in the United States, before the allocation of 700 MHz spectrum.

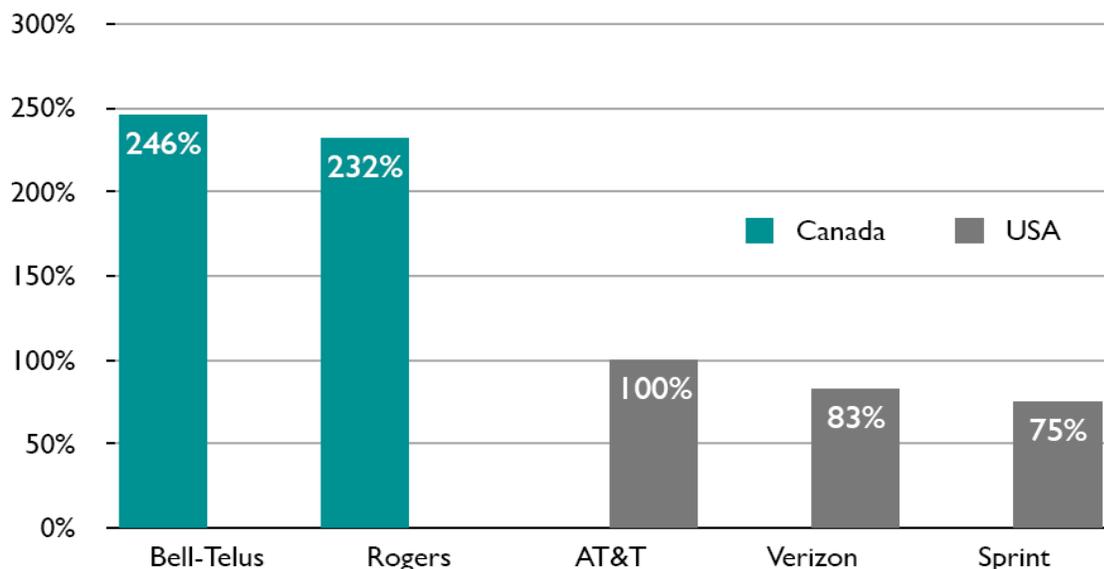
<http://www.bce.ca/en/news/releases/bm/2009/11/04/75261.html>); See also, Telus, *TELUS to bring iPhone 3GS to Canada Thursday, November 5*, Press Release October 26, 2009 (available online at: http://about.telus.com/cgi-bin/media_news_viewer.cgi?news_id=1141&mode=2&news_year=2009).

¹⁶ BCE, *It’s On: Bell’s new HSPA network now live across Canada*, Press Release, November 4, 2009 (available online at: <http://www.bce.ca/en/news/releases/bm/2009/11/04/75264.html>); See also Telus, *TELUS to launch Canada’s largest 3G+ network on November 5*, Press Release, October 26, 2009 (available online at: http://about.telus.com/cgi-bin/media_news_viewer.cgi?news_id=1140&mode=2&news_year=2009).

¹⁷ BCE, *Bell announces data plans for iPad with Wi-Fi + 3G in Canada*, Press Release, May 26, 2010 (available online at: <http://www.bce.ca/en/news/releases/bm/2010/05/26/75488.html>); See also Telus, *TELUS offers Data Plan for iPad with Wi-Fi + 3G in Canada*, Press Release, May 29, 2010 (available online at: http://about.telus.com/cgi-bin/media_news_viewer.cgi?news_id=1231&mode=2&news_year=2010).

¹⁸ See the Seaboard Report, page 12.

Canadian Incumbent Spectral Allocation v. US Incumbent Allocation (expressed as % of AT&T)



31. As indicated in the foregoing chart, each of Rogers and the Bell/Telus alliance has more than twice the amount of spectrum as AT&T in the US, while the wireless new entrants in Canada hold a very small amount of spectrum, as shown in the Consultation Document.

32. Even though the large US carriers have less spectral resources than their Canadian counterparts, there are more demands placed on US carrier networks. There is higher mobile penetration and higher mobile phone use in the US compared to Canada.¹⁹

RESPONSES TO QUESTIONS 4-2 TO 4-5 HAVE BEEN PROVIDED IN A CONFIDENTIAL APPENDIX

D. 700 MHz BAND PLAN ISSUES AND CONSIDERATIONS

(i) *700 MHz Band Plan Architecture for Commercial Mobile Systems*

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?*

¹⁹ *Ibid*, page 13.

33. Shaw has reviewed the band plan options set out in the Consultation Document and believes that, even though there may be greater spectrum efficiencies associated with band plan Options 2a, 2b and 3, it is very difficult to ignore the commercial realities of living in a country which shares a border with the United States.

34. For example, all of the handset and base station equipment that is currently being developed for the 700 MHz band is based on the US band plan. Although it is open to Canadian service providers to commission their own equipment and devices, it is very difficult to influence the ecosystem for network equipment and devices in a particular band unless a carrier has the purchasing power and scale of global companies such as AT&T and Verizon. Furthermore, if Canada adopted a band plan that was not compatible with the US plan, as is the case with band plan options 2a, 2b and 3, this could add several degrees of complexity to cross-border roaming and coordination arrangements.

35. On the basis of these considerations, as well as those set out below, Shaw supports band plan Option 1, which would have the effect of harmonizing the Canadian band plan for 700 MHz spectrum with the US band plan; however, Shaw supports introducing a slight variation to that plan which would split the upper “C” block in the band into two separate blocks of 5+5 MHz paired spectrum and 6+6 MHz of paired spectrum, respectively referred to as block “C1” and block “C2”.

36. One of the advantages of this band plan approach is that it would create more opportunities for bidding in the auction because the band would be composed of several paired blocks of spectrum, namely the “A”, “B” and “C” blocks in the lower 700 MHz band as well as blocks “C1” and “C2” in the upper 700 MHz band.²⁰ These blocks would be in addition to the two unpaired blocks of 6 MHz each in the lower 700 MHz band (i.e., blocks “D” and “E”). This would facilitate spectrum access for a greater number of potential competitors.

²⁰ If the Department determines that “D” block spectrum should be included in the auction of 700 MHz spectrum, this would free up an additional 10 MHz of paired spectrum for auction purposes.

37. Another advantage of adopting this band plan is that it would promote economies of scale for Canadian carriers because the same equipment would be available in Canada and U.S. Finally, adoption of the US band plan would better enable cross-border roaming arrangements and allow for simpler cross-border frequency arrangements and coordination procedures. Ultimately, these advantages would have a positive impact on consumers in the form of lower prices and better service.

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?*

38. As noted by the Department in the Consultation Document, the “equipment availability to deploy radio systems in the frequency range in the guardbands is unclear at this time.” For this reason, the Department should hold these frequencies in reserve until the Department has completed its investigation into possible uses which would be electromagnetically compatible with services in adjacent blocks.

(ii) *Options for use of 758-768 MHz Paired with 788-798 MHz for Public Safety and/or Commercial System*

39. As noted above, demand for mobile applications and services is growing exponentially to the point where even conservative estimates project that we will be faced with a significant spectrum deficit for commercial mobile uses of possibly up to 300 MHz by 2014.

40. While Shaw certainly recognizes the importance of public safety uses in the 700 MHz band, there is insufficient evidence at the present time to demonstrate that the public safety community actually requires allocation of this spectrum for their own use.

