



INDUSTRY CANADA

GAZETTE NOTICE SMSE-018-10

**CONSULTATION ON A POLICY AND TECHNICAL
FRAMEWORK FOR THE 700 MHz BAND AND ASPECTS
RELATED TO COMMERCIAL MOBILE SPECTRUM**

REPLY COMMENTS OF SHAW COMMUNICATIONS INC.

APRIL 6, 2011

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APPENDIX “A”

A. EXECUTIVE SUMMARY

The New Mobile Wireless Market Requires Competition

As stated in Shaw Communications Inc.'s ("Shaw") initial comments, the future of commercial mobile services has never been as exciting as it is today. There is unlimited potential to enhance the consumer's experience through innovative services, devices and applications. Almost every party in this consultation has pointed to the recent explosion in demand for mobile services, including mobile broadband data services. A new mobile wireless market is emerging. In order to ensure that consumers have access to the full potential of that market, including increased choice, greater supplier responsiveness, pricing discipline and product and service innovation, the framework for the 700 MHz spectrum auction must promote competition through effective yet light-handed measures.

The wireless incumbents and new entrants agree that Canada's mobile wireless market has witnessed an intensified level of competition in recent years, reflected in the launch of several new entrant networks and service offerings, increased price competition, better service and significant new capital expenditures by all competitors.

It is no coincidence that these developments followed shortly after several new entrants acquired spectrum in the 2008 AWS auction. New entry and, indeed, even the threat of new entry, has forced the wireless incumbents to accelerate their capital programs and improve their service at a pace that they would not have adopted had they been allowed to acquire (and then, predictably, warehouse) all of the AWS spectrum.

However, as all parties have pointed out, including even the incumbents, the new entrants face challenges and continuing barriers to entry. The wireless incumbents have implicitly asked the Department to interpret these challenges as evidence that new entrants cannot compete in the new mobile wireless market or use 700 MHz spectrum to its maximum potential. They suggest, for example, that there is a natural level of competition in wireless markets from which Canada's current market structure deviates. In essence, the wireless incumbents are urging the

Department to adopt the naïve (and dangerous) view that the natural market structure in Canada limits the scope of competitive alternatives to them.

In other words, the wireless incumbents have asked the Department to revisit debates that took place *prior* to the design of the AWS auction and determine that the market was sufficiently competitive at that time. Leaving aside the fact that the Department has already rejected this argument, the wireless incumbents have not presented any policy rationale or evidence to make this case. Instead, they have trotted out tired arguments against auction mechanisms designed to promote competition and the benefits (mostly for the incumbents) of warehousing spectrum – or to use the euphemistic terminology of Bell and its experts, “holding spectrum in reserve”. The incumbents also conveniently ignore that regulators in other jurisdictions continue to adopt auction mechanisms designed to promote competition.

Contrary to their submissions, the wireless incumbents are not uniquely and exclusively positioned to deploy 700 MHz spectrum. Even though new entrants as a whole have, thus far, been largely confined to voice and urban markets, this is entirely consistent with the early roll-out patterns of the incumbents in the mid- to late 1980s. It is also consistent with the technical characteristics of the new entrants’ higher frequency spectrum which every party acknowledges is less cost-effective than low-frequency spectrum for rural deployment.

The wireless incumbents also miss the key point – what consumers need and want. Given the changing nature of demand for mobile services, particularly mobile broadband, new entrants will and must offer more than just narrowband voice and data services to address consumer demand. In order to succeed and remain relevant in the new mobile wireless market, it is imperative that new entrants offer broadband mobile products and services, and that they do so in urban and rural markets. In the absence of this competition, consumers will suffer from a lack of choice, innovation, service and price discipline.

For its part, Shaw is committed to providing advanced mobile wireless services in urban and rural areas. Shaw has a cable network that covers a number of underserved areas. As such, it is ideally positioned and is incented to provide an alternative to customers in these regions.

An Effective Yet Light-Handed Cap Mechanism To Level the Playing-Field

The challenges for new entrants in executing their business plans derive from the ongoing and significant barriers to entry they face in the wireless market. Chief among those barriers to entry is access to spectrum and spectral diversity. As the Department has previously observed, this barrier to entry is unique to the wireless industry because spectrum is a scarce resource managed by the Government in the public interest. There is no comparable barrier to entry in the wireline telecommunications market. As the submissions in this proceeding demonstrate, new entrants not only have limited spectrum holdings, all of their holdings are in higher frequency bands. In contrast, the wireless incumbents have significant low-frequency spectrum holdings that they did not pay for at auction and are generally spectrum-rich especially when compared with their international counterparts who face greater demands on their networks.

There is virtually unanimous consensus among the parties in this proceeding that mobile wireless spectrum in lower frequency bands, such as the 800 and 700 MHz bands, facilitates propagation over further distances (and therefore reduces deployment costs, especially in rural areas) and greater penetration (resulting in fewer dead zones in urban areas). The 700 MHz auction provides a unique opportunity to level the playing field so that new entrants can leverage the advantages of having spectrum in both lower and higher frequency bands so that they can more effectively compete against the wireless incumbents and provide greater choice, lower prices and higher levels of product and service innovation.

No one can ignore that today's mobile wireless market is driving demand for more and more spectrum, and that this affects the industry as a whole. There is also consensus that there is not much 700 MHz spectrum available. It is therefore critical that the Department take measures in designing the auction that prevent excessive concentration of 700 MHz holdings.

At the same time, the auction design must recognize the significant imbalance between the lower frequency spectrum holdings of the incumbents on the one hand and new entrants on the other. Failing to implement measures that promote new entrant access to lower frequency spectrum will undermine the increased level of competition that is now developing and potentially undo the success of the AWS auction framework.

To this end, Shaw has proposed an auction cap mechanism that would restrict all bidders, including new entrants, from acquiring more than two paired blocks of 700 MHz spectrum in each serving area. In order to take into account that certain carriers already have significant spectrum holdings in the lower frequency bands, and other carriers have none, Shaw has also proposed that bidders with spectrum below 1 GHz in a given serving area should be limited to one paired block of 700 MHz spectrum in that serving area. Shaw's proposal effectively ensures an equitable allocation of spectrum. It also has minimal impact on auction dynamics, a point even the wireless incumbents have implicitly acknowledged in their first round of comments.

Reform the Mandated Roaming and Site-Sharing Rules

As Shaw and several other parties have pointed out, the 700 MHz auction policy framework must include mandated roaming and tower and site sharing. However, the current rules require reform because of the delays and challenges that new entrants have faced in their negotiations with incumbents and the limited means for timely and effective recourse.

Foreign Ownership Rules

Many parties agree that any potential reform to the foreign ownership rules is irrelevant to the analysis of whether measures are needed to promote competition in the 700 MHz auction. In addition, other parties share Shaw's concerns with the current auction process that permits non-Canadians to bid for spectrum. As Shaw and others have argued, that must be changed so each bidder's compliance with applicable ownership rules is verified prior to the auction.

A Unique Opportunity to Promote Rural Competition

The 700 MHz auction provides the Department with a unique opportunity to bring competition to underserved areas by promoting new entrant access to low-frequency spectrum through Shaw's proposed cap. To accelerate rural deployment, the Department should also impose roll-out obligations on 700 MHz licensees in line with the targets established for AWS spectrum. The Department should also provide appropriate rebates on auction fees that are directly tied to actual deployment costs and create the right incentives for quick competitive roll-out.

Band Plan and Public Safety

Based on the comments of parties thus far, there is strong support for harmonizing the 700 MHz band plan with the United States, as well as the proposal to split the Upper "C" block into two blocks. Shaw continues to support that proposal.

There is also strong support among the parties, including Shaw, to "wait and see" what happens in the US with respect to whether all or any portion of the "D" block will be allocated for public safety purposes. After that has been resolved, the Department should consider all the issues relating to the allocation of 700 MHz spectrum for public safety purposes.

Tier Sizes

Shaw continues to believe that uniform tier 2 licence areas will maximize the effective use of the 700 MHz spectrum given the nature of the spectrum. Shaw also notes that there is considerable support for tier 2 licence areas among the comments filed thus far.

Auction Timing

Shaw continues to believe that the 700 MHz should be conducted first, with the 2500 MHz auction to follow. Many parties supported this timing proposal in their initial comments.

