

2 August 2019

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**Re: Gazette Notice No. SLPM-002-19 - Consultation on a Policy and Licensing
Framework for Spectrum in the 3500 MHz Band - Cogeco Comments**

In accordance with the procedures set out in the above-noted consultation, please find attached the comments of Cogeco Communications Inc. ("Cogeco").

Cogeco thanks ISED for the opportunity to submit comments in this proceeding and remain available to answer any questions you may have regarding this submission.

Yours very truly,

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**Innovation, Science and Economic Development Canada
Spectrum Management and telecommunications**

**Consultation on a Policy and Licensing Framework for
Spectrum in the 3500 MHz Band**

**Canada Gazette: June 2019
Gazette Notice SLPB-002-19**

**Comments of
Cogeco Communications Inc.**

2 August 2019

Introduction

1. Cogeco Communications Inc. (“Cogeco”) is pleased to submit these comments in accordance with the procedures set out by Innovation, Science and Economic Development Canada (ISED) in *Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band*, SLPB-002-19, published 5 June 2019 (the “Consultation Document”).
2. Cogeco is a diversified communications company headquartered in Montreal, Quebec, that provides video, Internet and telephony services through its affiliate Cogeco Connexion Inc. to residential and business customers as well as offering third party Internet access and transport services to Internet service providers on a wholesale basis in Ontario and Quebec.
3. As a competitive communications service provider who has invested heavily in infrastructure in Canada over many years and one who is making significant investments in mobile spectrum, Cogeco strongly supported and continues to support the development of a regulatory framework whose objectives are both to encourage investment in facilities and to promote competition among facilities-based carriers so that Canadian consumers can benefit from greater choice, lower prices, and high-quality communications services. Cogeco also supports policies which maximize the use of scarce spectrum resources in all regions of Canada as well as policies and regulatory measures which reduce barriers to entry by broadband service providers. Such a regulatory framework and corresponding policies enable ISED to achieve the over-arching policy objective of the Spectrum Policy Framework for Canada:

To maximise the economic and social benefits that Canadians derive from the use of the radio frequency spectrum resource.

4. Cogeco notes however that the mobile wireless market continues to be dominated by the three incumbent National Mobile Network Operators (“NMNOs” or “National MNOs”), namely Bell, Rogers and Telus, who offer services through their core and flanker brands. In 2017, the National MNOs – with their respective flanker brands – held 92%¹ and 90%² of the total market

¹ CRTC Communications Monitoring Report 2018, page 154.

² Ibid, page 160.

share, measured in revenues and subscribers, respectively. In 2014, those figures were virtually the same, at 92%³ and 89%,⁴ respectively.

5. The dominance of the NMNOs in the market is built in part upon a foundation of concentration of spectrum in their hands.
6. Access to spectrum is an essential input for the provision of mobile wireless services and is one of the most significant barriers to entry in the Canadian wireless market. Indeed, as noted in Industry Canada's *Policy Framework for the Auction for Spectrum Licences for Advanced Wireless Services*:

*Radio frequency spectrum is a finite public resource essential to entry into wireless markets, and that resource is not readily available on the open market. Access to spectrum is a barrier to entry that only government can lift [...].*⁵

7. Cogeco notes that, in 2016, the National MNOs controlled more than 76% of the available spectrum in Canada with Rogers holding a 30% share, Bell holding 21% and Telus holding 25%.⁶ In light of the results of the 700 MHz and 600 MHz auctions, Cogeco does not believe this situation has changed materially in the last few years.⁷
8. However, it is not necessarily clear that the National MNOs have put all of this spectrum to use to provide services to Canadians in all parts of the country, including in rural and remote areas. Cogeco has filed in the DGSO-002-19 proceeding, for example, extensive evidence that the NMNOs have left large swathes of the Canadian territory without broadband or mobile services of any

³ CRTC *Communications Monitoring Report 2015*, page 227.

⁴ *Ibid*, page 226.

⁵ *Policy Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range*, November 2007, page 3.

⁶ Industry Canada, *National Holdings for Commercial Mobile Spectrum Licences*, 15 July 2016, available at <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11210.html>. As of 14 July 2016, Rogers held 30% of all available commercial mobile spectrum, Bell held 21%, Telus held 25%, MTS held 1%, SaskTel held 1%, Vidéotron held 7%, Wind held 5%, Eastlink held 1%, and others held 9%.

⁷ Bell, Rogers and Telus acquired the vast majority of available spectrum in the 700 MHz auction, while only two of five new entrants, namely Vidéotron and Eastlink, acquired this spectrum in the same auction (as illustrated in the colour chart available at [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/700MHz-colour-chart.pdf/\\$file/700MHz-colour-chart.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/700MHz-colour-chart.pdf/$file/700MHz-colour-chart.pdf)). In the 600 MHz auction, Rogers and Telus alone acquired 64 licences, while seven regional MNOs acquired only 40 licences in total.

kind riding on the BRS spectrum band.⁸ In the case of 3500 MHz spectrum in particular, which is largely controlled by Inukshuk (a partnership of two NMNOs, Bell and Rogers), Cogeco noted in its Comments in response to Gazette Notice SLPB-004-18:

42. Inukshuk clearly dominates licence holdings in the 3500 MHz band in these service areas, holding as much as 88% of the available licences (on a MHz-pop basis) in the 2-008 Southern Ontario service area.

43. It is not clear, however, whether this spectrum is in fact being used to provide real services to Canadians. Cogeco is aware of only two cases, in Alberta and Manitoba, where Inukshuk 3500 MHz band licences have been put to commercial use and, based on ISED records, these were through sub-leasing to other companies.⁹

9. Cogeco submits that examples such the ones provided above are not optimal for Canadians and that ensuring the maximum use of spectrum holdings through rapid deployment would best serve the interests of Canadian consumers and allow ISED to achieve its objectives for the use of this spectrum band.
10. In this submission, therefore, Cogeco is proposing an approach to the licensing of 3500 MHz spectrum designed to ensure the band is allocated to operators who are willing and able to use it commercially to provide services to Canadians in all parts of the country.

Summary of Proposal

11. Cogeco is pleased to see that in its Consultation Document, ISED has considered: i) the benefit of licensing on the basis of smaller tier sizes and is now proposing licensing on the basis of Tier 4 service areas, as well as ii) pro-

⁸ Cogeco Reply Comments, par. 18-27 and Appendix A, filed 18 June 2019 in *Consultation on the Spectrum License Renewal Process for Non-Auctioned Broadband Radio Spectrum (BRS) Licences*, DGSO-002-19, published 16 May 2019.

⁹ Cogeco Comments, *Consultation on Revisions to the 3500 MHz Band to Accommodate Flexible Use and Preliminary Consultation on Changes to the 3800 MHz Band*, SLPB-004-18, submitted on 12 July 2018, par. 42-43. Inukshuk subordinated a number of licences in Alberta to Corridor Communications Inc. on 1 September 2011 and on 22 May 2014, and subordinated a number of other licences in Manitoba to I-Netlink Incorporated on 22 May 2014 and 16 July 2015. See the list of Divided and Subordinate Licences at <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08496.html>.

competitive measures such as a set-aside and an in-band spectrum cap. Cogeco will offer a number of proposals considering the current mobile industry dynamic characterized by the unavailability of sufficient spectrum, NMNOs having a major competitive advantage in the upcoming auction, and the presence of incumbent 3500 MHz licensees limiting supply, with some markets having as little as 30 MHz.

12. These changes include:

- a. the introduction of an additional competitive measures consisting of a cap within the set-aside proposed by ISED to ensure reasonable access by small and regional operators to 3500 MHz spectrum;
- b. a relaxation of the definition of “encumbrance” in order to increase the supply of spectrum and to simplify the auction;
- c. modifications to the Clock Auction (CA) format, including allowing switch and all-or-nothing bids, activity rules, and an Extended Round, in order to facilitate participation by small and regional operators and to minimize the chance of unsold spectrum; and
- d. the use of Tier 5 service areas in the three major metropolitan centres of Montréal, Toronto and Vancouver.