41. There is also the question of how the public safety community will be able to cover the costs of developing this spectrum at a time of government fiscal restraint. In President Obama’s State of the Union Address on January 25, 2011, he committed \$10.7 billion to support the development and deployment of a nationwide interoperable public safety broadband network. The FCC has estimated that construction of a national public safety

broadband network will require as much as \$6.5 billion in capital expenditure in 2010 dollars over a 10-year period.²¹ Even a fraction of these amounts represents a very significant cost for Canadian taxpayers. This must be weighed against the opportunity costs of foregoing the auction proceeds that could be generated from spectrum allocated for public safety use. Indeed, this spectrum alone could, conceivably, generate hundreds of millions of dollars for the Canadian Treasury. Another significant opportunity cost is the foregone deployment of commercial networks for the benefit of consumers.

42. It is also important to bear in mind that the FCC is, itself, currently evaluating the status of “D” block spectrum in the United States. Given the foregoing considerations, Shaw believes that it is premature to determine whether to allocate any portion of the sub-bands 758-768 MHz and 788-798 MHz for exclusive public safety use. Shaw favours a “wait and see” approach which would be informed – though not necessarily governed – by the FCC’s approach to “D” block spectrum in the United States.

(iii) 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.*

43. As noted in the Consultation Document, the Department has typically used Tier 1 and Tier 2 licences for mobile services, compared with Tier 3 and Tier 4 licensed for fixed wireless services.²² A Tier 1 service area would be inappropriate because of the considerable risks in entering the market as a national carrier. This is evident in the fact that no truly national new entrant emerged from the AWS auction. The government’s efforts are better directed at encouraging strong regional players who have a demonstrated history of success at providing competition and consumer choice and who show strong potential for eventual evolution into successful competitors at the national level.

²¹ Federal Communications Commission, “Connecting America: The National Broadband Plan”, pg. 318.

²² Consultation Document, page 29.

44. It is important to note that spectrum in the 700 MHz band has propagation characteristics which suit larger service areas for licensing purposes. Indeed, as noted by the Department, the “propagation characteristics of the 700 MHz band are most conducive to high mobility applications due to low over-the-air propagation losses and feasibility of small size antennas enabling the development of personal portable communication devices.”²³

45. It is also important to note that 800 MHz spectrum, which is the only other commercial mobile spectrum that is technically comparable with commercial mobile spectrum in the 700 MHz band, has essentially been licensed on a Tier 2 basis to each of the incumbent telephone companies. For example, in Western Canada, each of Telus, SaskTel and MTS hold licenses in the 800 MHz band which cover their traditional wireline serving areas (namely the provinces of British Columbia, Alberta, Saskatchewan and Manitoba, respectively). Likewise, in the four Atlantic provinces, Bell Aliant holds spectrum licenses in the 800 band which each have province-wide coverage. Even in the case of Ontario and Quebec, Bell Canada along with Bell Aliant hold spectrum licenses in the 800 band which have near complete coverage of each of these provinces.

46. Given these considerations, it only makes sense to establish licence tiers for spectrum in the 700 MHz band that replicate, as much as possible, the coverage area of licenses issued in the 800 MHz band.

47. Shaw also agrees with the Department that licensing 700 MHz spectrum based on larger geographic areas “would result in fewer neighbouring service providers, translating into less coordination between licensees and more effective use of radio spectrum.”²⁴ In fact, given the unique propagation characteristics of spectrum in lower frequency bands such as 700 MHz and 800 MHz, the potential for interference with the operations of neighbouring service providers will increase if the service areas that are covered by the licences are not properly “sized” to match the propagation characteristics of the licensed spectrum. In the case of spectrum in the

²³ *Ibid*, page 29.

²⁴ *Ibid*, page 29.

700 MHz band, Tier 2 service areas are a better fit and would reduce the amount of coordination needed between licensees.

48. Finally, Shaw agrees with the Department that the use of larger geographic licensing areas would allow service providers to serve a larger consumer base and, therefore, achieve greater economies of scale and efficiencies in their operations, resulting in lower prices for consumers.²⁵ This is an especially important consideration for new entrants in the market who will be building out LTE capable networks for the very first time.

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

49. Based on the foregoing considerations, Shaw recommends the Department adopt a Tier 2 licensing approach for all blocks of 700 MHz spectrum available in the auction.

(iv) Treatment of Existing Spectrum Users

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

50. Shaw agrees with the Department's decision to impose a moratorium on the issuance of broadcasting certificates for LPTV stations in TV channels 52-59 (698-746 MHz). Furthermore, while Shaw does not object to the Department's proposal to apply a one year notification period for LPTV stations located in urban areas and a two year notification period for LPTV stations located in non-urban areas, as a matter of policy, Shaw believes that it is important to ensure that mobile broadband services in rural and underserved areas do not lag similar deployments in urban areas. Shaw therefore believes that it would be more appropriate to adopt a one year notification period or a specific notification date of March 31, 2012 for all LPTV stations operating in the band, regardless of the location of those stations.

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.

²⁵ *Ibid.*

51. Shaw supports the Department's proposal to establish a cut-off date of March 31, 2012 for the operation of low-power licensed devices, including wireless microphones, in the band 698-764 MHz and 776-794 MHz.

E. 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.

52. Shaw supports the Department's proposed changes to the Canadian Table of Frequency Allocations for the band 698-806 MHz.

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

53. Shaw supports the Department's proposal to dedicate the 700 MHz band to Mobile Broadband Services (MBS). This change in terminology provides a more accurate description of what services will likely be deployed in the band.

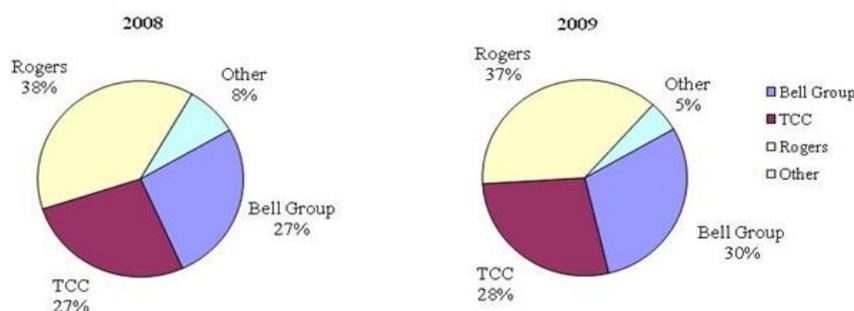
54. With respect to the specific types of services to be offered by licensees in the band, Shaw generally supports the Department's proposal not to place any restrictions on the range of services to be provided as long as these services are technically compatible with each other. It is important to note in this regard that the technologies that are most likely to be deployed in the 700 MHz band are already well known to those parties that are interested in obtaining spectrum and deploying services in the band. Parties that seek to use non-standard technologies either within or adjacent to the band should not be given priority over those that intend to use standardized equipment. Accordingly, Shaw recommends that the Department ensure that any technical standards that are developed for equipment that is used either within or adjacent to the band (such as in Radio Standards Specifications documents and Standard Radio System Plans) give priority to equipment that has been standardized for use in the band.