B. INTRODUCTION

1. Shaw is pleased to submit these reply comments in response to the first round of comments submitted by interested parties to the Department in connection with its *Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum* (the “Consultation Document”).
2. In the submissions that follow, Shaw will address the reasons why its proposed auction cap mechanism provides the Department with an effective, yet light-handed, measure to ensure equitable access to lower-frequency spectrum. Shaw’s proposed cap, in conjunction with enhanced mandatory roaming and tower/site sharing rules, will remove critical barriers to entry faced by new entrants in the market. This will ensure that Shaw and other new entrants are able to continue investing in wireless deployment. In this regard, the Department would be well advised to heed both its own advice and the advice of the Telecom Policy Review Panel (“TPRP”) to make “continued use” of such regulatory mechanisms in order to ensure that consumers have an expanded choice of service providers.¹

¹ See Telecommunications Policy Review Panel, *Final Report*, March 2006, page 4-22 (hereinafter referred to as the “TPRP Report”). See also Industry Canada, *Policy Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range*, November 2007, page 2 (AWS Policy Framework) wherein the Department made the following finding at page 2:

Industry Canada agrees with the Telecom Panel's characterization of the wireless industry's importance. The department also agrees with the Panel's assessment that measures which enable dynamic entry, viable multiple providers and market incentives for innovation are important if Canada is to continue to develop an efficient and vibrant wireless industry. In this context, and taking into account the barriers to entry and industry characteristics discussed previously, the department is of the view that policy measures which seek to foster facilities-based wireless competition are consistent with the government's policy to rely on market forces to the maximum extent feasible... The department is of the view that notwithstanding that wireless markets in Canada are competitive at this time, *market conditions are such that establishing measures for the auction for AWS spectrum licences to sustain and enhance competition is warranted.* [Emphasis added]

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3. As a result, new entry, and indeed even the threat of new entry, will continue to bring competitive discipline to the market which in turn will provide consumers with more and better service offerings, lower prices, increased supplier responsiveness and higher levels of product and service innovation.
 4. Our reply comments will also address the following other issues: the appropriate band plan to be adopted for 700 MHz spectrum, the tier sizes that should be adopted for auctioned spectrum, the regulatory treatment to be accorded to public safety spectrum in the 700 MHz band, the evolution of open access rules in Canada's mobile wireless market and auction timing.
 5. Although Shaw has attempted in these reply comments to address each of the critical issues and arguments that were raised by interested parties in their February 28, 2011 submissions in this proceeding, any failure on the part of Shaw to address a specific issue or argument should not be construed as agreement with or acceptance of such issue or argument.
 6. Shaw attaches as Appendix "A" to these reply comments a report prepared by independent consultant, QSI Consulting Inc., entitled *In-Band Auction Caps – Promoting Sustainable Competition in the Canadian Mobile Wireless Industry Through An Equitable Auction Design* (the "QSI Report"). The QSI Report, which provides substantial support for several of the arguments detailed below, was jointly commissioned by Shaw and Quebecor Media Inc. ("Quebecor").

C. ADDITIONAL MEASURES ARE NEEDED TO PROMOTE COMPETITION

(i) State of Competition

7. Virtually all parties to this consultation agree that Canada's mobile wireless market is more competitive than it has ever been in recent years, whether measured in terms of the number of competitors, the speed with which new services are being made available

or the intensity of the pricing competition that is currently taking place in several key markets.

8. There is less agreement among the parties, however, as to the source of this increased rivalry. For example, Rogers takes the position that the market has always been competitive, and that if there has been an increase in the level of competition, it is as a direct result of the joint decision of Bell and Telus to build a fully integrated HSPA+ network. According to Rogers, “[M]uch of this heightened level of competition is not on account of new entrant activity but is a result of increased competition among incumbent providers due to Bell and Telus’ move to launch a competing HSPA+ network.”²
9. Other parties, including new entrants and arm’s length industry observers, take the position that the increased level of competition that is being witnessed in Canada’s mobile wireless market is directly tied to the Department’s decision in 2007 to establish mechanisms in the AWS auction to promote additional entry into the market.³
10. In Shaw’s view, these parties are correct. The reason why the market is more competitive is as a direct result of the steps taken by Industry Canada in the AWS auction to promote additional entry in the market. While Rogers may believe that the market is more competitive because of Bell and Telus’ decision to build a cross-Canada HSPA+ network, this decision was only made *after* the AWS auction was over which suggests very strongly that Bell and Telus were motivated to upgrade their joint network in large part because of the new market entry that would soon be unleashed in the wake of the AWS auction.

² Rogers Comments, February 28, 2011, para. 94.

³ See, for example: Mobilicity Comments, February 28, 2011, para. 122; Eastlink Comments, February 28, 2011, page 15; Quebecor Comments, February 28, 2011, para. 5; Public Mobile Comments, February 28, 2011, para. 61; and Wind Comments, February 28, 2011, para. 14. See also the Comments of Dr. Gregory Taylor and Dr. Catherine Middleton, Ryerson University, February 28, 2011, para. 10 and the Comments of the Public Interest Advocacy Centre, February 28, 2011, at page 5.

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11. According to Bell and Telus, Canada's mobile market is too competitive and that "[n]ot all service providers will be able to reach a large enough scale and/or scope in order to minimize costs."⁴ Bell suggests that there is a natural limit to the number of companies that participate in Canada's mobile wireless market and that "there is nothing exceptional about the level of concentration in the Canadian market."⁵ These arguments imply that Canadian consumers should be content with limiting their options to the wireless incumbents.
 12. In the view of Shaw, these are nostalgic pleas to return to the days prior to the AWS auction. The fact is that Canadian consumers deserve more than the wireless incumbents at the national and regional levels. The new entrants that emerged from the AWS auction are still in the early stages of deployment, with 1-2% of the market at most.⁶ Furthermore, these new entrants continue to face critical barriers to entry. Without access to spectrum in the 700 MHz band, new entrants will not be able to grow their businesses in the new mobile wireless market or economically deploy services in rural and underserved areas.
 13. The wireless incumbents, of course, are wholly opposed to any measures that would provide competitors with equitable access to spectrum in the 700 MHz band. Indeed, the incumbents seem to believe that new entrants should be content with their current spectrum holdings because their services thus far have been limited to voice and narrowband data services in urban markets.
 14. The incumbents argue that this demonstrates that these are the only services and/or geographic areas in which new entrants are interested. For example, Rogers' expert, Jeffrey Church, claims that "thus far the deployments by new entrants have

⁴ Bell Comments, February 28, 2011, para. 77. See also Telus Comments, February 28, 2011, para. 144.

⁵ *Ibid*, para. 81.

⁶ Shaw Comments, February 28, 2011, para. 58 and footnote 30.

concentrated on the markets (big cities) with the lower deployment costs and most favourable economics.”⁷

15. This is a gross mischaracterization of the service roll-out and deployment plans and objectives of new entrants. When the wireless incumbents first entered the market in the mid-1980s, they did so by first serving urban areas which were then followed by roll-outs to secondary and tertiary markets, as well as several rural and underserved areas.
16. New entrants such as Shaw have the same intention and it is disingenuous for the wireless incumbents to suggest that new entrants will limit their service offerings to urban markets alone. This makes no sense, in particular, for regional entrants such as Shaw, Eastlink and Quebecor who have cable networks that cover many rural and underserved areas of the country and who are, therefore, well-positioned to roll-out facilities based wireless alternatives to consumers in these areas.
17. The key difference between the roll-out plans of new entrants and the incumbents is that new entrants currently have no low-frequency spectrum, while the incumbents have long held spectrum in the lower frequency 800 MHz band uniquely suited for network deployments in rural areas. In addition, the incumbents did not have to pay for that low-frequency spectrum at auction. It is therefore little wonder why new entrants have concentrated their roll-out efforts thus far on urban markets.
18. It is also ludicrous for the incumbents to suggest that entrants should be satisfied with their existing spectrum allocations because their focus is on the provision of narrowband services, such as voice and text messaging. For example, Bell states that “2.5 GHz spectrum, of which there is considerably more available than 700 MHz spectrum, is very suitable to the needs of carriers who operate on a regional or urban basis”⁸ and that “the new entrants’ current spectrum holdings, given the focus of their

⁷ See Rogers Comments, February 28, 2011, Attachment 1, para. 232. See also Bell Comments, February 28, 2011, para. E15.

⁸ *Ibid*, para E15.

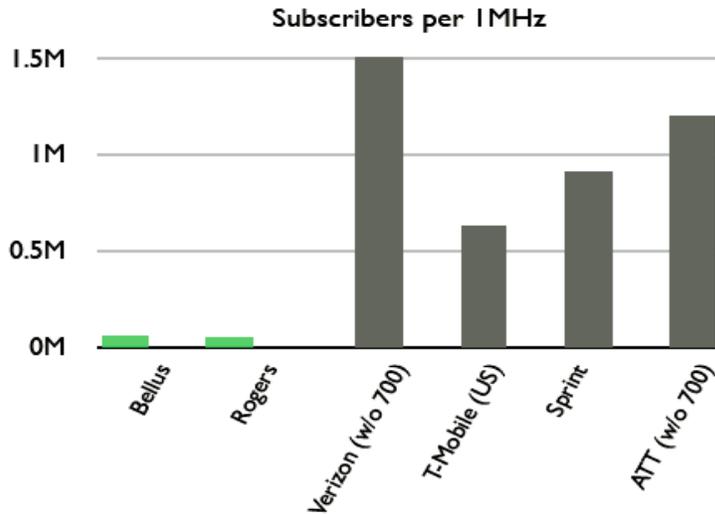
business model, are more than sufficient to carry them until the 2.5 GHz spectrum is auctioned.”⁹ Similar claims are made by Rogers when it states that “the carriers’ respective business plans will dictate the extent to which they value 700 MHz spectrum.”¹⁰

19. The implicit subtext in all of these statements, of course, is that only incumbents require spectrum in the 700 MHz band and only the wireless incumbents are positioned to deploy this spectrum.
20. As noted above, new entrants face the very same demands from their customers for bandwidth rich data applications and services as the incumbents. The challenge for new entrants is they have neither the spectral diversity nor the vast reserves of spectrum that are held by the incumbents. Unless the playing-field is levelled, new entrants will be at a significant competitive disadvantage relative to the incumbents in offering the full range of broadband data services. Ultimately, this will compromise the consumer experience as a result of less consumer choice.
21. The evidence on the record of this proceeding demonstrates that the incumbents not only have significant spectrum reserves when compared to domestic operators, but far more than some of the world’s largest mobile wireless carriers, including AT&T and Verizon. This is dramatically depicted in Seaboard’s analysis of the number of subscribers per 1 MHz of spectrum held by the wireless incumbents in Canada when compared with the number of subscribers per 1 MHz of spectrum held by the largest carriers in the United States.