Competitive Measures

13. Cogeco supports the combination of a set-aside and an in-band spectrum cap used together as mentioned in paragraph 33 of the Consultation Document. Cogeco proposes that the amount of spectrum subject to the in-band auction cap be 60 MHz, the largest possible cap which leaves 80% of the Tier 4 license areas with spectrum available for auction that is greater than the cap. Cogeco further proposes that a set-aside of 60 MHz be applied. This would leave 50% of the MHz-pop in the auction available to “open” bidders. Both the in-band auction cap and the set aside would be limited to the maximum amount of spectrum available in each area.
14. Cogeco further proposes an additional measure consisting of a 30 MHz cap within the set-aside mentioned above. This would limit the amount of set-aside

spectrum that any one set-aside-eligible bidder can acquire and would provide opportunities for at least two bidders in 171 out of 172 Tier 4 areas.

Encumbrance Threshold

15. Cogeco recommends that ISED relax the threshold it applies to define “encumbrance” in order to simplify the auction and to minimize the number of different categories of products. Setting the threshold in the range of 15% to 25% – i.e. considering markets to be unencumbered when at least 75% to 85% of the population is available – would reduce the population present in encumbered areas from 43% as proposed down to less than 10%. If the threshold were to be set at 75%, only 2% of the population would be in encumbered areas, and no major markets would have encumbered blocks for the purpose of the auction.

Clock Auction Format

16. With respect to the Clock Auction (CA) format, Cogeco recommends a number of changes which would mitigate the exposure risk problem, facilitate participation by small and regional operators and ensure a dynamic and competitive auction. More specifically:
 - a. ISED should allow for switch and all-or-nothing bids as part of clock round bidding in the CA auction,
 - b. If there is no all-or-nothing bid option, ISED should relax the conditions of licence on transferability and divisibility proposed at par. 167 of the Consultation Document for a set-aside eligible licensee in areas where it ended the auction with only one block. In these cases – i.e. ending the auction with a single set-aside block in a licence area – the conditions of licence for the set-aside eligible bidder would be the same as for an open block.
 - c. The CA format should include an activity rule that could start at 70% to 80% of eligibility, progress to up to 90% and then 100% to end the auction.
 - d. The CA format should include activity rule waivers. Consistent with past practice, this could allow bidders to “sit out” for up to 3 rounds of the auction without losing eligibility.

- e. The CA format should include a withdrawal option, similar to that used in SMRA auctions, where a withdrawal comes with a possible penalty and cannot be used to artificially stop the auction.
- f. The CA format should include an Extended Round, which would be one round after the clock rounds end. The Extended Round would be for bidders to acquire any blocks that were unsold in the clock rounds. Unsold set-aside blocks would be treated as “open” in the Extended Round and available to any bidder. Bidders would be allowed to exceed current eligibility to buy unsold blocks but still be subject to an in-band auction cap. Allowing bidders to acquire unsold blocks immediately at the end of the auction in an Extended Round would be quicker and more efficient than running a subsequent residual auction process.

Major Metropolitan Centres

- 17. In previous ISED consultations, Cogeco proposed that licensing spectrum on the basis of even smaller Tier 5 services areas would generate competitive benefits, and allow new smaller regional players to acquire spectrum in a manner that is economically sound and realistic.
- 18. While Cogeco sees benefit in implementing Tier 5 licensing for this auction, we will limit our proposal to specific regions. As ISED recognizes in its recent *New Service Areas Decision*, “*the cities of greater Vancouver, greater Toronto and greater Montreal, represent exceptional outliers ... compared to other medium and large population centres*” and the high concentration of the Canadian population in these three centres affects the ability of smaller service providers to access spectrum.¹⁰ Cogeco recommends therefore that, for the purposes of this auction, the Tier 4 service areas covering those three large metropolitan centres be divided into the Tier 5 service areas that nest within them. ISED would then licence 3500 MHz spectrum on the basis of Tier 5 service areas in those metropolitan areas and on the basis of Tier 4 service areas elsewhere.
- 19. Dividing these three Tier 4 service areas into their Tier 5 service areas would add only 27 licence areas to the auction process, i.e. there would be 199

¹⁰ ISED Decision, *Decision on a New Set of Service Areas for Spectrum Licensing*, DGSO-006-19, 23 July 2019 (“New Service Areas Decision”), par. 107.

licence areas instead of 172. However, doing so would have significant benefits, by allowing for more access to the spectrum for smaller service providers, as well as for non-traditional spectrum users who may not want to deploy to the entire area. It would reduce barriers to entry, enable new service providers and would be in line with the objectives set out by ISED for 3500 MHz spectrum

20. Cogeco believes that, by implementing the measures described above, ISED will create a dynamic auction leading to an efficient outcome where all parties have had a fair chance to acquire important 5G spectrum. They would facilitate the participation in the licensing process by regional and smaller carriers and would ensure bidders only seek spectrum in the areas where they are most interested in deploying networks and providing services. This in turn would vastly increase the likelihood of the spectrum being put to use.
21. The remainder of this submission addresses selected questions posed by ISED in the Consultation Document. Where Cogeco does not address a specific question, this should not be construed as agreeing or disagreeing with the proposal, as lack of interest in the subject matter, or as taking a position on the specific issue. Cogeco will be interested in analyzing the submissions of other interested parties and reserves the right to comment in the reply phase.

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

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.

If a set-aside is to be applied:

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. * An applicant would

need to be registered on one of the CRTC lists of facilities-based providers by the date that applications are due.

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.

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.

22. Cogeco agrees with ISED's proposal to implement competitive measures for this auction, for the reasons set out below. This band is a valuable resource that will be in high demand, especially for 5G services, and there is a high risk of foreclosure to small operators. The competitive measures will be helpful to prevent large operators from monopolizing the band.
23. Cogeco supports ISED's proposed competitive measures consisting of an in-band auction cap and a set-aside that would be used in combination. Cogeco is further proposing that a cap be set within the set-aside. These measures will prevent any one operator from excluding other operators from the band and will ensure a vibrant auction.

Competitive Measures are Necessary

24. Generally, Cogeco agrees with ISED that pro-competitive measures are necessary in order to facilitate access to spectrum by entities other than the NMNOs.
25. The need for and the nature of the competitive measures required for this auction must take into account how much spectrum is offered, its importance to the development of the industry as well as how many bidders there are likely to be. In this regard, Cogeco agrees with ISED's statement that:

Considering there are 20 unpaired blocks of 10 MHz in the 3500 MHz band and that this spectrum is expected to be in high demand by service providers to improve network quality and capacity, the amount of spectrum for a set-aside and/or the size of a spectrum cap must be balanced with the total amount of spectrum available in the band. (par. 34, Consultation Document)

26. In order to ensure a fair playing field for bidders, and in light of the significant incumbency and limited amount of spectrum available in a very strategically important 5G band, it is clear that ISED will need to put in place competitive measures for this auction. Cogeco notes in particular that:
- a. Insufficient spectrum is available for multiple bidders to acquire 100 MHz each, or even 50 MHz each as a minimum for 5G;¹¹
 - b. Incumbents have a major competitive advantage in the auction – Rogers and Bell already typically have 20 to 30 MHz each (assuming that the licences held by their jointly-owned operator Inukshuk are split between the two) and Xplornet has 20, 50 or 60 MHz in 93% of the Tier 4 areas.¹² All current mobile operators can also rely on carrier aggregation with existing bands to offset the operational need for 3500 MHz spectrum; and,
 - c. The presence of Inukshuk, Xplornet and other incumbent licensees limits supply, with some markets having as little as 30 MHz available for this auction, so measures need to apply to all bidders to ensure that markets cannot be foreclosed.
27. Spectrum is a key resource without which is it not possible to provide commercial mobile or fixed wireless Internet services, and therefore to compete with the NMNOs. As a result, the NMNOs have a strong incentive to ensure other entities acquire less spectrum than necessary to roll out a network that

¹¹ The requirement for bandwidth to support 5G is 100 MHz, per the ITU. However, with carrier aggregation, 100 MHz of bandwidth can be supported by a single or multiple radio frequency (RF) carriers. See: Minimum requirements related to technical performance for IMT-2020 radio interface(s), Draft New Report ITU-R M.[IMT-2020.TECH PERF REQ], Working Party 5D, ITU Document 5/40-E, 20 February 2017, Section 4.13

¹² The discussion in this response to Questions Q1A through Q1F is based on the application of Tier 4 service areas as currently proposed. ISED has also asked for comment on its proposal to use Tier 4 areas (see par. 50 and Question Q2, Consultation Document). Please see our responses to Question Q2 below for Cogeco's comments on the appropriate licence service areas for this auction.

can compete effectively with them. The NMNOs have a poor record of ensuring the deployment and timely availability of services across the country, especially in rural areas, and without a variety of small, regional and large operators using this band, the sustained competition that would allow consumers and business to benefit from greater choice and that would foster rapid deployment of 5G services is unlikely to emerge.

