

**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**

*Canada Gazette* Notice SMSE 005-11

**Reply Comments of Barrett Xplore Inc. and  
Barrett Broadband Networks Inc.**

**May 16, 2011**

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## Executive Summary

### i. Introduction

1. Barrett Xplore Inc. and Barrett Broadband Networks Inc. (collectively, “Barrett”) are pleased to provide the following reply comments in response to the Department’s paper, *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*, as announced in Canada Gazette Notice No. SMSE-005-11 (the “2500 MHz Consultation Paper”). As Canada’s largest rural broadband provider, deploying fixed wireless and satellite broadband services across all regions of Canada, Barrett welcomes this opportunity to reply to the comments submitted in relation to the development of a framework for the licensing of spectrum in the 2500 MHz band.
2. Many parties commenting on the 2500 MHz consultation have clearly failed to recognize the important role that 2500 MHz spectrum will play in bridging the digital divide. Rogers, Bell Mobility, TELUS and MTS Allstream all concluded that no specific measures were required to promote the use of 2500 MHz spectrum to deliver broadband services in rural areas.<sup>1</sup> Bell Mobility’s position, in fact, was supported by the propagation analysis conducted for it by the Communications Research Centre (CRC). With the wireless incumbents’ limited track record in delivering broadband to rural areas – as well as their current position that 2500 MHz spectrum is not usable for mobile broadband service – it is unlikely that they will address the digital divide without public subsidy.
3. As Barrett demonstrates in these reply comments, one corollary of CRC’s analysis is that 2500 MHz spectrum is very good for delivering broadband services to fixed household and business premise equipment in rural areas. The implication is that

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<sup>1</sup> Rogers, 2500 MHz Comments, para 81; Bell Mobility, 2500 MHz Comments, para. 76; TELUS, 2500 MHz Comments, para. 94; MTS Allstream, 2500 MHz Comments, para. 29.

the 2500 MHz band should be considered as highly complementary to the 700 MHz band in addressing the digital divide.

*ii. Bridging the digital divide without the need for public subsidy*

4. The digital divide is one of the most pressing telecommunications policy issues facing Canada, today. Up until recently, the Canadian Radio-television and Telecommunications Commission (CRTC) had viewed a download speed of 1.5 Mbps (megabits per second) as the threshold for suitable broadband services.<sup>2</sup> In its May 2011 telecommunications policy, the CRTC recently introduced a new broadband performance target of 5 Mbps download / 1 Mbps upload.<sup>3</sup> Based on this new performance target, the CRTC estimates that some 80% of Canadian households, or 2.5 million households, still lack broadband service.<sup>4</sup>
5. Whenever the issue of bridging the digital divide is posed, there is usually a consideration about how to earmark public funding to support the *inefficient* roll-out of service to rural Canada. As already noted in Barrett's 700 MHz and 2500 MHz comments, there is NO NEED for public subsidy to address the digital divide. As long as the 700 MHz and 2500 MHz spectrum auctions are designed to allow rural-focused ISPs to have a fair chance to acquire spectrum at market prices that reflect the value of rural telecom opportunities and not the adjacent urban territories, then deployment of broadband services in rural areas will follow. As we describe in Section 6, this outcome can be achieved through a combination of rural unbundling, pro-competitive measures and rural rollout obligations. Most importantly, Barrett argues the solution to the digital divide can be done at ZERO COST to the public purse.

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<sup>2</sup> CRTC, *Telecom Regulatory Policy CRTC 2011-291*, para. 18.

<sup>3</sup> CRTC, *Telecom Regulatory Policy CRTC 2011-291*, para. 76.

<sup>4</sup> CRTC, "CRTC sets speed target for broadband Internet and maintains obligation to provide basic home telephone service," press release, May 3, 2011.

iii. Digital divide: it's no longer just about availability; it's now about capacity

6. Broadband service is typically framed in terms of download/upload speeds and is provided primarily on fixed networks. Maximum download speed, however, is only one part of the broadband service equation. Total network capacity, particularly in the last mile, is also relevant. Network capacity is a shared resource, so that the more gigabytes (GB) simultaneously downloaded, the more congested the network gets. If an ISP does not have sufficient aggregate network capacity in the last mile to meet peak bandwidth demand, consumers are unlikely to realize download speeds anywhere near the maximum potential of their networks. The CRTC's broadband target of 5 Mbps / 1 Mbps, therefore, is only meaningful if ISPs have the capacity to meet peak demand. This capacity reality has important implications for spectrum licensing, as spectrum offers the only route for ensuring network capacity in rural areas, where scalable wireline alternatives are not available.
  
7. Bandwidth demand is growing quickly in the face of rising broadband usage. Clearcable Networks recently reported that 25% of its subscriber base downloaded 25 GB or more per month, up from 15% a year earlier.<sup>5</sup> The pace of growth in bandwidth demand is even faster in rural Canada. Barrett's own customers now have increased their average monthly rate of downloading to 18 GB, from 12 GB, 12 months ago. These broadband usage trends suggest that rural Canada may lag even further behind urban Canada unless more spectrum becomes available to rural-focused ISPs.
  
8. Barrett has already put forward an approach to make spectrum in the 700 MHz band more accessible for rural-focused ISPs. The 700 MHz band is particularly attractive for meeting the needs of a dispersed population, because it offers relatively lower infrastructure costs for a large coverage area. However, the capacity shortage in rural Canada is acute even now, let alone going forward. It will have to be addressed by spectrum below 1 GHz (specifically 700 MHz) as well as spectrum over 1 GHz (including 2500 MHz).

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<sup>5</sup> Clearcable Networks, Presentation to Canada 3.0, Stratford, Ontario, May 2011.

iv. 2500 MHz will play a vital role in bridging the digital divide

9. 700 MHz spectrum offers the wide **coverage** that will give rural households broadband connectivity. However, there is no more than 84 MHz commercially available at 700 MHz, and a large share of this spectrum is likely to be acquired by the incumbents. To meet the **capacity** requirements in rural areas, spectrum above 1 GHz will also be needed. The 2500 MHz band offers 190 MHz of usable spectrum – more than double what is available at 700 MHz, although the largest wireless incumbents already control much of this spectrum through Inukshuk. In most parts of Canada, the 2500 MHz band will offer 120 MHz of spectrum. This additional spectrum will play a vital role in meeting the capacity needs of rural areas in an affordable manner, where scalable wireline alternatives to do not exist.
10. The operative word in this last statement is “affordable,” i.e., the economics of 2500 MHz infrastructure and global equipment standards enable providers to extend services at consumer prices which are equivalent to urban prices. Thus, 2500 MHz spectrum is a very effective band to deploy broadband services to rural Canada for which there is no real economic wireline equivalent.

v. Geographic tiering: a feasible first step to bridging the digital divide

11. Most parties that submitted comments to the 2500 MHz consultation called for the Department to license the 2500 MHz spectrum on the basis of Tier 3 or even Tier 2. Only Barrett and SSI Micro called for the Department to adopt Tier 4 for the licensing of 2500 MHz.<sup>6</sup> Not coincidentally, Barrett and SSI Micro are two rural-focused ISPs.
12. Putting more spectrum that is capable of delivering fixed broadband services in the control of the large *urban-focused* mobile incumbents will do very little to change the existing situation of the limited availability of affordable broadband access in rural areas. The fact is that those rural communities with the best broadband services are currently receiving these services from hundreds of **rural-focused**

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<sup>6</sup> SSI Micro Ltd., 2500 MHz Comments, para. 24.