F. PROMOTING 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:*
- in general;*
 - in terms of its contributions and interaction to the broader Canadian telecommunications service market;*
 - in comparison with the wireless markets of other jurisdictions.*

55. Competition is a prerequisite to ensuring consumer choice, innovation and low prices in the Canadian wireless market. Until very recently, the Canadian market for mobile wireless services has been dominated by three very large wireless incumbents, namely Rogers, Bell and Telus. According to the CRTC's latest Monitoring Report, these three companies held a combined share of 95% of the national wireless services market in 2009 measured in terms of both revenues and subscribers.²⁶

Wireless TSP Subscriber Market Share²⁷



56. In terms of revenues, the wireless services sector accounts for 41% of all telecommunications service industry revenues which, in 2009, were estimated to be approximately \$41 billion.²⁸ Since the wireless incumbents hold 95% of the wireless market, this means that their wireless businesses account for over \$15 billion or 37% of the overall revenues generated by Canada's telecommunications services sector. Bell and Telus, with their fully integrated wireless network, hold 58% of Canada's wireless market, representing

²⁶ See CRTC Monitoring Report 2010, page 158.

²⁷ *Ibid.* The incumbent wireless carriers also gained an additional 1% of the overall revenues in the market during the same time period.

²⁸ See CRTC Monitoring Report 2010, pages 113-114.

\$9.8 billion in revenues in 2009.

57. What's more, wireless services are contributing to an ever greater share of the overall telecommunications services market in Canada. In 2004, wireless services accounted for 28.5% of overall telecommunications service revenues in Canada, whereas in 2009, they accounted for 41%, an increase of over 12% in five years.²⁹

58. The presence of facilities-based new entrants in the wireless market promotes competition, lower prices and better quality services. Although a number of new wireless carriers have entered the market over the past year, or in the case of Shaw, are poised to do so in the coming months, these carriers currently represent a small percentage of the market, perhaps 1% to 2% at best.³⁰ As a consequence, it is far too early to predict how they will fare over the next few years, especially when the challenges they will face during this period are considered. These challenges, often noted by financial analysts, include the following:

- New entrants currently have limited amounts of spectrum. This prevents them from growing their existing lines of business, which are largely focussed on voice and narrowband data services (e.g., text messaging) and from growing into new lines of business, such as broadband internet. This places new entrants at a significant competitive disadvantage compared to the wireless incumbents who have vast spectrum holdings that easily exceed the holdings of international carriers that operate in markets with larger population densities and higher calling volumes.
- With their significant spectrum diversity in both the lower and upper frequency commercial mobile bands, the incumbents also have a device ecosystem advantage over new entrants. The number of devices that operate in the AWS band, including the popular iPhone, is limited by comparison to those that are available in the cellular and PCS bands. As a result, without competition in the

²⁹ CRTC, Telecommunications Monitoring Report, October 31, 2005, Table 4.1.1.

³⁰ Telegeography reported that Wind Mobile accounted for .1% of the total number of subscribers in the market as of March 2010, compared with 36.8% for Rogers, 29.8% for Bell and 28.4% for Telus. (Source Telegeography, GlobalComms Database: Canada, online at: http://www.telegeography.com/product-info/global_comms/download/gcd-canada.pdf). According to the CWTA, as of the end of the third quarter of 2010, Wind Mobile and Videotron accounted for .7% of the total number of subscribers in the market (Source: Canadian Wireless Telecommunications Association, Wireless Facts and Figures (available online at: <http://www.cwta.ca/CWTASite/english/industryfacts.html>)). According to Bank of America Merrill Lynch, new entrants were projected to have 1.6% of the market at the end of 2010 (see Bank of America Merrill Lynch, Global Wireless Matrix 3Q10, 24 September 2010, page 121).

lower frequency bands, consumers will not fully experience the benefits of a truly dynamic marketplace through enhanced innovation and consumer choice and lower prices.

- The wireless incumbents acquired much of their spectrum in competitive licensing processes, which did not require them to expend enormous amounts of capital to purchase spectrum at auction. By the time the wireless incumbents purchased spectrum at auction, it was in respect of a second or third tranche of spectrum, at which point they already had extensive wireless networks and enjoyed the benefits of a stable revenue stream from those networks. The same cannot be said for the wireless new entrants today.
- The wireless incumbents have been reluctant to negotiate and enter into roaming arrangements with new entrants within reasonable time frames and on terms and conditions, including rates, which are comparable to those contained in the agreements they negotiate with each other.
- The wireless incumbents have refused to provide new entrants with seamless call transition when their subscribers move out of zone.
- The wireless incumbents have been reluctant to negotiate and enter into tower and site sharing arrangements with new entrants within reasonable time frames and on terms and conditions, including rates, which are comparable to those contained in the agreements they negotiate with each other.
- New entrants do not have any low-frequency spectrum, such as the 800 MHz spectrum held by the incumbents, which will make it difficult for new entrants to roll-out broadband services on a cost-efficient basis.
- The wireless incumbents have been operating in the market for over 25 years which provides them with several incumbency advantages, including: ubiquitous networks composed of hundreds of cell sites; millions of customers that are locked into long term contracts; sophisticated back office billing and operational support systems that can support high volumes of demand; and long standing roaming agreements with international carriers. In each of these regards, the new entrants have been starting from scratch.

59. When compared to other jurisdictions, Canada's mobile wireless rankings have not changed significantly since Industry Canada's AWS auction in 2008. Since that auction, Canada's wireless penetration rate was estimated to be 61%,³¹ whereas it was at a rate of

³¹ Bank of America Merrill Lynch, Global Wireless Matrix 3Q10, 24 September 2010, page 121.

approximately 70% at the end of the second quarter of 2010.³² Although this is an improvement, Canada still ranks last among all OECD countries in terms of wireless penetration.³³ Furthermore, Canada still lags a full 15% points behind the United States which had an impressive wireless penetration rate of 95% at the end of the second quarter of 2010.³⁴

60. Another indicator that can be used to measure the performance of Canada's wireless sector relative to that of other countries is to compare pricing of wireless services. According to a pricing study commissioned by the CRTC and Industry Canada in April 2010,³⁵ which compares the average price per month paid by subscribers in Canada for various telecommunications services with those paid by subscribers in several other developed countries, including the United States, the United Kingdom, France, Australia and Japan, Canada falls somewhere in the middle of the pack for low, medium and high volume wireless users, but well behind the United Kingdom and Australia.³⁶

61. The same holds true for mobile Internet usage. In Canada, 2 GB of data was priced at \$54 in early 2010, whereas the equivalent amount of data was valued at \$22 and \$34, respectively, in the United Kingdom and Australia.³⁷

62. A further indicator that can be used to measure the performance of Canada's wireless sector relative to that of other countries is the average revenue per user (ARPU) earned by the domestic mobile wireless sector. According to Bank of America Merrill Lynch, the monthly ARPU rates in Canada's mobile sector in 2009 were on par with those in the US, but higher than those in France, Germany, the United Kingdom, Italy and Australia. The only other country with a higher ARPU rate among those reported was Japan, with a rate of \$68 per month.

³² *Ibid*, page 2.

³³ *Ibid*, pages 2-3.

