INDUSTRY CANADA

GAZETTE NOTICE SMSE-005-11

DECISIONS ON A BAND PLAN FOR BROADBAND RADIO SERVICE (BRS) AND CONSULTATION ON A POLICY AND TECHNICAL FRAMEWORK TO LICENSE SPECTRUM IN THE BAND 2500-2690 MHz

COMMENTS OF SHAW COMMUNICATIONS INC.

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A. EXECUTIVE SUMMARY

1. As Shaw Communications Inc. ("Shaw") noted in the Department's recent *Consultation on a Policy and Technical Framework for the 700 MHz Band and aspects related to commercial mobile spectrum* (the "700 MHz Consultation"),[1] a new mobile wireless market is emerging in Canada with unlimited potential to enhance the consumer experience through innovative services, devices and applications.

2. However, in order for consumers to experience the full potential of that market, including increased customer choice, greater supplier responsiveness, pricing discipline and product and service innovation, there must be an enhanced level of competition in the Canadian wireless market.

3. It is clear from the record of the 700 MHz Consultation that there has been an intensified level of competition in Canada's mobile wireless market in recent years, and this enhanced degree of competition is a direct result of the Department's decision to promote additional market entry through the AWS auction framework.

4. However, service deployments by wireless new entrants are still very much in their early stages, with new entrants only accounting for a 1-2% share of the market at most. Furthermore, wireless new entrants continue to face a number of critical barriers to entry in the market. Chief among these barriers is access to spectrum and spectral diversity. As Industry Canada and the Government have acknowledged, spectrum is a barrier to entry that is unique to the wireless industry because it is a finite resource that is only released through formal licensing processes that are managed and administered by the Department.[2]

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[1] See Industry Canada, *Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum*, November 30, 2010, SMSE-018-10, p.10 (the "700 MHz Consultation Document").

[2] See Industry Canada, *Government Opts for More Competition in the Wireless Sector,* Press Release, November 28, 2007. See also, *Policy Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range,* November 2007, p. 3.

5. The wireless incumbents have vast spectral holdings in comparison with the new entrants. Indeed, according to the 700 MHz Consultation Document, Rogers, Bell and Telus hold 85% of the licensed spectrum in the 800 MHz, AWS, PCS and BRS bands,[3] and this figure does not even include the ESMR spectrum held by Telus nor the recent acquisition by Bell and Rogers, through their Inukshuk joint venture, of Yourlink's 2500 MHz spectrum in Saskatchewan.

6. At a more granular level, the disadvantage experienced by new entrants in terms of their access to spectrum and the diversity of that spectrum is even more pronounced. Bell and Rogers, through their Inukshuk joint venture, along with SaskTel (the "BRS Incumbents) hold nearly all of the spectrum that has been licensed to date in the 2500 MHz band. In fact, Inukshuk alone accounts for over 50% of the licensed spectrum in the band.[4] There are no wireless new entrants that hold spectrum in this band, nor are there any commercial mobile providers in the band other than the BRS Incumbents.

7. The only spectral holdings of wireless new entrants are those which they obtained in the AWS auction; however, even in the AWS band, the wireless incumbents hold 55% of all licensed spectrum.

8. It is also evident from the record of the 700 MHz Consultation that the new mobile wireless market, which is characterized by a proliferation of smartphone devices and bandwidth intensive laptop and tablet computers, is driving demand for more and more spectrum. These pressures are an issue for the industry as a whole, not just the wireless incumbents.[5] Therefore, just as the auction of spectrum in the 700 MHz band offers the Department a unique opportunity to level the playing field in terms of access to lower frequency spectrum, the 2500 MHz auction offers the Department a unique opportunity to level the playing field in terms of access to this particular band and spectrum holdings generally.

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3 700 MHz Consultation Document, p. 9.

4 *Ibid,* p. 9.

5 See QSI Consulting, Inc*., In-Band Auction Cap: Promoting Sustainable Competition in the Canadian Mobile Wireless Industry Through an Equitable Auction Design*, which is set out in the Attachment to Shaw's Reply Comments in the 700 MHz Consultation, April 6, 2011, p. 2. (the "QSI Report").

9. The 2500 MHz band has been identified by the International Telecommunication Union ("ITU") on a global basis for next generation services.[6] Although the development of equipment for the 2500 MHz band is still in the very early stages, the band offers significant potential for a global device ecosystem. It is therefore critical that new entrants be provided with an equitable opportunity to bid on spectrum in the band in order to ensure that they are able to offer their customers a facilities-based competitive alternative to the incumbents.