Limited 3500 MHz Spectrum Available

- 28. As noted above, there will be a very limited amount of spectrum available in the 3500 MHz auction, even if both encumbered and unencumbered MHz is considered. The amounts range from 30 MHz up to 200 MHz per Tier 4 licence area, as summarized in the table below, with a weighted average of 125 MHz per area).

- 29. Fifty-one percent of the licence areas (87 out of 172 Tier 4 areas) would have less than 90 MHz, and less than 5% of the licence areas (8 out of 172 Tier 4 areas) would have more than 140 MHz, including unencumbered and encumbered spectrum in total.

Canada		
Total MHz in auction	Number of markets	% of MHz-pop
30	1	0.1%
40	33	3.9%
70	16	1.0%
80	37	6.3%
90	40	15.0%
100	4	0.6%
120	19	7.0%
130	2	0.3%
140	12	61.0%
150	2	0.5%
180	4	0.9%
200	2	3.3%

- 30. Even if 50 MHz were to be considered as a minimum target for operators, there would still be insufficient spectrum to accommodate 4 or 5 winning bidders per licence area as the auction only has 125 MHz available on average in total per licence area.

High Demand for 3500 MHz Spectrum

31. The scarcity of 3500 MHz spectrum is exacerbated by the fact that the auction is likely to attract a high number of bidders. This auction will be unique in this respect as there is significant incumbency and as it covers a key strategic spectrum range for 5G services, which will make it highly sought after. As noted by ISED in the *Spectrum Outlook 2018 to 2022*, this band is viewed internationally as a key band to support the deployment of 5G technologies¹³ and Cogeco notes that many Canadian operators have expressed a keen interest in securing licences in this band.
32. Cogeco considers that the likely bidders in the auction would include:
- Bell and Rogers individually, assuming that Inukshuk's incumbent holdings are split up prior to the auction,
 - TELUS, which has no incumbent licences except in Edmonton,
 - Xplornet, which is an incumbent licensee in 160 of the 172 Tier 4 areas,
 - The fourth mobile operator in each region – Freedom, Videotron, Eastlink, Sasktel,
 - Potentially an incumbent broadband service provider – in many Tier 4 areas there are one or two fixed incumbent operators other than Inukshuk or Xplornet (including Cogeco in several Tier 4 areas).
33. With such a list of likely participants in the auction, Cogeco considers that the auction should be dynamic and should achieve ISED's objectives for the 3500 MHz band as long as large operators are not allowed to foreclose smaller operators from the market.

Risk of Foreclosure

34. The NMNOs, have the financial resources to acquire 3500 MHz spectrum and they have greater financial resources than any of the smaller operators or new entrants who may want to acquire that spectrum. Further, the ability of the NMNOs to spend more than small or regional operators has been consistent over time, as demonstrated in the table below showing the percentage of auction proceeds attributed to the NMNOs in past auctions.

¹³ ISED, *Spectrum Outlook 2018 to 2022*, SLPB-003-18, 6 June 2018, Section 8.2.4.

% of Auction Proceeds	Tier 4	Tier 3		Tier 2		
	2.5/2.5 GHz 2004-05-09	AWS-1 2008	2500 MHz 2015	700 MHz 2014	AWS-3 2015	600 MHz 2019
Bell	52%	17%	4%	11%	24%	0%
TELUS	0%	21%	63%	22%	72%	27%
Rogers	16%	23%	3%	63%	0%	50%
Total	68%	61%	70%	96%	96%	77%

35. According to internal analysis of incumbent spectrum holdings in the above-noted auctions, Cogeco notes that, even after the 600 MHz auction, the national incumbents control the vast majority of the commercial mobile spectrum available in Canada (estimated at roughly three-quarters of the spectrum weighted by population). Cogeco also notes that, in the 600 MHz auction, Rogers and Telus spent 77% of the final price for the spectrum for 62% of the licences and 58% of the population covered.
36. Cogeco agrees therefore with ISED that the NMNOs “likely have the means and incentive to prevent other service providers from acquiring spectrum licences in open auction”¹⁴ and that consequently, pro-competitive measures are necessary in the 3500 MHz auction.

Typically Included in ISED Auctions

37. Putting competitive measures in place for the 3500 MHz auction would in any case be fully consistent with ISED’s past practices. ISED has always recognized the need for bidders other than national operators to have access to critical spectrum resources.
38. Cogeco notes that past ISED auction processes, including the following, have generally included either a cap or a set aside:
- 1999 – 24/38 GHz – Cap on incumbent local exchange carriers of 200 MHz and 600 MHz for others,
 - 2001 – Additional PCS – Aggregation limit of 55 MHz of PCS spectrum,
 - 2004/2005 – 2.3/3.5 GHz auction – 100 MHz cap per service area,
 - 2008 – AWS-1 – Set aside blocks representing 40% of available spectrum,

¹⁴ Paragraph 28 of the Consultation Document.

- 2014 – 700 MHz – Cap of one prime block for Rogers, Bell, TELUS and two prime blocks for others.
- 2015 – 2500 MHz – 40 MHz cap (FDD and TDD) per bidder including incumbent holdings,
- 2015 – AWS-3 – set aside of 30 MHz out of 50 MHz available,
- 2018 – Residual Auction – aggregation limits for 700 MHz and 2500 MHz applied as in original auctions,
- 2019 – 600 MHz – set aside of 30 MHz out of 70 MHz available.

39. In two cases, ISED did not include a cap or set aside in an auction process.

a. For the Residual Auction of 700 MHz and AWS-3 (2015), ISED lifted the AWS-3 restriction for the three areas included in the Residual Auction (Manitoba, Saskatchewan and the Territories). The available AWS-3 licences were acquired by Bell and TELUS.

b. There were no restrictions in the Air-Ground auction (2009), which was a single round sealed bid process for two national licences. Bidders could bid on either or both licences. Cogeco notes that none of Rogers, Bell or TELUS participated, Air-Ground being a small niche market and likely considered non-strategic at the time.

40. In the case of 3500 MHz, on the other hand, the spectrum is clearly strategically important and is a key mobile band for 5G internationally. NMNOs will therefore have an incentive to foreclose the market in order to maximize their potential to develop competitive advantage for 5G relative to smaller carriers and new entrants.

Mobile Operators Can Offset Need for 3500 MHz through Carrier Aggregation Options

41. While mobile operators may have an incentive to foreclose the market, it can be argued that they do not have as high a need to acquire all of the spectrum in the 3500 MHz band. In fact, mobile operators with spectrum portfolios that already include many bands have less operational need for large quantities of 3500 MHz spectrum. RF carriers in the 3500 MHz band can be aggregated with carriers in other bands in order to provide 5G service using 100 MHz or more of bandwidth.

