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August 2, 2019

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(Submitted by email: ic.spectrumauctions-encheresduspectre.ic@canada.ca)

SUBJECT: SLPB 002-19 Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band

Dear Sir or Madam,

Canwisp is pleased to provide a response regarding the Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band.

We thank ISED for this continuing opportunity to participate in the collaboration of the future of Canadian telecommunications service.

Yours truly,

A handwritten signature in blue ink, appearing to read "AW", with a stylized flourish extending to the right.

Andreas Wiatowski
Chair
Canwisp
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Canwisp's Submission to

ISED's Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band

SLPB-002-19

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Spectrum Management and Telecommunications

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About Canwisp

1. Canwisp is an organization representing independent Canadian Wireless Internet Service Providers. Our members operate networks providing Internet access to households in rural and remote areas throughout Canada – areas where large telecom operators are either not servicing or have not upgraded their old copper network and thus provide only basic services.
2. Typically, WISPs are regional players providing wireless services in a single region. Many of our members started their WISP business because of the lack of available services in rural areas that effected their ability to participate in personal and business activities that other areas of the country take for granted. Our members' business model allows them to serve areas of low density profitably and at low cost, unlike the large telecom service providers, whose business model is usually designed to optimize return to shareholders and is not suited to provide service in these areas, even if they are close to large population centers.
3. Our members' networks range in size from several hundred to some 30,000 subscribers and supply high speed internet service as well as VoIP-based voice services, and video services. Overall, our 50 plus members provide service to approximately 125,000 subscribers in hard to reach rural areas.

We estimate that the total number of subscribers serviced by similar wireless operators (more than 150 others who are not members of Canwisp) represents an additional 125,000 subscribers for a total WISP subscribership of well over 200,000 and revenues of over \$100M a year (excluding Xplornet). More than 98% of the connections are wireless.¹

4. While the total subscribership of WISPs is a relatively small portion of total Canadian subscribers, WISPs service a significant portion of subscribers in rural and remote areas and are thus essential to meeting the CRTC national service objective of 50 Mbps / 10 Mbps.
5. Canwisp supports the auction of spectrum licences in the band 3450-3650 MHz, which enables service providers flexible use of spectrum for 4G and 5G applications in the 3500 MHz according to their needs.
6. As explained in our answers to the Consultation questions, pro-competitive measures are essential to the participation of its members, the success of the 3500MHz auction and ultimately, access by Canadians in rural and remote areas to innovative low-cost broadband services.

¹ Source: Canwisp submission on the Consultation related to MW licence fees in January 2019.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11468.html>

Canwisp Submission: Responses to Questions

Pro-competitive Measures

Q1A—ISED is seeking comments on its proposal to implement pro-competitive measures in the 3500 MHz auction.

7. Canwisp submits that ISED needs to adopt a combination of robust pro-competitive measures as part of a flexible licensing process - for the 3500MHz and future auctions, in order to enable small operators' access to affordable, secure spectrum and correspondingly, allow ISED to meet its rural policy objectives as expressed in ISED's statement in paragraph 28 of the Consultation Document:

“there is a risk that competition in the post auction marketplace could suffer without measures to facilitate regional service providers' and WISP's access to spectrum. National mobile service providers (NMSPs) likely have the means and incentive to prevent other service providers from acquiring spectrum licences in an open auction”.

Spectrum auctions have been dominated by companies that are 1000 times larger than the small operators that have been providing reliable rural internet service. In the absence of robust pro-competitive measures, rural service providers will continue to struggle to offer the highest speed services that rural Canadians deserve.

8. Minister Bains announced on July 23rd the introduction of smaller Tier 5 spectrum service areas *“which will make it more economical for service providers, particularly smaller providers in rural areas, to access the spectrum they need to deliver telecommunications services”*².
9. Canwisp submits that in order to make it financially feasible for smaller service providers in rural areas to access the spectrum required to deliver broadband services, Tier-5 service areas should be part and parcel of the licencing frameworks of the 2020 3500MHz and upcoming 2022 3800MHz auctions.
10. Canwisp acknowledges the recent progress made by ISED in recognizing the contribution of small players in the fulfilment of its rural policy objectives, but submits that it's a combination of measures, and not individual measures on their own, that will enable WISPs and smaller service providers to access the spectrum required to deliver affordable broadband services to rural subscribers, and that the claim made in Minister Bains announcement will not materialize without a combination of pro-competitive measures.
11. The combination of pro-competitive measures should therefore include the following:

² <https://www.canada.ca/en/innovation-science-economic-development/news/2019/07/government-of-canada-works-to-improve-rural-connectivity.html>

- Use of smaller service areas – specifically, the newly defined Tier 5 licence areas announced by Minister Bains,
- Significant quantum of set aside spectrum,
- Application of spectrum caps on large incumbent operators
- Ensure entities who operate assets using 3500 MHz spectrum without really serving customers see their application to transition to flexible use rejected and
- Allow Flexible Conditions of Licence (CoLs) for smaller operators in rural and remote areas. Those flexible CoLs are required by smaller operators in the face of the challenges of investment in rural areas.

Pro-competitive measures have been successfully applied in previous Canadian spectrum auctions and similar auctions held in other jurisdictions, either in the form of a Spectrum aggregation limit (spectrum Cap) or spectrum set-aside. In fact, except for 2 small sealed bid auctions held by ISED's (Industry Canada) in 2009, pro-competitive measures have been used in all Canadian auctions since 1999.

