

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

## ***Canada Gazette* Notice SMSE 018-10**

### **Barrett Xplore Inc.**

### **Reply Comments**

**April 6, 2011**

#### **Executive Summary**

1. Barrett Xplore Inc. (“Barrett”) is pleased to provide the following reply comments in response to the Department’s paper, *Consultation on a Policy Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum*, as announced in Canada Gazette Notice No. SMSE-018-10 (the “700 MHz Consultation”). As Canada’s largest rural broadband provider, deploying fixed wireless and satellite broadband services across all regions of Canada, Barrett welcomes this opportunity to comment on the development of a framework for the licensing of spectrum in the 700 MHz band.
2. Barrett has read with interest many of the submissions to the 700 MHz Consultation and has comments on quite a few of them. In this reply, Barrett will expand on the need for 700 MHz spectrum in rural markets, commenting on the relevant submissions of other rural-market stakeholders and service providers.
3. Barrett went into this consultation process with a distinct rural-market interest. Barrett understands that the main focus of the consultation for incumbents would be on the need for 700 MHz spectrum to help respond to the burgeoning demand for mobile data. However, Barrett and others have argued that the priorities for rural areas are primarily for high speed broadband services, and that fixed wireless, along with mobile, using the 700 MHz band must be taken into account to serve

that need. Barrett notes that the submissions made by, among others, MTS Allstream and Axia NetMedia Corporation, concur with its view – and the view of the Department – that 700 MHz spectrum can respond to an even more pressing problem in rural Canada: the general lack of broadband Internet access compared to urban Canada (the “digital divide”).

4. The Canadian telecommunications industry tends to view spectrum as a resource primarily for mobile communications services – voice and broadband data. However, this view is largely a reflection of the situation in urban telecommunications markets. In urban markets, wireline technologies such as cable, digital subscriber line (DSL) and fibre-optic cable address households’ and businesses’ demand for fixed broadband service. This delivery infrastructure leaves spectrum free to meet the urban-area demand for mobile communications services. In rural areas, however, where wireline infrastructure is not as prevalent, spectrum is the only route to meeting households’ and businesses’ demand for both fixed and mobile broadband services.
5. For that reason, Barrett argues that the Department should treat spectrum in rural areas differently from urban areas. Of course, Barrett recognizes that the Department is open to discussion on this point, as it has expressly sought to address rural Canada’s communications needs. In urban areas, spectrum allocation and assignment should optimize the performance of mobile networks. In rural areas, however, spectrum allocation and assignment must address the growing demand for broadband services – whether delivered by mobile or fixed wireless networks. Barrett argues that the Department can only truly address the digital divide by developing and implementing policies that reflect this balance.
6. Barrett argues for an effective and direct way for the Department to recognize the need for balance, and then take steps to address and eliminate the digital divide. The best approach is to attract investment from Internet service providers (ISPs) with proven track records in rural areas by allowing them to obtain rural spectrum at prices that reflect the rural market densities, and are not distorted by the value of

spectrum in adjacent urban markets. In fact, this approach would obviate any need to subsidize service in rural markets as there are service providers who are ready to deliver broadband services to those markets at urban equivalent prices. Barrett notes that such an approach is consistent with the Department's policy of promoting competition and advanced broadband services. Furthermore, the recommended approach will not hinder the objective of providing more spectrum for serving the mobile needs of Canadians in urban and rural areas.

7. Barrett believes that the most effective and direct way to achieve this outcome of better service to rural Canada is for the Department to adopt Tier 4 service areas and unbundle the rural service areas from urban service areas ("rural unbundling"). A definition of what constitutes a "rural service area" has been developed by Barrett in this reply to help clarify the appropriate rural policy. It provides the Department with a rigorous, yet simple, method for the classification of relevant service areas as rural. It is a definition that is anchored in precedent and sound public policy.
8. In order to ensure that spectrum is made available to rural focused ISPs, Barrett argues that the Department should also implement pro-competitive provisions (i.e., a set-aside or spectrum cap) in rural areas. These provisions would be designed to restrict large incumbent carriers who already control a substantial amount of spectrum in rural Canada, from bidding for 700MHz spectrum in rural areas. Much of the incumbent spectrum in rural areas is either under-used or, in some cases, even unused. The objective of these pro-competitive provisions would be to help foster the immediate deployment of wireless broadband services in rural areas, delivered by rural-focused service providers who offer services designed to appeal to the rural markets.
9. Barrett also believes 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. Several submissions point to the requirement for stricter rollout obligations,

but generally there is a lack of what Barrett would call a workable rural solution. Barrett suggests that one way to improve the effectiveness of any rural rollout obligation is through the adoption of an enhanced version of RP-19 as the process for resolving situations where licensees cannot meet their rural rollout obligations.