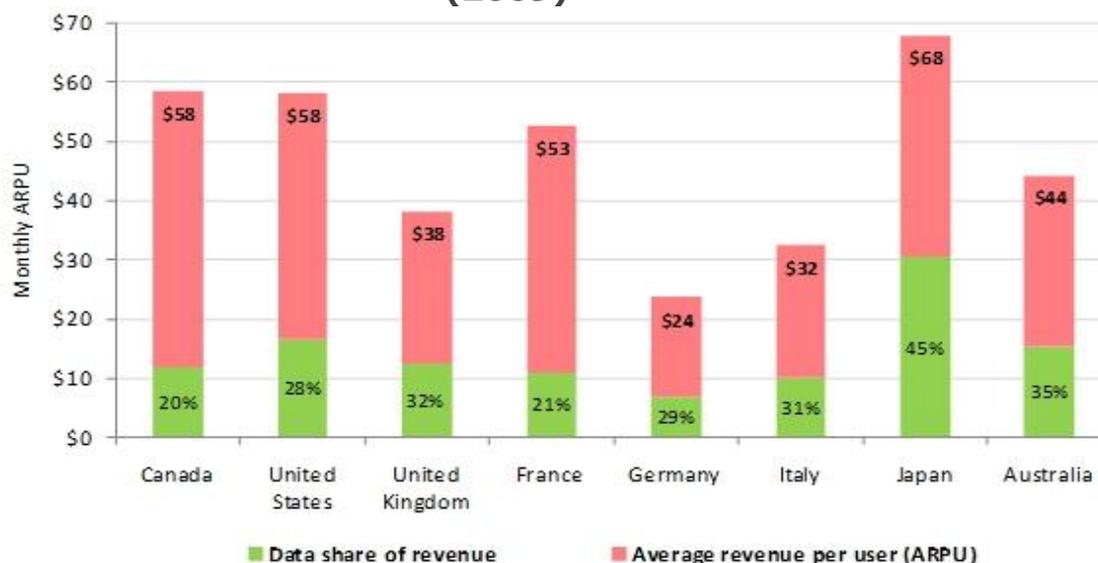
³⁴ *Ibid*, page 203.

³⁵ See Wall Communications Report cited in the CRTC's 2010 Monitoring Report, page 164.

³⁶ *Ibid*, page 164.

³⁷ *Ibid*.

Wireless ARPU – monthly mobile revenues, including data share (2009)



63. Each of the foregoing comparisons of price and usage shows that Canada's mobile wireless sector is still a middling performer at best when compared to other OECD members and an underperformer when compared to the United Kingdom and Australia.

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 framework established by Industry Canada for the auction of AWS and PCS spectrum in the 2 GHz band was specifically designed to promote competitive entry in the market. The Department held an auction of AWS and PCS spectrum in 2008 which was composed of a total of 90 MHz of spectrum in the 2 GHz band, including two blocks of spectrum specifically set-aside for new entrant bidders. At the close of the auction, 45% of the auctioned spectrum was licensed to new entrants, with the remaining 55% licensed to the

wireless incumbents.³⁸

65. Since the time of the AWS auction, a number of auction winners have entered the market, including Wind Mobile, which launched in late 2009, which was then followed by Videotron, Public Mobile and Mobilicity in 2010. Shaw was also a successful bidder in the auction and intends to launch its own commercial mobile service next year.

66. Although the design of the AWS auction was a success, in the sense that it resulted in additional entry into the market, as discussed more fully below, additional regulatory measures are required in order to sustain and enhance competition by ensuring that new entrants have access to lower frequency spectrum in the 700 MHz band so they can compete against the wireless incumbents on a level playing-field.

67. This is not to say, of course, that the measures adopted by Industry Canada in the AWS auction have not had any impact on the state of competition in Canada's mobile wireless market. The anecdotal evidence to date indicates that new entry and, indeed, the threat of entry itself has resulted in a number of consumer benefits, including the following:

- New entrants are offering promotional discounts on their service plans.
- Many new entrants do not require their customers to enter into long term contracts, provided their customers buy their handsets.
- Many new entrants bundle calling features such as voicemail and caller ID into monthly plan rates.
- The wireless incumbents have either partially or entirely eliminated their monthly "system access" fees in response to competition (although there is some evidence to suggest they have merely offset these charges by increasing some of their other rates).

³⁸ Industry Canada, Auction of Spectrum Licences for Advanced Wireless Services and Other Spectrum in the 2 GHz Range: Summary by Licence Winner (available online at: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09004.html>).

- The incumbents have introduced new reseller brands (e.g. Rogers has introduced the “Chatr” brand) or they are using existing reseller brands (e.g., Telus’ “Koodo” brand, Rogers’ “Fido” brand, and Bell’s “Solo Mobile” and “Virgin Mobile” brands) to offer promotional discounts to customers located in the same geographic areas where new entrants are rolling out their services.
- The wireless incumbents have accelerated their plans to deploy HSPA+ networks.

68. However, new entrants continue to face numerous barriers to entry in the Canadian mobile marketplace.

69. One of the most significant of these barriers to entry is that new entrants have very little spectrum. In the 2008 AWS auction, most new entrants averaged between 10 and 20 MHz of spectrum per serving area.³⁹ Unlike the wireless incumbents, this is the only commercial mobile spectrum these new entrants currently hold. Without more spectral diversity, particularly lower frequency spectrum in the 700 MHz band that is technically comparable with the wireless incumbents’ cellular spectrum, new entrants face competitive disadvantages that will affect their ability to provide consumers with the richest possible experience of a truly competitive market, including lower prices, better service and greater choice.

70. In its *Policy Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range* (the AWS Auction Policy), Industry Canada recognized that radio spectrum represents a finite public resource and that access to spectrum can represent a barrier to entry because only the government, as the exclusive caretaker of this resource, can release additional spectrum into the market.⁴⁰

71. Since spectrum in the 700 MHz band has not yet been made available for commercial mobile use, it is clear that access to this spectrum represents a barrier to entry for competitors that do not have this spectrum. However, this is only part of the story. In actual fact, it really only represents a barrier to entry for new entrants because the incumbents already have

³⁹ *Ibid.*

⁴⁰ AWS Policy Framework, page 3.

spectrum in the cellular band which, from a technical perspective, is comparable to spectrum in the 700 MHz band. In fact, the incumbents need only upgrade their existing carriers in the 800 MHz band to Dual-Cell HSDPA with MIMO and 64-QAM (which is a 3GPP Release 9 standard) in order to achieve a data rate of 84.4 Mbps, which is comparable to the LTE peak downlink rate of 100 Mbps. Bell and Telus have already announced deployment of Dual-Cell HSDPA technologies in their networks which facilitate a rated peak download speed of up to 42 Mbps.⁴¹

72. As indicated above, new entrants' contributions to consumer choice will be significantly diminished if they cannot compete on a level-playing field with incumbents. Given the already vast reserves of spectrum held by the incumbents, including the 25 MHz that they each hold in the cellular band, it is clear that the need for new entrants to gain access to spectrum in the 700 MHz band is greater than that of the incumbents.

73. A further barrier to entry faced by new entrants is the incentive of the incumbents to limit or foreclose market entry entirely by acquiring all spectrum made available in the auction. This incentive is particularly strong in the Canadian context where, as described above, spectrum holdings are highly concentrated among the wireless incumbents. In the consultation that led to the Department's AWS Policy Framework, several parties tendered evidence showing that the incumbents have an incentive to pay a premium for spectrum as a means of preventing market entry.⁴² This evidence demonstrates that:

⁴¹ Telus, *TELUS shifts into fourth gear: 4G wireless network will offer download speeds of up to 42 Mbps*, Press Release, February 8, 2011 (available online at: http://about.telus.com/cgi-bin/news_viewer_ir.cgi?news_id=1320&mode=2); See also BCE, *Bell doubling data speeds on world-leading HSPA+ wireless network*, Press Release, November 18, 2010 (available online at: <http://www.bce.ca/en/news/releases/bm/2010/11/18/76761.html>).