42. The 3500 MHz band as it is defined in Canada – 3450 MHz to 3650 MHz – overlaps with several international frequency allocations:
- a. In Europe – The European Commission considers 3GPP LTE Bands 42 and 43 to be “pioneer bands” for 5G.¹⁵ Bands 42 and 43 cover 3400-3600 MHz and 3600-3800 MHz, respectively.
 - b. In the US – The FCC has designated the range 3550-3700 MHz as Citizen’s Broadband Radio Service (CBRS).¹⁶ This band is now 3GPP LTE Band 48.
43. As noted by ISED, the Canadian 3500 MHz band falls within the broader 5G New Radio (“NR”) band n77 which is 3300-4200 MHz and band n78 which is 3300-3800 MHz.¹⁷ The Canadian 3500 MHz band thus includes a portion of LTE Bands 42 and 43, is wider than LTE Band 48, and is included within NR bands n77 and n78. These bands are all designed to support TDD technology, as is the case in Canada.
44. There is a high level of international focus on this frequency range, which will result in a well-developed technology and equipment ecosystem for 5G. This also brings with it many carrier aggregation opportunities giving mobile operators ways of combining spectrum together in different bands to “create” bandwidth of at least 100 MHz in total.
45. Thus the Canadian mobile operators will have considerable flexibility in deployment of 3500 MHz in conjunction with their existing spectrum holdings. For example, based on 3GPP LTE Release 15, carrier aggregation possibilities include:

¹⁵ *Strategic Roadmap towards 5G for Europe*, Radio Spectrum Policy Group, RSPG16-032, European Commission, 9 November 2016.

¹⁶ *Report and Order and Second Further Notice of Proposed Rulemaking*, Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3500-3650 MHz Band, GN Docket No. 12-354, FCC 15-47, adopted April 17, 2015.

¹⁷ *Decisions on Revisions to the 3500 MHz Band to Accommodate Flexible Use and Preliminary Decisions on Changes to the 3800 MHz Band*, SLPB-001-19, ISED, June 2019, par. 20.

Band 42: 3400-3600 MHz carrier aggregation options

- With Band 41 – 2500 MHz TDD – available to Xplornet across the country and Freedom in some areas, as well as Cogeco with a limited footprint
- With Band 7 – 2500 MHz FDD – widely deployed by Rogers, Bell and TELUS, as well as regionally by Videotron, Freedom, Eastlink and Sasktel. Other licensees including Cogeco have 2500 MHz FDD licenses as well, with limited footprints.

Band 43: 3600-3800 MHz carrier aggregation option

- With Band 40 – 2300 MHz TDD – Although the Canadian band plan for 2300 MHz is FDD, this could presumably be modified as TELUS is essentially the only licensee and has very limited deployment to date.

Band 48: 3550-3700 MHz carrier aggregation options

- With Band 2 – PCS 1.9 GHz – widely deployed by Rogers, Bell and TELUS,
 - With Band 66 – AWS – deployed by Rogers, Bell, TELUS as well as regional operators Freedom, Videotron, Eastlink, Sasktel.
 - With Band 5 – Cellular – widely deployed by Rogers, Bell and TELUS. While Rogers is supporting until December 2020 its legacy GSM/GPRS systems that use this band, Bell and TELUS have already shut down their CDMA networks.¹⁸ Thus any capacity that was being used by these legacy systems can be re-farmed for 4G/5G.
46. Cogeco notes that there are other possibilities and combinations with multiple bands. Existing mobile carriers, whether national or regional have a significant head-start and numerous options to exploit developments in the 3500 MHz range by aggregating that bandwidth with other bands in their spectrum portfolios.

¹⁸ Rogers information per Mobile Syrup, May 4, 2018 and per web site: <https://www.rogers.com/customer/support/article/2G>; Bell per web site: https://support.bell.ca/mobility/smartphones_and_mobile_internet/cdma_evdo_network_change and TELUS per web site: <https://www.telus.com/en/qc/support/article/cdma>.

47. This is particularly true for Rogers, Bell and TELUS, which are the only licensees of cellular and PCS spectrum across Canada. While some of the carrier aggregation opportunities may require re-farming of existing technology, in many cases the existing technology may be 2G or 3G, which is likely to be subject of re-farming to 4G or 5G in any case.
48. This however, is not the case for smaller operators and even less so for potential new entrants and existing fixed service providers.
49. Thus many factors militate in favour of competitive measures for the 3500 MHz band.

Proposed Competitive Measures

50. In light of the foregoing discussion, Cogeco has analyzed options for competitive measures and submits that:
 - a. ISED's proposed in-band auction cap is required, given the limited amount of spectrum available, its strategic importance and the likely interest of some bidders to foreclose markets,
 - b. ISED's proposed set-aside is needed for eligible bidders to ensure fair access to critical resources, and,
 - c. In addition, a cap within the amount of spectrum set-aside is warranted to increase the competitiveness in the wireless sector given the high level of incumbency of set-aside-eligible bidders in most markets.
51. Also, as discussed below in Cogeco's response to Question Q3, Cogeco considers that ISED's definition of the encumbrance threshold is overly restrictive. By relaxing the definition of what constitutes encumbrance, the supply of unencumbered blocks can be increased, and the number of licence areas with encumbrances minimized. This simplifies the auction, and in turn facilitates the design of competitive measures.
52. For example, if ISED were to set the threshold for "encumbrance" as being 25% rather than 0% of the population in an area being unavailable (as implied by ISED at par. 62, of the Consultation Document), then only 2% of the Canadian

population would be in areas considered encumbered for purposes of the auction, compared to 43% as currently proposed by ISED.

53. Even if a threshold of 15% were applied – i.e. a market would be considered unencumbered if 85% of the population were available for coverage – there would only be 12% of the Canadian population living in areas with encumbrance. Again, this is considerably lower than 43%, as currently proposed by ISED.
54. Put another way, ISED should consider areas that are only marginally encumbered as effectively being unencumbered.

Auction Cap

55. Given the high level of incumbency, and the likely incentive for incumbents to bid to foreclose markets from new competitors to gain an advantage for 5G, it is clear in Cogeco's view that an in-band auction cap is required.
56. Cogeco agrees with ISED that incumbents should not be required to further divest holdings in order to stay within the auction cap, but that they would not be allowed to bid in areas where their existing holdings exceed the cap.¹⁹
57. The question to be addressed then is at what level ISED should set the in-band auction cap.
58. Cogeco submits that an in-band auction cap should include both unencumbered and encumbered MHz, but ISED should also minimize the amount of encumbered spectrum by relaxing the threshold defining encumbrances, as discussed in the response to Question Q3 below.
59. The following table shows the number of Tier 4 areas with total MHz for auction (both encumbered and unencumbered) greater than an in-band auction cap, under scenarios of an auction cap set at levels from 20 MHz to 100 MHz.

¹⁹ Paragraph 46 of the Consultation Document.

Canada - Including Unencumbered and Encumbered MHz in Cap							
Scenario of MHz spectrum cap (1)	Markets with MHz > cap (2)		Incumbents - Number of markets where incumbent holdings would exceed the cap				
			Bell (3)	Rogers (3)	TELUS	Xplornet	Other
	Number	% of total					
20	172	100%	156	156	1	125	39
30	171	99%	9	2	1	125	39
40	138	80%	9	2	1	125	39
50	138	80%	5	2	1	99	28
60	138	80%	5	2	1	34	27
70	122	71%	5	2	1	34	27
80	85	49%	5	2	1	34	27
90	45	26%	5	2	1	34	27
100	41	24%	5	2	1	34	27

NOTES:

(1) Auction cap set to maximum of amount shown or total available if less than the cap (e.g. if cap is 40 MHz, the cap is 30 MHz in markets with 30 MHz)

(2) The total spectrum MHz per market is the total of unencumbered and encumbered blocks.

(3) Inukshuk spectrum is assumed to be split 50% to Bell, remainder to Rogers in each market, but rounded up or down in some cases so each has units of 10 MHz per market

60. Cogeco notes that, if the in-band auction cap were to be set to at least 40 MHz and up to 60 MHz, then 80% of the Tier 4 areas would have amounts of 3500 MHz spectrum available for auction higher than the cap.
61. The table above also shows the number of Tier 4 areas where incumbent holdings would exceed the auction cap.
62. At cap scenarios of 50 MHz and higher, Rogers and Bell would only be limited in bidding – i.e. where they already exceed the cap – in 5 Tier 4 areas out of 172, and TELUS only in 1 (Edmonton, where only 40 MHz is available, and where TELUS already has a 50 MHz license).
63. The impact of setting the in-band auction cap at various levels is further illustrated in the table below, which shows demand relative to supply, assuming all bidders bid to the maximum amount allowable under the auction cap, and the resulting number of markets with “left over” MHz by scenario, and taking into account holdings of all incumbents (i.e. Cogeco, iTeract, Xplornet, *et al*) which also limits their bidding targets.