10. Barrett believes that the combination of Tier 4 *unbundling*, pro-competitive measures, and clear rural tier rollout obligations combined with an enhanced version of RP-19 represents the most effective way of bridging the digital divide. However, we understand that the Department might not consider it feasible to apply these measures for the entire 700 MHz spectrum allocation. In that circumstance, Barrett proposes that the Department apply these measures to selected blocks within the 700 MHz band, thereby achieving proper balance.
11. These selected blocks would include the two unpaired blocks, for which the existing available time-division duplexing (TDD) technology is well-suited for the asymmetric traffic flows that often characterize broadband Internet access. Barrett would further propose that two paired blocks be earmarked for auction stipulations as recommended by Barrett.
12. These four blocks (two unpaired and two paired) might be considered of least interest to urban-focused wireless service providers. Thus, this approach gives the Department the opportunity to implement initiatives that promise to have a meaningful positive impact on the deployment of broadband services in rural areas – without infringing on the objective of alleviating the need for more mobile spectrum.

### **Section 1: The Digital Divide**

13. With the exception of the largest spectrum holders – Rogers and Bell – most parties participating in the 700 MHz Consultation point to a lack of broadband service availability and competition in rural and remote areas. Rural ISPs and provincial governments – including the Province of British Columbia, Province of Ontario and Government of Yukon – report that in some rural areas there is only one or

even no provider of broadband service. They also report unused or underutilized spectrum.

14. EastLink reports that service is lacking in rural areas.

*...even though the Big Three already own large holdings of spectrum that they are not fully utilizing (particularly in rural areas) (EastLink p. 17).*

15. The British Columbia Broadband Association (BCBA) reports that spectrum in rural areas is underutilized. The Peace Region Internet Society notes that incumbents' mobile wireless deployments continue to not meet the needs of rural residents.

*In Canada's previous spectrum auctions, winners have focused their investments heavily in Canada's urban and densely populated areas, leaving significant spectrum holdings underutilized in rural areas (BCBA, para. 3).*

*...there remain pockets of people that remain totally unserved, and the most economical way of providing broadband service is to make use of the better propagation characteristics of 700 Mhz [sic]...While the Incumbents have had access to lower frequencies for some time, their deployments continue to be focussed on more lucrative metropolitan areas, or they have attempted to serve more rural areas with 'stretched out' versions of connectivity from fewer access points. This has led to subscriber disappointment (Peace Region Internet Society, para. 6).*

16. The Government of Ontario reports that, when it comes to broadband service, many rural areas in Ontario have a single service provider or no service provider at all. As well, the Ontario Telecommunications Association (OTA) reports that spectrum is "lying fallow" in many areas surrounding small incumbent local exchange carrier (SILEC) areas in rural Ontario, even though the large wireless incumbents might be technically compliant in terms of coverage.

*Rural and Remote [sic] locations typically have fragmented single service provider, or no service provider at all situations. This is mostly due to marginal business case resulting from low customer density (Province of Ontario, para. 22).*

*The OTA is aware of the fact that in many rural areas surrounding its member companies' SILEC operating territories licensed spectrum is not being used and is simply lying fallow, even though the licensee may technically be compliant with its deployment conditions (OTA, para. 31).*