**Internet Service Providers (ISPs).** As such, the Department should focus on implementing mechanisms that allow ISPs with rural-focused business plans to gain affordable – and economically fair (i.e., market prices) – access to rural spectrum. Such mechanisms will attract investment from the ISPs focused on serving the broadband needs of the rural markets.

13. The first step towards achieving this outcome is for the Department to adopt Tier 4 service areas and unbundle the rural service areas from urban density areas (“rural unbundling”). Rural unbundling essentially involves remapping certain Tier 4 service areas to clearly distinguish between urban s and rural areas so that the service area boundaries are more closely aligned to the densities of urban and rural Census Subdivisions (CSDs) within the service areas.
14. Barrett has already developed a rigorous yet simple approach based on precedent for implementing rural unbundling. Its approach, which includes a household-density based definition of rural service areas, would require that only 47 existing Tier 4 service areas – or 27% of the total number of service areas – be subject to rural unbundling. Indeed, the rural unbundling would leave the total number of Tier 4 service areas unchanged at 172.
15. In that regard, rural unbundling should not introduce any more complexity to the auction than would arise from simply adopting the existing Tier 4 service areas, as the Department has already done in the case of the 2300 MHz and 3500 MHz auctions in 2004, 2005 and 2009. In fact, Barrett was able to develop and complete the remapping exercise required for Tier 4 rural unbundling in fewer than three days. The administrative burden is negligible. Moreover, the Department itself implemented a form of rural unbundling during the licensing of 2300 MHz and 3500 MHz spectrum.
16. The coordination costs of rural unbundling would also be limited. In its 2500 MHz comments, Bell Mobility acknowledged that in the particular case of 2500 MHz,

the coordination issues – and corresponding coordination costs – raised by a more granular tiering structure such as Tier 4 would actually be limited.<sup>7</sup>

*vi. Pro-competitive measures: encouraging sustainable competition in rural areas*

17. Canada is an international anomaly of sorts: in no other country do the wireless incumbents hold such a large share of spectrum, particularly 2500 MHz. On a population-weighted basis, Rogers, Bell and SaskTel control a staggering 98% of licensed spectrum in the 2500 MHz band.
18. Several other parties (TELUS, MTS Allstream, SaskTel, EastLink, Public Mobile, Quebecor Media, Shaw Communications) agree with Barrett that the dominance of Inukshuk necessitates pro-competitive measures to encourage entry and prevent any single bidder from acquiring all of the available 2500 MHz spectrum.
19. While rural unbundling will lower the cost of acquiring rural spectrum to a point that is commensurate with its market potential, in order to ensure that spectrum is made accessible for rural-focused ISPs, Barrett argues that the Department should also re-balance the rural spectrum landscape by implementing pro-competitive measures (i.e., a set-aside and spectrum cap).
20. Despite the fact that Bell's own propagation study demonstrates that 2500 MHz spectrum is very suitable for fixed wireless broadband – a position supported by SaskTel in its 2500 MHz submission – most of the incumbents have done very little, to date, to use it to deploy fixed broadband service in rural services, even though they hold a large swathe of the licensed spectrum. Given the propensity of larger wireless operators to acquire spectrum when it is available, even if there is no near-term reason for doing so, policy measures should guard against that outcome. In particular, Barrett proposes a **rural set-aside** that would prevent the incumbents from acquiring any additional 2500 MHz spectrum in rural areas.

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<sup>7</sup> Bell Mobility Inc., 2500 MHz Comments, para. 18.

21. Even in the absence of bidding by the incumbents, there is still the risk that a single entity could acquire all of the remaining 2500 MHz spectrum that is available and thereby leave the overall market structure virtually unchanged. To further encourage sustainable competition in both rural and urban markets, Barrett has proposed an innovative **in-auction cap**. This in-auction cap – which would apply to urban and rural spectrum – would prevent any single entity from acquiring more than 30 MHz of spectrum; however, it would not compel Inukshuk to relinquish any spectrum in order to meet the cap.
22. Several parties commenting on the 2500 MHz Consultation (MTS Allstream, Public Mobile, Quebecor Media, and Shaw Communications) called for spectrum caps of 40 MHz or 50 MHz. Barrett maintains that the implementation of a 40 MHz in Region B could result in an unfair auction outcome, where one entity held 40 MHz and its non-incumbent competitor held only 20 MHz. A cap of 30 MHz is the only fair level for Region B. However, in Regions A and C, where 120 MHz of spectrum is available, the Department may elect to implement a higher in-auction cap of 40 MHz or 50 MHz.
23. Finally, other parties, such as SaskTel and Quebecor Media, support Barrett’s position that the Department must adopt **rural rollout obligations** to prevent winning bidders – whoever they might be – from simply sitting on rural spectrum as the large incumbent service providers have already done in many cases. While it is preferable for rural-focused ISPs to have access to their own spectrum, it would also be useful to the deployment of rural broadband services to compel spectrum holders to roll-out their networks.
24. Taken together, Barrett’s proposal offers the Department a market-driven approach for licensing 2500 MHz spectrum, and has the added advantage of eliminating the need for public subsidy to close the digital divide.

## 1. Introduction

25. Barrett Xplore Inc. and Barrett Broadband Networks Inc. (collectively, “Barrett”) are pleased to provide the following reply comments in response to the Department’s paper, *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*, as announced in Canada Gazette Notice No. SMSE-005-11 (the “2500 MHz Consultation Paper”). As Canada’s largest rural broadband provider, deploying fixed wireless and satellite broadband services across all regions of Canada, Barrett welcomes this opportunity to reply to the comments submitted in relation to the development of a framework for the licensing of spectrum in the 2500 MHz band.
26. Barrett, headquartered in Woodstock, New Brunswick, operates Xplornet Internet Services, Canada’s largest rural broadband provider, with customers and dealers in every province and territory. Barrett aims to bridge the urban/rural digital divide by ensuring that every Canadian, regardless of where they live, has access to broadband, thereby enabling them to compete effectively in the global economy and gain access to essential government and educational services.
27. Barrett’s 450 dedicated employees are committed to providing an excellent customer experience for its subscriber base, with reliable, bilingual service available nationwide 24 hours per day, 7 days per week, 365 days per year. Combined with a nationwide dealer and service installation network of over 3,000 professionals, Barrett provides local sales and support throughout Canada.
28. Barrett believes that the licensing of spectrum in the 2500 MHz band provides the Department with an ideal opportunity to address the availability of affordable broadband Internet services for rural Canadians. As such, many of Barrett’s comments focus on the policies and measures that the Department may pursue to foster market entry, sustainable competition, robust service offerings and the

accelerated deployment of broadband Internet services in rural areas of Canada that could eliminate the rural/urban digital divide, once and for all.