12. Set-asides have been effective in enabling new entrants to the mobile space to acquire spectrum at a reasonable price and in preventing large incumbents' operators with from acquiring the entirety of spectrum on offer through the use of their superior financial resources. But set asides from past auctions have done little to include regional WISPs that currently service the under-served areas of the county. In fact, our members see this spectrum being used to overlay areas already well serviced by the large incumbents and thus increasing competitive landscape and driving down mobile wireless pricing, but are doing little to expand internet service into the underserved rural areas of Canada.
13. Spectrum Caps have been used in 8 of the 13 Canadian auctions to date. They have been effective in limiting spectrum concentration, enabling a fairer distribution of spectrum resources.
14. Canwisp submits that it will be extremely difficult for smaller entities to obtain spectrum required for broadband services in rural areas in the upcoming 3500 MHz auction, given a significant portion of the spectrum has been licensed to incumbents even though some of those users are not really using the band to serve customers. ISED has also recognized the need for a transition process to flexible use based on arguments for mobile applications in the global transition to 5G technology. Even with the clawback process, a significant amount of spectrum will remain in the hands of existing users.
15. Canwisp submits that the very complexity of the proposed CA auction software and rules will also dissuade many smaller service providers from participation in the 3500MHz auction process. In order to enable participation of smaller service providers, Canwisp therefore urges ISED to adopt the combination of competitive measures detailed in paragraph 11 above.

Q1B—ISED is seeking comments on the use of a set-aside, an in-band spectrum cap, or a combination of both, including the amount of spectrum that should be applied for the use of a set-

aside, and/or the amount of spectrum that should be subject to an in-band spectrum cap. Provide supporting rationale for your responses.

16. As stated above, Canwisp strongly believe that both a set aside and a spectrum cap are required to ensure smaller service providers have access to the spectrum resource.
17. Given the number of blocks potentially available with the new Band Plan for the 3500 MHz band and the fact that the transition process to flexible use will create significant variations in the quantum of spectrum available in each service area, the application of a set aside alone would potentially have a limited scope in enabling smaller service providers to acquire the resource. Canwisp notes that a set-aside cannot really be applied to the transition process to flexible use. However, the application of a set-aside would ensure that a sufficient quantum of spectrum is outside of the reach of our 3 National Mobile Service Providers (NMSPs) and available to other service providers, thus contributing to mitigating the risk of having most 3500MHz band spectrum won by large incumbents. ISED itself highlighted this risk in paragraph 28 of the Consultation document.
18. Canwisp submits that a spectrum cap -used in conjunction with a set-aside, would be complementary to the use of a set aside measure. The use of the dual measures would ensure that in service areas where more blocks are available, spectrum is distributed fairly among set-aside eligible entities, and that medium sized entities would not be allowed to push aside WISPs and acquire all of the set-aside spectrum.
19. While Tier 4 service areas could be used to auction the 3500 MHz band to non set-aside eligible bidders in urban areas, Canwisp urges the Department to at least consider an innovative approach of using Tier 5 service areas for set-aside spectrum. The use of Tier-5 would allow WISPs and smaller service providers to acquire affordable spectrum they need for their ongoing rural operations. As Minister Bains indicated in his July 23rd 2019 announcement: *“the introduction of smaller spectrum service areas, which will make it more economical for service providers, particularly smaller providers in rural areas, to access the spectrum they need to deliver telecommunications services”*. Canwisp urges the Department to strongly consider the use of Tier 5 service areas for the set-aside spectrum in its final decision on the 3500 MHz auction framework. In the event the Department elects to solely use a spectrum cap and no set-aside, the entire auction should be held at the Tier 5 level.
20. Canwisp submits that the set-aside and spectrum cap should each be set at 50MHz in order to create a sufficient quantum of spectrum for smaller rural service providers to acquire spectrum at a reasonable price in order to enable them to invest in LTE upgradable networks and provide affordable broadband services to their rural subscribers. The 50 MHz spectrum cap would ensure a fair distribution of the spectrum resource while the 50 MHz set-aside would ensure that at least this amount of spectrum is outside of the reach of NMSPs. The spectrum retained by operators as a result of the transition process would obviously count towards the spectrum cap: ISED could still allow successful transition applicant who were using over 75 MHz to exceptionally retain 60 MHz.
21. Canwisp submits that rural subscribers would be better served by ISED’s policy objectives if, in conjunction with the pro-competitive measures and the use of smaller service areas proposed above, the regulator would reject applications to transition spectrum to flexible use where towers

have been lit merely to meet deployment conditions. In many cases national incumbents have obtained licences in rural areas only to deploy towers to meet licence conditions and without any real intention of providing services to subscribers.

Specifically, since Bell and Rogers as NMSP owners of Inukshuk partnered in September 2005 (a period of 14 years), they have deployed the minimum number of towers without any intention of selling the service to the population. In addition to warehousing the spectrum, the incumbents when asked to subordinate spectrum by smaller rural service providers, have been unable or unwilling to provide a method to sub-license. As a result, the smaller service providers which could have effectively utilized the spectrum to provide service to subscribers, have been substantially limited to utilizing unlicensed spectrum limiting their ability to provide higher speed services.

Canwisp notes that over the last year, in anticipation of spectrum clawback prior to the 3500MHz auction, Bell has increased significantly its capital investment in rural areas. In many cases, the capital investments made by the incumbents in their Wireless to the Home (WTH) service has merely been used to overlay on existing vertical infrastructure along with current mobile services - rather than providing services to the unserved.