⁴² See, for example, Simon Wilkie, Centre for Communications Law and Policy, University of Southern California, *Spectrum Auctions Are Not a Panacea: Theory and Evidence of Anti-Competitive and Rent-Seeking Behavior in FCC Rulemakings and Auction Design* 7-10 (2007) (available online: <http://www.m2znetworks.com/xres/uploads/documents/Wilkie%20%20Auctions%20No%20Panacea%20Wilkie.pdf>); see also, Economics and Technology Inc., *The AWS Spectrum Auction: A One-Time Opportunity to Introduce Real Competition for Wireless Services In Canada*, a reply report prepared for MTS Allstream, June 27, 2007; and see also, Gregory Rose, *Spectrum Auction Breakdown: How*

- Firms with powerful incentives to delay or deter new entry find the means to do so through, among other things, competitive bidding in the auction process. This is because an incumbent “may ascribe substantial value to purchasing spectrum simply to *block entry* by one or more rival carriers *even if it has no immediate need or use for the additional spectrum itself*.”⁴³ (emphasis in the original)
- Where scarce spectrum is a key input to a firm’s production, incumbent carriers can effectively increase rivals’ costs by pushing up the price of the spectrum license at auction, increase the new entrants’ sunk entry investment and potentially affect the marginal costs of entrants by including higher capital costs or foreclose market entry altogether by acquiring the new available spectrum in order to prevent others from using it (i.e., “warehousing” the spectrum).⁴⁴

74. In its AWS Policy Framework, the Department noted that it had received submissions in its consultation that show “how incumbents have an incentive to pay a premium for spectrum to prevent market entry.”⁴⁵ The Department also observed that, in the context of the auction, the policy framework can serve to constrain such behaviour, thereby promoting competition.”⁴⁶ As discussed more fully below, the one-time use of a spectrum set-aside in the AWS auction has not and will not curb this incentive. It is necessary for the Department to make continued use of regulatory measures in the context of future spectrum auctions, including the auctions of 700 MHz and 2500 MHz spectrum as a means of ensuring sustainable competition in Canada’s wireless market in the medium- to long-term.

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?*

75. Yes, there is a need for specific measures in the auction of both 700 MHz and 2500 MHz spectrum in order to sustain and, indeed, increase existing levels of competition in the market.

Incumbents Manipulate FCC Auction Rules to Block Broadband Competition 18-19 (New America Found., 2007), (online: http://www.newamerica.net/files/WorkingPaper18_FCCAuctionRules_Rose_FINAL.pdf).

⁴³ Economics and Technology, Inc, *ibid*, at page 9.

⁴⁴ Wilkie, *ibid*, at pages 9 and 14.

⁴⁵ AWS Policy Framework, page 3.

⁴⁶ *Ibid*, page 3.

76. As noted above, the AWS Policy Framework and auction were successful in promoting additional entry in the market. However, this competition is very much in its early stages and, as noted above, new entrants face many challenges in the market, including delays in the negotiation of roaming and tower and site sharing agreements, intensive demands for capital as they build out their networks and incumbent wireless carriers that have a head start in the market of almost 30 years.

77. Furthermore, and perhaps more importantly, the companies that have entered the market do not have nearly the quantity or diversity of spectrum that their incumbent counterparts have. As a result, without measures to promote new entrant access to 700 MHz spectrum, the new entrants will face considerable cost and technical disadvantages in their deployment. They may not have access to sufficient spectrum to meet consumer demand for increasingly sophisticated services, nor will they be able to provide their customers with the broadest possible device ecosystem. This will undermine new entrants' incentives to compete in urban and rural areas. It will also delay or prevent consumers from having access to the greatest possible range of choice, service and innovation in the wireless marketplace, particularly in underserved areas.

78. In its 2006 Report to the Government, the TPRP concluded that more needs to be done to improve the performance of Canada's wireless sector. In particular, the Panel stated that:

Canada needs a policy framework that supports a strong and vibrant industry, enhances the efficient use of spectrum and facilitates the adoption of wireless. It should be a goal of Canadian spectrum policy to ensure that adequate licensed and licence-exempt spectrum is made available in a timely fashion to permit increased choice, encourage innovation and facilitate the deployment of advanced fixed and mobile wireless services with the appropriate level of oversight.⁴⁷

79. In order to achieve these goals, the Panel adopted a number of recommendations, including the establishment of a spectrum policy that would see the "continued use" of

⁴⁷ TPRP Report, pages 5-21 and 5-22.

regulatory mechanisms, such as spectrum caps, as a means of promoting competitive entry in the market. In the words of the Panel:

The new policy should take into account the work completed by Industry Canada as part of its ongoing spectrum policy framework review, and should ensure that the following areas are addressed:

...

(h) *continued use* of regulatory mechanisms such as spectrum caps (aggregation limits) where spectrum is scarce in order to provide an opportunity for new entrants to acquire spectrum and for Canadians to have an expanded choice of service providers.⁴⁸

80. Proceeding with a spectrum auction without any spectrum cap, or if preferred by the Department, a set-aside, would provide the wireless incumbents with the opportunity to act on their incentive to keep spectrum out of the hands of new entrants by bidding up the cost of this spectrum. Other than, potentially, the government revenue generated by the auction itself, there would be no net benefit to consumers in Canada. Moreover, an auction that permits incumbents to engage in such spectrum hoarding at the expense of competition will lead to inefficient use of spectrum at a point when consumer demand suggests that Canada can least afford it.

81. Regulators in other jurisdictions have continued to rely on specific measures in their spectrum auctions to ensure a vibrant competitive marketplace. For example, in Germany's recent 4G auction (which included spectrum in 800 MHz, 1.8 GHz, 2 GHz and 2.6 GHz), the regulatory authority established caps on the amount of spectrum that could be acquired by different participants in the market in order to ensure that spectrum would be equitably distributed among competitors.⁴⁹ A similar approach has been adopted by the Swedish regulatory authority for its own 4G auction commencing on February 28, 2011.⁵⁰

82. The approach that was adopted in these auctions should be contrasted with the approach that was adopted for the 700 MHz auction in the United States (Auction 73), in

⁴⁸ TPRP Report, page 5-22, emphasis added.

⁴⁹ A spectrum cap of 10 MHz (consisting of 2 blocks of 5+5 MHz) was established for Deutsche Telecom and Vodafone and a cap of 15 MHz (consisting of 3 blocks of 5+5 MHz) was established for E Plus and O2.