29. Many parties commenting on the 2500 MHz consultation have clearly failed to recognize the important role that 2500 MHz spectrum will play in bridging the digital divide. Rogers, Bell Mobility, TELUS and MTS Allstream all concluded that no specific measures were required to promote the use of 2500 MHz spectrum to deliver broadband services in rural areas. Bell Mobility's position, in fact, was supported by the propagation analysis conducted for it by the Communications Research Centre (CRC). With the wireless incumbents' limited track record in delivering broadband to rural areas – as well as their current position that 2500 MHz spectrum is not usable for mobile broadband service (with no emphasis on fixed solutions) – it is unlikely that they will address the digital divide, at the very least without significant public subsidy.
30. As Barrett demonstrates in these reply comments, one corollary of CRC's analysis is that 2500 MHz spectrum is very good for delivering broadband services to fixed household and business premise equipment in rural areas. The implication is that the 2500 MHz band should be considered as highly complementary to the 700 MHz band in addressing the digital divide.

## **2. The Digital Divide**

31. The lack of suitable broadband communications services in many rural communities in Canada is one of the most pressing telecommunications policy issues for the federal government. Up until recently, the Canadian Radio-television and Telecommunications Commission (CRTC) had viewed a download speed of 1.5 Mbps as the threshold for suitable broadband services.<sup>8</sup>
32. Recently, the CRTC announced a new broadband target. This new target defines broadband service as 5 Mbps download and 1 Mbps upload.<sup>9</sup> The CRTC also

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<sup>8</sup> CRTC, *Telecom Regulatory Policy CRTC 2011-291*, para. 18.

<sup>9</sup> CRTC, *Telecom Regulatory Policy CRTC 2011-291*, para. 76.

noted that download speeds higher than 5 Mbps were still not available to some 80% of Canadian households, or 2.5 million households (20% × 13.5 million households). It is reasonable to believe that most, if not all, of these 2.5 million households are located in rural areas.<sup>10</sup>

33. Barrett's own detailed mapping of DSL and cable footprints against household densities indicates that some 18% of Canadian households are either unserved or under-served when it comes to broadband services.<sup>11</sup> For many rural Canadians, distance from higher density urban areas means that they are beyond the reach of the wireline infrastructure available to urban Canadians. However, even for rural households and businesses that are passed by cable or DSL plant, the quality of the plant can be quite poor in low density areas. Smaller cable systems often do not offer the full suite of digital services as in urban areas. As well, rural households and businesses are more likely to be located a longer distance from a telephone company's central office switching service than an urban household. This distance means that their DSL speeds are invariably lower than those experienced by urban households, resulting in service that can be below the definition of broadband.
34. Maximum download speed, however, is only one part of the broadband service equation. Total network capacity, particularly in the last mile, is also relevant. Network capacity is a shared resource, so that the more gigabytes (GB) downloaded simultaneously, the more congested the network gets. If an ISP does not have sufficient aggregate network capacity in the last mile to meet peak bandwidth demand, consumers are unlikely to realize download speeds anywhere near the maximum potential of their networks. The CRTC's broadband target of 5 Mbps / 1 Mbps, therefore, is only meaningful if ISPs have the capacity to meet peak demand. This capacity reality has important implications for spectrum licensing, as wireless spectrum offers the only route for ensuring network capacity in rural areas.

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<sup>10</sup> CRTC, "CRTC sets speed target for broadband Internet and maintains obligation to provide basic home telephone service," May 3, 2011.

<sup>11</sup> Barrett's calculations can be made available to the Department on a confidential basis.

35. Bandwidth demand is growing quickly in face of rising broadband usage. Clearcable Networks recently reported that 25% of its subscriber base downloaded 25 GB or more per month; up from 15% a year earlier.<sup>12</sup> And the pace of growth in bandwidth demand is even faster in rural Canada as the usage gap is closed between urban and rural users. Barrett's own customers now have increased their average monthly rate of downloading to 18 GB, from 12 GB, 12 months ago. These broadband usage trends suggest that, after much effort by the private and public sector to narrow the digital divide in recent years, rural Canada may once again fall further behind r urban Canada, where scalable fixed wireline broadband is an option and scalable wireless broadband networks may not. The Department has this unique opportunity to avoid this fate.
36. Whereas urban subscribers have a fixed wireline broadband option; rural subscribers generally do not. The only realistic way to address the digital divide, therefore, is via **fixed wireless** networks rather than mobile networks. And the best way to encourage private investment in fixed wireless networks in rural areas is to design an upcoming auction that gives companies with rural focus a fair opportunity to acquire rural spectrum. This access to rural spectrum will enable rural-focused fixed wireless operators to provide rural Canadians with broadband service and pricing comparable to urban areas.
37. The Department has a unique opportunity to change the conditions that would encourage service to rural areas, as it is proceeding to open up to 120 MHz of new broadband wireless spectrum in the 2500 MHz band. The urban-centric economy of needing the urban market to serve the rural market has not helped alleviate Canada's digital divide over the past 25 years. Perhaps historically there was insufficient demand or viable business alternatives brought forth that would warrant a different approach. Clearly that is no longer the case. Some of the spectrum must be earmarked for rural broadband, and the forthcoming auction

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<sup>12</sup> Clearcable Networks, Presentation to Canada 3.0, Stratford, Ontario, May 2011.

presents an opportunity to change the current dynamics of spectrum ownership and deployment plans.

*Dominance of large players in the fixed broadband market*

38. Several parties note that the relatively higher infrastructure costs associated with rural deployment combined with the lower revenue potential of a given coverage area (due to lower population/household density) contributes to the digital divide. However, it is also important to note that the large incumbent operators are not only in a dominant position in the mobile wireless market, but also control large swathes of spectrum used for fixed wireless broadband access.
39. In the 2500 MHz Broadband Radio Service (BRS) band, Inukshuk (jointly owned by Rogers and Bell) control 96% of the licensed spectrum. This band is well suited for the delivery of fixed wireless broadband; however, the incumbents already control this spectrum. Indeed, they intend to use this spectrum for mobile services rather than fixed broadband services in rural areas, thus further demonstrating their lack of commitment to resolving the digital divide.
40. Taken together, the incumbents' large share of wireline broadband access in urban areas in many parts of Canada combined with their near-complete control of 2500 MHz spectrum and large share of 3500 MHz spectrum indicates that they already hold a level of dominance in Canada's broadband access market. There is a risk that this dominance could threaten the competitiveness of the market, particularly in rural areas where there are few alternatives.