Canada - Including Unencumbered and Encumbered MHz in Cap											
Scenario of MHz spectrum cap	Demand/Supply (1)			Leftover assuming Rogers, Bell, TELUS bid to cap				Markets with no MHz remaining if Rogers, Bell, TELUS target cap amount			
	Average	Max	Min	No. markets	Spectrum MHz			No. markets	% of markets	% of total population	Largest market
					Average	Min	Max				
20	1.01	2.00	0.57	171	65	20	140	1	1%	0%	St-Hyacinthe
30	1.57	3.13	0.86	156	56	5	110	16	9%	3%	Kelowna
40	2.34	4.25	1.29	137	32	10	80	35	20%	8%	
50	2.87	4.25	1.71	38	34	10	50	134	78%	39%	Ottawa
60	3.42	4.50	2.10	12	20	20	20	160	93%	46%	
70	4.02	5.36	2.45	1	20	20	20	171	99%	97%	Toronto
80	4.53	5.50	2.67	1	20	20	20	171	99%	97%	
90	4.85	5.78	2.67	1	20	20	20	171	99%	97%	
100	4.99	6.00	2.67	1	20	20	20	171	99%	97%	

NOTES:

(1) Assuming all bidders bid to cap amount - including all incumbents to max possible + fourth mobile carrier per region (Freedom, Videotron)

NOTE: In the above table, Rogers and Bell are constrained by existing holdings, which reflect a share of Inukshuk spectrum, and are assumed to bid to the maximum amount allowable – e.g. if the Cap is 50 MHz and in a particular area Bell already holds 20 MHz obtained via its portion of Inukshuk, the analysis in the table assumes Bell would bid for an additional 30 MHz. TELUS is assumed to target the maximum possible – i.e. up to the cap amount in each area – given the strategic nature of the spectrum on offer.

64. If the in-band auction cap were to be set at 60 MHz per bidder, then there would be no remaining MHz for other bidders in 160 Tier 4 areas – i.e. 93% of them – if Rogers, Bell and TELUS were all bid to the maximum allowable under the auction cap.
65. As a result, even though an in-band auction cap level of 60 MHz would see competitive bidding, with likely demand of over 3 times supply, Rogers, Bell and TELUS could potentially foreclose markets – assuming they bid to buy the maximum allowed under the cap rule – representing 46% of the Canadian population, including in Ottawa. This would leave little or none left for other bidders.
66. An in-band auction cap in the range of 50 MHz or 60 MHz, therefore, while desirable operationally, would clearly not be sufficient by itself to protect smaller bidders and new entrants from the potential of Rogers, Bell and TELUS to foreclose much of the country. This means that a set-aside is also needed for this auction.

Set Aside

67. In addition to an in-band auction cap, Cogeco agrees with ISED’s proposal that a number of blocks should be reserved, or “set-aside”, in each licence area for eligible smaller or regional facilities-based operators. Cogeco, however, does not fully endorse ISED’s proposed criteria for determining which entities ought to be

considered set-aside-eligible, and changes proposed by Cogeco are discussed further below in this response to Question Q1.

68. As suggested by ISED, Cogeco assumes the set-aside would consist only of unencumbered blocks (par. 71, Consultation Document).
69. Scenarios of a possible set-aside ranging from 20 MHz to 100 MHz per Tier 4 area are illustrated below, showing the number of markets with total MHz less than the applicable set aside.

CANADA - 172 Tier 4 areas						
Scenario of MHz Set Aside (Unencumbered only)	Number of Tier 4 areas with MHz < set aside	Remaining Unencumbered and Encumbered Spectrum, net of set aside				
		Number of Tier 4 areas with zero spectrum	Average MHz available	Maximum MHz available	Minimum MHz available	% of total MHz pop in auction available
20	0	0	68	180	10	82%
30	0	1	58	170	10	73%
40	1	34	59	160	30	64%
50	34	34	49	150	20	57%
60	34	34	39	140	10	49%
70	34	50	33	130	10	41%
80	50	87	33	120	10	33%
90	87	127	44	110	10	26%
100	127	131	38	100	20	21%

70. If the set-aside were to be set at 60 MHz, for example – i.e. 6 unencumbered blocks of 10 MHz each – then there would be 34 Tier 4 areas with zero spectrum left over net of the set-aside.
71. However nearly half of the MHz-pop in the auction would still be left for “open” (i.e. non-set-aside-eligible) bidders, many of whom already hold incumbent licences. In the areas where less spectrum is available, it is because of the presence of such incumbent licensees.
72. Further, even with a 60 MHz set-aside, the remaining total of unencumbered and encumbered MHz that could be targeted by non-set-aside-eligible, or “open”, bidders in a given Tier 4 service area would be up to 140 MHz, and 39 MHz on average.
73. Considering the in-band auction cap and the set-aside together, if ISED were to set an in-band auction cap of 60 MHz and a set-aside of 60 MHz, all bidders

would effectively have the opportunity to acquire new spectrum, consisting of set-aside and/or open blocks which can be combined with incumbent holdings.

74. Cogeco recommends that, in Tier 4 areas where there is less than 60 MHz available due to the presence of incumbent operators, the in-band auction cap and the set-aside would be reduced accordingly. For example, in an area with only 40 MHz available, the auction cap would be 40 MHz and the set-aside amount would also be 40 MHz. In this case, the number of open blocks would be zero.
75. This case appears to have been anticipated by ISED, at par. 35 of the Consultation Document, which notes that:

...there could be solely set-aside spectrum available for auction in a limited number of service areas, if a set-aside is applied and depending on the amount of the set-aside.
76. Cogeco notes that ISED can minimize the number of these cases by considering marginally encumbered areas to be unencumbered for purposes of the auction.
77. Of course it is also noteworthy that in areas where there is very little spectrum available for this auction, it is because there is a high level of incumbency.
78. For example, in the Tier 4 service areas 4-101 Kirkland Lake, 4-102 Timmins and 4-103 Kapuskasing, Bell, Inukshuk (Bell and Rogers) and Xplornet already hold 160 MHz out of the 200 MHz that makes up the 3500 MHz band in total. These same incumbents can bid in the auction, but clearly do not need additional spectrum in areas where they already hold 80% of what is available.
79. Given that in many cases, the amount of spectrum available will be very limited and in some cases by licensees that are assumed to be set-aside eligible, bidders should also be limited in terms of the amount of set-aside spectrum they can acquire. In other words, an additional cap is required, a “set aside cap”.

Set-Aside Cap

80. A set aside cap would limit the amount of spectrum that a set-aside eligible bidder can acquire within the set-aside. Such a set aside cap is necessary to ensure the integrity of the auction:
 - a. In many areas, a set-aside eligible incumbent holds up to 50 MHz of spectrum. It would be in that incumbent's interest to foreclose areas where it has existing licences to other smaller competitors and regional operators.
 - b. In all areas, there is also a fourth mobile operator in addition to incumbent broadband service providers and others. The in-band auction cap and set aside should not allow any one operator to monopolize the set-aside.
81. To ensure competitive bidding for the set-aside, and to ensure that no one bidder can monopolize the set-aside, a set-aside cap of half of the set-aside would likely be necessary, and reasonable.
82. For example, with a set aside of 60 MHz as suggested above, the set-aside cap would be 30 MHz. No single set-aside-eligible bidder could acquire more than 30 MHz of set-aside blocks, but it could of course bid on open blocks up to the in-band auction cap to acquire more than 30 MHz in total.
83. Cogeco notes that, with a set-aside of 60 MHz, the set-aside cap of 30 MHz would allow for many possible bidders and outcomes, for example, two bidders win 30 MHz each, three bidders win 20 MHz each, three bidders where one wins 30 MHz, one wins 20 MHz and one wins 10 MHz, etc.
84. In the context of 4G or 5G, an operator with 30 MHz has many options. It could deploy two carriers, one of 10 MHz and one of 20 MHz, operating in aggregation mode.²⁰ It could also seek partnering opportunities post-auction in order to develop higher bandwidth options. Bidders are of course not obliged to bid to the cap during the auction and could decide for operational reasons to target only 20 MHz of set-aside blocks. This would leave more "room" for other bidders.