17. Barrett's position is that the poor broadband coverage in many rural areas is due, in large part, to the lack of access to spectrum: Yes, there are hundreds of small companies providing Internet access services in many rural areas across Canada (according to information at [www.Canadianisp.ca](http://www.Canadianisp.ca)). These companies, however, remain small and cannot scale to provide the kind of broadband service available to urban areas. These companies compete against Barrett as well as each other but they generally cannot gain access to the critical asset for expanding their business capacity: useful spectrum. In many cases, these small ISPs are relegated to using unlicensed spectrum. Such spectrum may be suitable for launching a wireless Internet access service, but it does not offer the reliability and robustness that licensed spectrum provides to meet burgeoning demand. Without economic access to licensed spectrum, these small ISPs are unable to grow their businesses and provide broadband connectivity at affordable prices.
18. Barrett's own experience demonstrates the importance of migrating from unlicensed to licensed spectrum. Although Barrett launched its rural ISP business on the basis of unlicensed spectrum, it has only been able to scale its operations and establish a sustainable business model because it has been able to access licensed spectrum in selective areas by way of transactions with private companies other than the incumbents. Barrett's continued growth is constrained because it cannot obtain licensed spectrum in all targeted rural markets, where incumbents hold most of the spectrum.
19. As long as Canada's rural communications market continues to be highly fragmented with little access to adequate spectrum infrastructure, service quality and affordability will remain elusive. While these companies compete with Barrett and each other, without access to more than unlicensed spectrum, they do not have the capacity to scale their operations and meet customer needs. Of course, without

access to spectrum at prices that take into account the low density of households, rural service providers will not be able to accommodate the growing bandwidth demands of rural households and businesses. They will not be able to grow their customer bases and benefit from the economies of scale that can be derived from a larger customer base in a given service area. Indeed, spectrum is much more important to service provision in rural areas where wireline alternatives such as DSL and cable are not available to ISPs.

20. While there are substantial comments on the public record that support the view that rural Canada continues to be unserved, and underserved in terms of broadband, it is also important to note that many of the affected rural areas are on the immediate fringes of major urban areas.
21. There is resounding agreement among commentators that the propagation characteristics of 700 MHz make it ideal for provisioning wireless services in rural areas. This physical characteristic underlines the importance – also recognized by the Department – that 700 MHz spectrum can be an instrumental part of any solution to the digital divide.

*...deployment of broadband radio systems in the 700 MHz band will have an important role in increasing the penetration of broadband wireless services in regions with low population density (SMSE-018-10, p. 2).*

*The superior propagation characteristics of the 700 MHz spectrum band make this spectrum well suited for broadband services in rural areas (SMSE-018-10, p. 42).*

*...in the rural context, the 700 MHz band should be considered to be more effective for semi-mobile and semi-fixed applications, such as vehicle installations and residential access points...In rural Canada, the 700 MHz based wireless service would be optimally utilized as being complimentary [sic] to the existing WiFi/WiMax and 3G/4G wireless services targeted at customers out of WiFi/WiMax/3G/4G range. It should not be wasted trying to compete with mobility services or for short range services in competition with WiFi and WiMax (Axia NetMedia Corporation, paras. 25-26).*

*700 MHz spectrum, in contrast to high frequency band spectrum (such as PCS or AWS spectrum), is particularly well-suited to deployment in rural areas. In relative terms, propagation characteristics of the 700 MHz spectrum will allow carriers to reach further and cover wider areas, an especially desirable feature for rural deployment, which is subject to severe cost challenges (MTS Allstream, para. 110).*

22. While the 700 MHz spectrum is universally acknowledged to be well-suited for mobile services, the fact is that rural areas have a general broadband deficit that needs to be addressed – both fixed and mobile. The quality of fixed broadband at affordable prices in rural areas needs to be brought much closer to the quality and pricing available to urban Canadians, if the digital divide is going to be eliminated. Effectively, putting 700 MHz spectrum in the hands of large companies primarily focussed on mobile services would ignore the need to address the fixed broadband deficit in rural areas. In making decisions on allocating the 700 MHz spectrum, consideration must be given to Canadians who reside in rural areas but who lack fixed broadband service, in addition to those Canadians who travel to and through rural areas and require reliable mobile communications.
23. The large incumbent service providers – namely Rogers and Bell – argue that the best route to increasing the availability of broadband in rural areas is to rely upon the largest carriers with greatest financial resources and economies scale. However, the large incumbents’ track records contradict this argument. For example, Rogers – Canada’s largest national mobile operator – reports coverage of 88% of the population with HSPA/HSPA+.<sup>1</sup> Barrett estimates that approximately 25% of Canada’s population is located in low-density areas (household density under 25 per sq. km). Assuming that Rogers has 100% urban coverage, the implication of the 88% figure is that about one-half of rural residents are without any mobile broadband service from Rogers.<sup>2</sup> Furthermore, where Rogers does offer HSPA/HSPA+ mobile broadband in rural areas (i.e., a supposed broadband option

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<sup>1</sup> [http://www.rogers.com/web/content/wireless\\_network?setLanguage=en&cm\\_mmc=Redirects--Consumer\\_Wireless\\_Eng--Network\\_0909--fastest](http://www.rogers.com/web/content/wireless_network?setLanguage=en&cm_mmc=Redirects--Consumer_Wireless_Eng--Network_0909--fastest).