⁵⁰ The Swedish regulatory authority has established a cap of 10 + 10 MHz for all auction participants.

which there were no caps or other mechanisms used to promote competitive entry in the market. In Auction 73, two of the largest incumbent wireless carriers in the US, namely AT&T and Verizon, dominated the successful bids, with Verizon acquiring the Upper “C” Block (covering 98% of the population) and most of the regional “A” block licenses (covering 52% of the population). AT&T acquired most of the regional “B” block licenses (covering 62% of the population), which AT&T could add to its contiguous lower “C” block holdings acquired from previous auctions and acquisitions. This example demonstrates very clearly why the *continuous use* of regulatory measures, such as spectrum caps or set asides, are an important means of removing barriers to market entry (such as the incumbents’ incentive to acquire all spectrum available in the auction) and achieving a more equitable distribution of spectrum resources in order to ensure, for example, that not all lower frequency spectrum in the 700 and 800 MHz bands in Canada, is held by the wireless incumbents. In fact, given the much greater level of spectrum holdings concentration in Canada relative to the US, the wireless incumbents have an even greater incentive than their US counterparts to out-bid new entrants for the sole purpose of maintaining the barrier to entry those new entrants face as a result of their limited spectral holdings.

83. With respect to the auction of spectrum in the 2500 MHz band, given the heavy concentration of ownership of spectrum in this band, a separate spectrum cap and/or other similar mechanisms will be required for the auction of this spectrum in order to further promote competition in the market. Shaw will be making submissions in Industry Canada’s consultation on the policy and technical issues relating to that band.

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?*

84. We refer to Shaw’s submissions dated July 30, 2010 in the consultation re: Opening Canada’s Doors to Foreign Investment in Telecommunications: Options for Reform (the “foreign ownership consultation”). In those submissions, we express support for competitively-neutral foreign ownership rules. In particular, for reasons set out in our submissions, Shaw

supports Option 1 (increase cap on direct foreign investment in telecommunications and broadcasting operating entities from 20% to 49%). This option would allow all players to benefit from increased foreign capital.

85. However, in Shaw's view, if any of the changes proposed in the foreign ownership consultation are implemented, that would not obviate the need to implement an auction spectrum cap and/or other suitable measures to promote competition, innovation and consumer choice in the Canadian wireless market. New entrants continue to confront significant barriers to market entry in developing their networks and launching their operations. As described elsewhere in these submissions, the most fundamental barrier to entry is access to spectrum. New entrants cannot overcome that barrier simply through increased access to foreign capital, regardless of what form the foreign ownership rules take. As described above, incumbents have the incentive to pay a very significant amount, which new entrants are not in a position to out-bid, for the spectrum that would otherwise be acquired by new entrants for the sole purpose of preventing those new entrants, whether foreign or domestic, from competing in the wireless marketplace. As described above, this incentive is amplified in the context of the auction for 700 MHz spectrum, given the technical features of this and other spectrum bands that allow for efficient deployment of wireless networks to meet ever-increasing demands for bandwidth. If new entrants do not have access to 700 MHz spectrum, this will place them at a significant cost disadvantage relative to the incumbents because they will be forced to spend more than their incumbent counterparts on deployment. As a result, relaxation of the foreign ownership rules cannot be seen as a sufficient substitute to an auction framework that facilitates access to spectrum.

86. If, at the time of the next spectrum auction, radiocommunication carriers are required to be Canadian (whether under liberalized requirements or not), the auction process should require that participants in the auction be Canadian and that Industry Canada shall have reviewed and verified that such participants are Canadian prior to the start of the auction. The application forms for prior auctions, including the AWS auction in 2008, required that participants certify that they are Canadian *or that that they will be Canadian at the time that*

the radiocommunication carrier licences are issued.

87. In Shaw's view, this approach to the process is untenable under the Canadian ownership and control rules. Under this approach, a non-Canadian may enter the auction, bid on licences, conditionally win licences and pay for those licences. Understandably, the non-Canadian has a strong expectation at that point of receiving the licences. However, all of this has occurred prior to Industry Canada reviewing and verifying the participant's Canadian ownership and control. During the auction, several decisions are made that are fundamental to a wireless business' operations. These decisions include the geographic and service markets the business will enter, strategy and capital expenditures. Yet, under the current process, all these decisions can be made by a non-Canadian. Subsequent to those decisions being made, the non-Canadian can seek out Canadian investors and board members and create a Canadian structure that technically complies with the *de jure* shareholding and board membership requirements under the foreign ownership rules. However, with respect to the control-in-fact aspect of the foreign ownership rules, the structure was tainted from the beginning because a non-Canadian made every critical strategic decision with respect to the business up to that point. Notwithstanding that a structure may subsequently be revised to comply with the *de jure* requirements, factually, if the non-Canadian auction participant remains involved in the business in any meaningful way, that non-Canadian's controlling influence will persist because the non-Canadian has made so many fundamental decisions during and prior to the auction. In addition, at that point, it is more difficult from a procedural fairness perspective for the Department to deny a licence to the non-Canadian even though issuing a licence would not comply with Canadian law.

88. If the auction procedure limits participation to Canadians, as Shaw proposes, this would provide prior certainty to the Department that conditional winners of licences are Canadian and eligible to be issued radiocommunication licences. Shaw's proposal would also provide certainty to bidders in two respects. First, it will assure bidders that licences they bid on and win will not be denied to them as a result of failing to comply with the Canadian ownership rules. Secondly, bidders in the auction will have confidence that they are competing against

other bidders who are ultimately eligible to be awarded those licences. In contrast, the process, as currently structured, creates uncertainty for all parties and, in Shaw's view, undermines the effectiveness and fairness of the auction.

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?*

89. Shaw favours the adoption of a dual spectrum cap mechanism which will apply to both the wireless incumbents and new entrants in the auction of 700 MHz spectrum. As discussed more fully below, this cap would limit the amount of spectrum that the wireless incumbents could obtain, but not preclude their participation. In addition, all other bidders in the auction would be subject to a separate cap on the amount of 700 MHz spectrum they can acquire in any given serving area to prevent concentration of 700 MHz holdings in any one carrier.

7-6. *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:*

(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?*

90. Shaw supports the adoption of a specific spectrum cap mechanism for the 700 MHz band.

(ii) *What should the size of the cap be?*

91. The size of the cap, on a per serving area basis and assuming the use of Tier 2 serving areas, should be one paired block for any auction participant that already holds any spectrum below 1GHz in the relevant serving area. For deployment purposes, 6 MHz paired blocks are effectively equivalent to 5MHz blocks. As a result, for purposes of the cap, the paired blocks in

the upper 700 MHz band (i.e., blocks “C1” and “C2” in Shaw’s proposed band plan) should be treated as equivalent to the paired blocks in the lower 700 MHz band.

92. For all other auction participants, a spectrum cap of two paired blocks, whether contiguous or not, should be applied on a per serving area basis.

93. The spectrum cap mechanism described above would not affect any participant’s ability to acquire unpaired blocks of 700 MHz spectrum.

(iii) Should bidders and their affiliates or associates share the cap?

94. Yes, bidders should share the cap with their affiliates and associates. As noted above, Bell and Telus should be treated as “associated entities” for purposes of the cap given the high degree of overlap and integration between their networks not to mention their various agreements and arrangements to transition their jointly built network to LTE technology.

(iv) How long should the cap remain in effect?

95. In order to promote competition in the market, the spectrum caps proposed above should remain in place for an initial five year period. Immediately prior to the expiry of this period, the Department should conduct a consultation in order to determine whether the caps remain appropriate. As part of this consultation, the Department should consider the degree of competition in the market, spectrum holdings and utilization at that time and other relevant factors.

(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)?*

96. In Shaw's view, a spectrum cap, as described above, would be the most appropriate measure for the Department to implement in the 700 MHz auction. Compared to set-asides, spectrum caps allow for greater participation in the auction, and in that regard, allow for relatively light-handed regulation. However, for the reasons described throughout this submission, it is essential that the Department implement a mechanism to ensure that new entrants have access to 700 MHz spectrum. We would therefore support a set-aside if this was the mechanism preferred by the Department.