⁹ *Ibid*, para. E16.

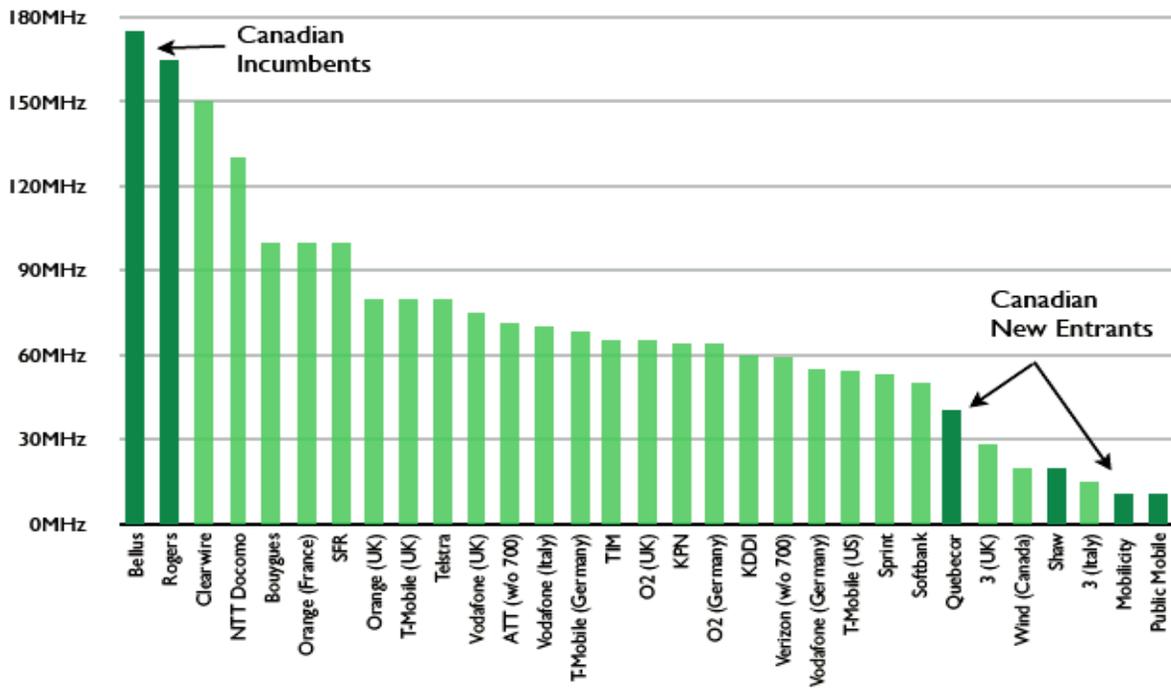
¹⁰ Rogers Comments, February 28, 2011, para. 198

Comparative Spectral Holdings in Canada and the United States¹¹



22. Even by international standards, the wireless incumbents have far more spectrum than some of the largest wireless carriers in the world:

Seaboard Comparison of Spectral Holdings - International Markets 1Q2010



¹¹ Seaboard Group, *Over the Rainbow: Thoughts on the Canadian 700 MHz Discussion*, page 1.

23. There is also irrefutable evidence that without mechanisms to ensure equitable access to spectrum in the 700 MHz band, there is a high risk that the incumbent wireless carriers will act on their incentives to acquire all of the 700 MHz spectrum in the auction. The wireless incumbents hold all of the spectrum in the lower frequency bands. Given the demonstrated cost advantages of holding lower-frequency spectrum, the incumbents are incented to preserve that advantage and therefore to prevent new entrant access to the 700 MHz band. The QSI Report cites the following excerpt from a paper submitted for a symposium held by the Antitrust Division of the U.S. Department of Justice prior to the FCC's 700 MHz auction:

We argue that the dominant low-frequency incumbents' incentives to protect current profits are large, and could undermine the efficiency of the auction outcome. In particular, this distortion leads incumbents to value the new licenses more than the true economic value to society and thus is likely to lead to a misallocation of the scarce spectrum.¹²

The results of the FCC's 700 MHz spectrum auction, which was dominated by AT&T and Verizon and did not include a spectrum cap, support this view.¹³

24. The QSI Report provides an effective summary of the issue:

Since the incumbents enjoy a superior market position relative to their rivals, they possess the incentive, based on their market power, to increase barriers for new entrants so as to maintain their dominance. One way to raise barriers and foreclose new entrants from the mobile wireless market is for incumbents to acquire all available spectrum so that new entrants acquire none. In other words, incumbents have the incentive to acquire spectrum not only to expand their capacity but also to preserve their dominant market position. New entrants, by contrast, acquire spectrum in order to roll-out services to consumers, but do not have the added incentive to acquire spectrum to maintain a competitive advantage because they do not have a competitive advantage in the first place.¹⁴

¹² QSI Report, page 6, citing Cramton, Peter and Andrzej Skrzypacz and Robert Wilson, "The 700 MHz Spectrum Auction: An Opportunity to Protect Competition in a Consolidating Industry" (November 13, 2007), pages 2-3. Available at: <http://www.cramton.umd.edu/papers/spectrum/>.

¹³ QSI Report, page 6.

¹⁴ *Ibid.*, page 5.

(ii) An Effective yet Light-Handed Cap Mechanism to Level the Playing Field

25. As noted above, there is clearly a need for the Department to promote equitable access to 700 MHz spectrum. Although new entrants have had an impact in bringing competitive discipline to the market, they require additional spectrum, including low-frequency spectrum, in order to compete in the evolving wireless marketplace on a level playing-field with the incumbents. In addition, the incumbents continue to have the ability and incentive to purchase all spectrum in the 700 MHz band in the absence of any restrictions in the auction.
26. Shaw notes that the submissions and expert reports tabled by the wireless incumbents focus on the flaws of the set-aside mechanism that was established in the 2008 AWS auction and the lack of need for a similar mechanism in the 700 MHz auction. The wireless incumbents and their experts also critique the use of aggregate spectrum caps.
27. Shaw has not proposed a set-aside or an aggregate spectrum cap. Shaw's proposed cap mechanism would limit all auction participants, including new entrants, from acquiring more than two paired blocks of 700 MHz spectrum in the relevant serving area, provided that any auction participant holding spectrum below 1 GHz in that area would be prevented from acquiring more than one paired block of 700 MHz spectrum. Quebecor has proposed a very similar in-band cap mechanism.
28. The intent and effect of Shaw's proposed auction cap mechanism is to have minimal impact on auction dynamics. Under our proposal, the available blocks are fungible. We do not propose to apply specific deployment obligations on certain blocks (our proposed roll-out obligations would apply to all blocks), nor do we propose to set aside certain blocks for a specific class of bidder.¹⁵ As the QSI Report observes, Shaw's proposal does not raise the same concerns that incumbents have raised with respect to spectrum set-

¹⁵ In contrast, SaskTel proposes that roll-out obligations apply to the Upper "C" block (SaskTel Comments, February 28, 2011, para.3) and MTS Allstream proposes that roll-out obligations apply to the Lower "B" and "C" blocks and that the Upper "C" block (22 MHz) be set aside for exclusive bidding by smaller carriers (MTS Allstream Comments, February 28, 2011, para. ES16).

asides and aggregate caps. For example, it avoids the “gaming opportunities” (such as “parking points”) associated with set-asides and allows all carriers the opportunity to address increasing demands for network capacity by adding 700 MHz spectrum to their current holdings. Shaw’s proposed cap also does not require Industry Canada to define a “new entrant.”¹⁶ Instead, Shaw’s proposal focuses on the most relevant factor, current spectral holdings, as the basis for determining the most effective and light-handed mechanism to ensure equitable access to spectrum.

29. Even some of the wireless incumbents and/or their experts have noted that in certain circumstances, spectrum caps generally, and in-band caps in particular, can be effective and minimally intrusive.¹⁷
30. The QSI Report provides strong evidence of how light-handed Shaw’s proposed cap mechanism is in its analysis of the range of possible auction outcomes. As the QSI Report notes, “in service areas with two or three low-frequency spectrum holders, they can together acquire up to 40% and 60% of the available 700 MHz spectrum, respectively.”¹⁸
31. As the QSI Report concludes and as discussed in the sections that follow, “the “pros” of the auction cap proposal outweigh any potential “cons” of regulatory intervention:”

The “pros” column includes: allocates a valuable resource in an equitable manner; promotes sustained competition for mobile wireless services, particularly in rural areas; promotes roll-out of competitive services in rural areas; promotes efficient use of assigned spectrum; avoids concerns about other types of regulatory intervention; and, the impact is of limited duration. The primary “con” attributed to an auction cap by proponents of an unrestricted auction is that increased fragmentation of the available

¹⁶ QSI Report, page 12.