<sup>2</sup> 100% – 88% = 12% or approximately one-half of 25%.

for rural Canada), it is priced at **16 times** the cost of Rogers' fixed broadband services in urban areas, on a per-Gigabyte basis.<sup>3</sup> Bell Canada's mobile broadband service is priced at **seven times** the cost of its fixed broadband service, on a per-Gigabyte basis.<sup>4</sup>

24. 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.
  
25. Barrett delivers broadband services in the rural markets using a hybrid approach of satellite and fixed wireless solutions. Barrett uses this dual technology solution in order to maximize the economic and delivery capabilities of each platform. Satellite (which uses licensed spectrum) is best suited for lower density and hard to serve markets, where terrestrial based wireless solutions may have coverage or economic challenges. Barrett chooses not to deploy satellite-based services in higher density fixed wireless markets because of the high demand for affordable broadband in the coverage-challenged areas and because of the long lead time required to increase capacity (up to three to four years for launching new satellites). Satellite capacity would be quickly depleted if Barrett chose to serve all the unserved markets in Canada by satellite. The flexibility afforded by terrestrial tower-based wireless solutions enables deployment of discrete/specific capacity into target areas with sufficient household densities that support sustainable economics. This leaves the remaining lower density and challenging markets to be delivered by satellite.

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<sup>3</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>4</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.

26. 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>5</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 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 services as in urban areas. As well, rural households 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 below the definition of broadband.
27. Thus, urban subscribers have a fixed broadband option that the 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 rural communications is to provide companies whose business focus is on serving rural needs with access to the appropriate rural spectrum. This access enables these fixed wireless operators to provide rural Canadians with broadband service and pricing equivalent to urban areas.

*Dominance of large players in the fixed broadband market*

28. 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.

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<sup>5</sup> Barrett's calculations can be made available to the Department on a confidential basis.

29. In the 2500 MHz Broadband Radio Service (BRS) band, Inukshuk (jointly owned by Rogers and Bell) and SaskTel control 98% 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.
30. Inukshuk, along with TELUS and SaskTel, also controls the vast majority of the 3500 MHz spectrum. Barrett calculates that, on a population-MHz-weighted basis, the incumbents control 74% of all licensed 3500 MHz spectrum, and in many areas, up to 100%.
31. 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. If rural-focused ISPs can access some of the 700 MHz spectrum in rural areas, it will inject some much needed consumer choice into Canada's broadband market in rural areas.

#### Role of Rural ISPs

32. 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 **rural-focused ISPs**. As such, 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, not lower or at a premium) – access to rural spectrum. Such

mechanisms will attract investment from the ISPs focused on serving the broadband needs of the rural markets.

33. Rural-focused ISPs are best placed to respond to consumer preferences and lead to an outcome of sustainable competition. If rural consumers currently put a higher value on affordable fixed broadband service over mobile broadband service, then rural ISPs will use 700 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. Indeed, the Government of Ontario supports this position whereby rural-focused service providers obtain access to 700 MHz spectrum.

*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, para. 22).*

34. While 700 MHz spectrum provides rural-focused ISPs with the means to immediately 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, 700 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 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.

35. Indeed, it is important to bear in mind that while mobile communications in today's environment is largely associated with cellular-network communications with seamless handoff, roaming and access to the public-switched telephone network, it will not always be so. Mobile communications in the future will be less about such "on the move" communications and more about "un-tethered" mobile data applications such as tablet-based video and e-book applications, and remote e-health imaging applications. As such, the national cellular networks built up by the large incumbents do not necessarily put them at an advantage in meeting the future mobile data needs of rural consumers and businesses.
36. 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 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*

37. In part, any solution to the digital divide cannot be fully implemented until there is some decision on the definition of the rural market. This definition needs to recognize that rural does not only mean "isolated rural", but also includes "near-

urban rural” (i.e., exurban communities). It should be a population-density equation, not some form of remoteness criterion.