*Role of Rural ISPs*

41. Putting more spectrum that is capable of delivering fixed broadband services in the control of the large *urban-focused* mobile incumbents will do very little to change the existing situation of the limited availability of affordable broadband access to homes and businesses in rural areas. Instead, the Department should focus on implementing mechanisms that allow ISPs with proven track records in rural areas

to gain affordable – and economically fair (i.e., market price)– access to rural spectrum. Such mechanisms will attract investment from the ISPs focused on serving the broadband needs of the rural markets.

42. Rural-focused ISPs are best placed to respond to consumer preferences and lead to an outcome of sustainable service and competition. If rural consumers currently put a higher value on affordable fixed broadband service over mobile broadband service, then rural ISPs will use 2500 MHz to provide the former. This type of consumer-needs-driven business model offers rural ISPs the best opportunity to remain competitive, relevant and viable. Large urban-focused players, in contrast, have little, if any, incentive to respond to rural residents' overall communications needs; their business model is designed around maximizing the revenues and profits they can derive from urban consumers and mobile service. This position was supported by the Government of Ontario in its 700 MHz submission

*Many small telecommunications Internet fixed Service Providers's (ISP's) [sic] currently exist and can be sustained in the rural and remote market places. They are successful and experienced in making similar marginal business cases work in sustainable fashion...If given access to spectrum access at rates that reflect the local business case conditions (remember the big guys are not interested in going into these markets) the small/medium ISPs could build and enhance their current business, provide local mobile services and enhance local economic development (Government of Ontario, 700 MHz Comments, para. 22).*

43. While 2500 MHz spectrum provides rural-focused ISPs with the means to quickly provision fixed broadband services to their rural customer bases, it also gives them the capability to meet the fast-growing mobile and nomadic broadband communications needs of rural consumers, which could evolve over time. In that regard, 2500 MHz spectrum will allow rural-focused ISPs to develop long-term business plans around meeting the short-term (fixed broadband) needs of rural consumers as well as evolve to meet their possible long-term (nomadic and mobile) needs. The business and marketing practices of the large national and regional mobile incumbents suggest that they will remain focused on the mobile

communications needs of urban consumers in urban and rural areas, rather than address the particular needs of rural consumers.

44. Thus, the rural market has different needs – unlike urban areas, high consumption, home-based broadband access requirements cannot be addressed by wireline solutions as the deployment costs in these low density markets are too high. Rural markets require wireless solutions (terrestrial or satellite based depending on the market densities and terrain) to deliver on both the home-based and individual broadband demands – this requires spectrum. Spectrum in the rural markets is like fibre/copper in the urban markets: it is a network facility that is needed to deliver on the broadband demands of the market. It is also apparent that this facility is best used by the hundreds of ISPs with rural-focused business models who are currently struggling to deliver quality services to those customers as they are handcuffed by the lack of spectrum. Those with existing spectrum could deliver services in these markets but obviously choose not to or choose to just extend their mobility services, which do not meet the cost/capacity demands of the rural families and businesses.

Definition of rural markets

45. As Barrett has argued in its 700 MHz and 2500 MHz submissions, the first step in addressing the urban-rural digital divide is defining what rural is, and therefore the challenges rural broadband service delivery faces. Rural is not necessarily a spatial concept always defined by distance from major metropolitan areas. In the telecommunications market, rural is inextricably connected to population or household density. High-speed fixed access by cable or DSL works well in urban markets, but when the household density is low, they are uneconomic.
46. Barrett has put forward a rigorous, yet simple, definition of rural areas. It defines rural areas as those where **household density is less than 30 households per square kilometre**. On the basis of this definition, Barrett has outlined a method for

classifying Tier 4 service areas into rural and urban. We discuss the definition in further detail in Section 5.

### **3. The Role of 2500 MHz Spectrum in Bridging the Digital Divide**

47. While there is no denying that 700 MHz spectrum is much better suited than higher frequencies for providing low-cost mobile wireless coverage across multiple terrains, this does not mean that it is the only spectrum suitable for the broadband communications needs of rural areas. In the context of the digital divide, Barrett commissioned Wireless 20/20 LLC<sup>13</sup> to extend the CRC analysis to include different broadband targets and devices. Wireless 20/20's analysis demonstrated that the propagation characteristics of 2500 MHz are very well suited when it comes to communications with fixed household or business equipment, particularly in rural areas with open terrain.

#### *Propagation Characteristics*

48. During the 700 MHz consultation, there was wide agreement among commentators that the propagation characteristics of 700 MHz make it ideal for provisioning wireless coverage in rural areas. The relative benefits of 700 MHz spectrum have persuaded many parties to conclude that there is no role for 2500 MHz spectrum in addressing the broadband communications needs of rural Canadians. Indeed, CRC's own analysis commissioned by Bell Mobility appears to support this argument.

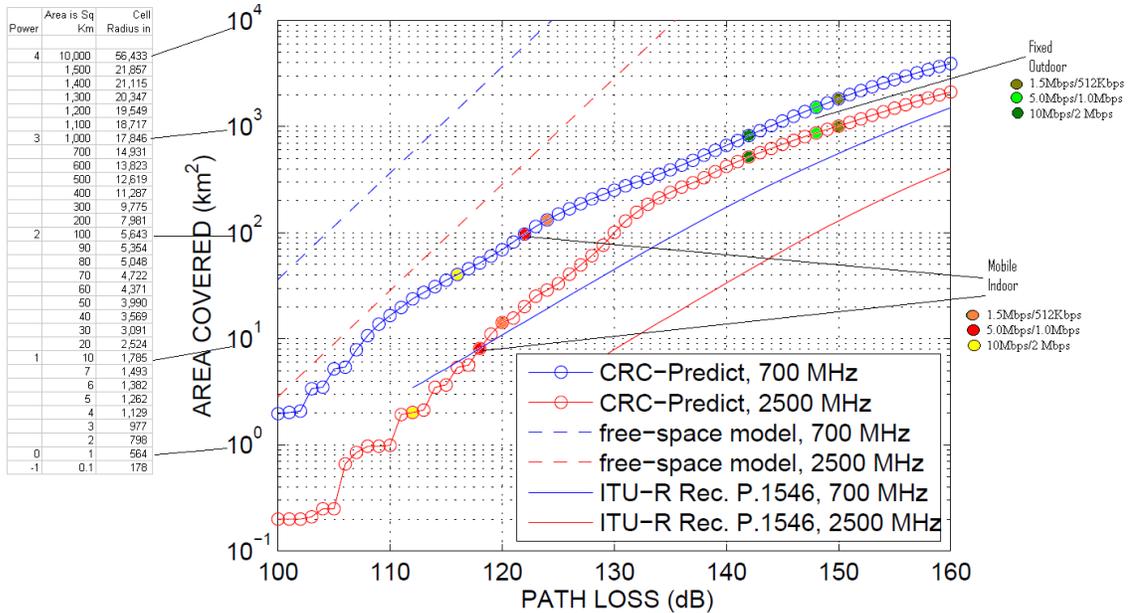
*..the propagation characteristics of 2500 MHz spectrum indicate that it is not conducive for the deployment of mobile wireless services in rural areas, but can be effective for increasing capacity in more localized ones... there is no requirement for specific measures within the 2500 MHz spectrum auction process in order to ensure further deployment of BRS spectrum in rural and remote areas (Bell Mobility, 2500 MHz Comments, para 76).*

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<sup>13</sup> Wireless 20/20 LLC ([www.Wireless2020.com](http://www.Wireless2020.com)) an independent market research and consulting company focused solely on the emerging broadband wireless market.