10. With that said, there are fundamental differences between the 2500 MHz and 700 MHz bands that the Department must bear in mind when developing the auction framework for spectrum in the 2500 MHz band. For example, there are several important technical differences between spectrum in the 2500 MHz band versus spectrum in the 700 MHz band. Unlike spectrum in the 700 MHz band which has excellent signal propagation characteristics, spectrum in the 2500 MHz band will not facilitate signal transmissions over large areas, which makes it less suitable for rural deployments. In addition, because of its higher frequency range, it is more difficult for 2500 MHz spectrum to penetrate buildings and walls, which affects urban deployments of this spectrum. In general, network deployments in the 2500 MHz band require more cell sites and more equipment and, therefore, they entail greater costs.

11. The technical characteristics of 2500 MHz spectrum also have a significant impact on which block sizes are most appropriate for this frequency band. In order to ensure a minimal acceptable level of data rate throughput and meet applicable standards for deployment, the Department should implement uniform paired blocks of 10+10 MHz and uniform unpaired blocks of 20 MHz. Adopting this proposal will ensure that the 2500 MHz band can be used to its maximum potential.

12. Furthermore, in order to ensure that competitors are able to continue providing consumers with all of the benefits of enhanced competition, including increased

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[6] Industry Canada, *Decisions on a Band Plan for Broadband Radio Service (BRS) and Consultation on a Policy and Technical Framework to License Spectrum in the Band 2500-2690 MHz, SMSE-005-11*, dated February 10, 2011 (the "Consultation Document"), p. 1.

customer choice, lower prices and higher levels of product and service innovation, the Department must ensure that new entrants are not precluded from bidding on spectrum in the 2500 MHz band as a result of the incumbents' ability and very powerful incentive to foreclose new entrant access to the band by acquiring all of the spectrum available in the auction.

13. In light of the above and based on Shaw's proposed spectrum block sizes, Shaw has proposed an in-band spectrum cap mechanism that limits the amount of spectrum that any one party can acquire in the 2500 MHz band to 40 MHz, regardless of whether this is held in the paired (FDD) portion of the band or the unpaired (TDD) portion of the band or through a combination of the two, such as the following: 2 x 10+10 MHz paired blocks; 2 x 20 MHz unpaired blocks; or 1 x 10+10 MHz paired block and 1 x 20 MHz unpaired block. This cap would apply to all existing and prospective holders of 2500 MHz spectrum in a given licence area.

14. Shaw notes that Inukshuk already holds well in excess of this cap in several regions of the country and that the Department has already reviewed and made a determination that no additional portion of those holdings should be returned by Inukshuk for auction purposes. Given these considerations, Shaw is not proposing that the Department reconsider this matter for the purposes of establishing a spectrum cap in the 2500 MHz band. However, going forward, Shaw believes that the Department should continue to monitor closely the impact of this level of concentration of spectral holdings on competition in the market. In addition, and regardless of the specific measures that the Department may implement in the 2500 MHz auction, it is clear that each of the BRS Incumbents already holds more than sufficient spectrum in the band and should therefore be excluded from bidding in the auction in any licence area where they meet or exceed Shaw's proposed in-band cap of 40 MHz. To allow the BRS Incumbents to acquire even more spectrum in these areas would preclude any possibility for an equitable allocation of 2500 MHz spectrum.

15. The cap mechanism that Shaw proposes will ensure that all carriers have equitable access to 2500 MHz spectrum without compromising the efficient deployment of that spectrum. As noted by the QSI Report, "an in-band cap balances the need for sustainable competition in the mobile wireless industry without the risk of undue regulatory interference."[7] Shaw's proposal also has minimal impact on auction dynamics. All spectrum blocks will be available to all eligible bidders, which maximizes bidding flexibility for all participants. At the same time, the mechanism focuses on the most relevant criterion for overcoming the most critical barrier to entry for new entrants in the market, namely the lack of diversity in, and the relatively low level of, their current spectrum holdings.

16. As described below, Shaw also supports uniform tier 2 service areas. In addition, Shaw believes there may be a role for 2500 MHz spectrum in addressing rural deployment. However, given the nature of the spectrum and the fact that it is much less cost effective to deploy 2500 MHz in rural areas, roll-out obligations would be inappropriate. Given how slowly the device ecosystem is developing for this band, mandatory roll-out obligations could force carriers to adopt inefficient deployment plans that are ineffective in addressing consumer needs.

17. As was clear from the submissions of several parties in the 700 MHz Consultation, the issue of foreign ownership reform is not relevant to designing an appropriate auction framework for promoting competition. In addition, the auction process should be reformed to ensure that all prospective participants in the auction comply with applicable Canadian ownership and control rules prior to allowing them to bid.