The last-minute rush to deploy has only destabilized the markets in rural areas and in some cases, made WISP operations unviable due to overbuilding existing service providers. This behaviour should not be rewarded with transition of the spectrum resource to flexible use. In this age of digital information where data consumption doubles every 2 or 3 years, it is of paramount importance that the scarce resource that is spectrum be managed by our regulator as effectively as possible.

22. Canwisp believes that a thorough approach in the management of the transition process to flexible use would ensure that the quantum of spectrum available to entities is actually used to provide service to Canadians, resulting in result in lower prices and more innovative services for Canadian households and businesses.
23. Canwisp therefore urges ISED to change its existing deployment requirements as part of the CoLs for the 3500MHz auction framework and incorporate a real service obligation.

Q1C—ISED is seeking comments on its proposal to limit the eligibility criteria to bid on set-aside spectrum licences to those registered with the CRTC as facilities-based providers* that are not National Mobile Service Providers, and that are actively providing commercial telecommunication services to the general public in the relevant Tier 2 service area of interest, effective as of the date of application to participate in the 3500 MHz auction.

24. Canwisp agrees with ISED's proposal to limit the eligibility criteria to bid on set-aside spectrum licences to those registered with the CRTC as facilities-based providers that are not National Mobile Service Providers (NMSPs), and that are actively providing commercial telecommunication services

to the general public in the relevant Tier 2 service area of interest, effective as of the date of application to participate in the 3500 MHz auction.

25. However, in addition to NMSPs, Canwisp submits that Regional Mobile Service Providers (RMSPs) should also be restricted from access to set-aside spectrum.
26. Finally, NMSPs and RMSPs with spectrum licences meeting or exceeding the Spectrum cap limit in given service areas as a result of the transition process to flexible use should not be allowed to acquire additional 3500 MHz spectrum in those service areas.
27. Canwisp submits that these measures restricting NMSPs and RMSPs would prevent established, spectrum-rich players from qualifying for set aside spectrum, ensure on-going availability of secure, affordable spectrum for the smaller facility-based service providers, help to address the imbalance between spectrum rich national and regional mobile service providers and WISPs.

Q1D—ISED is seeking comments on its proposal that any set-aside licences acquired by set-aside-eligible bidders would not be transferable to set-aside-ineligible entities for the first five years of the licence term.

28. Canwisp agrees with ISED's proposal to require successful set-aside-eligible bidders / licensees to hold set-aside licences acquired and not transfer them to set-aside-ineligible entities for the first five years of the licence term.

Q1E—ISED is seeking proposals for other eligibility criteria along with supporting rationale.

If a spectrum cap is to be applied:

Q1F—ISED is seeking comments on the inclusion of grid-cell and sub-divided licences towards the spectrum cap, and the proposal to allow the return of these licences in order to increase a licensee's eligibility to bid on additional spectrum within the related licence area.

29. Canwisp agrees with the inclusion of grid-cell and sub-divided licences towards an eventual spectrum cap; however, Canwisp believes the auction process should be built not to disadvantage such grid cell bidders. As an example, let's suppose Bidder A who already owns 30 MHz of grid cell licences covering 30% of the population in a given service area. Assuming a spectrum Cap of 50 MHz, the first 2 blocks won by Bidder A in the service area would cover the entire service area and would augment its spectrum holdings in grid cell service area. However, because of the spectrum cap, the third, fourth, and fifth blocks won by Bidder A would only apply to the spectrum outside of its existing grid cell allocation, ensuring that the 50 MHz spectrum cap is respected.

License Areas

Q2—ISED is seeking comments on its proposal to use Tier 4 service areas for the 3500 MHz licensing process.
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30. As stated in the submission from the Industry Consortium (of which Canwisp was a constituent) to ISED's Service Area Consultation DGSO-002-18, Canwisp strongly believes that the newly introduced Tier 5 service areas are critically needed to encourage participation by smaller operators to the 3500 MHz and future spectrum auctions and consequently, enable them to provide affordable broadband services to subscribers in rural and remote areas.
31. The overall cost of spectrum for Tier 4 service areas and correspondingly, the downstream capital costs for deployment and operating costs to cover the larger Tier 4 licence area potentially exceed the financial resources of WISPs and smaller operators. Tier 4 areas also often include rural and remote areas within the same service area, which accentuates this effect and prevents WISPs and smaller operators from acquiring the spectrum in the rural portion, because of the larger population included in the service area.
32. Thus, utilization of Tier 4 service areas by ISED will effectively exclude small, rural facility-based operators in the 3500MHz auction and subsequent auction licensing processes.
33. The current Tier 4 service areas do not consider the unique characteristics of rural areas in Canada and the fact that some Tier 4 boundaries are not in low population areas which can cause interference and coordination issues.
34. The application of new Tier 5 service areas - announced by ISED in July, 2019, within the 3500MHz auction framework, would greatly help increase spectrum affordability for Canwisp members. This is true despite the fact that ISED implemented the minimum size for population centers to form their own Tier 5 areas at 30000 inhabitants. At a minimum, the use of Tier 5 service areas in the 3500 MHz auction, would properly separate rural and urban areas where the population of such urban areas is above 30,000 inhabitants. This would allow WISPs and smaller service providers to exclude those population centers from their spectrum costs and acquire the rural spectrum required for their continuous operation.
35. Additionally, the fact that ISED adopted a methodology limiting the number of service areas to 654 nationally should ensure a manageable number of lots in the 3500 MHz auction and thus mitigate concerns of larger service providers with respect to interference mitigation and administrative burden.
36. Canwisp notes that the Department previously used 2 Tiers simultaneously in the same spectrum auction. For instance, in the 2008 SMRA auction, Tier 2 and Tier 3 service areas were used simultaneously in the auction. Canwisp submits that ISED should consider similar arrangement for the 3500MHz, 3800MHz and future auctions. For example, in the 3500MHz auction, Canwisp submits that ISED should use a similar approach combining Tier 4 and Tier 5 service areas, ensuring

at a minimum, that the number of blocks reserved for set-aside are auctioned at the Tier 5 level. This innovative approach would enable effective participation by, and affordable spectrum for WISPs and smaller service providers.