97. In such event, we recommend that the Department set aside two contiguous blocks of paired spectrum in each service area for exclusive bidding by new entrants. A new entrant would be defined as any entity that does not currently hold spectrum below 1GHz in the service area. As discussed above, the critical barrier to entry faced by new entrants today is lack of spectrum and lack of spectral diversity. We therefore believe that existing spectrum holdings are the most relevant criterion for determining eligibility to bid on set-aside spectrum.

98. We also recommend that the same transfer and other restrictions imposed on new entrant spectrum in the 2008 AWS auction be included in the conditions of licence for set-aside licence holders.

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

99. As noted above, Shaw favours the use of a spectrum cap or, alternatively, a spectrum set aside as a means of promoting competition in the market. In addition, Shaw submits that all holders of spectrum licences in the 700 MHz band should be subject to the same mandatory roaming and tower and site sharing obligations as those which apply to holders of spectrum licences in other commercial mobile bands (including the cellular, PCS and AWS bands). These

rules are critical to the development of a competitive market and will be just as important for licence holders of 700 MHz spectrum as they are for holders of AWS and other commercial mobile licences.

100. The wireless incumbents benefit from mature, national networks that permit their customers to move throughout the country without having to roam on a competitor's network. In contrast, while new entrants continue to build their networks, they cannot offer comparable on-net coverage. As a result, new entrants confront a major competitive disadvantage which limits their ability to earn revenues and win customers at the early stages of their build-out. Mandated tower and site sharing is also in the public interest, both from a network deployment perspective and given public concerns about construction of communications towers. Antenna towers and sites have become a scarce public resource and should be treated as such from a policy perspective.

101. The current rules should be viewed as the starting-point for a mandated roaming and tower and site sharing regime. However, the rules need to be clarified and more detailed in several ways because of delays, refusals and general foot-dragging that some of the new entrants have experienced in their negotiations with the wireless incumbents. As a result, new entrant deployment is taking longer than expected, which affects the new entrants' ability to provide consumer choice, better service and pricing discipline. We understand the Department will hold a separate public consultation on mandatory roaming and tower and site sharing, and we will make submissions in that consultation on measures that can be taken to improve the clarity and effectiveness of the rules.

102. As part of any new regime that follows the consultation referred to above, mandatory in-territory roaming requirements should include a requirement that wireless incumbents provide inter-network connectivity to support automatic seamless digital roaming. In the absence of this requirement, the consumer's experience of a new entrant service is significantly compromised. Shaw also supports mandated in-territory roaming for the benefit of a licensee that extends for at least 10 years from the date of the issuance of that licensee's

license. This would result in an extension of the mandatory in-territory roaming requirement applicable to AWS licencees from 5 years to 10 years. If in-territory roaming requirements for AWS licenses expire prematurely, that may force new entrants into corporate transactions or other arrangements that are not commercially or financially sensible, which would compromise their ability to offer cost-effective, high-quality services to consumers.

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 the proposed changes affect your responses to the questions above?*

103. Please see the response to question 7-4 above.

G. 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.*

104. The need to promote competition in rural and non-urban broadband mobile services markets is particularly pressing because, for the most part, the new entrants have not yet deployed services in those areas. Those areas continue to be the domain of the wireless incumbents. As a result, consumers in these areas are at risk of being denied the full experience of innovation, choice and lower prices that a competitive marketplace affords.

105. Because of its vast geography and widely dispersed population, both wireline and wireless service providers have faced challenges in deploying broadband services in some of Canada's more remote and underserved regions. Indeed, even in the case of wireless deployments, which do not depend as heavily on cable construction and trenching programs as wireline deployments, there are still significant build-out challenges, such as short construction seasons, difficult terrain, unpredictable weather (which affects microwave backhaul reliability), and even foliage (which affects signal penetration and propagation, especially in the AWS band).

106. Moreover, as the Department correctly points out, Canada's geography and low population densities can often "render it difficult to make a business case for the deployment of advanced, innovative services in some rural and remote areas of the country."⁵¹ Many of the companies that have the necessary expertise and willingness to provide service in these regions find that they have to rely on government subsidies or revenues generated from the provision of services in more densely populated areas of the country.

107. Despite these challenges, it should be noted that 700 MHz spectrum is uniquely suited for rural broadband deployment programs whether as part of a standalone system or as part of an extension to existing wireline networks. This is because of the low over-the-air propagation losses associated with 700 MHz spectrum which means that broadband signals can be transmitted over longer distances and over a wider geographic area before additional sites must be deployed. It also means that a fewer number of sites need to be deployed in a 700 MHz network and, because of the broader coverage characteristics of the spectrum, more flexibility in terms of where sites can be placed – an important consideration in instances where the geographic terrain of a particular location does not permit many placement options.

108. It is these characteristics which, arguably, make 700 MHz spectrum more suitable for rural broadband initiatives than spectrum in higher frequency bands, such as the PCS, AWS and 2500 MHz bands.

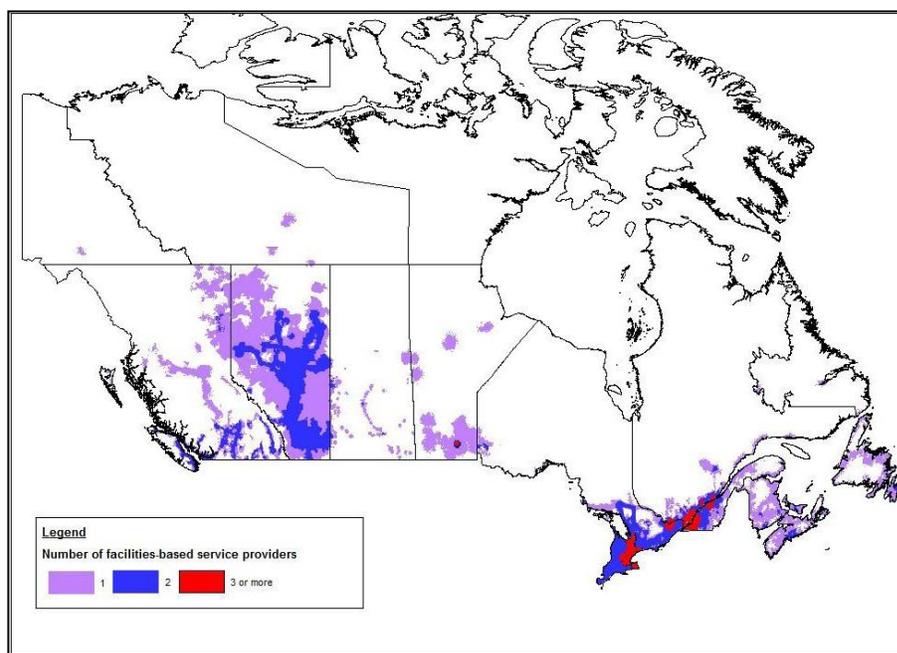
8-2. *Is there a need for further regulatory measures or changes to existing regulatory rules (e.g. RP-19) to facilitate service deployments in rural and remote areas that remain unserved and/or underserved?*

109. According to the CRTC's most recent Monitoring Report and as shown below,⁵² the state of mobile broadband deployment in Canada is less than exemplary. For example, the Report shows that there are vast regions of the country where there are no 3G or 3G-

⁵¹ Consultation Document, page 40.