B. INTRODUCTION

18. Shaw is pleased to submit these comments in response to Industry Canada's *Decisions on a Band Plan for Broadband Radio Service (BRS) and Consultation on a Policy and*

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[7] QSI Report, p. 1.

Technical Framework to License Spectrum in the Band 2500-2690 MHz, SMSE-005-11, dated February 10, 2011 (the "Consultation Document").

19. 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 programming content (through Shaw Media). Shaw services over 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 greater customer choice. The potential synergies between Shaw's wireline and wireless services will benefit consumers in urban, rural and underserved areas. Shaw is committed to making a truly substantial and unique contribution to the current and future wireless market landscape in Canada.

20. In the comments that follow, Shaw provides its responses to the specific questions posed by the Department in the Consultation Document. As discussed in greater detail below, Shaw proposes to adopt uniform block sizes of 10+10 MHz for the FDD portion of the 2500 MHz band and uniform block sizes of 20 MHz for the TDD portion of the 2500 MHz band. In Shaw's view, this will maximize the deployment potential of the 2500 MHz band.

21. Moreover, in order to promote equitable access to spectrum in the 2500 MHz band, Shaw proposes an in-band cap mechanism of 40 MHz which would apply to all spectrum in the band, regardless of whether it is held in the TDD or FDD portions of the band or a combination of the two. Associated entities such as Bell, Rogers and Inukshuk must share this cap in order to ensure a fair auction process.

22. Finally, Shaw also supports the adoption of uniform tier 2 service areas to maximize network deployment efficiencies and allow competitors to create spectrum footprints that are comparable to the incumbents in the 2500 MHz band.

23. For ease of reference, Shaw's comments have been formatted to conform to the headings and question numbers adopted by the Department in its Consultation Document**.**

C. SPECTRUM BLOCK SIZES

1-1 In preparation for the future licensing of the 2500 MHz spectrum, the Department seeks comments on the following:

Should the block sizes be uniform in size?

(a) If a uniform size is preferred, what size should be considered?

(b) If a mix of block sizes is preferred, what combinations and arrangements should be considered?

24. As noted by the Department in the Consultation Document, there are at least three technology options for the deployment of networks in the 2500 MHz band, namely "FDD-based Long-Term Evolution (LTE), TDD-based LTE, or TDD-based WiMAX."[8]

25. While it is true that LTE and WiMAX systems can operate on 5 MHz channels or even narrower, the Department correctly points out in the Consultation Document that these systems are capable of delivering "greater efficiencies when operating with wider channels of up to 20 MHz or more."[9]

26. Given the amount of spectrum available for auction in the 2500 MHz band, as well as the contiguity of that spectrum, Shaw believes that the Department should adopt uniform block sizes of 10 MHz in the FDD portion of the band and 20 MHz in the TDD portion of the band.

27. Shaw would not agree with proposals that recommend smaller block sizes of 5+5 MHz of paired spectrum in the FDD portion of the band or of 10 MHz of unpaired spectrum in the TDD portion of the band. As the Department correctly points out in the Consultation Document, the wider the channel, the greater the data speeds and spectral

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[8] Consultation Document, p. 33.

[9] *Ibid,* p. 33.

efficiencies.[10] In fact, it is for this reason that industry experts, such as Rysavy Research/3G Americas, recommend that regulators licence 4G spectrum "in as wide radio channels as possible".[11] While this principle applies to all frequency bands, it is particularly true for the 2500 MHz band because of the propagation characteristics of that spectrum.

28. Moreover, as the Department notes in the Consultation Document, the ITU has recommended that IMT-Advanced radio interface technologies provide support for "scalable bandwidth up to and including 40 MHz".[12] Thus, while LTE will quite easily support channel widths of up to 20 MHz, LTE-Advanced will actually support channel widths of up to 40 MHz.[13]

29. Given these considerations, it would be counter to international trends and, indeed, the advice of numerous and diverse stakeholders in the industry to adopt block sizes of 5+5 MHz in the FDD portion of the band or of 10 MHz in the TDD portion of the band. The 2500 MHz band is one of the few remaining bands of commercial mobile spectrum that still has relatively large amounts of unallocated contiguous spectrum. In this respect, the 2500 MHz band represents a unique opportunity for the Department to establish larger block sizes in the auction so that competitors can offer more spectrally efficient broadband services to their customers.