¹⁷ See, for example, Telus’ Comments, February 28, 2011, at page 42: “...should the Department intervene, a cap could be used (versus a set-aside) to achieve some minimum number of purchasers per region, while also leaving the auction otherwise undistorted. A cap can be individually determined for each bidder per region on any suitable basis and still result in a regular functioning auction.” See also Jeffrey Church, *Spectrum Policy as Competition Policy: A Good Choice for Canada?*, at paras. 43 and 222-226 and Rogers Comments, February 28, 2011, para. 238.

¹⁸ QSI Report, page 9 and, generally, section II, B.

spectrum may not provide a particular carrier the capacity it needs to meet demand for mobile wireless data services. However, any benefits of an auction framework that permits one or two carriers to corner the market for low-frequency spectrum so that those carriers can accommodate increasing consumer demand to the exclusion of potential rivals are offset by the reduction in consumer welfare due to the lack of competition. Furthermore, there are existing and emerging methods for maximizing the efficiency of a provider's low-frequency spectrum holdings and increasing network capacity. The selected auction framework should provide incentives for 700 MHz spectrum holders to explore those methods as a means of addressing spectrum scarcity.¹⁹

Ensuring Equitable Access to a Finite Resource

32. Shaw's proposed cap mechanism is designed to ensure equitable access to 700 MHz spectrum, with due regard for the technical characteristics of this spectrum as well as the relative spectral holdings of all carriers in the market, including the diversity of those holdings. The wireless incumbents and new entrants alike have commented on the propagation and penetration characteristics of spectrum in the 700 MHz band and the band's consequent value. They also generally agree that there is relatively little 700 MHz spectrum available.
33. In recognition of these circumstances, Shaw's auction cap mechanism limits the amount of 700 MHz spectrum that all auction participants can acquire, including Shaw. Shaw's mechanism does not preclude any carrier from bidding on 700 MHz spectrum, but it does take into account the fact that the wireless incumbents already have significant spectral holdings, particularly lower-frequency spectrum.
34. The wireless incumbents have stated or implied that, by limiting wireless incumbent access to spectrum, the Department would be picking winners and losers. Shaw's proposal is not about picking winners and losers. Its intent is to ensure that competitors have an opportunity to bid on 700 MHz spectrum and that new entrants be given the chance to obtain low-frequency spectrum so that they can offer consumers real choice in the Canadian wireless market.

¹⁹ *Ibid*, page 13.

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35. In Shaw's view, it is the incumbents that are implicitly asking the Department to pick winners and losers. The incumbents have argued that they are uniquely and exclusively able to provide consumers with the best possible mobile experience and that they therefore should have unlimited access to 700 MHz spectrum. As noted in several parties' submissions, the AWS auction successfully encouraged new entry, and this new entry (including the threat of such entry) has enhanced the competitiveness of the Canadian wireless market. As the Government acknowledged in 2007, the Canadian mobile market requires the competitive discipline brought by the new entrants. This is the only way to ensure that consumers in rural and urban areas are able to gain access to the best and most innovative mobile services, including broadband, at the best possible prices. Without measures to ensure that new entrants gain access to 700 MHz spectrum, new entrants will not be able to apply any competitive pressure on the wireless incumbents as the market continues to evolve, with the result that the wireless incumbents will have no incentive to offer the lowest possible prices and the best possible service, particularly in many rural areas where there is currently no facilities-based wireless competition.
36. The wireless incumbents warn that, if the auction rules promote new entrant access to 700 MHz spectrum at the expense of incumbent access, there is a risk that the spectrum will not be used. Under Shaw's proposal, roll-out obligations will ensure that this is not the case. The Department should also note that the arguments of the wireless incumbents and their experts include justifications for holding spectrum in reserve (i.e., warehousing), as an option for future use.²⁰ Shaw does not dispute that such options and reserve holdings may be optimal for planning purposes. However, they come at a very significant cost to the industry and the economy. With the increasing risk of spectrum scarcity, the industry cannot afford the luxury of "reserve" spectrum to the

²⁰ See, for example, the arguments of Thomas Hazlett at page 8 of Appendix 2 of Bell's Comments of February 28, 2011 and the arguments of Jeffrey Church at page 56 of Attachment 2 of Rogers Comments of February 28, 2011, wherein he states that: "there is nothing wrong or even inefficient in Rogers wanting to hold an option to use BRS spectrum for LTE."

extent that the incumbents are seeking. If the incumbents are able to hold reserve amounts of low-frequency spectrum for the sake of maximum flexibility in their planning, while competitors are unable to acquire any low-frequency spectrum whatsoever, the result will be an absence of competition in the market. The absence of competitive discipline would be a very significant cost indeed, which will be reflected in fewer offerings, lower levels of product and service innovation, higher prices and decreased customer satisfaction.

37. The Department has already recognized in its AWS auction policies that Canadian consumers deserve more and better than just what the wireless incumbents can offer. Canadian consumers, including those in rural areas, deserve a dynamically competitive wireless marketplace. In the absence of an auction framework that promotes new entrant access to 700 MHz spectrum, that competitive marketplace will be jeopardized.
38. We anticipate that the wireless incumbents will argue (or reiterate arguments) in their reply comments that, by subjecting the incumbents to a different cap than the new entrants, the Department would unduly restrict the incumbents' ability to compete in the wireless market. Shaw disagrees for the following reasons.
39. Before the 700 MHz auction, the wireless incumbents had at least 25 MHz of paired low-frequency spectrum. If we assume that Shaw's proposed cap is implemented and that each incumbent acquires the permitted 1 paired block of 700 MHz spectrum in the auction, then, after the auction, each incumbent will have at least 10 MHz more low-frequency paired spectrum in any given serving area than any new entrant would hold. This is because new entrants currently have no low-frequency spectrum and, under Shaw's proposal, all participants, including new entrants, are limited to two paired blocks of 700 MHz spectrum. In addition, under Shaw's proposed cap mechanism, the wireless incumbents are not restricted in any way from bidding on any of the unpaired blocks of 700 MHz spectrum.

40. The wireless incumbents will also argue (or reiterate arguments) that one paired block of 700 MHz spectrum is insufficient to address their deployment plans especially given the growing demands for spectrum. As the QSI Report states, the scarcity of spectrum is not an incumbent-only problem; it is an industry problem.²¹ In addition,

...the auction of 700 MHz spectrum will not solve spectrum scarcity no matter how it is divvied up. Permitting low-frequency incumbents to acquire all or most of the 700 MHz spectrum may postpone spectrum exhaust for one or two incumbents, but it would not solve the overall spectrum scarcity issue and would negatively impact the competitiveness of the mobile wireless industry in Canada by significantly raising barriers for rivals who would have no low-frequency spectrum holdings.²²

Spectrum scarcity is a bigger problem for new entrants because, in comparison to the incumbents, the new entrants have nowhere near the extent or diversity of the incumbent holdings in the cellular (800 MHz), AWS, PCS, BRS and ESMR bands.

41. The wireless incumbents have asserted (and will reassert) that their cellular spectrum is at capacity, including in rural areas.²³ One obvious question the Department must ask is why the wireless incumbents have not used their AWS holdings if they are truly spectrum starved? In addition, the wireless incumbents' assertions about their capacity constraints and spectrum demands must be scrutinized with scepticism against several means that all competitors are, or should be, exploring for improving the efficiencies of their spectrum use. As the Department will know from the confidential portion of Shaw's initial comments filed in this proceeding, Shaw is pursuing innovative engineering techniques to maximize the efficient use of its spectrum.
42. The QSI Report provides an extensive discussion of the range of measures that can be pursued to increase the efficient use of spectrum. These include:

²¹ QSI Report, page 2.

²² *Ibid*, page 13.

²³ See Rogers Comments, February 28, 2011, paras. 226-229; Telus Comments, February 28, 2011, para. 191 and Bell Comments, February 28, 2011, paras. E7 and 21-22.

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- Multiple-Input Multiple-Output (MIMO) technology to improve throughput and signal range without additional bandwidth.²⁴
 - Use of multiple carriers, including across non-contiguous frequency bands, which spectrum-rich carriers such as the wireless incumbents are better positioned to deploy.²⁵ As a hypothetical example, the QSI Report notes that under Shaw’s auction cap proposal, Rogers could “aggregate its 700 MHz and other spectrum holdings to offer very high speed LTE over a bandwidth of 20, 30 or 40 MHz, and still have 75 to 95 MHz bandwidth to offer non-LTE services.”²⁶
 - Cell densification measures through the addition of macro-cells or small cell solutions, such as micro/pico/femtocells, and Wi-Fi solutions, all in order to offload traffic from macro-cell networks. The QSI Report also shows how increasingly cost-effective these measures are becoming.²⁷ It is not surprising that, of the 19 international operators that have commercially deployed femtocells, none are Canadian.²⁸
 - Six-sector designs for deployment in the 700 MHz, AWS and other bands, which would bring significant capacity gains. As noted by the QSI Report, “increasing the number of sectors to six almost doubles the capacity: Equipment manufacture trials showed that this measure increases capacity by 80% and also increases in-building penetration.”²⁹
43. Any wireless incumbent claims about the negative impact of Shaw’s cap proposal on deployment will appear exaggerated given that the incumbents can use these measures for improving the efficient use of their extensive existing spectral holdings and that they

²⁴ *Ibid*, pages 20-21.