37. If ISED ultimately decides to hold the 3500 MHz spectrum auction only at the Tier 4 level, it will be a tremendous loss for regional operators, however, Canwisp strongly recommends that ISED consider Tier 5 Licence Areas in designing future auctions. In particular, the application of Tier 5 licence areas in the 3800 MHz auction will be critically important to the needs of smaller, rural ISPs.

Q3A—ISED is seeking comments on its proposal to include all remaining spectrum (including partially encumbered Tier 4 areas) as part of the auction as shown in table A1 of annex A.

38. Canwisp has no objection to the inclusion of all remaining spectrum (including partially encumbered Tier 4 areas) as part of the auction as shown in table A1 of annex A.

Q3B—ISED is seeking comments on its proposal to consider all spectrum acquired through the auction and only Tier 4 licences that will be issued through the transition process, simultaneously in the assignment round of the auction, in order to determine the specific frequency assignments of all licences in the 3500 MHz band.

39. Canwisp notes that ISED, through its experimentation with the WBS ‘all come all serve’ licensing mechanism, has greatly contributed to enabling rural service providers to make use of spectrum resources that otherwise, they would not have been able to afford.
40. Canwisp submits that ISED should prioritize assignment of the upper portion of the 3500 MHz spectrum to existing users of the WBS band. Aggregation of the 3500 MHz and WBS spectrum on the same equipment becomes more difficult as blocks of 3500 MHz spectrum are further away from the edge of the WBS band (3600 MHz). In other words, the 10 MHz blocks of the 3500 MHz band are not all the same to WISPs; specifically, the ability of WISPs to augment the bandwidth on currently deployed WBS equipment and improve the quality of service to rural customers increases when spectrum blocks that are assigned to them are closer to the WBS band.
41. Therefore, Canwisp submits that ISED should continue to capitalize on the success of the WBS band approach and design an assignment round that prioritizes assignment of the upper portion of the 3500 MHz spectrum to existing WBS users, allowing rural service providers to further expand their services and cope with additional demand in rural areas with minimal Capex investment.
42. Given the additional financial strain in providing internet and other complementary services in rural areas, consideration from the regulator in assisting WISPs and smaller service providers to optimize their existing capex investments is imperative. For this reason, Canwisp submits that the upper portion of the 3500 MHz band must be assigned in priority to small operators making use of the WBS band today.

43. In order to optimize rural investments from WISPs, ensure service continuity in rural areas and allow for further reduction of the rural/urban internet divide, frequency assignment of the 3500 MHz blocks resulting from the auction clock round and the transition process should not be left by default to larger players with the most financial capability.

As the Department rightly states in paragraph 28 of the Consultation document: *“there is a risk that competition in the post auction marketplace could suffer without measures to facilitate regional service providers’ and WISP’s access to spectrum.”*

There is also a risk that even if WISPs successfully access spectrum, incumbent service providers will - in the Assignment round, employ a ‘denial strategy’ to prevent WISPs access to spectrum in the upper 100 MHz of the 3500 MHz band and consequently, frustrate carrier aggregation and force the WISPs into additional capex investment (replacement or addition of radio units). Such an outcome would significantly reduce WISPs ability to improve service to rural customers by requiring unnecessary spending.

44. Therefore, Canwisp submits that the Assignment round of the 3500 MHz auction needs to be modified to preserve service continuity and minimize wasteful capex investments in rural areas.
45. With in mind the same service continuity principle that led to the creation of the transition process to flexible use in the first place, Canwisp submits that existing small regional service providers that are successful applicants to the transition process, should have the ability to choose specific 10 MHz blocks based on the bands in which their equipment is already deployed. Transitioned spectrum would therefore be entirely excluded from the Assignment round of the auction.
46. The Assignment round should also be designed to facilitate allocation of the upper 100 MHz of the 3500 MHz band to existing small service providers holding WBS licenses in order that they be able to augment the operating bandwidth of their existing equipment with the newly acquired spectrum. As demonstrated in Canwisp’s Whitepaper submission in response to the 2018-2022 Spectrum Outlook Consultation last year, a significant and growing portion of WISPs are already using LTE technology and that this proportion is trending upwards. Canwisp therefore urges the Department to modify the proposed Assignment phase of the auction in recognition of past capex investments from rural service providers.
47. Leaving the Assignment round as proposed would expose the smaller bidders to the mercy of incumbents’ ‘denial’ strategies to force wasteful, additional capital investment to obtain the required spectrum.
48. Canwisp further submits that inclusion of open and set aside bidders as a single set of bidders in the Assignment round will allow the national and regional incumbent operators to strategically deny spectrum in the upper ranges of the band to smaller bidders by using their superior financial resources. Incumbent national and regional mobile service providers do not face similar costs in deployment of new equipment in the 3500MHz bands.