30. Of course, the Department must weigh the technical advantages of adopting wider channels against the disadvantages for the wireless market that would result from a reduction in the number of spectrum blocks available for bidding in the auction. In striking the right balance, the Department must consider the technical characteristics of the spectrum and the amount of spectrum that can be made available for commercial

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10 *Ibid,* p. 33.

11 Rysavy Research/3G Americas, *Transitioning to 4G: 3GPP Broadband Evolution to IMT-Advanced*, September 2010, as quoted in the Consultation Document, p. 33.

12 International Telecommunication Union, *Report ITU-R M.2134: Requirements related to technical performance for IMT-Advanced radio interface(s),* 2008*,* as quoted in the Consultation Document, p. 33.

13 Rysavy Research, *supra*, as quoted in the Consultation Document, p. 33.

mobile use taking into account the existing spectrum holdings of competitors in the wireless industry.

31. When looked at from this perspective, the Department must consider the following important facts. In total, there is 180 MHz of spectrum available for commercial use in the 2500 MHz band. This amount should be contrasted with 58 MHz of spectrum available for commercial use in the 700 MHz band (assuming adoption of the US band plan).[14] The amount of spectrum in the 2500 MHz band that is currently held by the BRS Incumbents varies from region to region. However, with the exception of the territories, the BRS Incumbents have at least 60 MHz of spectrum in every region of Canada consisting of 40 MHz of paired spectrum in the FDD portion of the band and 20 MHz of unpaired spectrum in the TDD portion of the band. In fact, in several of the most populated regions of the country, Inukshuk holds up to 120 MHz of spectrum in the 2500 MHz band, including in southern Ontario and southern Quebec as well as the southern half of British Columbia.

32. In order to compete on the same technical footing as the BRS Incumbents, a new entrant will need reasonable access to similar channel widths. If a new entrant is only able to acquire one paired block of 5+5 MHz or one unpaired block of 10 MHz in the auction (which is a considerable risk if block sizes are set any smaller than what Shaw has proposed), that new entrant will face an insurmountable competitive disadvantage relative to the BRS Incumbents.

33. In Shaw's view, the use of 10+10 MHz blocks in the FDD portion of the band and 20 MHz blocks in the TDD portion of the band will strike the appropriate balance between the need to maximize channel efficiency on the one hand and the need to ensure an equitable allocation of spectrum through multiple bidding opportunities on the other.

34. With respect to the question of whether a mix of block sizes should be adopted for the 2500 MHz band, Shaw does not support this approach. If a mix of block sizes is used in

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[14] 700 MHz Consultation Document, p. 14.

the FDD or TDD portions of the band, this will reduce the effectiveness of network deployments because it will result in inconsistent channel widths. This, in turn, will prevent service providers from maximizing data speeds and spectral efficiencies. Accordingly, Shaw recommends that a *uniform* block size of 10+10 MHz be adopted for the FDD portion of the band and that a *uniform* block size of 20 MHz be adopted for the TDD portion of the band.

1-2 In the specific geographic regions discussed above and shown in Appendix A, which block size option(s) should be adopted and why is this option(s) preferred over the other options? Should the combinations and arrangements of block sizes be the same or different in different areas?

35. For the reasons noted in our response to question 1-1 above, Shaw supports the use of uniform block sizes in all of the geographic regions identified in Appendix A of the Consultation Document.

D. TIER SIZES FOR 2500 MHz SPECTRUM

2-1 The Department seeks comments on whether the licensing of 2500 MHz spectrum should be based on uniform tier sizes across all spectrum blocks, or on a mixture of tier sizes.

2-2 Based on your answer above, if a uniform tier size is preferred, what tier size should be adopted? If a mixture of tiers is preferred, please indicate the proposed tier(s) for each spectrum block.

36. In order to maximize network deployment efficiencies and allow competitors to create spectrum "footprints" that are equivalent to those enjoyed by the BRS Incumbents in the band, Shaw recommends the use of uniform tier 2 serving areas for all blocks of spectrum that are made available in the 2500 MHz auction.

37. As noted by the Department in the Consultation Document, significant efficiencies can be achieved in licensing spectrum on a larger geographic area. For example, larger geographic service areas would enable the development of efficient large-scale networks due to economies of scale. In addition, given the capital and operational costs that are involved in provisioning broadband mobile services, it is easier to recover these

costs when there is a larger addressable subscriber base over which the costs can be spread.

38. There are also distinct technical advantages to the use of larger tier sizes. For example, larger tier sizes result in fewer neighbouring service providers, which in the words of the Department translates into "less coordination between licensees and more effective use of radio spectrum."[15] The use of larger service areas would also facilitate the creation of larger regional mobile services, which would have the salutary effect of reducing the number of roaming arrangements between licensees.