²⁵ *Ibid*, pages 20-22 and 33-34.

²⁶ *Ibid*, page 33.

²⁷ *Ibid*, Section III, D.

²⁸ *Ibid*, page 27.

²⁹ *Ibid*, page 31.

can enhance those holdings with 700 MHz spectrum under Shaw's proposal. As the QSI Report effectively summarizes:

Deployment of mobile broadband is not impaired by the auction cap proposal. The incumbents currently operate on the advanced High Speed Packet Access (HSPA)+ standard, which data speeds are comparable with data speeds in LTE standard (a standard that the incumbents associate with the 700 MHz spectrum). Vendors believe that the HSPA standard has more than enough capacity to handle future traffic forecasts. Current networks are underutilized, and operators can improve overall capacity utilization by delivering higher data rates from existing radio spectrum by using a combination of techniques, including advanced antennas, high level signal modulation, and increasing the number of site sectors from the typical three to six sectors. Cell densification is another method of increasing network capacity. Recent developments in lightweight radios such as Alcatel-Lucent's lightRadio™ may reduce capital and operating cost requirements of cell densifications significantly. "Intelligent" radios such as Nokia Siemens' Liquid Radio introduced in March of this year increase capacity by directing coverage where it is needed. Another effective method of increasing network capacity and coverage is augmentation of traditional macrocells with low power nodes, such as femtocells. Femtocells (not known to be used in Canada) quickly and efficiently serve various hotspots and coverage holes. Traffic offloading to Wi-Fi routers is another effective method of relieving the capacity of macrocells. According to Cisco estimates, the amount of smartphone traffic that can be offloaded in Canada today is 23%, increasing to 34% by 2015. Yet, the actual amount of traffic offloading in Canada is likely less than the potential estimated by Cisco.³⁰

The Benefits of Shaw's Proposed Cap for Rural Competition

44. In contrast to the wireless incumbents, new entrants such as Shaw do not have access to low frequency spectrum. Yet Shaw and other new entrants have clearly confirmed in their submissions and, indeed, in their proposed roll-out obligations that they intend to roll-out services in rural areas. The wireless incumbents have attempted to argue that they are uniquely and exclusively capable of rural LTE deployments, which is simply not the case. To the extent that the incumbents have rolled out service to rural areas, it is because they have access to lower frequency spectrum and they have had a head start of over 25 years.

³⁰ QSI Report, page 2.

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45. However, as explained in our initial comments, if new entrants such as Shaw are unable to obtain 700 MHz spectrum, the business case for rural deployment is significantly undermined. This is because new entrants will be faced with the higher network deployment costs associated with using only higher-frequency spectrum bands, while the incumbents continue to leverage their diverse holdings of spectrum in various bands, which would be significantly enhanced by the addition of 700 MHz spectrum.
46. Even if the wireless incumbents were unable to acquire any spectrum in the 700 MHz auction (which is not the intent or effect of Shaw's proposed auction cap mechanism) and assuming their lower-frequency spectrum is at capacity in rural areas, they would still be able to enhance their rural capacity by using AWS or PCS spectrum.
47. On the other hand, if new entrants were unable to acquire any 700 MHz spectrum, the consequences would be felt much more acutely because the costs associated with their rural deployment would be insurmountably higher than any incumbent's. This is because their deployment plans would be based primarily on the higher frequency AWS spectrum (which would require more cell-sites and therefore more costs), in contrast to the incumbents whose deployment foundations are based on the more cost-efficient cellular (800 MHz) spectrum. The result for rural consumers will be higher prices, lower levels of product and service innovation and fewer competitive choices.
48. Therefore, Shaw's proposed cap mechanism, which effectively promotes new entrant access to low-frequency spectrum that is essential for cost-effective rural deployment, is a necessary measure to ensure that rural consumers gain the benefits of full competition in the mobile wireless market. As the QSI Report points out:

The incumbents hold 95% of the existing low-frequency spectrum holdings in the 800 MHz band today. Allowing them to acquire all or a vast majority of 700 MHz spectrum at an unrestricted auction will create a wide chasm between the incumbents (as low-frequency spectrum "haves") and other wireless providers (as "have nots"). This would raise serious concerns for consumers in rural areas that would be forced to rely solely on the incumbents, acting as an effective duopoly, to roll out

services to underserved areas. This lack of competition would negatively impact the rate of deployment, the quality of services deployed and the prices in rural and low-density areas where the incumbents have “significant market power.” In short, all Canadians, including those in rural, remote and low-density areas should be able to participate in the global information society, and the proposed auction cap will assist in that important goal.³¹

International Precedents Support Shaw’s Proposal

49. There is clear evidence that caps are not historical relics or inconsistent with international trends. Indeed, the Department need only look to a number of other OECD jurisdictions, including Germany, Sweden, Ireland and Spain, for recent precedents.³² In addition, on March 22 of this year, Ofcom, the regulatory authority in the United Kingdom, published a consultation paper in which it proposes spectrum floors and spectrum caps.³³ Ofcom’s proposed spectrum cap mechanism combines in-band and aggregate components. The in-band cap is similar, though more intrusive, than what Shaw has proposed. It is described as follows by Ofcom:

...a sub-1 GHz safeguard cap of 2x27.5 MHz, which would mean that no one competitor could hold more than this amount of sub-1 GHz spectrum (including any existing sub-1 GHz holdings). This would be to restrict the scope of over concentration in the holding of sub-1 GHz spectrum.³⁴

Under Shaw’s proposed cap mechanism, the wireless incumbents would be able to acquire more low-frequency spectrum (at least 30 MHz of paired low-frequency spectrum) than they would have access to under Ofcom’s proposal (27.5MHz of paired low-frequency spectrum).

³¹ QSI Report, page 37.

³² See Shaw Comments, February 28, 2011, para. 81 and Quebecor Comments, February 28, 2011, para 104.

³³ Ofcom, “Consultation on assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues”, 22 March 2011 [hereafter, the “Ofcom Consultation Paper”], paras. 5.73, 5.74 and 5.84.

³⁴ *Ibid*, para. 5.84.

50. The rationale for Ofcom’s proposal echoes the arguments made by Shaw and other new entrants for the need to implement measures in the 700 MHz auction to promote competition:

We consider that if we put in place no measures in the combined award to promote competition, there is a material risk of an outcome that would lead to lower competitive intensity in the provision of higher quality data services compared to competition in the wholesale market today, and compared to what might be possible. This is because we consider there is a material risk of only two or three national wholesalers³⁵ emerging from the auction capable of providing higher quality data services in a profitable way. This is especially the case given that there are high barriers to entry to the national wholesale market, including the difficulty of obtaining access to suitable spectrum.³⁶

Ofcom expresses concern that, without competitive pressures, there will be “higher prices and lower quality services and innovation for UK consumers.”³⁷ The Department should share those concerns.

51. Not coincidentally, Ofcom’s spectrum cap design is driven by the role that spectrum plays as a critical barrier to entry, noting that “credible competitors” require “a reasonable overall portfolio of spectrum suitable for LTE” and, in particular some spectrum below 1 GHz “in order credibly to be able to offer higher quality data services.”³⁸ Furthermore, Ofcom notes the importance of using auction design to mitigate the risk of incentives to foreclose competitive entry:

If only two or three national wholesalers could win access to spectrum portfolios that would allow them credibly to offer higher quality data services, they may have a strategic incentive to bid to achieve this. Expected profits would tend to be higher as a result of lower competition. This could mean that two or three national wholesalers would have an incentive to pay more for the spectrum in order to restrict competition and the number of national wholesalers having such

³⁵ A national wholesaler is “a company that provides wholesale access for the supply of mobile services at a national level,” which “could be provided to the national wholesaler’s own retail business only, or also to other retailers.” See the Ofcom Consultation Paper at paragraph 5.14.

³⁶ *Ibid*, para. 5.84.

³⁷ *Ibid*, para.5.59.

³⁸ *Ibid*, para. 5.48. See also para. 5.60.

spectrum portfolios. In this case, the concentrated spectrum outcome would not reflect a socially optimal allocation of the spectrum, rather it would reflect likely lower competition in the case where there were only two or three credible national wholesalers.³⁹

52. It is also worth highlighting the recent European Commission policy document, cited by Quebecor in its first-round comments, which ties competition to spectral holdings and, in this regard, permits member states to “limit the amount of spectrum for which rights of use are granted to any economic operator... in certain bands with similar characteristics, for instance the bands below 1 GHz...”⁴⁰

(iii) Treatment of Associated Entities

53. Several parties to this proceeding, including Wind, Mobilicity, Public Mobile and Rogers, have observed that there is a very close relationship between Bell and Telus in the mobile wireless market.⁴¹ Together, these companies have

- entered into a series of network build 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;
- agreed in 2008⁴² to transition their jointly built network to a shared LTE network and have made several coordinated announcements since that time regarding the offering of various capabilities and services on this network;⁴³
- entered into comprehensive and fully seamless roaming and resale arrangements; and

³⁹ *Ibid*, para. 5.57.