²⁰ The maximum channel size for 4G LTE is 20 MHz. With 5G, the maximum channel is 100 MHz, with channelization options of smaller size, but not of 30 MHz.

85. Further, assuming ISED adopts the change to the encumbrance threshold as proposed by Cogeco herein – i.e. reclassifying marginally encumbered areas as “unencumbered” for purposes of the auction, 171 of 172 Tier 4 areas would have at least 40 MHz of unencumbered spectrum available for the set aside. The only exception would be 4-048 St. Hyacinthe which would have only 30 MHz. Thus in 171 cases, the set-aside cap of 30 MHz would ensure that at least two bidders are able to acquire licenses.²¹
86. Cogeco notes that, in some areas, it is possible that there may be only one set-aside-eligible bidder. In order to preserve auction integrity, and in the spirit of anonymous bidding, it is likely that ISED would not want to disclose this information to the bidders and or to reclassify blocks from set-aside to open if there is under-demand. However, the presence of only one set-aside eligible bidder targeting an area could lead to licences being unsold in the auction.
87. For example, in an area with a set-aside of 40 MHz and a set aside cap of 30 MHz, with only one set-aside-eligible bidder, the auction clock rounds would end with one set-aside block unsold.²²
88. Since ending the auction with unsold blocks could be an inefficient outcome, ISED could “convert” unsold set-aside blocks to open blocks, and extend the auction by one round to provide an opportunity for bidders to acquire the unsold blocks at the final clock round price.
89. This would be conceptually similar to the Extended Round of the FCC’s 600 MHz Forward Auction process, which was also a CA format auction. Bidders were given one round to “top up” to meet an aggregate reserve price, if the clock rounds ended with revenues below the aggregate reserve.
90. The purpose in the Canadian 3500 MHz auction would be different, but the mechanism would essentially be the same. In the Extended Round, all bidders

²¹ Four Tier 4 areas under ISED’s proposal have unencumbered spectrum of only 30 MHz (see Table A1, Annex A, Consultation Document). By relaxing the encumbrance threshold, 4-044 Drummondville increases to 80 MHz of unencumbered spectrum, 4-054 Mont-Laurier increases to 40 MHz, and 4-055 Ottawa/Outaouais increases to 80 MHz. Only 4-048 St. Hyacinthe remains at 30 MHz since all the other spectrum is already held by incumbents.

²² Unsold blocks could also be the result of a bidder using a withdrawal, if permitted by ISED and as discussed by Cogeco in its responses to Question Q6 on Auction Format.

that have not already acquired blocks up to the level of the in-band auction cap would be able to bid for unsold blocks at the Final Clock price.

91. While bidding for unsold blocks in an Extended Round implies that bidders would be allowed to exceed eligibility to buy the unsold blocks, the auction at this point is over in any case – i.e. is assumed to have met the stopping condition for the clock phase.
92. Cogeco submits that allowing bidders to acquire unsold blocks immediately at the end of the auction would be quicker and more efficient than running a subsequent residual auction process at a later date.

Summary

93. In summary, Cogeco agrees with ISED that competitive measures are required for the 3500 MHz auction. Cogeco notes that this is because there is insufficient spectrum available, the NMNOs have a major competitive advantage in the auction, and the presence of Inukshuk, Xplornet and other incumbent licensees limits supply, with some markets having as little as 30 MHz. Given the strategic nature of the 3500 MHz band, there is likely to be high interest and many bidders. Applying competitive measures would in any case be consistent with past practices of ISED.
94. Cogeco agrees in particular with ISED's proposals for an in-band auction cap, which Cogeco recommends be set at 60 MHz, including unencumbered and encumbered blocks, and for a set-aside of 60 MHz (in addition to the in-band auction cap), which Cogeco recommends also be set at 60 MHz. Cogeco further recommends that ISED establish an additional cap of 30 MHz on the amount of set aside spectrum that any one set-aside-eligible bidder can acquire. Cogeco's recommendations are summarized in Appendix A to this submission.
95. Cogeco believes that the changes reflected above, combined with the proposed improvements to the auction format, will create a dynamic auction leading to an efficient outcome where all parties have had a fair chance to acquire important 5G spectrum.

Eligibility for Set-Aside

96. An important element of a set-aside is the definition of those entities who should be eligible to bid for the set-aside spectrum. ISED proposes that, if it adopts a spectrum set-aside, eligibility for that spectrum would be limited to entities which are:
- a. registered with the CRTC as facilities-based carriers,
 - b. not NMNOs, and
 - c. actively providing commercial telecommunications services to the general public in the relevant Tier 2 area of interest.
97. Cogeco agrees with the first two criteria. Facilities-based carriers are best positioned to compete with the NMNOs and allowing the NMNOs or their affiliates or associates to bid on set-aside spectrum would defeat the purpose of the pro-competitive measure and would allow the NMNOs to control this valuable spectrum.
98. Cogeco however has reservations regarding the proposed third criterion.
99. Cogeco submits that eligibility for set-aside spectrum should be based on actively providing services in the Tier 4 area in which the entity wishes to bid as a set-aside-eligible entity, not the entire Tier 2 service area in which the Tier 4 service area is situated. ISED's stated objective is to limit set-aside spectrum to those who "*...are best positioned to compete...*" (par. 39, Consultation Document). However, Tier 2 service areas are simply too large, and having facilities and actively providing services somewhere in a Tier 2 service area cannot be a reliable indicator of the ability to compete in a specific Tier 4 service area elsewhere in that Tier 2 area. For example, being an existing facilities-based service provider in Kamloops is a reasonable indicator that the entity is better able to compete with the NMNOs in Kamloops, but does not mean the entity in question is better able to compete with them in Vancouver or Comox (i.e. other locations in the same Tier 2 area) where the entity in question has neither network nor customers.
100. Cogeco has agreed above with ISED's proposal to adopt a number of pro-competitive measures for this auction, and has recommended a set-aside of

60 MHz, a set-aside-cap of 30 MHz, and an extended round for any unsold licences. Cogeco considers that these measures will encourage a greater number of entities to participate in the auction, ensuring a dynamic and competitive auction and a minimum of unsold licences (if any).

Q2—ISED is seeking comments on its proposal to use Tier 4 service areas for the 3500 MHz licensing process.

101. Cogeco commends ISED for its decision to use smaller service areas for the 3500 MHz licensing process. Small licence areas align well with targeted network deployment and provide greater opportunity for a wide variety of operators.
102. Cogeco agrees with ISED that licensing based on smaller tier sizes “*provides additional flexibility to licensees, by allowing them to either concentrate on the geographic markets of most interest or to aggregate smaller service areas into larger regions that correspond to their business needs*” (par. 49, Consultation Document). The absence of this flexibility in other auctions has limited the ability of some entities to participate in those auctions. Because opening bids are priced on a per-MHz-per-pop basis, larger tier sizes and associated population levels increase the cost to acquire the spectrum licence. While tier size does not appear to be an impediment for large operators, as can be seen in the table at paragraph 34 above,²³ the same is not true for small operators. The use of smaller areas therefore improves access to spectrum by smaller operators and increases the number of potential participants in the auction.
103. Cogeco has noted the disadvantages of using large service areas for licensing spectrum in its comments in other ISED consultations. Cogeco’s comments with respect to the use of Tier 2 service areas for licensing 600 MHz spectrum, for example, are relevant to this consultation:

40. ... the use of larger service areas will necessarily limit the number of entities capable and/or willing to bid on the spectrum because the

²³ An NMNO can build a national network by aggregating several smaller service areas but a small operator cannot build a commercially-viable network to serve a local community using a licence covering a large area. Further, the National MNOs have been able to outspend all other bidders at all three Tier sizes, and it appears this effect is stronger at larger Tier sizes.

larger areas entail higher opening bid prices as a result of the vastly superior population sizes in Tier 2 areas.