49. CRC's analysis focused on a comparison of the propagation characteristics of 700 MHz and 2500 MHz. By doing so, it ignored the fact that the differential in propagation performance of the two bands in the case of fixed household antennae is actually not significant.
  
50. As one would expect, the Wireless 20/20 analysis showed that for typical mobile applications, including indoor use, 700 MHz transmissions had better coverage compared to 2500 MHz by an order of magnitude. The typical coverage one would therefore expect for a mobile application at 700 MHz is 40 to 145 sq. km, while the coverage at 2500 MHz is approximately 2 to 15 sq. km, taking into account handset power, broadband capacity and propagation losses. The same CRC report leads us to another important conclusion for fixed broadband services to rural customers, though this was not raised by the urban-focused mobile provider, Bell Mobility (see Exhibit 2).

**Exhibit 1 Comparison of propagation characteristics of 700 MHz and 2500 MHz\***



Source: Wireless 20/20 analysis based on data from CRC

\*Wireless 20/20 has added the data table to the left of the path loss chart as well as the coloured dots defined by the legend to the right of the chart. The coloured dots are based on the assumption of LTE applied in the 700 MHz and 2500 MHz bands.

51. A major difference between fixed and mobile transmissions is the ability to install more sensitive receivers and high gain antennas at the fixed subscriber residence or business high above the ground, thereby receiving perfectly useable fixed transmission signals at a much greater distance (greater coverage per transmission site) than for mobile applications. If one adds transmission capacity (download and upload speeds) to the equation, the advantages of fixed transmissions to deliver capacity and coverage are profound, some might say counter intuitive, but definitely true.
  
52. Historically, the CRTC viewed a download speed of 1.5 Mbps as the threshold for suitable broadband services. Recently it established a broadband target of 5 Mbps download / 1 Mbps upload. For the purpose of this propagation analysis, Wireless

20/20 has advanced the CRTC's 5 Mbps / 1 Mbps to a rate of 10 Mbps / 2 Mbps, which reflect potential future broadband use. As detailed in Exhibit 2, to deliver a 10 Mbps / 2 Mbps<sup>14</sup> mobile broadband package to rural subscribers (30 households/sq. km or less) at 2500 MHz would allow a wireless ISP (WISP) to reach a mere 60 households due to the 2 sq. km coverage area of the mobile transmission site. This level of penetration is not economically viable for mobile operators.

**Exhibit 2 Propagation characteristics data**

Open Rural								
Fixed Outdoor								
700 MHz					2500 MHz			
Package	Radius (m)	Area Km <sup>2</sup>	HHLDS 6 / Km <sup>2</sup>	HHLDS 30 / Km <sup>2</sup>	Radius (m)	Area Km <sup>2</sup>	HHLDS 6 / Km <sup>2</sup>	HHLDS 30 / Km <sup>2</sup>
1.5Mb / 512Kb	18,500	1075	6451	32256	17,850	1001	6006	30029
5Mb / 1Mb	18,000	1018	6107	30536	17,000	908	5448	27238
10Mb / 2Mb	15,000	707	4241	21206	12,600	499	2993	14963
Mobile Indoor								
700 MHz					2500 MHz			
Package	Radius (m)	Area Km <sup>2</sup>	HHLDS 6 / Km <sup>2</sup>	HHLDS 30 / Km <sup>2</sup>	Radius (m)	Area Km <sup>2</sup>	HHLDS 6 / Km <sup>2</sup>	HHLDS 30 / Km <sup>2</sup>
1.5Mb / 512Kb	6,800	145	872	4358	2,200	15	91	456
5Mb / 1Mb	5,650	100	602	3009	1,600	8	48	241
10Mb / 2Mb	3,570	40	240	1201	800	2	12	60

Source: Wireless 20/20 analysis based on data from CRC

53. However, if one were to deliver this same capacity package to the same low household density area at 2500 MHz, using fixed installations, one would be able to cover almost 500 sq. km and reach approximately 15,000 households. A very compelling rural-focused business plan.
54. The conclusion Barrett reaches from the CRC report is actually a corollary to that reached by Bell Mobility, for a different purpose. Bell Mobility argued that 2500 MHz was unsuitable for mobile applications in rural areas. However, the corollary is that 2500 MHz is excellent for the provision of high capacity **fixed** wireless

<sup>14</sup> For the purpose of this propagation analysis, Wireless 20/20 has advanced the CRTC's 5 Mbps / 1 Mbps to a rate of 10 Mbps / 2 Mbps, which reflect potential future broadband use.

services to rural customers. The same calculations for 700 MHz transmissions are even more compelling for fixed transmissions.

55. Rogers and Bell Mobility already have significant spectrum at 2500 MHz (and other bands) but only offer limited fixed wireless services to rural subscribers, preferring to use the spectrum for more lucrative mobile applications in metropolitan areas while the same spectrum, which could be used to provide fixed services to rural areas, lays fallow over the long term.
56. If the Department is indeed committed to finding a way to use the 700 MHz (which is especially suitable for rural broadband coverage) and 2500 MHz spectrum (which is especially suitable for rural broadband capacity) to address the digital divide, it can do so by ensuring that spectrum is made available to those companies that see rural areas as strategic and core to their business plans. This outcome can be achieved using the recommendations advanced by Barrett, which can be implemented with little disruption to the auction process, while maintaining the majority of the spectrum for mobile use in metropolitan areas.

*Current role of 2500 MHz Spectrum*

57. Considering that the propagation characteristics of 2500 MHz for fixed household antennae are very good, it is no surprise that 2500 MHz spectrum (as well as 3500 MHz) is already an important band for the delivery of broadband services to rural areas.
58. SaskTel acknowledges that while the propagation characteristics of 700 MHz and 2500 MHz are different, the 2500 MHz band is “most suited...for fixed services in rural areas” (SaskTel, 2500 MHz Comments, para. 19). Indeed, SaskTel sees 2500 MHz playing a key role in provisioning fixed broadband services to rural areas.