39. In considering the appropriate tier size for spectrum in the 2500 MHz band, the Department should also take into account the existing spectrum holdings of the incumbents in the band. As noted earlier, Inukshuk currently holds more than 50% of the spectrum in the 2500 MHz band. Although some of this spectrum is MDS spectrum that was acquired from Look, Craig Wireless and Yourlink, the remainder is MCS spectrum that was obtained through a comparative selection and review process. This latter spectrum was licensed on a province-by-province and territory-by-territory basis, with Inukshuk receiving MCS licenses in almost every single province and territory in Canada and SaskTel receiving MCS licenses in Saskatchewan without ever having to pay for that spectrum through an auction.

40. In the view of Shaw, competitors should be given the opportunity to establish network coverage footprints in the 2500 MHz band that are similar to that of the Inukshuk joint venture and SaskTel. In order to do so, they will require access to spectrum blocks that are based on tier 2 serving areas. Given the uncertainty of auction outcomes, anything smaller than this amount would make it difficult for competitors to provide the same geographic coverage as the BRS Incumbents.

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[15] Consultation Document, p. 34.

E. PROMOTING COMPETITION

3-1 If the Department determines that there is a need for measures to promote competition in the wireless services market, which of the above mechanisms would be most appropriate in the 2500 MHz band and why should this mechanism be considered over the other? Comments should also indicate if further restrictions should apply.

41. As noted above, one of the critical barriers to entry that is currently faced by new entrants is a lack of spectrum and spectral diversity. At the present time, new entrants such as Shaw only hold small amounts of AWS spectrum (or in the case of Public Mobile, a very small amount of PCS spectrum) which will not be sufficient to meet the increasing demands of users for bandwidth rich applications and services.

42. By contrast, the wireless incumbents already have a significant amount of diversity in their spectrum holdings, including a diversity of spectrum in each of the commercial mobile bands. For example:

- Bell and Telus each hold between 10-20 MHz of AWS spectrum in every major market in Canada, including Toronto, Montreal, Vancouver, Ottawa-Gatineau, Calgary, Edmonton, Quebec City, Winnipeg, Halifax, Victoria, Saskatoon, St. John's and Moncton.[16]

- Bell and Telus each hold sizeable amounts of PCS spectrum in each major market, ranging anywhere from 10 to 40 MHz with average combined holdings on a market-by-market basis of 60 MHz. This spectrum, of course, is in addition to their spectrum holdings in the 800 MHz (cellular) and ESMR bands.[17]

- Rogers holds 20 MHz of AWS spectrum in every major market across the country as well as 60 MHz of PCS spectrum in each of these markets, except for Toronto where it holds 50 MHz. This spectrum, of course, is in addition to Rogers' 800 MHz (cellular) holdings.[18]

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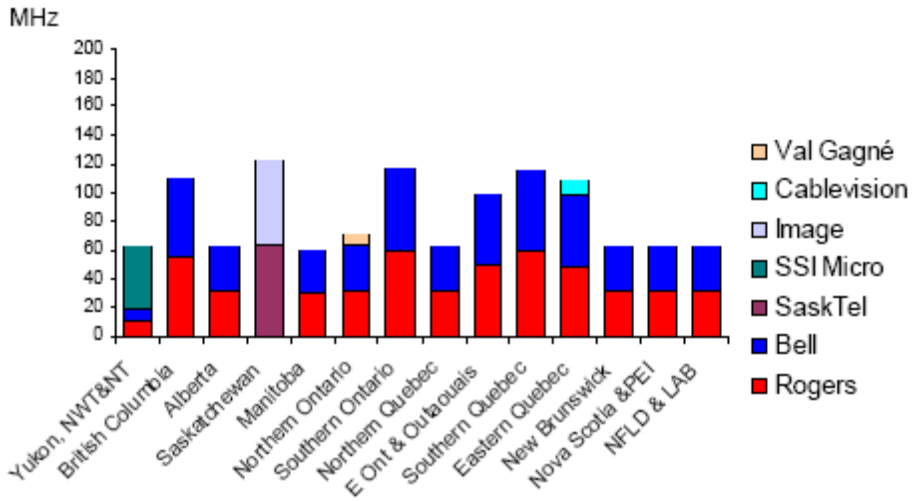
16 Industry Canada, *Auction of Spectrum Licences for Advanced Wireless Services and Other Spectrum in the 2 GHz Range: Summary by Licence Winner,* available online: http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09004.html.