41. Competition is fostered and consumers benefit when additional service providers enter a market. The assignment of additional spectrum to mobile service providers already operating in a market may affect the quality or type of services they provide, but it will likely not increase the level of competition among those operators, prod incumbents to innovate, or result in lower prices for consumers.

42. For these reasons, Cogeco urges ISED to foster competition in the provision of mobile wireless services by adopting policies which encourage entry and facilitate viable new wireless entrants ...²⁴

104. As a result of these issues, Cogeco recommended in the 600 MHz Consultation that, on a going-forward basis, *“Tier 4 or lower be the starting point for the release of all new spectrum licensed on the basis of competitive licence service areas.”*²⁵
105. The use of smaller service areas will also help ISED achieve its stated objectives for the 3500 MHz band, in particular to *“facilitate the deployment and timely availability of services across the country, including rural areas”* (par. 11, Consultation Document). Smaller operators, especially those in rural areas, are often particularly focused on their local communities and have strong incentives to deploy spectrum in and deliver services to those communities. Measures which facilitate their access to critical spectrum resources will therefore promote the deployment of services on a timely basis to rural Canadians.
106. In addition, smaller service areas will allow ISED to establish more granular deployment targets that facilitate the deployment of spectrum in rural areas. When larger service areas are used, overall deployment targets can be met by focusing deployment on areas of concentrated population while leaving significant pockets of geography unserved. Large operators, who are the only operators who can afford spectrum licences for large service areas, can often satisfy population coverage obligations by focusing on urban areas alone, which clearly disadvantages rural areas. While ISED has on occasion set

²⁴ Cogeco Comments, *Consultation on a Technical, Policy and Licensing Framework for Spectrum in the 600 MHz Band* (“600 MHz Consultation”), SLPB-005-17, submitted 2 October 2017, par. 40-42.

²⁵ Cogeco Comments, 600 MHz Consultation, par. 65.

coverage targets that apply to progressively smaller service areas over time, this does not prevent uneven network deployment and allows large operators to ignore rural and remote areas as long as possible. This leaves rural Canadians waiting for years for the services that urban areas enjoy. By licensing 3500 MHz spectrum using smaller service areas at the outset, ISED will be better able to ensure no areas are neglected for years and to ensure rural areas benefit from the use of spectrum resources on similar time scales as urban areas.

107. However, Cogeco submits ISED should go a step further than the use of Tier 4 service areas for the 3500 MHz licensing process and, in some cases, should use the smallest service area size available. Tier 4 service areas are still too large to facilitate ISED's objectives for 3500 MHz spectrum to the fullest extent, as their use in this licensing process could exclude a large number of potential bidders who would not find it economically feasible to acquire spectrum covering large areas they are not interested in serving but who would be interested in and able to serve a smaller area. Tier 4 service areas are also large enough to allow for the uneven network deployment that disadvantages rural areas.
108. ISED's New Service Areas Decision offers an effective solution to this issue. As ISED notes:

107. The cities of greater Vancouver, greater Toronto and greater Montreal, represent exceptional outliers (see annex A, table A1) compared to other medium and large population centres. Together, these are the three largest metropolitan areas and make up 32% of Canada's population. ISED has determined that it would be beneficial to avoid having a third of the country's population located within only three Tier 5 service areas in order to allow for more access to the spectrum for smaller service providers, as well as for non-traditional spectrum users who may not want to deploy to the entire area.

108. Therefore, ISED has decided to divide these three large metropolitan areas by municipal or regional municipal boundaries where possible, so that the Tier 5 service areas can align with municipal governments for the delivery of services such as utilities, sanitation and public safety functions to their constituents. These municipal or regional municipal boundaries already take into account not only the major population centres, but also the suburban and

exurban areas surrounding the population centres. As a result, these boundaries already include an inherent buffer and do not require an additional buffer.

*109. Creating smaller Tier 5 service areas in these metropolitan areas will satisfy the Consultation objectives of improving access and flexibility to the spectrum. Dividing these areas reduces barriers to entry, enables new service providers and use cases and is in line with the objectives set out in the Consultation.*²⁶

109. Cogeco notes that the population of the three Tier 4 service areas covering the metropolitan centres of Montréal, Toronto and Vancouver, namely 4-051 Montréal, 4-077 Toronto and 4-152 Vancouver, represents 40% of the total population of Canada, which is an even higher proportion than that of the three metropolitan population centres themselves. Cogeco submits that it would be inappropriate, in the context of the 3500 MHz auction and ISED's objectives for 3500 MHz spectrum, to have so much of the country's population contained in only three spectrum licence service areas.
110. Cogeco recommends, therefore, that the Tier 4 service areas covering the large metropolitan centres of Montréal, Toronto and Vancouver be divided into the Tier 5 service areas that nest within them. ISED would then licence 3500 MHz spectrum on the basis of Tier 5 service areas in those metropolitan areas and on the basis of Tier 4 service areas elsewhere.
111. Dividing these three Tier 4 service areas into their Tier 5 service areas would add only 27 licence areas to the auction process, i.e. there would be 199 licence areas instead of 172. Cogeco does not consider that this would materially increase the complexity of the auction process.²⁷
112. Further, Cogeco does not believe that the use of Tier 5 service areas for 3500 MHz spectrum in those metropolitan areas would significantly increase the need for coordination among operators. As noted by ISED, "... *advancements in technology and network design will further the ability of service providers to coordinate in smaller service areas. For example,*

²⁶ New Service Areas Decision, par. 107-109.

²⁷ In any event, any additional complexity can be addressed. Cogeco notes that the FCC successfully auctioned 600 MHz spectrum on the basis of 416 Partial Economic Areas, a significantly larger number of licence areas than is being considered here, using the services of Power Auctions LLC.

technologies such as Multiple Input, Multiple Output (MIMO) networks (with narrow, steerable beams) and Time Division Duplex (TDD) technology (with synchronization between systems) are expected to help minimize potential interference at service area boundaries.”²⁸

113. Cogeco also notes that operators can implement smaller individual cell areas through appropriate transmitter power levels, antenna heights and antenna downtilts, and often already do this in dense urban areas in order to increase network density and capacity. In addition, operators can use directional antennas and coordinate pilot frequencies and frequency blocks. In other words, Cogeco submits that operators already apply the various techniques that would allow them to successfully deploy 3500 MHz spectrum on the basis of Tier 5 service areas in the three major metropolitan areas.
114. However, using Tier 5 service areas in those metropolitan areas would have significant benefits, by allowing for more access to the spectrum for smaller service providers, as well as for non-traditional spectrum users who may not want to deploy to the entire area. It would reduce barriers to entry, enable new service providers and use cases and would be in line with the objectives set out by ISED for 3500 MHz spectrum, namely to:
- *foster innovation, investment and the evolution of wireless networks by enabling the development and adoption of 5G technologies*
 - *support sustained competition, so that consumers and businesses benefit from greater choice*
 - *facilitate the deployment and timely availability of services across the country, including rural areas.* (par. 11, Consultation Document)
115. Cogeco considers that these few changes would facilitate the participation in the licensing process by regional and smaller carriers and would ensure bidders only seek spectrum in the areas where they are most interested in deploying networks and providing services. This in turn would vastly increase the likelihood of the spectrum being put to good use in a timely manner.

²⁸ ISED, *Consultation on a New Set of Service Areas for Spectrum Licensing*, DGSO-002-18, November 2018, par. 21.

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.

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.

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.

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

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.

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.

116. Cogeco generally agrees that as much spectrum as possible should be included in the auction, i.e. both unencumbered and partial blocks. The 3500 MHz band is expected to be in high demand for both 5G mobile and fixed wireless access applications and there may be strong interest in partial area or encumbered blocks, particularly where the areas may correspond with the

geographic areas of greatest interest to a potential bidder. The best way to determine that interest is to include the licences in the auction.

117. Cogeco also generally agrees that licences from both auction and transition processes should be included in the assignment round, as Cogeco anticipates that any existing licensees who might also acquire spectrum at auction (whether full or partial area licences) would have an interest in contiguous spectrum blocks.