*SaskTel does envision use of 2500 MHz spectrum to provide fixed services such as High Speed Internet and basic telephony to dispersed rural dwellings. (SaskTel, 2500 MHz Comments, para. 18)*

59. SSI Micro, which exclusively serves rural markets, reports that it is “making extensive use of the 2500 MHz spectrum in [its] licensed serving territories” (SSI Micro, 2500 MHz Comments, para. 32). This practical application of the 2500 MHz band further substantiates its value for fixed services.
60. Finally, Barrett itself has built Canada’s largest rural fixed wireless broadband network using spectrum above 1 GHz, and its holdings are in the 3500 MHz band. As such, it is entirely without basis for the incumbents to dismiss spectrum above 1 GHz, and 2500 MHz spectrum in particular, as not being suitable for addressing the digital divide in rural areas. For companies such as Barrett, SSI Micro and SaskTel, for which rural areas are an important part of their business strategy, 2500 MHz is seen as an important band.

*2500 MHz: A key piece in meeting burgeoning bandwidth demand in rural areas*

61. 700 MHz spectrum offers the wide **coverage** that will give rural households broadband connectivity. However, there is only 84 MHz available at 700 MHz, and a large share of this spectrum is likely to be acquired by the incumbents. To meet the **capacity** requirements in rural areas, spectrum above 1 GHz will also be needed. The 2500 MHz band offers 190 MHz of usable spectrum – more than double what is available at 700 MHz – although the largest incumbents already control much of this spectrum. In most parts of Canada, the 2500 MHz band will offer 120 MHz of spectrum. This additional spectrum will play a critical role in meeting the capacity needs of rural areas in an affordable manner, where scalable wireline alternatives do not exist.
62. Rural Canadian households and businesses have as much of a need for broadband demand as urban Canadian households, if not more. As Canada’s leading provider of rural broadband services, Barrett can attest to the fact that rural Canadians’ bandwidth consumption is growing rapidly. The broadband data needs of Barrett’s own rural customer base have increased rapidly in recent years and are now comparable to the rate of 16 gigabytes (GB) per month recently reported by Bell for

its largely urban DSL customer base. This level of downloading is far in excess of what can be *affordably* delivered by the incumbents' existing mobile networks.

63. Rogers does offer HSPA/HSPA+ mobile broadband in rural areas (i.e., a supposed broadband option for rural Canada), it is priced at **16 times** the cost of Rogers' fixed broadband services in urban areas, on a per-GB basis.<sup>15</sup> Bell Canada's mobile broadband service is priced at **seven times** the cost of its fixed broadband service, on a per-GB basis.<sup>16</sup>
64. The incumbents have already failed to fully address the digital divide by lack of deployment of fixed broadband service capacity at urban residential prices. In order to address the digital divide, the Department must take measures to ensure that rural-focused ISPs can access 700 MHz and 2500 MHz spectrum.
65. That being the case, Barrett believes it is crucial for the Department to implement appropriate block size design, geographically-based tiering, pro-competitive measures and rollout provisions that will permit rural-focused ISPs to acquire rural 2500 MHz spectrum. Not only will Barrett's proposal ensure that 2500 MHz spectrum is used to address the digital divide, but it eliminate the need for the federal government to resort to public subsidy to meet its broadband objectives in rural areas.

#### **4. Block Sizes**

66. In terms of paired FDD spectrum, Barrett notes that several parties (Bell Mobility Inc., TELUS, SSI Micro Ltd, RABC, SaskTel, and Huawei) recommended that the Department adopt uniform block sizes of 2x5 MHz.<sup>17</sup>

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<sup>15</sup> This calculation is based on a comparison of the per-GB costs of Rogers' Rocket Mobile Hotspot monthly plan (\$65 for 5 GB) to its Express High-Speed cable Internet plan (\$46.99 for 69 GB).

<sup>16</sup> This calculation is based on a comparison of the per-GB costs of Bell Mobility's Turbo Hub Flex plan (\$60 for 10 GB) to its Fibe 16 fixed DSL plan (\$64.95 for 75 GB) in Ontario.

<sup>17</sup> Bell Mobility Inc., 2500 MHz Comments, para. 15; TELUS, 2500 MHz Comments, para. 34; SSI Micro Ltd., 2500 MHz Comments, para. 22; RABC, 2500 MHz Comments, para. 3.6; SaskTel, 2500 MHz Comments, para. 5; Huawei, 2500 MHz Comments, p. 3.

67. Several other parties (MTS Allstream, Quebecor, Shaw, EastLink), agreed with Barrett's position that paired spectrum should be available on a uniform basis in 2x10 MHz blocks.<sup>18</sup> And while no party recommended a uniform block size exceeding 2x10 MHz, certain parties (Public Mobile, RIM) did recommend that the Department adopt variable block sizes ranging from 2x10 MHz to 2x20 MHz, depending on the region.<sup>19</sup>
68. With respect to the unpaired TDD spectrum, most parties (Bell Mobility, TELUS, SSI Micro Ltd., RABC, and MTS Allstream) agreed with Barrett's recommendation of a uniform 10 MHz block size.<sup>20</sup> Only SaskTel, Public Mobile, EastLink, Shaw and Rogers recommended a different block size for TDD, with Rogers and SaskTel advocating for 5 MHz and the others advocating for 20 MHz.<sup>21</sup>
69. Barrett believes that a block size of 2x10 MHz effectively balances the objectives of spectral efficiency with business flexibility and reasonable access. Furthermore, Barrett notes most stakeholders agree with its recommendation for a 10 MHz block size for unpaired spectrum.

## 5. Geographic Tiering

70. The CRTC's May 2011 telecommunications policy statement notes that a combination of targeted direct subsidy and market forces (responding to consumer demand) are most likely to drive the rollout of broadband services in rural areas. The CRTC also notes that the key role of wireless and satellite services in delivering broadband to rural areas.

*The CRTC anticipates that this [broadband] target will be reached through a combination of private investments, targeted government funding and public-private partnerships. The launch of new satellites and advances in wireless*

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<sup>18</sup> MTS Allstream, 2500 MHz Comments, para. 6; Quebecor Media, 2500 MHz Comments, para. 14; Shaw, 2500 MHz Comments, para. 33; EastLink, 2500 MHz Comments, para. 24;

<sup>19</sup> Public Mobile, 2500 MHz Comments, p.3; RIM, 2500 MHz Comments, para. 8-9.

<sup>20</sup> Bell Mobility Inc., 2500 MHz Comments, para. 16; TELUS, 2500 MHz Comments, para. 35; SSI Micro Ltd., 2500 MHz Comments, para. 22; RABC, para. 3.9; MTS Allstream, para. 6;

<sup>21</sup> SaskTel, para. 5; Public Mobile, p.5; Rogers, para. 22; EastLink, para. 25; Shaw, para. 34.

*technologies will make it possible to provide Canadians in rural and remote regions with reliable broadband connections at reasonable rates and higher speeds than those available today* (CRTC, “CRTC sets speed target for broadband Internet and maintains obligation to provide basic home telephone service,” press release, May 3, 2011).