17 Industry Canada, *PCS Licensees,* available online: http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09431.html. See also, Industry Canada, *Cellular Licensees,* available online: http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf05550.html.

18 *Supra*, notes 16 and 17.

43. With respect to BRS spectrum, as noted above, Bell and Rogers already have a significant amount of spectrum in the 2500 MHz band through their Inukshuk joint venture with some holdings reaching as high as 120 MHz in certain markets. This is graphically depicted in the following diagram which was prepared by the Department as part of its consultation on 700 MHz spectrum.

Total Holdings in the 2500 MHz band by MHz, by Service Area[19]



44. At the time that this diagram was prepared, Image Wireless (which is a division of Yourlink Inc.) still held MDS spectrum in the province of Saskatchewan. However, this spectrum has since been acquired by Bell and Rogers through their Inukshuk joint venture, which means that these two companies now have a Canada-wide footprint of 2500 MHz spectrum which includes holdings of as much as 120 MHz of spectrum in some of Canada's most populated markets (i.e., Southern Ontario, Southern Quebec and Southern British Columbia).

45. When the Department launched the 700 MHz Consultation, it estimated that Bell and Rogers held 96% of all licensed spectrum in the 2500 MHz band:

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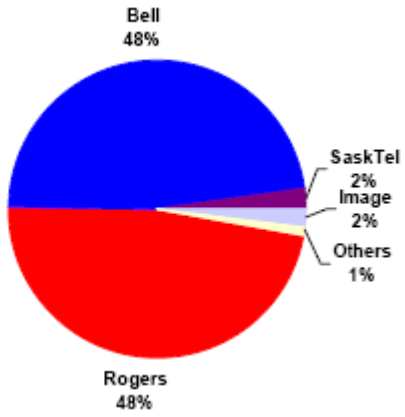
[19] 700 MHz Consultation Document, p. 10.

Current Spectrum Holdings in the 2500 MHz Band[20]



This amount has now increased to 98% with the acquisition by Inukshuk of Yourlink's spectrum in the 2500 MHz band in Saskatchewan.

46. Because of their significant spectral holdings and their dominant position in the market, the wireless incumbents generally, and the BRS Incumbents in particular, are highly incented to acquire all of the available 2500 MHz spectrum in the auction in order to foreclose new entrant access and market entry. This phenomenon, which is sometimes referred to as the foreclosure value of spectrum, was explained by QSI Consulting in its recent report entitled *In-Band Auction Cap: Promoting Sustainable Competition in the Canadian Mobile Wireless Industry Through an Equitable Auction Design*:

> 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 at auction 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

[20] *Ibid,* p. 9.

> advantage because they do not have a competitive advantage in the first place.[21]

47. In order to address these concerns, the Department should take steps to ensure that there is an equitable allocation of the remaining spectrum in the 2500 MHz band by establishing an in-band spectrum cap of 40 MHz which would apply to all existing and prospective holders of 2500 MHz spectrum in a given licence area.

48. In the view of Shaw, this approach will go a long way in avoiding an outcome where only 1 or 2 bidders are able to acquire spectrum in the 2500 MHz auction – something which would clearly be adverse to the interests of consumers who deserve a competitive mobile wireless marketplace including all of the accompanying benefits such as increased customer choice, higher levels of product and service innovation and competitive pricing discipline.

49. Moreover, Shaw's proposed in-band cap would provide wireless new entrants and even wireless incumbents that currently do not have 2500 MHz spectrum with an opportunity to supplement their current spectral holdings with spectrum from a new band that will likely attract global attention in the coming years. This is particularly important for the wireless new entrants whose current spectral holdings are limited to the AWS band.

50. In addition, these measures will ensure that new entrants have equitable access to spectrum in the 2500 MHz band without compromising the efficient deployment of that spectrum.

51. Finally, Shaw's in-band cap proposal will have a minimal impact on auction dynamics. As noted in the QSI Report, in-band caps do not raise the same concerns as "other policy levers, such as aggregate spectrum caps and spectrum set-asides. For example, the auction cap does not permit the "gaming opportunities" that incumbents have raised about set-asides."[22] All spectrum blocks will be available to all eligible bidders, which maximizes bidding flexibility for all participants. At the same time, the mechanism

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21 QSI Report, *supra* note 5, p. 5.

22 *Ibid*., p. 12.

focuses on the most relevant criterion for overcoming the most critical barrier to entry for new entrants in the market, namely their lack of spectral diversity and spectrum.