⁴⁰ See Quebecor Comments, February 28, 2011, para. 102 and footnote 11.

⁴¹ See Wind Comments, February 28, 2011, para. 58; Mobilicity Comments, February 28, 2011, para. 226; Public Mobile Comments, February 28, 2011, para. 74; and Rogers Comments, February 28, 2011, paras. 56, 94-95, and 170.

⁴² See Telus, *TELUS announces evolution to fourth generation wireless*, News 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>).

⁴³ For a list of some of these announcements, see Shaw Comments, February 28, 2011, para. 27.

- authorized each other to construct cell sites in each of Montreal, Ottawa and Calgary using cellular (i.e., 800 MHz) spectrum that is licensed to the other party; for example, based on Industry Canada records, Bell appears to have authorized Telus to use Bell's cellular spectrum to construct cell sites in Montreal and Ottawa and Telus appears to have done the same for Bell in the city of Calgary.

54. In its February 28, 2011 Comments, Rogers has suggested that the reason why Bell and Telus have embarked on a course of joint network sharing and extensive collaboration is because the spectrum set aside in the AWS auction allegedly had the effect of "preventing each incumbent from buying 20 MHz of spectrum."⁴⁴ This overlooks the fact that neither Bell nor Telus is currently making use of their AWS spectrum in their jointly built HSPA+ network, though the arrangements between them likely cover multiple bands of spectrum, including AWS spectrum.

55. The extent and scope of the arrangements between Bell and Telus point to how these parties intend to structure their operations and conduct business in the post-auction market structure and, as a result, Bell and Telus should be treated as associated entities for purposes of the 700 MHz auction.

(iv) Mandated Roaming and Tower/Site Sharing

56. Several parties to this proceeding have observed that even though the existing rules for mandated roaming and tower/site sharing were designed with the right intentions in mind (namely to facilitate customer roaming and to encourage the use of existing tower sites and infrastructure), in practice, the rules have not been effective. For example, numerous problems have been encountered in both the implementation and enforcement of the existing rules, including the following:

- Excessive rates for both roaming and tower sharing arrangements;
- Unreasonably short contract terms for tower sharing arrangements;
- A lack of clarity in some of the mandatory roaming and tower sharing rules;

⁴⁴ Rogers Comments, February 28, 2011, para. 181.

- Weak mechanisms for the resolution of disputes and addressing onerous terms and conditions that come up during roaming and tower sharing negotiations;
- No obligation for roaming providers to provide seamless call hand-off;
- Weak mechanisms for the enforcement of the mandatory roaming and tower/site sharing rules; and
- The premature expiry of the mandated in-territory roaming rules.⁴⁵

57. These problems have had a negative impact on the speed with which competitors can roll-out their services in the market and, indeed, are being exploited by the incumbent wireless carriers as a means of maintaining or enhancing their competitive advantages in the market. The refusal by the incumbents to provide seamless call hand-offs to new entrants is but one example of the incumbents' chronic predisposition to take advantage of the general lack of effectiveness of the rules.

58. In order for competition in Canada's mobile wireless market to flourish, it is critical that efficient and effective rules be established for mandatory roaming and tower and site sharing to reduce critical barriers to entry faced by new entrants. Ofcom notes the role that site access plays as a barrier to entry:

Acquiring access to new sites can be a lengthy and complex process because of the existence of a limited number of suitable locations for optimised outdoor coverage, the need for negotiations with landlords, potential planning requirements, potential works to host the network equipment and site engineering for interference management.⁴⁶

At the same time mandated roaming arrangements are necessary for new entrants as they build out their networks in order to overcome the competitive disadvantage they face in being unable to offer coverage that is anywhere near comparable to their

⁴⁵ For a more detailed description of the problems encountered by new entrants under the existing rules for mandatory roaming and tower/site sharing, see the following: Public Mobile Comments, February 28, 2011, paras. 85-96, Wind Comments, February 28, 2011, paras. 28-29 and 38-47, Mobilicity Comments, February 28, 2011, paras. 188-192, Cogeco Comments, February 28, 2011, paras. 41-42, and Eastlink Comments, February 28, 2011, pp. 35-37.

⁴⁶ Ofcom Consultation Paper, para. 5.53.

incumbent counterparts who have had a head-start of over 25 years. It is important to keep in mind that the incumbents built the bulk of those networks with spectrum that they did not pay for at auction.

59. While Shaw was initially optimistic that the rules developed for mandatory roaming and tower/site sharing would facilitate market entry and competition, the evidence on the record of this proceeding has confirmed that improvements to the existing rules are needed as soon as possible and, in any event, well before the Department conducts an auction of 700 MHz spectrum. Shaw therefore supports initiatives to establish more robust and effective rules for mandatory roaming and tower/site sharing that can be applied across the board to all holders of commercial mobile spectrum. Shaw also supports the extension of mandated in-territory roaming to 10 years from the date of the license.
60. Shaw intends to provide further comments on, and suggested improvements to, the mandatory roaming and tower/site sharing rules in the context of the consultations that the Department is expected to conduct in relation to these rules.

(v) Foreign Ownership Rules

61. Many parties to this proceeding agree that, regardless of what happens to the Canadian ownership and control rules, mechanisms are still needed in the auction of 700 MHz spectrum in order to promote competition in the market.⁴⁷ Even Bell and Telus take the position that a change in the foreign ownership rules would not alter their position on the design of the 700 MHz auction.⁴⁸ Shaw continues to support the view that changes to the foreign ownership rules will not and do not serve as an adequate substitute for an auction framework designed to promote competition.

⁴⁷ See, for example, Cogeco Comments, February 28, 2011, para. 31, Wind Comments, 28 February 2011, paras. 49 and 52, Eastlink Comments, February 28, 2011, at page 35, Mobilicity Comments, 28 February 2011, para. 244, Public Mobile Comments, February 28, 2011, para. 98, MTS Allstream Comments, February 28, 2011, para. 89, and Quebecor Comments, February 28, 2011, at page 6. and SSI Micro Comments, February 28, 2011, para. 60,

⁴⁸ See Bell Comments, February 28, 2011, para. 147 and Telus Comments, February 28, 2011, para. 187.

62. In addition, several interested parties expressed support in their initial comments for revising Industry Canada's auction process so that Canadian ownership and control compliance must be verified before bidders participate in the auction.⁴⁹ For reasons provided in Shaw's initial comments,⁵⁰ this amendment to the process is essential to ensure an efficient and transparent auction process and is in the best interest of all auction participants and the Department.

D. PROMOTING SERVICE DEPLOYMENT IN RURAL AREAS

63. Several parties to this proceeding, including Shaw, are encouraging the Department to establish measures in the auction for 700 MHz spectrum that are designed to promote the deployment of competitive broadband wireless networks in Canada's rural and underserved communities. Shaw reiterates its support for a roll-out obligation in line with the five-year targets that were established for AWS spectrum. Shaw also notes the favourable impact that its proposed cap mechanism would have on promoting competition in rural areas, as explained above.

64. Shaw has proposed an additional mechanism to promote competitive wireless services in certain rural areas which takes into account the costs and challenges associated with deployment in those areas. Specifically, Shaw has proposed that the Department provide rebates on auction fees to bidders that deploy HSPA+ and/or LTE systems in areas that are designated as high cost or underserved, such as the geographic serving areas (GSAs) that were identified by the Department as part of its Connecting Rural Canadians program⁵¹ or the geographic serving areas that are defined by the CRTC as "high cost".

⁴⁹ See Eastlink Comments, February 28, 2011, at page 35 and Quebecor Comments, February 28, 2011, at page 7.

⁵⁰ Shaw Comments, February 28, 2011, paras. 86-88.

⁵¹ Industry Canada, *Broadband Canada: Connecting Rural Canadians* (online at: <http://www.ic.gc.ca/eic/site/719.nsf/eng/home>)

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65. These rebates would only be paid out after the carrier deploys a rural HSPA+/LTE system and would be based on the total amount that is actually invested by the carrier in the system in question. In addition, the rebate program would only be available for a limited period of time, such as ten years following the issuance of the licences.⁵²
66. Shaw was not the only party to recommend rebates or credits for auction bidders that make commitments to deploy broadband services in rural areas. Barrett, for example, proposed a bidding credit mechanism under which the Department would offer a 20% credit to winning bidders that make commitments to provide broadband internet access to 50% or more of the rural population within an unbundled Tier 4 service area within three years of obtaining a 700 MHz licence.⁵³
67. It is important to keep in mind that the policy objective is to promote competitive wireless service deployment in rural and underserved areas. The challenge in realizing that objective is driven by the costs associated with that deployment and the difficulty in recovering those costs because of population densities. Shaw believes that its proposal offers a proportional and disciplined incentive to overcome that challenge, as it accurately accounts for those costs and promotes quick deployment. Barrett has proposed a 20% discount on the amount paid in the auction uniformly applied to all licence areas. It is unclear why Barrett has proposed 20% and how this would address the fact that costs will vary among license areas depending on several factors, including terrain, population density and distance from urban centres. In contrast, the rebate Shaw proposes is tied directly to the actual amount that the carrier invests in the HSPA+/LTE system. Another advantage of Shaw's proposal is that the rebate would only be paid out after deployment has occurred, whereas under Barrett's proposal, the credit

⁵² Shaw Comments, February 28, 2011, paras. 113-114.