38. Barrett has put forward a rigorous, yet simple, definition of rural areas. It defines rural areas as those where **household density is less than 25 households per square kilometre**. On the basis of this definition, Barrett outlined a method for classifying Tier 4 service areas into rural and urban. This definition first classifies all Tier 4 service areas with total population under 100,000 as rural. Second, Tier 4 service areas with populations over 100,000 are divided into urban and rural sections. The rural sections for those Tier 4 service areas are defined as Census Subdivisions (CSDs) with densities of less than 25 households per square kilometre.
39. On the basis of Barrett’s definition of rural service areas, approximately 25% of Canadian households (or 3.6 million households) are located in rural service areas. And while the latest statistics published by the Canadian Radio-television and Telecommunications Commission (CRTC) show that 84% of Canadian households in rural areas have broadband services (1.5 Mbps and higher) available to them,<sup>6</sup> this capacity is no longer a suitable measure of broadband given the downloading levels reporting by Bell and common among Barrett’s customers.
40. The BCBA has also put forward a framework for defining non-metro areas, which is also based on Tier 4 service areas and provides the basis for BCBA’s proposal for a rural set-aside. BCBA’s framework notes that 7 of the 172 Tier service areas (Toronto, Montreal, Vancouver, Ottawa, Calgary, Edmonton and Quebec) account for 50% of the Canadian population. BCBA proposes that 50% of the spectrum in the other 165 Tier 4 service areas be set aside for rural ISPs with track records in providing wireless services (BCBA, paras. 47-48). Like Barrett’s definition of rural, BCBA’s framework underlines the need for the Department to identify rural areas and make part of the spectrum in these areas accessible to rural-focused ISPs;

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<sup>6</sup> CRTC, *Communication Monitoring Report 2010*, July 2010, p. 137.

however, it may not provide a sufficient level of geographic resolution to effectively unbundle the cost of acquiring rural spectrum from the value of urban spectrum.

## **Section 2: Geographic Tiering**

41. Most urban-focused parties are in agreement with the Department that the 700 MHz auction should be on the basis of Tier 2 or 3. However, several rural ISPs agree with Barrett in calling for Tier 4 licensing in rural areas. As such, while the incumbents all point to Tier 2 or 3 as the best option, there is a clear consensus among parties focused on delivering rural broadband solutions that Tier 4 is necessary.

42. EastLink and SSI Micro are both calling for Tier 4.

*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, 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, para. 50).*

43. BCBA calls for Tier 4 in rural areas (i.e., outside of the seven metro areas).

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

44. Peace Region Internet Society is also calling for at least 10 MHz of spectrum in rural areas to be licensed on the basis of Tier 4.

*...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, para. 3g).*

*In the interest of rural connectivity, we recommend that, while the majority of commercial spectrum can be auctioned as others see fit, 10 mhz [sic] of*

*spectrum (two blocks of 5-6 Mhz [sic]) be reserved for allocation/management at the Tier 4 level in non-urban areas (Peace Region Internet Society, para. 9).*

*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, para. 10).*

45. The OTA also supports the use of Tier 4 for rural areas.

*The OTA agrees with this perspective and submits that in order to assist smaller rural providers to provide services in their communities, Industry Canada should adopt a mixture of tier sizes for different spectrum blocks... These blocks could be split from a larger tier which would permit larger national providers to use the spectrum in urban areas (OTA, para. 35).*

*...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... 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 paras. 37-38).*

46. CCSA supports rural unbundling.

*...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, para. 14).*

47. Rural ISPs are in complete agreement with Barrett that Tier 2 or 3 will not get the job done with respect to addressing the digital divide. As such, the Department must consider a Tier 4 solution. That being said, rural ISPs also agree with Barrett

that a Tier 4 breakdown of 700 MHz spectrum, on its own, will 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”). Many rural ISPs agree with Barrett’s position that Tier 4, without some type of rural unbundling, will fail to address the fundamental cause of the lack of rural broadband – the fact that the spectrum is too expensive for rural-focused ISPs to acquire.

48. 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 the annual subsidy costs that the federal government might face to entice ISPs to serve rural areas via wireline technology or other fixed wireless spectrum with more costly infrastructure requirements. Thus, a Tier 4 solution would save money for the Government of Canada.