⁵² CRTC Monitoring Report, map 5.5.2, page 162.

equivalent networks whatsoever and still other regions where there is only one service provider.



110. Although new entrants are beginning to build out their own 3G networks, their focus thus far has been on a handful of urban markets clustered close to the Canada/US border. For its part, Shaw has a cable network that covers many of these underserved areas of the country. As such, it is ideally positioned and, indeed, it has a strong incentive to provide a broadband wireless alternative to customers in these regions. However, like other new entrants, it requires access to spectrum resources that are most suited to providing mobile broadband services in these areas, namely lower frequency spectrum such as the 700 MHz band.

111. As discussed below, much more needs to be done to ensure that consumers who live in rural and underserved regions can enjoy the same speeds and quality of mobile broadband services as their counterparts in urban areas. Indeed, if it is the government's policy objective to promote the availability of reliable and affordable telecommunications service of high

quality accessible to Canadians in all regions of the country,⁵³ measures are required to ensure that consumers in Canada's less populated regions not only have access to basic broadband services, but also to higher speed mobile services and a choice of service providers.

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.).*

112. As noted above, low-frequency spectrum, such as the 700 MHz band, represents a unique resource in the broadband "toolkit" and could be used as an important means of furthering the government's policy objective of promoting the availability of reliable, affordable and high-quality telecommunications service accessible to consumers in all regions of Canada.

113. In order to encourage deployment across service areas, the Department should impose roll-out obligations on 700 MHz licensees in line with the five-year targets that were established for AWS spectrum. In addition, to recognize the costs and challenges associated with deployment in certain rural areas, the Department should provide rebates on auction fees to bidders that deploy HSPA+ and/or LTE systems in certain remote and underserved areas of the country, such as in the geographic serving areas (GSAs) that were identified by the Department as part of its Connecting Rural Canadians program⁵⁴ or in serving areas that are defined by the CRTC as "high cost".

114. These rebates would only be paid out after the HSPA+/LTE system is built and would be based on the total amount that is actually invested by auction bidders in the HSPA+/LTE system. In addition, the rebate program would only be available to successful bidders for a

⁵³ Subsection 7(b) of the *Telecommunications Act* stipulates that one of the objectives of Canadian telecommunications policy is to "render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada."

⁵⁴ Industry Canada, Broadband Canada: Connecting Rural Canadians (online at: <http://www.ic.gc.ca/eic/site/719.nsf/eng/home>)

limited period of time, such as ten years following the issuance of the licences.

115. These measures, when combined with the spectrum cap proposal described above, would promote the expansion of rural broadband services and promote efficient deployment. In Canada, we need to offer multiple broadband choices to the Canadian homes that are not currently passed by cable or DSL. The use of spectrum caps in combination with the roll-out obligations and rebate mechanism described above would result in accelerated delivery of wireless broadband services to these consumers, pricing discipline and full access to the range of innovations and competitive choices afforded by a truly competitive marketplace.

H. 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.

116. The Department notes in its Consultation Document that “recent advances in technology have already enabled more powerful end-user devices (smartphones) and more capable networks, with increased capacity and throughput speeds, which may preclude the need for such intervention.”⁵⁵ The Department also notes that this increased capacity “may already benefit and reward innovative and creative ideas for applications” because it allows consumers to access the Internet at higher speeds which “provides a platform for a wider range of applications”.⁵⁶

117. These developments have also enhanced the consumer experience. For example, many of the new devices currently retailed by wireless service providers are based on certain open platforms “enabling flexibility in the development, distribution and use of third party developed applications.”⁵⁷ In addition, consumers can purchase handsets and terminal devices from third parties and then subsequently purchase wireless services from carriers with

⁵⁵ Consultation Document, page 43.

⁵⁶ *Ibid*, page 43.

⁵⁷ *Ibid*.

compatible networks.

118. This is not to say that consumers have always had these choices. Prior to the auction of AWS spectrum in 2008, the options for users were more limited. For example, users could only choose between the Rogers' network or the jointly-built CDMA network of Bell and Telus. In addition, the incumbents were using a variety of techniques – both contractual and technological – to not only prevent consumers from accessing web-based applications on their handheld devices, but also from moving from one service provider to another with the same device.

119. Today, there are additional entrants in the market as well as new devices that are based on open platforms. For example, some of the new entrants have adopted open access policies in order to respond to consumer needs and as a means of differentiating themselves from the incumbents. As for the wireless incumbents, Rogers and Telus have recently changed their practices to permit customers to unlock their phones if the customers pay a \$50 fee and meet certain conditions.

120. In Shaw's view, these changes are the result of increasing competition. Going forward, any additional or continuing commitments that will be made by competitors to offer fully open access to applications and devices will depend, to a significant degree, on whether there is a regulatory framework that sustains this competition.

121. Open access rules should not be treated as a substitute for spectrum caps or other auction mechanisms that are designed to remove fundamental barriers to entering the market. Open access rules will not increase or even sustain the number of mobile wireless carriers in the market. They merely provide users with increased access to web-based applications or, in the case of open access devices, they increase the possibility – but not the

probability⁵⁸ – that users can switch more easily, using the same handheld device, between those service providers that *currently exist* in the market. In other words, if the market is limited to two or three service providers, then users would only have a choice of two or three networks to which they could transfer their existing devices.

122. This example illustrates why open access rules do not have any impact on the number of competitors in the mobile services market and, therefore, should not be treated as a substitute or alternative to mechanisms that are designed to promote competitive entry in the market. The only way to achieve this latter objective is to establish mechanisms within the framework of the spectrum auction itself that promote or sustain multiple competitors in the market by removing fundamental barriers to entry through the use of spectrum caps or set asides.

I. 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

⁵⁸ There are other factors that prevent users from switching between service providers, such as long-term contracts and/or onerous penalties for early contract termination. These types of contractual terms are harder to maintain if there are more competitors in the market.

in a joint auction for both bands are sought. Comments should include the rationale for selecting one option rather than another.

123. As discussed in earlier sections of this submission, the demand forecasts for commercial mobile spectrum suggest that even under the most conservative of estimates, we will be faced with a spectrum deficit in the coming years unless additional spectrum is made available for development now. As a result, we encourage the Department to proceed with the 700 MHz auction as quickly as possible. While it is true that Canada typically lags the United States in the timing of its spectrum auctions, if the 700 MHz auction takes place at the end of 2012, as expected, that will be four years after the 700 MHz auction in the United States.

124. The 2500 MHz auction should follow the 700 MHz auction, as each auction should have its own set of rules and mechanisms to take into account the commercial, propagation and other technical distinctions between the bands and the degree of concentration of 2500 MHz holdings. For participant planning purposes, it is also preferable to separate the two auctions. However, in Shaw's view, it is not necessary, and it will be challenging, for planning purposes to have a one year delay between auctions. The demand for mobile spectrum, as outlined above, is simply too great to wait that long. Shaw will be making submissions in the Department's *Consultation on a Policy and Technical Framework to License Spectrum in the Band 2500-2690 MHz*. In the auction for 2500 MHz spectrum, there should also be an appropriate spectrum cap to level the playing field, in terms of spectrum holdings, and thereby promote competition.