⁵³ Barrett Comments, February 28, 2011, para. 119. SaskTel also states: "A National Contribution Fund is the only way to incent investment and competition in rural and northern areas and the provision of affordable, advanced services in rural areas. The current National Contribution Fund could be augmented by using the funds gained in the 700 MHz auction to support broadband in rural areas" (SaskTel Comments, February 28, 2011, para. 79).

would be available at the time of final payment. In this regard, Shaw's proposal creates the right incentives to ensure that deployment occurs as soon as possible.

68. Shaw's proposals for promoting service deployment in rural areas will go a long way to bridging the urban/rural divide in broadband mobile wireless services and ensure that customers in rural areas of the country are able to enjoy the same benefits of facilities-based competition as their urban counterparts, included among which are increased customer choice, lower prices and higher levels of supplier responsiveness.
69. Shaw notes that certain parties to this proceeding, such as Bell, were opposed to or silent on the establishment of any rules which would require successful auction bidders to deploy service, including in rural and underserved areas. Bell mistakenly asserts that such rules are unnecessary because of Bell's unique and exclusive ability to deploy services in rural areas:

Of the Canadian licensees existing today, BCE has a track record, through its wireline businesses, of serving rural and remote areas throughout Canada. This is significant because Bell Mobility also has the technical and financial wherewithal to deploy fixed and mobile LTE networks into those rural and remote communities. 700 MHz spectrum, however, is the key to enabling that to occur. With fair and equal access to 700 MHz spectrum ***Bell Mobility is prepared to ensure that the promise of wireless broadband is available to all Canadians in all parts of Canada.***⁵⁴

70. In Shaw's view, if Bell is serious about the "promise" of making broadband available to all Canadians, then it should not have any difficulty in accepting roll-out obligations. This is particularly curious given that Bell is currently permitted to use deferral account funds to deploy its HSPA network in several underserved areas.
71. What is even more troubling about Bell's argument is that it ignores the fact that consumers in rural Canada want and deserve access to a competitive mobile wireless market, not just Bell's services.

⁵⁴ Bell Comments, February 28, 2011, para. 153, emphasis added.

E. TIER SIZES

72. Most parties to this proceeding favour the adoption of either Tier 2 or Tier 3 serving areas for commercial mobile spectrum in the 700 MHz band, or a mix of these two. For example, each of Shaw, Quebecor, SaskTel and Bell favour the adoption of Tier 2 serving area sizes, whereas Rogers, MTS Allstream, Mobilicity, Wind and Public Mobile support the adoption of Tier 3 serving area sizes or a combination of Tier 2 and 3. Telus supports Tier 1 and/or Tier 2 service areas “in order to maximize scale efficiency, reach and convenience for customers.”⁵⁵
73. Shaw has considered the submissions of various interested parties on the appropriate serving area sizes for commercial spectrum in the 700 MHz band and remains of the view that uniform Tier 2 serving area sizes are the most appropriate for this band of spectrum.
74. As many parties have pointed out in their submissions in this proceeding, the propagation characteristics of spectrum in this band make it difficult to adopt Tier 4 or even Tier 3 serving area sizes because of the larger geographic areas over which 700 MHz signals can be carried and, therefore, a greater potential for harmful interference. In fact, in its Consultation Document, the Department noted that the licensing of 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.”⁵⁶
75. Given the unique propagation characteristics of spectrum in lower frequency bands such as 700 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. Shaw remains of the view that in the case of spectrum in the 700

⁵⁵ Telus Comments, February 28, 2011 , at para. 109.

⁵⁶ *Ibid*, page 29.

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

76. It is also important to remember that the Department has historically adopted Tier 2 (or Tier 2 equivalent) serving area sizes for commercial mobile spectrum, including, in particular, in the 800 MHz band. Indeed, as noted in Shaw's Comments of February 28, 2011, each of Telus, SaskTel and MTS hold licences in the 800 MHz band which cover their traditional wireline provincial serving areas (namely 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.
77. Furthermore, Shaw notes that the amount of spectrum that will be made available in the upcoming 700 MHz auction will be far less than what was made available in the AWS auction. Furthermore, there is a fair to reasonable chance that the Department will adopt paired spectrum block sizes in the upcoming auction of 700 MHz spectrum of no greater than 5 or 6 MHz each in the auction. Since service providers will likely seek to purchase contiguous blocks of spectrum wherever they can in order to achieve greater overall spectral efficiencies in the deployment of mobile broadband services, it makes sense to adopt uniform tier sizes for all of the spectrum blocks that will be made available. This way, parties bidding on lower blocks B and C, for example, or upper blocks C1 and C2 do not have to worry about mixing and matching blocks that have different tier sizes as would be the case if, for example, they had to combine a Tier 2 lower B block with a Tier 4 lower C block.
78. As a final observation, Shaw does not agree with those parties that have recommended the adoption of Tier 4 serving area licences for 700 MHz spectrum or, in the case of Barrett, the "unbundling" of Tier 4 serving areas into urban and non-urban regions.

79. As noted above, the propagation characteristics of 700 MHz spectrum make it unsuitable for Tier 4 serving areas because it would necessitate a high degree of interference coordination not only among neighbouring licensees in Canada, but also along the Canada/US border.
80. Furthermore, the Department has recently confirmed in *Decisions on the Revisions to the Framework for Spectrum Auctions in Canada and Other Related Issues* that it intends to maintain its existing geographic licensing areas for spectrum auction purposes.⁵⁷ In fact, in making this decision, the Department specifically considered the issue of whether rural areas should be unbundled from urban areas for licensing purposes, and decided against this approach because of the coordination complexity associated with the proposal. According to the Department, “[T]he creation of urban versus rural areas could increase coordination complexity, which may reduce the overall social and economic benefits.”⁵⁸

F. 700 MHz BAND PLAN ISSUES AND CONSIDERATIONS

81. The vast majority of parties to this proceeding agree that Canada cannot adopt a band plan for the 700 MHz band that is out of synch with the band plan that has been adopted in the United States.⁵⁹ Some of the reasons cited by these parties in support of the US band plan include the following:

- a) Device Ecosystem** – As noted by the RABC, even though technical standards support various bandwidths from 1.4 MHz to 20 MHz, it is likely that equipment

⁵⁷ See Industry Canada, *Decisions on the Revisions to the Framework for Spectrum Auctions in Canada and Other Related Issues*, March 2011, page 10. See also Industry Canada, *Framework for Spectrum Auctions in Canada*, March 2011, Issue 3, at page 3.

⁵⁸ Industry Canada, *Decisions on the Revisions to the Framework for Spectrum Auctions in Canada and Other Related Issues*, page 10.

⁵⁹ See for example, the 28 February 2011 Comments of Bell, Telus, Eastlink, Quebecor, Rogers, RABC, SaskTel, MTS Allstream, Wind, Public Mobile, Alcatel, Barrett, CATA Alliance, TBayTel, and many of the parties from the public safety community identified in footnote 49 below.

manufacturers will first develop products consistent with the larger U.S. market with 5 MHz and 10 MHz bandwidths;⁶⁰

b) Handover of Calls at the Canada/US Border – If Canada were to adopt a band plan that is different from that of the US, this would impact handover operations at the Canada/US border. For example, it may be more difficult to maintain calls and perform handovers at the border between a carrier with a 5 MHz or 10 MHz channel and a carrier across the border that uses a 3 MHz or 1.4 MHz channel;

c) TV Interference and Spectral Efficiency - Because of interference from TV channel 51 and potential interference from the lower D block, 1 MHz guardbands are required at 698 MHz and 716 MHz which means that only 16 MHz of the allocated 18 MHz is actually available for operation in the lower 700 MHz band. Any combination of 5 or 10 MHz channels can be fitted into this remaining spectrum of 16 MHz.

82. Having reviewed the submissions of interested parties in this proceeding, Shaw remains of the view that adoption of the US band plan makes the most sense for Canada, subject to the proposed modification which would result in the splitting of the upper “C” block into two separate blocks. Shaw notes that several parties supported the splitting of the upper “C” block into two separate blocks because of the increased bidding opportunities that are made possible by this approach.⁶¹

G. PUBLIC SAFETY

83. In this proceeding, the public safety community has taken the position that the 700 MHz band should be harmonized with the US band plan and that a full 36 MHz of spectrum in the upper portion of the band should be assigned for the exclusive use of the public

⁶⁰ RABC Comments, February 28, 2011, para. 5.1.15.

⁶¹ See, for example, the 28 February 2011 Comments, of Telus, Rogers, Quebecor and the RABC.

safety community.⁶² Specifically, the public safety community has proposed that the following blocks of spectrum be assigned for exclusive use by public safety users:

- 8 + 8 MHz of spectrum in the sub-bands 768-776 MHz and 798-806 MHz which is currently allocated in Canada for narrowband/wideband public safety use;
- 4 + 4 MHz of spectrum in the sub-bands 764-768 MHz and 794-798 MHz which has not been assigned for public safety use;
- 5 + 5 MHz of spectrum in the sub-band 758-763 MHz and 788-793 MHz which is commonly referred to as “D” block spectrum in the United States and which has also not been assigned for public safety use; and
- certain guardbands surrounding “D” Block spectrum, namely 763-764 MHz and 787-788 MHz.