71. The CRTC was right to resist putting aside a fund for the purpose of promoting the deployment of broadband in rural areas. Barrett agrees that there is no need for direct subsidy. Indeed Barrett’s proposed solution for the licensing of 2500 MHz spectrum – outlined in its 2500 MHz submission – is entirely market based. It seeks to remedy a market distortion brought about from the bundling of high-value urban spectrum with lower-value rural spectrum.
72. Markets work much more efficiently when product differentiation is permitted. The current spectrum tiering system does not permit effective product differentiation. So while the incumbents take the position that an “open auction” without any restrictions would most resemble a market-based approach to spectrum allocation, this is not the case, as long as two very distinct assets – urban and rural spectrum – continue to be bundled together.
73. Most parties that submitted comments to the 2500 MHz consultation called for the Department to license the 2500 MHz spectrum on the basis of Tier 3 or even Tier 2. Only Barrett and SSI Micro called for the Department to adopt Tier 4 for the licensing of 2500 MHz.<sup>22</sup> Not coincidentally, Barrett and SSI Micro are two rural-focused ISPs.
74. Indeed, if one refers back to the comments submitted to the 700 MHz consultation, it is noteworthy that rural-focused parties - rural ISPs and other rural stakeholders (i.e., provincial governments and organizations) - were nearly unanimous in their agreement with Barrett that licensing on the basis of Tier 4 is vital to the deployment of broadband in rural areas.

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<sup>22</sup> SSI Micro Ltd., 2500 MHz Comments, para. 24.

75. EastLink, SSI Micro Ltd., British Columbia Broadband Association (BCBA), Peace Region Internet Society and the Ontario Telecommunications Association (OTA) all supported the use of Tier 4, specifically since it would be better suited for rural areas.

*EastLink proposes that the 700 MHz spectrum be auctioned using only Tier 4 areas. The use of Tier 4 areas will ensure that spectrum in rural areas is only purchased by companies that actually plan to deploy service in those areas (Eastlink, 700 MHz Comments, p. 13).*

*SSi has would [sic] prefer that a larger number of smaller spectrum blocks – meaning uniformly small tier sizes – tier 4 if practical and no larger than tier 3 (SSI Micro Ltd. 700 MHz Comments, para. 50).*

*The BCBA proposes a set-aside in the 165 least-populated Tier-4 service areas for [small rural ISPs] (BCBA, 700 MHz Comments, para. 48).*

*...spectrum can best be managed by having some, but not all, portions of it controlled at a local level, with a granularity exceeding even that defined as Tier 4 (Peace Region Internet Society, 700 MHz Comments, para. 3g).*

*...Tier 3 areas are all much larger than Tier 4 and are simply out of the reach of any OTA member company, leaving only a subdivided Tier 4 as a viable option (OTA, 700 MHz Comments, para. 38).*

76. Also during the 700 MHz consultation, rural ISPs also agreed with Barrett that a Tier 4 breakdown of 700 MHz spectrum, on its own, would be insufficient. Tier 4 service areas need to be unbundled into urban and rural sections, so that the value of the spectrum is more closely linked to the value of the underlying market opportunity (“rural unbundling”).

*Even at the Tier 4 level, there is usually an attractive urban area that would encourage a bidder to bid up the price of a block, simply for the privilege of serving that urban area to the exclusion of its rural surroundings, or for the purpose of excluding competition. An allocation mechanism must necessarily be more granular than that provided at the Tier 4 level, yet it should not impose so onerous a penalty that less economically attractive areas are denied service simply because of either a lack of bids, or too high a bid price (Peace Region Internet Society, 700 MHz Comments, para. 10).*

*...CCSA supports the creation of smaller tiers that separate rural from urban areas to allow smaller players to specifically offer service to rural customers. CCSA would also recommend that the existing national incumbents not be permitted to bid on these rural tiers (CCSA, 700 MHz Comments para. 14).*

*...OTA submits that Industry Canada should create an additional tier of smaller rural areas outside the major population centres found in the existing Tier 4 areas in order to permit smaller service providers the opportunity to bid on 700 MHz spectrum in their operating territory (OTA para. 700 MHz Comments, 37).*

77. Rural unbundling would entail separating CSDs with household densities of less than 30 households per sq. km from higher-density areas within a single Tier 4 service area. It would also entail merging the rural component of each unbundled service area with an adjacent rural area in Tier 4 another service area in order to form a larger contiguous rural service area.
78. Barrett has already developed a rigorous yet simple approach for implementing rural unbundling, based on precedent. Its approach would require that only 47 existing Tier 4 service areas – or 27% of the total number of service areas – would actually need to be subject to rural unbundling. Indeed, the rural unbundling would leave the total number of Tier 4 service areas unchanged at 172.
79. In that regard, rural unbundling should not introduce any more complexity to the auction than would arise from simply adopting the existing Tier 4 service areas, as the Department has already done in the case of the 2300 MHz and 3500 MHz auctions in 2004, 2005 and 2009. In fact, Barrett was able to develop and complete the remapping exercise required for Tier 4 rural unbundling in fewer than three days, so even the administrative burden is negligible. Moreover, the Department itself implemented a form of rural unbundling during the licensing of 2300 MHz and 3500 MHz spectrum.

*The Department has re-examined the Tier 4 service areas, and found that in a number of cases the service areas did encompass a large geographic area and in some cases included both rural and urban territories. In order to more*

*accurately reflect Statistics Canada's urban/rural split, the Department has redrawn and split some of the original service areas (Industry Canada, Policy and Licensing Procedures for the Auction of Spectrum Licences in the 2300 MHz and 3500 MHz Bands, September 2003, p. 12).*

80. While the administrative costs of implementing unbundled Tier 4 service areas are low, parties often point to frequency coordination – the coordination cost – as one of the main reasons for not adopting small tier sizes. However, Bell mobility acknowledges that in the particular case of 2500 MHz, the coordination issues – and corresponding coordination cost – raised by more granular tiering would actually be limited.

*It is true that larger geographic areas allow for fewer neighbouring service providers and thus less coordination problems. However, given the propagation properties of 2500 MHz spectrum, this should be less of a problem than with lower frequency spectrum bands. As a result, the benefits of having the flexibility to focus on **smaller geographic areas (regardless of whether they are urban or rural)**, will likely exceed the cost of any coordination problems [emphasis added]. (Bell Mobility, 2500 MHz Comments, para. 18)*

81. Barrett believes that the adoption of a higher resolution tier structure is of vital importance to the Department's policy goal of encouraging the deployment of advanced wireless services throughout Canada, including rural and remote areas. The application of rural unbundling to Tier 4 would go a long way to subdividing spectrum blocks in a manner that would likely lead to lower costs of acquisition for rural service providers, without changing carriers' urban spectrum valuations.
82. While rural unbundling would require the Department to incur small upfront administrative costs to identify and map rural areas, these administrative costs would be a fraction of any annual subsidy costs that the federal government might have to face to entice ISPs to serve rural areas via wireline technology, to subsidize the procurement of unnecessary adjacent urban spectrum or other fixed wireless spectrum with more costly infrastructure requirements. Thus, a Tier 4 solution would save money for the Government of Canada. Plus, a beneficial by-product

may be that urban-centric providers could focus their resources on acquiring urban spectrum tiers to foster sustainable, competitive urban markets. Furthermore, the coordination costs are limited. The positive impact of Tier 4 rural unbundling on broadband services rollout in rural areas, and perhaps urban, would be tremendous.