3-2 (a) If the Department were to implement spectrum aggregation limits (caps), should a cap apply to the 2500 MHz band? If a cap is necessary:

(i) What should be the size of the cap and should this be specific to either the paired and/or unpaired spectrum bands?

52. The cap should be set at 40 MHz, regardless of whether this is held in the paired (FDD) portion of the band or the unpaired (TDD) portion of the band or through a combination of the two, such as the following: 2 x 10+10 MHz paired blocks; 2 x 20 MHz unpaired blocks; or 1 x 10+10 MHz paired block and 1 x 20 MHz unpaired block.

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

53. Yes, bidders and their affiliates and/or associates should share the cap. In prior auctions, the Department has treated all entities within an affiliated or associated group as one bidder.[23]

54. Given their joint venture relationship, it is clear that for purposes of any cap and the 2500 MHz auction generally, Bell and Rogers should be treated as associates of each other and each of them should be considered affiliates or associates of the Inukshuk joint venture.

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

55. In order to promote sustainable competition in the market, the cap 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 cap remains 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 2500 MHz auction:

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[23] See, for example, the Department's AWS Auction Policy Framework, *supra,* note 2, p. 5.

(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 these blocks 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 be restricted for a given time period)?

56. It is clear from the foregoing that measures are needed to promote equitable access to 2500 MHz spectrum. Shaw believes that the in-band cap mechanism that it has proposed offers the most effective and light-handed regulatory solution.

57. With respect to a spectrum set-aside, Shaw believes that such a mechanism is not the most appropriate mechanism for the 2500 MHz band as it could undermine the objective of promoting equitable access to spectrum and competition in the market.

58. For example, a spectrum set-aside would permit a certain portion of the spectrum available in the auction to be available for bidding by the BRS Incumbents. In the view of Shaw, given the already sizeable holdings of the BRS Incumbents in the 2500 MHz band, there is no public policy rationale that could justify providing them with even more access to spectrum in the band. Yet, this is a very conceivable outcome if a spectrum set-aside was established for the 2500 MHz auction.

3-3 Are there other mechanisms that should be considered in the 2500 MHz band to promote competition? If so, how should such mechanisms be applied in this band?

59. The wireless incumbents benefit from mature, national networks that allow their customers to travel throughout the country without ever having to roam on to a competitor's network. In contrast, new entrants are still in the early stages of building out their own networks and, therefore, cannot offer comparable on-net coverage. As a result, absent rules for mandatory roaming, the customer experience would be significantly compromised.

60. A recent article in the *Economist* makes reference to the challenges which are confronting new entrants as they try to compete against wireless incumbents:

> Canada provides a cautionary tale. There, three big companies, Telus, Bell Mobility and Rogers Communications, were together allowed to gain control of almost 95% of the wireless market. Amid complaints about high call rates (among the rich world's priciest) and a lack of innovation, the government used a spectrum auction in 2008 to create a raft of new players. ***But these have largely struggled against the industry's behemoths.***[24]

61. In order to promote consumer choice, the Department must extend mandated roaming and tower and site sharing for holders of spectrum in the 2500 MHz band. In addition, the evidence tendered on the record of the 700 MHz Consultation demonstrates that the current rules for mandated roaming and tower and site sharing require reform. 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;
- Ineffective mechanisms for the timely 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.[25]

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[24] *The Economist*, "An audacious merger with a poor reception", March 24, 2011 (available online: http://www.economist.com/node/18440903/print).

[25] 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 comments submitted in the proceeding initiated by the 700 MHz Consultation: 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.

62. These problems are being exploited by the incumbent wireless carriers as a means of maintaining or enhancing their competitive advantages and dominance 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.

63. 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.

64. Mandated tower and site sharing is in the public interest, both from a network deployment perspective as well as from a public policy perspective, especially 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. Ofcom, the regulatory authority in the UK, 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.[26]

65. 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 the wireless incumbents. Contrary to claims by the wireless incumbents, mandated roaming has not discouraged network build-out. The wireless incumbents cannot deny that the new entrants have made significant investments in their networks to date. Rogers has argued in the 700 MHz Consultation that "any calls by the new entrants for further in-

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188-192, Cogeco Comments, February 28, 2011, paras. 41-42, and Eastlink Comments, February 28, 2011, pp. 35-37.

[26] 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, para. 5.53.

territory roaming terms are simply in order to avoid building their networks."[27] That assertion is false. The wireless incumbents have had over 25 years to build out their networks, and, of course, the incumbents continue to invest in those networks. It is unreasonable to expect that new entrants could catch up with that head start in a few short years, especially given that the wireless incumbents did not have the significant initial capital outlay of paying for spectrum at auction.