84. In essence, the public safety community has asked the Department to assign an additional 20 MHz of spectrum in 700 MHz band for the exclusive use of the public safety users which spectrum would be over and above the 16 MHz of spectrum in the band that is already allocated for public safety use.

85. While Shaw does not dispute the fact that the public safety community requires access to mobile broadband services and applications, there is no compelling evidence that has been tendered on the record of this proceeding thus far to suggest that these needs demand further spectrum allocations for public safety purposes without further consideration of alternatives. Shaw notes that several parties have questioned whether additional allocations for public safety uses are required for the 700 MHz band given possible commercial alternatives without any need to establish conditions of licence or

⁶² See, for example, the February 28, 2011 Comments of the Tri-Services Joint Interoperability Committee, the Utilities Telecom Council of Canada, the Interdepartmental Committee on Search and Rescue, Public Safety Canada, the Royal Canadian Mounted Police, the Ontario Ministry of Community and Safety Correctional Services, Centre de services partagés du Québec, the Maritime Radio Communications Initiative, and the provincial governments of Saskatchewan, Alberta, Ontario and British Columbia.

mandated priority or pre-emption, as well as the fact that Canada's public safety community is several times smaller than that in the United States and, therefore, will have significantly lower bandwidth requirements.⁶³

86. Any analysis of public safety uses in the 700 MHz band must consider the feasibility and likelihood of network deployment. In this regard, it is important to note that even though the public safety community provided several examples of how 700 MHz spectrum can be used to address the specific mobile broadband requirements of users in this community, they have not explained how their standalone networks will be built and, perhaps more significantly, who will foot the bill to pay for these networks. There is no detailed proposal for a governance structure that could oversee the financing, design and construction of one or more public safety network infrastructures. Any which way these networks are constructed, it would be an incredibly complicated project to undertake, potentially involving several public safety agencies and most likely several levels of government. Without a specific plan in place, it is difficult to see how such a project would get off the ground.
87. It is also trite to point out that it can take many years and literally billions of dollars to build-out a commercial mobile network. It is therefore reasonable to conclude that it could take an equal amount of time and a comparable level of funding to build the types of broadband networks that are said to be required by users within the public safety community.
88. Once again, while Shaw acknowledges the important work that is carried out by the service providers in this community, parties are equally justified in asking where the funding, leadership and organizational structure will come from in order to build-out and deploy the nationwide, fully-interoperable broadband wireless network that is being proposed by public safety users.

⁶³ See, for example, Bell Comments, February 28, 2011, paras. 38-40 and 44; Public Mobile Comments, February 28, 2011, paras. 42 and 45; and Mobilicity Comments, February 28, 2011, para. 92.

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89. Quite obviously, any such initiative would have to be funded through taxpayer dollars and it is far from clear that the necessary support from taxpayers would be forthcoming, especially when almost every level of government in this country is running a deficit.
90. There is a significant risk that, in the period before the necessary funding is raised and the necessary organizational structure is put in place, valuable spectrum in the 700 MHz band will lie fallow. This would represent a significant foregone opportunity cost for the average Canadian consumer. That consumer has an increasing and evolving demand for mobile wireless services that has been well documented in this proceeding. Commercial mobile operators have an immediate and demonstrated need for additional mobile spectrum to address that demand, particularly in remote and underserved areas.
91. For these reasons, Shaw urges the Department to take a cautious approach to any additional public safety allocations in the 700 MHz band. In particular, given the fact that the status of D block spectrum is still up in the air in the United States, Shaw agrees with the submissions of numerous parties in this proceeding, including the RABC,⁶⁴ that the Department should wait and see how the issues surrounding this spectrum block are resolved in the United States and then conduct a public consultation on whether a similar approach should be adopted in Canada or whether a different approach is warranted given the unique characteristics of the Canadian market. Furthermore, because of the inter-relationship and similarity in intended uses between “D” block spectrum on the one hand and spectrum in the sub-bands 764-768 MHz and 794-798 MHz on the other, Shaw recommends that the Department consider the regulatory treatment to be accorded to the sub-band in 764-768 MHz and 794-798 MHz in the same consultation as “D” block spectrum.

⁶⁴ See, for example, RABC Comments, Rogers Comments, February 28, 2011, para. 83, Eastlink Comments, February 28, 2011, p. 13, MTS Allstream Comments, February 28, 2011, para. 30, Quebecor Comments, February 28, 2011, para. 28, Bell Comments, February 28, 2011, para. 50, and Telus Comments, February 28, 2011, para. 15.

H. AUCTION TIMING

92. Most parties to this proceeding favour either holding the auction for 700 MHz spectrum first or conducting it simultaneously with the auction of 2500 MHz spectrum.⁶⁵ Shaw remains of the view that an auction of 700 MHz spectrum should be conducted first, with the 2500 MHz auction to follow as soon as reasonably possible after the 700 MHz auction.
93. Shaw notes that Telus proposed that the auction for 2500 MHz spectrum be held before the auction of 700 MHz spectrum. Shaw does not support this proposal.
94. As many parties to this proceeding are aware, the ecosystem for devices and equipment in the 2500 MHz band is not developing as quickly as it is for 700 MHz spectrum. In fact, most deployments that have taken place in the 2500 MHz band in the United States thus far have been in the TDD portion of the band, which will only make up a small amount of the spectrum available in the auction of 2500 MHz spectrum in Canada.
95. Given these considerations, it would appear that there is no technical or economic reason why the auction of this spectrum should take place in advance of an auction of 700 MHz spectrum.
96. Of course, this is precisely why Telus has proposed that the Department conduct an auction of 2500 MHz spectrum before the auction of 700 MHz spectrum. Telus knows full well that the only way that new entrants can economically roll-out facilities-based competitive alternatives in rural and underserved areas of the country is by gaining access to lower frequency spectrum in the 700 MHz band. Since Telus already has

⁶⁵ For example, each of Mobilicity, Eastlink, Bell, and MTS Allstream expressed a preference for holding the 700 MHz auction first, whereas Axia, Videotron, Wind, Rogers, SaskTel and Public Mobile expressed a preference for a combined auction of 700 and 2500 MHz spectrum. See Axia Comments, February 28, 2011, para. 33, Bell Comments, February 28, 2011, para. 162, Eastlink Comments, February 28, 2011, p. 34, Quebecor Comments, February 28, 2011, para. 135, Rogers Comments, February 28, 2011, para. 285, SaskTel Comments, February 28, 2011, para. 97, Public Mobile Comments, February 28, 2011, para. 134, Mobilicity Comments, February 28, 2011, para. 256 and MTS Allstream Comments, February 28, 2011, para. 121.

access to lower frequency spectrum and is using it to provide mobile wireless services in a number of these areas, it is in Telus' interests to delay as much as possible the auction of 700 MHz spectrum.

97. In the view of Shaw, the Department should reject the Telus proposal. The proposal will do nothing to promote competition and customer choice particularly in those regions – namely rural and underserved areas – where facilities-based wireless competition is needed the most.
98. The Department must put the interests of consumers before the interests of the incumbent wireless carriers. Shaw urges the Department to conduct an auction of 700 MHz spectrum before an auction 2500 MHz spectrum.

I. OPEN ACCESS

99. Most parties to this proceeding have argued that there is no need to mandate open access rules for spectrum in the 700 MHz band or in other commercial mobile bands because the market is evolving to the point where the need for these rules is becoming less important.⁶⁶ Several parties, for example, have noted that recent advances in technology have enabled more powerful end-user devices, such as smartphones, and have resulted in increased capacity and throughput speeds, all of which allow users to access a wider range of applications and services on the Internet.
100. There is also evidence that the incumbents are now allowing customers to unlock their phones if certain conditions are met,⁶⁷ which means that they will have greater flexibility to switch between service providers with the same device.

⁶⁶ See, for example, Quebecor Comments, February 28, 2011, para. 130, Barrett Comments, February 28, 2011, para. 135, Bell Comments, February 28, 2011, para. 160 and Rogers Comments, February 28, 2011, para. 282.

⁶⁷ Rogers customers can unlock their phones for a \$50 fee if their contracts have expired or if they have paid the full, unsubsidized cost for their handsets. Telus customers can unlock their phones for a \$50 fee if they subscribe to a monthly (postpaid) plan and have used an active and eligible SIM-based device for a minimum of 90 days.

101. In its Comments of February 28, 2011, Shaw noted that recent developments in the marketplace, including, in particular, the increased levels of competition obviates the need for open access rules for the 700 MHz band as well as other commercial mobile bands. Indeed, one of the principal reasons why open access has become a possibility in Canada is because the Department made a conscious decision in 2007 to promote competitive entry into Canada's mobile wireless market through the AWS auction. It is this increased level of competition that has forced the incumbents to revisit their policies regarding open access which, in turn, has benefitted consumers by allowing them to gain access to a broader platform of applications and greater ease in switching suppliers.

APPENDIX "A"