Q3C—ISED is seeking comments on the proposal that licensees who acquire multiple flexible use Tier 4 licences in a given area, either as a result of the auction or as a result of the transition process, be assigned contiguous spectrum, and that this also apply to partial area licences acquired through the auction.

49. Canwisp has no objection to ISED’s proposal that licensees who acquire multiple flexible use Tier 4 (or Tier 5 if it was adopted) licences in a given area, either as a result of the auction or as a result of the transition process, be assigned contiguous spectrum, and that this also apply to partial area licences acquired through the auction.
50. Canwisp submits however that if a Spectrum Cap was to be applied as a pro-competitive measure, the successful applicants to the transition to flexible use who match or exceed the cap as a result of the transition process should not be eligible to participate in the 3500 MHz auction for those service areas.
51. Additionally, should ISED agree with Canwisp’s proposal above and exclude the transitioned spectrum from the Assignment round, entities successful at acquiring additional spectrum during the auction in areas where they successfully transitioned spectrum, would be assigned contiguous spectrum and see their newly acquired spectrum excluded from the Assignment round in these service areas.

Q3D—ISED is seeking comments on the proposal to classify all partial tier licences as encumbered blocks.

52. Canwisp has no objection to ISED’s proposal.

Q3E—ISED is seeking comments on the proposal to bundle the remaining portions of the encumbered areas offered in the auction as a combined encumbered block of 20, 30, 40 MHz or more, depending on the number of 10 MHz blocks being bundled. In particular the bundle would include the tier areas where existing sub-divided or grid cell licenses are encumbering the majority of the tier. This would apply where the geography of the remaining portions is the same or similar, and/or the remaining area covers a relatively small population. Comments on the proposed list of encumbered service areas where multiple blocks may be combined for the purpose of the auction are also sought.

53. Canwisp disagrees with the proposal to bundle of encumbered blocks as it would result in a reduction of accessibility to spectrum for small entities, given the higher price of bundled blocks.
54. Additionally, for the same service continuity principle described in answer to Q3B above, Canwisp believes than encumbered blocks should not be auctioned as generic licences. Service providers benefiting from grid cell allocations or licence subdivisions today, often do not have the financial capability to invest in new equipment to relocate their operations to another portion of the band. In consideration for the capital already invested by those service providers and to favor service

continuity, encumbered spectrum should not be auctioned as generic licences and should be excluded from the Assignment round.

If a spectrum cap is applied:

Q3F—ISED is seeking comments on the proposal that the bundled encumbered blocks would not count towards the spectrum cap during the auction, but that any transfers of the licences post-auction would be subject to the spectrum cap and the conditions of licence as described in section 11.2.

55. Canwisp believes that the spectrum cap should apply to all spectrum and proposed a solution in its answer to question Q1E above to deal with encumbered blocks. Canwisp sees no justification to exclude encumbered blocks from a spectrum cap.

Auction Format and Rules

Q4A—ISED is seeking comments on its proposal to use generic licences.

If a set-aside is applied (with or without a spectrum cap):

56. The Department defines, in paragraph 69 of the Consultation document, generic licences as blocks of spectrum being sufficiently similar and comparable in value to one another, that they can be offered as a single category in each service area. The Department further states that in determining whether licences should be regarded as generic, it considers the frequency location in the band, the block size, the encumbrance, and possible technology and interference constraints.
57. As submitted by Canwisp in answer to Q3B above, a significant portion of rural service providers use LTE technology over WBS spectrum which is overlapping LTE band 43. Canwisp submits that because of technical limitations of existing equipment deployed (i.e. that existing LTE equipment either operates over LTE band 42. LTE band 43 or covers both bands but with a channel spacing limitation between the highest and lowest channels used), the spectrum blocks of the lower 100 MHz of the 3500 MHz band are probably just as different from the spectrum blocks of the upper portion of the band as encumbered and unencumbered blocks are.
58. Canwisp submits that if encumbered and unencumbered spectrum can be deemed different products, so could the lowest half and the upper half of the 3500 MHz band.
59. Canwisp submits that ISED could consider blocks of the lower and upper half of the 3500 MHz band as a single generic product only in the scenario that the Assignment round was designed to ensure the upper portion of the 3500 MHz band be assigned to existing WBS users who could use the new spectrum with their existing equipment.

60. Otherwise, Canwisp submits that the lower and upper half of the 3500 MHz band should be treated as separate products, with the spectrum of the upper half designated in priority as set aside spectrum. As entities making use of the WBS band are generally smaller service providers seeking access to affordable spectrum in order to provide cost effective service to rural Canadians, it follows that ISED should assign on a priority basis, unencumbered blocks overlapping the upper half of the 3500 MHz band to the set aside. The available blocks closest to the WBS band in each service area would be the set-aside blocks until the quantum of spectrum allocated to the set-aside is reached.

61. Canwisp would support the use of generic licences within the 2 categories defined above, as blocks within those categories would meet ISED conditions for the use of generic licences as per the definition provided in paragraph 69 of the Consultation document.

Q4B—ISED is seeking comments on its proposal to categorize all blocks won by set-aside-eligible bidders as set-aside blocks.

62. Canwisp supports ISED proposal to the effect that, in a given service area where a bidder is deemed set-aside eligible, to categorize all blocks won by the set-aside-eligible bidders as set-aside blocks.