### **Section 3: Pro-Competitive Measures**

49. Rural unbundling will reduce the cost of rural spectrum; however it will not preclude large incumbents from simply *scooping up* the more affordable rural spectrum sections. Therefore Barrett proposes further measures, alongside Tier 4 rural unbundling, to further ensure that rural-focused ISPs could acquire rural spectrum. These options include a rural set-aside or an exclusionary cap applicable to two to four blocks in 700 MHz.
50. Several other parties propose mechanisms that recognize the need to exclude large national players from acquiring rural spectrum in the auction. The BCBA proposes that rural spectrum be set aside for companies that meet the following criteria: (i) not bidding on spectrum in the seven most populous areas, (ii) have annual revenue under \$10 million, and (iii) have a three-year track record of offering competitive fixed wireless broadband service. While BCBA’s proposal has merit, it does not permit the Department to obtain the full economic value of the Crown resources that it is required to do by Treasury Board regulations. Also, BCBA’s proposed

revenue threshold (i.e., \$10 million) would exclude companies such as Barrett, which also have proven track records in delivering broadband services to rural areas.

51. Barrett and other rural ISPs ultimately contend that Tier 4 rural unbundling must be accompanied by other pro-competitive provisions such as a set-aside or spectrum cap. A set-aside would be most effective, but a spectrum cap that excluded large national and regional players from bidding on certain 700 MHz blocks would also be effective.

#### **Section 4: Roll-Out Requirements**

52. 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.
53. Several parties (including MTS Allstream, SaskTel, EastLink, Quebecor Media, Shaw, rural ISPs and provincial governments) are calling for rollout requirements to indirectly or directly compel spectrum winners to rollout 700 MHz service in rural areas. It is important to note that rollout requirements are a supplement not a replacement for a rural unbundling. Indeed, all of Barrett's auction proposals – set-aside, spectrum cap and bidding bonus – included provisions for a rural rollout requirement.
54. By definition, a rollout requirement entails some type of penalty. Barrett believes that the effectiveness of any rural rollout requirement could be enhanced by implementing an updated RP-19 to resolve situations where licensees do not meet their rural rollout requirements. Licensees that do not meet their rural rollout requirement would automatically have to enter into a RP-19 process that compels them to sub-license their rural spectrum.
55. An updated RP-19 – just as Barrett already outlined in its 700 MHz submission – should reflect the key issue in rural communities: availability of broadband

services. This updated RP-19 for the 700 MHz band could, among other things, be not just for “isolated rural” areas, but for exurban areas, as well, that are unserved or underserved.

56. Indeed, provincial governments are in agreement with Barrett that an overhaul and updating of the RP-19. They also agree that an updated RP-19 can be an effective mechanism for opening up unutilized spectrum.

*Policies such as RP-019 should be updated to address the requirements of advanced [bro]adband [sic] services, small to medium ISP's and rural and remote areas (Province of British Columbia, para. 153).*

57. While most parties indicate that RP-19 – as it is currently designed – has been utilized only in a limited way, many point to the need for the Department to implement a licensing regime that permits spectrum subdivision (geographic) and subordinate licensing. However, several parties' general view is that it will be very unlikely that large players will voluntarily sub-license significant portions of even their rural 700 MHz spectrum.

*... OTA believes that successful bidders in the 700 MHz auction may be loath to give up any of this likely to be very expensive spectrum...It is difficult to conceive of a situation in which a successful bidder in the up-coming auction would relinquish its rights to this spectrum without a fight (OTA, para. 29).*

*RP-19 has not, in our experience, resulted in the transfer of any licensed spectrum to rural operators. The expected time and expense involved in obtaining spectrum through this policy is a deterrent to small companies interested in obtaining underutilized spectrum from mobile carriers (BCBA, para. 56).*

*Frequency transfer is another possible option, however due to the value the carriers place on the 700 MHz band for its rural and remote characteristics and added capacity in urban areas, this is very unlikely to occur. It is also unlikely there will ever be a transfer of frequency between large carriers as the economic criteria for both parties in rural and remote areas are similar. Lastly, it is unlikely there will ever be a transfer of frequency between a large carrier and a small ISP as it's very difficult to facilitate a commercial*

*arrangement such as this, between large and small entities (Government of Yukon, para. 151).*

58. Other parties agree with Barrett that an enhanced RP-19 should be available when private negotiations fail to achieve a transaction within a reasonable period of time. The implementation problems of stringent roll-out requirements make them problematic: they may not be credible.
59. Any rollout requirements – with or without RP-19 – should strive to achieve the right balance between economic fairness and the need for service.