## **6. Pro-competitive Measures**

83. Barrett's subsidy-free market-based solution to the digital divide also incorporates various pro-competitive measures. Markets typically work most effectively – i.e., achieve the most efficient outcome of resources – when they are characterized by competition. In some cases, however, this competition may not arise when dominant players can forestall market entry.
84. Several other parties agree with Barrett that the Inukshuk incumbents already hold a large share of 2500 MHz spectrum. Several parties (TELUS, MTS Allstream, SaskTel, EastLink, Public Mobile, Quebecor Media, and Shaw Communications) also agree with Barrett that the dominance of Inukshuk necessitates pro-competitive measures to encourage entry and prevent any single bidder from acquiring all of the available 2500 MHz spectrum. EastLink, TELUS and Public Mobile all call for a set-aside.<sup>23</sup> Even SaskTel, which is committed to an open auction, acknowledges that a set-aside would be in order.<sup>24</sup>
85. Rural unbundling will reduce the cost of rural spectrum; however it will not preclude incumbents from simply outbidding new entrants focused on rural markets, and thereby, simply forestalling them from competing in the market. Therefore Barrett proposes further measures, alongside Tier 4 rural unbundling, to ensure that rural-focused ISPs can indeed have a fair chance to acquire rural spectrum. These options include a rural set-aside and in-auction cap.

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<sup>23</sup> EastLink, *2500 MHz Comments*, para. 14; TELUS, *2500 MHz Comments*, para. 75; Public Mobile, *2500 MHz Comments*, p. 11.

<sup>24</sup> SaskTel, *2500 MHz Comments*, para. 19.

### Rural set-aside

86. Despite the fact that Bell's own propagation study demonstrates that 2500 MHz spectrum is very suitable for fixed wireless broadband – a position supported by SaskTel in its 2500 MHz submission – most of the incumbents have done very little, to date, to use it to deploy fixed broadband service in rural services, even though they hold a large swathe of the licensed spectrum. The importance of 2500 MHz to rural broadband and the fact that the incumbents have only used it in a limited manner to fully address the digital divide means that the Department should restrict the incumbents' ability to acquire additional 2500 MHz spectrum.
87. Given the propensity of larger wireless operators to acquire spectrum when it is available, even if there is no near-term reason for doing so, policy measures should guard against that outcome. In particular, Barrett proposes a **rural set-aside** that would prevent the incumbents from acquiring any additional 2500 MHz spectrum in rural areas. This proposal is consistent with – but not as far-reaching – as the proposals made by EastLink and SaskTel for general set asides that would exclude the incumbents from bidding on 2500 MHz spectrum.

### Spectrum Cap

88. Barrett has proposed an innovative in-auction cap. This in-auction cap – which would apply to urban and rural spectrum – would prevent any single entity from acquiring more than 30 MHz of spectrum; however, it would not compel Inukshuk to relinquish any spectrum in order to meet the cap.
89. Several parties (Quebecor, Shaw Communications, MTS Allstream) have proposed a 40 MHz spectrum cap within the 2500 MHz band. Public Mobile has proposed a 50 MHz cap. A 40 MHz cap still permits each winning bidder to obtain up to 2x20 MHz of paired spectrum, which many consider a spectral efficient block size for delivering mobile broadband via LTE.

90. A cap of 30 MHz, as proposed by Barrett, however, is the only fair cap level for Region B. A cap of 40 MHz, as proposed by other parties, could result in an unfair auction outcome, where one entity held 40 MHz and its non-incumbent competitor held only 20 MHz.
91. That being said, in Regions A and C, where 120 MHz of spectrum is available, there may be less of a need for a cap as low as 30 MHz. As such, the Department could implement a higher in-auction cap of 40 MHz or 50 MHz, and still avoid an unfair auction outcome.

## **7. Rollout Requirements and Enhanced RP-19**

92. The licensing of spectrum to rural ISPs is an important step in closing the digital divide. But regardless of company size or business focus, ISPs that obtain rural spectrum should have obligations to deploy broadband services.
93. Several parties (including Barrett, Rogers, TELUS, SaskTel and Shaw Communications) called for general rollout requirements that would indirectly or directly compel spectrum winners to rollout 2500 MHz service in rural areas. In fact, SaskTel agreed with Barrett and called for rollout obligations to ensure that rural deployment targets were met.<sup>25</sup> It is important to note that rollout requirements are a *supplement* not a replacement for a rural unbundling and the pro-competitive measures proposed by Barrett.
94. As in its 700 MHz submission, Barrett is proposing a rollout requirement whereby winners of spectrum in unbundled Tier 4 rural service areas must meet commitments to make broadband Internet access available to at least 50% of the population within the Tier 4 rural service area within three years of obtaining BRS spectrum. Bidders, however, would have the option to meet their roll-out commitment by either (i) directly providing broadband Internet access, or (ii) providing third-party access to their rural BRS spectrum. In that regard, an updated

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<sup>25</sup> SaskTel, 2500 MHz Comments, para. 22.

RP-19 could also play a key role in meeting roll out requirements because it would compel holders of unused rural spectrum to sub-license it to other parties that would contribute to main licensee's rollout obligation.

## **8. Summary**

95. As one of Canada's leading rural ISPs, Barrett believes that the digital divide is one of the most pressing telecom policy issues. The Department and CRTC recognize this. The wireless incumbents have done very little, to date, to fully address the digital divide, however. Barrett and other rural-focused ISPs have been the most active in deploying broadband services in rural areas. In fact, based on their 2500 MHz submissions, the incumbents clearly fail to recognize the important role that 2500 MHz spectrum plays alongside 700 MHz spectrum in addressing the digital divide.
96. The CRC report commissioned by Bell Mobility actually shows that 2500 MHz spectrum is, in fact, excellent for the provision of high capacity fixed wireless services to rural customers. This position is supported by SaskTel, and indeed, by Barrett, as well.
97. The value of 2500 MHz spectrum in meeting the burgeoning demand for fixed broadband services in rural areas suggests that the Department should take measures to ensure that the spectrum is indeed used for this purpose and not solely or predominantly for the provision of mobile services by urban-centric wireless carriers. To that end, Barrett has argued – in both its 700 MHz and 2500 MHz submissions – for the implementation of a market-driven design of the auction, whereby the value of rural spectrum would closely parallel the market opportunity it offered.
98. To achieve this outcome, Barrett has proposed that the Department implement a combination of rural unbundling, pro-competitive measures and rollout obligations applied to only rural spectrum. These measures will not only allow rural-focused ISPs to access rural spectrum, they will also give the Department a subsidy-free

solution to the bridging the digital divide, all without encroaching on urban-focused carriers capacity to deliver services in urban areas.

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