Q4C—ISED is seeking comments on its proposal to create separate categories for encumbered and unencumbered blocks, as well as open and set-aside blocks.

63. Canwisp has no objections to ISED's proposal of considering encumbered and unencumbered blocks as separate categories.

If only a spectrum cap is applied:

Q4D—ISED is seeking comments on its proposal to create separate categories for unencumbered and for various encumbered block in a service area.

64. Canwisp supports the distinction proposed by ISED, between encumbered and unencumbered products, opposes the bundling of encumbered products into larger blocks and further submits that the upper 50 MHz of the 3500 MHz spectrum should be assigned on a priority basis, to existing WBS users.

65. Canwisp also supports ISED's proposal that set-aside blocks be selected from unencumbered products.

Q5—ISED is seeking comments on the use anonymous bidding during the auction.

66. Canwisp has no objections to ISED's proposal. Combined with separate designation of set aside and open blocks, the use of anonymous bidding would contribute to limiting the ability of incumbent

operators in the use their superior financial resources to deny spectrum to smaller operators and WISPs.

Q6—ISED is seeking comments on its proposal to use a clock auction format for the 3500 MHz spectrum auction.

67. Canwisp welcomes the fact that ISED is proposing to move away from the complex CCA auction format for the 3500 MHz auction. CCA auctions are too complex and expensive for WISPs and other smaller entities to participate in or even prepare for. Furthermore, package bidding which has been an integral feature of CCA auction, based on the assumption that it limits the exposure risk, in reality, favors larger entities by providing the opportunity to include small population licences in larger packages thus outbidding smaller operators who can not afford the larger population licences. This bias against smaller players is explained in further detail in Cogeco's response to the Consultation on a Technical, Policy and Licensing Framework for Spectrum in the 600 MHz Band.³
68. With regards to the specific features of the Clock Auction format, Canwisp submits that features - such as intra-round bidding and bid queuing, introduce new level of complexity for bidders which similar to the CCA, will deter WISPs and smaller entities that do not have the financial means to hire strategy consultants or devote entire semesters to understand the subtleties of auction rules, from participating into the auction.
69. Canwisp submits that the reasons cited by ISED to justify the introduction of a complex intra-round bidding and bid queuing processes are unwarranted. The 2008 AWS-1 SMRA auction was indeed the longest in Canadian auction history. However, the 3500 MHz auction could be designed differently; alternative measures could be considered in order to shorten the auction. In any case, Canwisp submits that the negative impacts of the intra-round bidding and bid queuing features far outweigh the benefit of shortening the duration of the auction.
70. With regards to intra-round bidding, specifically, the premise is that this feature will allow the auction manager to use larger bid increments and prevent the situation where a jump in the clock price results in simultaneous bidders reducing demand and leaving spectrum on the table. Bid queuing ensures that if there is only one bidder for a specific lot at a specific price, that bidder remains 'owner' of a specific lots until demand exceeds supply i.e. (an)other bidder(s) accepts to pay a higher price in a subsequent round. However, bid queuing has the negative effect of limiting the ability of the bidder to seek out other lots with a better bid price / value ratio. In effect, even though their eligibility during the Clock round allows for increase in the number of lots bid, bid queuing constrains bidders in their demand.

³ <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11337.html>

71. Canwisp submits that ISED could achieve the same result by not reducing bidder's eligibility when several bidders stop bidding simultaneously on a given product due to an increase in price resulting in a situation where supply exceeds demand for the product. The auction manager would reduce the price of the product where demand dropped below supply and Bidders could readjust their demand and the subsequent round if they so choose to exercise the option. In the event they didn't, and supply exceeded demand for the product 2 rounds in a row, bidders' eligibility would be adjusted accordingly.
72. The adjustment of eligibility proposed here would eliminate the need for intra-round bidding and bid queuing, thus greatly reducing the complexity of the auction and enabling WISPs and smaller service providers to participate.
73. Canwisp supports the use of a Clock Auction format for the 3500 MHz auction, but believes the intra-round bidding and bid queuing features should be eliminated, allowing for a much simpler auction process. ISED could compensate by establishing special rules for eligibility reduction if it is concerned that clock round price increase will lead to simultaneous demand reduction from bidders, allowing them to return in the subsequent round by not reducing their eligibility if demand dropped below supply.
74. Canwisp also submits that Bidders should not be restricted to reducing or increasing demand for products during the Clock round phase of the auction, as long as their eligibility allows for it.
75. Canwisp strongly believes that to be consistent with the objective enabling smaller providers to access affordable spectrum for the provision of broadband services to subscribers in rural areas - as formulated by Minister Bains (July 2018 Press release re. creation of the Tier 5 service areas), ISED return to a simplified SMRA auction format in the 3500 MHz auction and in future auctions in order to allow WISPs and smaller operators to participate in auction events.

Q7—ISED is seeking comments on the proposed structure of the clock stage and on the proposed methodology for calculating processed demands and posted prices after each clock round, as described in annex C.

76. As mentioned in previous sections, Canwisp objects the concept of intra-round bidding and the processed demand methodology that ensues, proposed by ISED in the Consultation document. Canwisp believes that the use of such a complex auction format will deter WISPs and smaller entities from participating into the auction.
77. Canwisp believes the Department should go back to a much simpler approach, where the demand is simply the sum of the number of blocks for each product at the end of Clock Rounds. Bidders should be allowed to increase or reduce their demand of specific products based on eligibility points. Bidders would thus manage their eligibility by complying to the activity rule posted by ISED.