### **Section 5: Implementation Approach Available to Department**

60. Barrett and many other parties believe that the best way to address the digital divide is to permit ISPs with proven track records in rural areas to obtain spectrum through the auction. And Barrett and several other parties maintain that the only effective way for the Department to achieve this outcome is to adopt Tier 4 and unbundle the service areas into rural and urban sections. The application of rural unbundling to Tier 2 or 3 will not achieve the desired outcome.
61. That being said, should the Department consider that Tier 4 rural unbundling is not feasible for the 700 MHz auction, it can limit the effect of this proposed geographic-tiering measure by confining it to what are likely to be the least valuable spectrum blocks in the 700 MHz band.
62. It appears very likely (based on the 700 MHz submissions) that the United States (US) band plan will be adopted for the 700 MHz spectrum assignment in Canada. Within this band plan, the Department could earmark the 12 MHz **unpaired** spectrum for Tier 4 rural.
63. The unpaired spectrum is well suited to deliver fixed wireless services based on TDD. In that regard, these unpaired blocks may be relatively more valuable in rural areas than urban areas, at this point in time. Furthermore, the large incumbents

have expressed little interest in the unpaired spectrum; their focus appears to be on traditionally mobile deployment for which the paired blocks are better suited.

64. The future use of the Upper D block is currently uncertain. The Department is currently examining whether this block should be allocated to Public Safety services in the future; in the meantime, it is available for commercial services.
65. While the Department is deliberating what to do with the Upper D block, it can set the **rural** service areas in this block for new entrants (using the AWS entrants' definition). In the interim, rural-focused ISPs would be permitted use of this spectrum to expand delivery of mobile and fixed broadband services in rural areas. In the future, if technology permits, rural-focused ISPs could mesh their service with Public Safety uses in the Upper D block.
66. Alternatively, if Public Safety services are in a position to utilize the Upper D block, or if the Department has decided to use the block differently, rural ISPs would commit to migrate their services in Upper D block to any spectrum they hold – in 700 MHz or other bands. Either way, the risk is borne by rural ISPs and service is provided to the rural and remote population with spectrum that is not otherwise used. Furthermore, there is minimal, if any, impact on the spectrum needed to meet the needs of urban markets
67. The 700 MHz band offers the Department an opportunity to implement Barrett's proposed geographic tiering, pro-competitive measures and rural rollout requirements by confining these measures to the unpaired blocks and using a less valuable paired block (e.g., Upper D block), and thereby not directly infringing on the spectrum-acquisition plans of most urban-focused wireless companies seeking higher-value (Lower 700 MHz) paired spectrum.
68. In effect, the proposed implementation approach allows the Department to directly address the digital divide without getting in the way of the development of urban mobile markets.

## Summary Remarks

69. The auction of 700 MHz spectrum provides the Department with the ideal opportunity to make a significant positive impact on reducing the digital divide in Canada. However, it is critical that the Department and other industry stakeholders recognize that the digital divide is inherently an issue of the availability of fixed broadband services rather than mobile broadband services. Furthermore, while the telecommunications industry sees 700 MHz spectrum as largely a mobile band, the fact is that if the Department truly wants to address the digital divide it must recognize that this mobile-centric view is driven by urban markets and not reflective of the situation today in rural markets. In rural areas, spectrum is the only method for fixed broadband communications as well mobile communications.
70. Given the different role for spectrum in urban and rural areas, Barrett believes that the most effective route to addressing the digital divide is by designing an auction that allows rural-focused ISPs to acquire rural spectrum at prices that reflect rural markets and not the adjacent urban markets. To achieve this situation, the Department must adopt a combination of measures and apply them to two to four blocks including unpaired and paired blocks. The adoption of Tier 4 with rural unbundling along with pro-competitive measures and rollout obligations enforced by an enhanced RP-19 will achieve the outcome of putting spectrum in the hands of the rural-focused ISPs, which are most likely to meet broadband communications needs of rural Canadians.
71. Barrett believes that the 700 MHz band offers the Department the flexibility to implement its proposed measures to the lower-demand bands. Unbundled Tier 4 services areas, pro-competitive measures and rural rollout obligations could be applied to the unpaired blocks and less-desirable paired blocks without directly infringing on the Department's objective of using 700 MHz spectrum to address the spectrum crunch prevalent in Canada's urban areas. In that regard, Barrett respectfully submits that its proposal will allow the Department to achieve both its urban and rural policy objectives through the 700 MHz auction.