66. While Shaw was initially optimistic that the rules developed for mandatory roaming and tower/site sharing in the lead-up to the AWS auction would facilitate market entry and competition, the evidence on the record of the 700 MHz Consultation has confirmed that improvements to the existing rules are needed as soon as possible and, in any event, well before the Department conducts any further auctions of commercial mobile 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.

67. 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.

3-4 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 the proposed changes affect your responses to the questions above?

68. We refer to Shaw's July 30, 2010 submission that was filed in connection with the Department's consultation entitled *Opening Canada's Doors to Foreign Investment in Telecommunications: Options for Reform* (the "foreign ownership consultation"). In this submission, Shaw expressed support for competitively-neutral foreign ownership rules. In particular, and for the reasons set out in its submission, Shaw supports Option 1

[27] Rogers, Reply Comments in the 700 MHz Consultation, April 6, 2011, para. 114.

(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.

69. However, in Shaw's view, the BRS incumbents' competitive advantage that derives from their clear dominance of the 2500 MHz band cannot be overcome through increased access to foreign capital, regardless of what form the foreign ownership rules take. As described above, the 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 competitors for the sole purpose of preventing those competitors, whether foreign or domestic, from competing in the wireless marketplace. As a result, if any of the changes proposed in the foreign ownership consultation are implemented, this would not obviate the need to implement Shaw's proposed spectrum cap in order to promote competition, innovation and consumer choice in the Canadian wireless market.

70. Shaw notes that other parties share this view. For example, most parties that participated in the Department's 700 MHz Consultation agreed that, regardless of what happens to the Canadian ownership and control rules, mechanisms are still needed in the auction in order to promote competition in the market.[28] Even Bell and Telus took the position that a change in the foreign ownership rules would not alter their position on the design of the 700 MHz auction.[29] For these reasons, as well as those set out above, 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.

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[28] See the following comments in the 700 MHz Consultation, 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,

[29] See the following comments in the 700 MHz Consultation: Bell Comments, February 28, 2011, para. 147 and Telus Comments, February 28, 2011, para. 187.

71. In addition, other parties in the 700 MHz Consultation shared Shaw's concerns with the current auction process that clearly permits non-Canadians to bid for spectrum.[30] 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.

72. Shaw's proposed reform would provide prior certainty to the Department that conditional winners of licences are Canadian and eligible to be issued 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 bidders that are eligible to be issued licences.

F. PROMOTING SERVICE DEPLOYMENT IN RURAL AREAS

4-1 Comments are sought on specific measures that could be adopted within the 2500 MHz spectrum auction process to ensure further deployment of BRS in rural and remote areas (e.g. roll-out conditions, tier structure, etc.).

73. Unlike spectrum in lower frequency bands, such as the 700 and 800 MHz bands, spectrum in the 2500 MHz band has propagation characteristics, which makes it less cost-effective for rural deployments. Specifically, in comparing spectrum in the 2500 MHz band with spectrum in lower frequency bands, it is apparent that 2500 MHz spectrum:

- has reduced coverage characteristics when compared to lower frequency spectrum; and
- requires a greater number of cell sites to achieve the same degree of coverage as spectrum in lower frequency bands.

74. Shaw further notes that the ecosystem for devices in the 2500 MHz band has yet to develop and that existing systems in the band are based on a variety of technologies,

[30] See the following comments in the 700 MHz Consultation: Eastlink Comments, February 28, 2011, p. 35 and Quebecor Comments, February 28, 2011, p. 7 and Shaw Comments, February 28, 2011, paras. 85-88.

including legacy MCS systems. Shaw further notes that none of the BRS licences that have been issued by the Department to Inukshuk contain roll-out commitments.

75. In the view of Shaw, given that 2500 MHz spectrum does not lend itself to cost-effective deployments in rural areas and that the underlying technological ecosystem is still evolving, it would not be appropriate to impose roll-out obligations for this spectrum.

76. With that said, Shaw believes that if carriers choose to use this spectrum to roll-out services to underserved areas, then they should be eligible to receive the same rebates as those proposed by Shaw in the Department's 700 MHz Consultation. Specifically, as part of that Consultation, Shaw has recommended that the Department provide rebates on auction fees to bidders that deploy LTE systems (or HSPA+ 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 program[31] or the serving areas that are defined by the CRTC as "high cost". These rebates would only be paid out after the carrier deploys a rural 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.[32]

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

[32] Please see Shaw's, February 28, 2011 Comments in the 700 MHz Consultation, paras. 113-114.