Q8—ISED is seeking comments on the proposed range of percentage increments.

78. Canwisp submits that the range of increments proposed by ISED should be workable for most bidders. ISED should ensure the auction software allows for a reduction in price from the preceding round when a price increment led to several bidders simultaneously reducing demand, resulting in an aggregate demand below supply for a specific product.
79. Canwisp submits that ISED could implement some sort of auto waiver to prevent an eligibility points drop in the scenario that demand drops below supply due to bidders reducing their demand simultaneously due to price increase.

Q9A—ISED is seeking comments on the proposed structure of the assignment stage, including the order of the assignment rounds, treatment of existing holdings, the combination of service areas into a single assignment area and parallel bidding.

80. As indicated in its answer to Q3B and Q3E above, Canwisp submits that successful applicants to the transition phase and grid cell users should understand which blocks are assigned to them before the 3500 MHz auction and be excluded from the assignment round in order to ensure service continuity and minimise investment they need to make to continue to serve their customers.
81. As indicated previously, Canwisp submits that open bidders should not be included with set aside bidders in the Assignment round, if blocks overlapping LTE band 42 and LTE band 43 are considered the same product. The inclusion of open and set aside bidders as a single set of bidders in the assignment round, will allow the national and regional incumbent operators to strategically deny spectrum in the upper 50 MHz of the band to smaller bidders by using their superior financial resources to outbid them for those assignments. The smaller operators already operate in the WBS band and thus face significant costs in their RAN equipment if they can't acquire licences in the upper ranges of the 3500 MHz band. Incumbent operators do not face similar costs in deployment of new equipment in the 3500MHz bands.
82. In the event ISED does not accept Canwisp proposal to create separate products for unencumbered blocks overlapping LTE band 42 and LTE band 43 - as per its answer to Q4A above, Canwisp submits that Open and Set-aside bidders should be treated separately, giving priority to small regional operators to the upper portion of the 3500 MHz band.
83. Otherwise, Canwisp has no objections to ISED's proposals for structure of the assignment stage, including the order of the assignment rounds, the combination of service areas into a single assignment area and parallel bidding.

Q9B—ISED is seeking comments on the proposal to apply bidder optimal core prices and to use the "nearest Vickrey" approach in determining the assignment prices.

84. Canwisp has no objections to ISED's proposal to apply bidder optimal core prices and to use the "nearest Vickrey" approach in determining the assignment prices.

Bidder Participation

Q10—ISED is seeking comments on the proposed affiliated and associated entities rules that would apply to bidders in the 3500 MHz auction.

85. Canwisp has no objections to ISED's proposal regarding affiliated and associated entities rules that would apply to bidders in the 3500 MHz auction.

Q11—ISED is seeking comments on the proposed rules prohibiting collusion and other communication rules, which would apply to bidders in the upcoming 3500 MHz auction.

86. Canwisp has no objections to ISED's proposed rules prohibiting collusion and other communication rules, which would apply to bidders in the upcoming 3500 MHz auction .

Conditions of Licence for flexible use spectrum licences in the 3500 MHz band

Q12—ISED is seeking comments on its proposal to issue new flexible use spectrum licences in the 3500 MHz band with a 20-year licence term and the proposed wording of the condition of licence above. Licence terms for all flexible use licences, regardless of when they are converted from fixed to flexible use, will terminate on the same date as licences issued through the auction process.

87. Canwisp agrees with the proposed 20-year term and has no objection to the proposed wording of the conditions of licence.

Q13—ISED is seeking comments on the proposals on the condition of licence related to transferability and divisibility, and the proposed wording above.

88. Canwisp currently has no objections to ISED's proposal regarding the condition of licence related to transferability and divisibility.

Q14—ISED is seeking comments on the proposed deployment condition of licence as stated above as well as on the proposed levels of deployment.

89. Canwisp submits in the case that Tier 5 service areas are not applied in the 3500MHz auction, that successful bidders be required to deploy on a Tier 5 basis in each of the Tier 4 service areas obtained

in the auction. For example, in a specific Tier 4 service area which contains 3 Tier 5 service areas embedded within, a winning bidder would have to meet the roll out requirements for each of the Tier 5 service areas. This deployment arrangement would avoid winning bidders from 'cherry picking' deployment in the most lucrative portions of the Tier 4 service areas and delay or simply not servicing the remaining portions of the service area. Canwisp believes this measure is necessary to facilitate the deployment of FWA service in rural Canada and help ensure that spectrum acquired by service providers for 5G deployments will be put to use quickly to the benefit of the Canadian population. More stringent deployment conditions for mobile use versus fixed use should also help smaller service providers to access the resource via subordination, as it would deter larger mobile service providers from hoarding spectrum in rural areas.

90. Canwisp also submits that the incumbents should be held to stricter requirements for subordination to WISPs/regional operators and specifically, be required to deploy based on the principle of 'employ the spectrum in full service-mode or subordinate it to service providers that will'. This principle can only be made operational when combined with strong 'take back' measures in the case where incumbents do not provide broadband services to subscribers in their service areas and mandate subordination to smaller service providers where the incumbent has not fully serviced the entire licence area within 5 years.
91. Canwisp submits that the incumbents have traditionally not been favourable to subordination agreements with smaller service providers. In order to effectively promote subordination, ISED should require the incumbents to undertake the following:
 1. Annual reporting of subordinate license requests with details of the service provider, whether subordination successfully negotiated, if not, reasons for refusal, etc.
 2. Designate a specific individual within the organization with authority for subordination decisions and
 3. Respond to subordination requests within a reasonable timeframe.
92. Canwisp submits that Flexible CoLs are required in the face of the challenges of investment in rural areas for WISPs and smaller service providers and further submit that small or smaller service providers in this document means those with gross operating revenues of \$250M or less.
93. Canwisp submits that deployment conditions should be paired with a real service obligation to ensure service providers with strong financial capabilities are not tempted to light up a few towers per service area to be deemed having met their deployment conditions as it has been the case in recent history. The Department states, in paragraph 27 of annex H, under General Deployment Requirements, that *"Licensees will be required to demonstrate to the Minister of Innovation, Science and Economic Development that this spectrum has been put to use to actively provide service, as specified in annex F, within 5, 10 and 20 years of the initial licence issuance date (TSI emphasis).* Canwisp notes however, that annex F contains a table showing percentages per service area of the population that should be covered 5, 10 and 20 years after licences have been awarded, but does not contain any definition or reference to the terms *"put to use to actively provide service"*. Canwisp submits that the use of Tier 5 service areas would greatly assist in resolving the service roll out issue. If ISED maintains Tier 4 licence areas for the auction, the use of deployment conditions designed

around the newly created Tier 5 service areas would go a long way in fostering deployment of FWA services in rural areas. This measure would also encourage primary licensees to provide subordination opportunities for smaller service providers in those areas where the primary licensees do not play to deploy.

Q15—ISED is seeking comments on the proposed conditions of licence outlined in annex H that would apply to flexible use licences.

94. Canwisp agrees in general with the licence conditions defined in annex H. However, as stated in its response to Q1B and Q14 above, Canwisp believes that a real service obligation should be included in the licence conditions, in order to ensure licence owners are actively using the spectrum to provide service to the Canadian population, instead of deploying a few towers per service area and subsequently claiming to having met their deployment requirements without real efforts to market or sell the service.
95. Canwisp submits that service providers that successfully acquire spectrum should be required to provide to ISED key information sets including the following: subscriber numbers, revenues, proof of marketing efforts and proof of service availability.

Q16A—ISED is seeking comments on its proposal to amend all FWA conditions of licence based on the proposed conditions of licence in annex I.

96. Canwisp agrees with ISED's proposal to amend all FWA conditions of licence as it will facilitate the efficient use of the spectrum resource. Canwisp however submits that these amendments should only be applied until the transition process to flexible use of the 3500 MHz spectrum is successful or denied, at which date the licence conditions of the 3500 MHz spectrum being auctioned (defined in annex H), should apply to successful transition applicants.

Q16B ISED is seeking comments on its proposal to apply this amendment on June 5, 2019, plus one year—June 5, 2020.

97. Canwisp has no objection to the proposal to apply this amendment on June 5, 2019, plus one year—June 5, 2020.

Q17—ISED is seeking comments on the proposed opening bids as presented in annex D.

98. Canwisp submits that the opening bid or reserve prices as presented in annex D reflects the use of Tier 4 licensing areas for spectrum which are too expensive for smaller operators to acquire, deploy and operate in. As proposed, the opening bid prices will discourage the participation of WISPs and other smaller bidders.
99. Canwisp submits that ISED should consider the use of bidding credits which provide for a discount on the winning bid price for rural service providers and small businesses. Bidding credits were applied by the FCC in Auction 101 concluded in January 2019. In that auction, rural service providers, were



eligible for a 15% discount on their winning bid – with the overall bid value capped at USD\$10M.⁴

Eligibility for the bidding credit was based on demonstration of on-going commercial service in the service areas and number of subscribers (<250,000) currently served. Rural service areas were defined as having a population of <100 s/sq. mile. Small businesses were eligible for a 15% or 25% discount on their winning bid – depending on their gross revenues. Eligibility for the bidding credit was similarly based on gross revenues.

100. As stated in previous sections of this submission, Canwisp urges ISED to revise its proposal and adopt the use of the newly defined Tier 5 service areas for the 3500 MHz auction.

Q18—ISED is seeking comments on the proposed eligibility points for spectrum licences in the 3500 MHz as outlined in annex D, and pre-auction deposits as outlined above.

101. Canwisp has no objections to ISED’s proposed eligibility points for spectrum licences as presented in annex D.

Q19—ISED is seeking comments on the proposed renewal process for spectrum licences in the 3500 MHz band.

102. Canwisp has no objections to ISED’s proposed renewal process for spectrum licenses in the 3500 MHz band.

⁴ Source: <https://www.fcc.gov/auction/101/factsheet#bid>

Small business bidding credit: A bidder with attributed average annual gross revenues that do not exceed \$55 million for the preceding three years is eligible to receive a 15 percent discount on its winning bid. A bidder with attributed average annual gross revenues that do not exceed \$20 million for the preceding three years is eligible to receive a 25 percent discount on its winning bid. Rural Service Provider Bidding Credit

Rural Service Provider Bidding Credit: An eligible applicant may request a 15 percent discount on its winning bid using a rural service provider bidding credit, subject to the \$10 million cap discussed below. To be eligible for a rural service provider bidding credit, an applicant must: (1) be a service provider that is in the business of providing commercial communications services and, together with its controlling interests, affiliates, and the affiliates of its controlling interests, has fewer than 250,000 combined wireless, wireline, broadband, and cable subscribers; and (2) serve predominantly rural areas, defined as counties with a population density of 100 or fewer persons per square mile.