Encumbrance Threshold

118. Cogeco generally is not opposed to the proposal to consider partial-tier licences as “encumbered” blocks but considers that ISED’s approach is overly restrictive.
119. Per par. 62 of the Consultation Document, *“ISED is proposing that the spectrum made available in the auction for areas that are less than the entire Tier, be considered as encumbered spectrum, no matter how small the encumbrance is in terms of the percentage of population.”*
120. Cogeco notes, however, that the supply of unencumbered blocks is severely limited by the presence of encumbered blocks in a number of important markets. Table A1 of Annex A of the Consultation Documents indicates that, in 4-055 Ottawa for example, only 30 MHz of unencumbered spectrum is proposed to be available. The remainder would be encumbered or already assigned. In 4-077 Toronto, 90 MHz of unencumbered spectrum would be made available. However, while 50 MHz of spectrum would be considered encumbered, the encumbrance applies to only 0.1% of the population.
121. By limiting the supply of unencumbered blocks, ISED would also be effectively limiting the range of options available to it for designing a spectrum cap or set aside, assuming these only apply to unencumbered MHz as is currently proposed.
122. Cogeco acknowledges that severely encumbered blocks may have significantly less value than unencumbered blocks. Blocks that are only marginally encumbered, however, are operationally very similar to fully unencumbered blocks. Put another way, if a small portion of a licence area’s population is served by a grandfathered incumbent, then the new licensee simply has to

coordinate with the incumbent in the impacted area or choose not to deploy sites in the impacted area.

123. Cogeco notes that technical coordination is a normal part of wireless operations and is common practice among carriers, including competitors, operating in adjacent areas. Furthermore, Cogeco anticipates that many of the encumbrances are likely due to systems currently operated by one of the potential auction bidders, given that incumbent operators can participate in the auction. In that case, managing encumbrances would only be a matter of a licensee coordinating with itself.
124. While bidding during the auction, bidders can address marginal encumbrance levels through their valuation of the spectrum. Further, bidders already know the information in Consultation Table A1 in any case, and can thus tailor their demand for five versus four blocks, considering the valuation of encumbered and unencumbered blocks and the degree to which certain areas are encumbered.
125. Bidders can also take encumbrance into account when bidding during the assignment stage. Cogeco notes that in par. 72 of Annex C of the Consultation Document, ISED states that:

Each bidder has both a right and an obligation to obtain one of the frequency range options presented to it in the assignment round.
126. In determining the options presented to each bidder in the assignment phase, Cogeco recommends that ISED take into account the possibilities for placement of encumbered blocks in the band per round, as part of ensuring overall contiguity for each bidder. Cogeco notes that, in developing assignment options for bidders, ISED will in any case have to take into account existing licensees – whether Tier 4 licensees, subdivided licensees, grid-cell licensees – that may or may not have participated in the auction. Thus it can take these encumbrances into account in determining what options are possible for each bidder. This would further allow bidders to account for encumbered versus unencumbered blocks by placing different assignment bids accordingly.
127. Given the operational similarity between lightly-encumbered and unencumbered blocks, and given the ability of bidders to account for encumbrances through their valuation of the blocks, Cogeco recommends that

ISED relax the criterion set out in paragraph 62 of the Consultation Document that any level of encumbrance result in the block being classified as encumbered. If ISED were to set a reasonable threshold for defining encumbrance, the supply of unencumbered blocks would increase considerably across many areas, which would in turn simplify the auction considerably.

128. As currently proposed by ISED and indicated in Table A3 in Annex A of the Consultation Document, some 43% of the Canadian population would reside in Tier 4 areas where there is some encumbrance impacting 1 to 5 blocks in each service area.
129. Given that many large markets have relatively low levels of encumbrance, relaxing the definition of encumbered would have a significant impact. This is illustrated in the table below, based on the information set out in Table A3 of ISED’s Consultation Document.

Scenarios - Threshold of available population to determine encumbrance			% of total Canadian population in Tier 4 areas with encumbered blocks	Largest encumbered market	
Options	Threshold of Available population per area	Threshold of Encumbered population per area		Tier 4 area	Tier 4 population
As proposed by ISED	100%	0%	42.6%	Toronto	7,030,750
Alternatives	90%	10%	12.4%	Ottawa/Outaouais	1,452,852
	85%	15%	11.9%		
	80%	20%	7.0%		
	75%	25%	2.4%	Peterborough	165,516

130. Cogeco suggests that, in order to minimize the impact of encumbrance on the auction, a block in a service area should be considered encumbered when the population that is unavailable represents more than 15% to 25% of the total population in that service area. The objective would be to ensure that less than 10% of the Canadian population would be in service areas where there are encumbered blocks, which would mean that much less than 10% of the population would be in a location where the spectrum is actually encumbered.
131. If the threshold were to be set at 25%, only 2% of the Canadian population would be in Tier 4 service areas where encumbered blocks are present. Setting the threshold at 25% would considerably simplify auction bidding, reduce risks surrounding encumbrance, and result in no major markets having encumbered blocks for the purposes of the auction. Further, as noted above, setting a

threshold to allow for a greater supply of unencumbered blocks would create more possibilities for the design of a spectrum cap and/or set aside.

132. This approach would be consistent with the way the FCC handled “impairments” in the US Broadcast Incentive Auction held in 2016. In that auction, generic licences were auctioned in two categories. Category 1 licences were those that would have no impairment (i.e. would not be encumbered) by incumbent broadcast television stations post-auction. Category 2 licences, on the other hand, would be impaired.
133. The FCC’s view was that “*licenses with potential impairments that affect between zero and 15 percent of the population reasonably may be considered fungible.*”²⁹ In other words, if from 0% to 15% of the population were unavailable in a licence area, the licence was in any case considered to be unimpaired (i.e. unencumbered) for purposes of the auction.
134. In considering how to adapt the FCC’s approach to the Canadian environment, adopting the FCC’s 15% threshold (meaning that licence areas where 15% or less of the population is encumbered would be considered unencumbered) could be beneficial. However, Cogeco considers that adopting a higher threshold would be more appropriate in the Canadian context. A 25% threshold would minimize the impact of encumbrances on the auction. In particular, no major markets would have encumbered blocks for the purposes of the auction.
135. It is also noteworthy that in Canada encumbrances would be from systems operated by other wireless carriers and in some cases by the auction bidders themselves, unlike the US situation where broadcast stations were causing the impairments. Thus coordination is more straightforward and licensees can plan deployments accordingly as long as all of the interference information is known.
136. The relative value of encumbered versus unencumbered blocks should be reflected in bids in the Assignment phase of the auction.

²⁹ Bidding Procedures Comment Public Notice, FCC 14-191, December 11, 2014, paragraph 145. Note these definitions were adopted for the auction in FCC 15-141, THIRD REPORT AND ORDER AND FIRST ORDER ON RECONSIDERATION, October 21, 2014, paragraph 34 and footnote 100. The FCC also ruled that licences with more than 50% impairment would not be offered at all.

137. In summary, the threshold used to define “encumbrance” should be relaxed to simplify the auction and minimize the number of different categories of products. Setting the threshold in the range of 15% to 25% – i.e. considering markets to be unencumbered when at least 75% to 85% of the population is available – would reduce the population present in encumbered areas from 43% as proposed down to less than 10%. If the threshold were to be set at 75%, only 2% of the population would be in encumbered areas, and no major markets would have encumbered blocks for the purposes of the auction.
138. In addition, to facilitate the change to the encumbrance thresholds, ISED should ensure that the assignment rounds present options to bidders that reflect blocks that are encumbered. In this way bidders can tailor assignment values accordingly.

Bundling of Encumbered Blocks

139. Cogeco submits that ISED must provide greater clarity around the criteria it intends to apply for deciding which encumbered blocks to bundle, particularly in light of the proposal to exclude bundled encumbered licences (but not other encumbered licences) from a spectrum cap if one is adopted, as “same or similar” geography or “relatively small population” are vague terms.
140. Cogeco notes the percentage of available population in the tiers where ISED proposes to bundle encumbered blocks (see par. 58, Consultation Document) varies considerably across blocks and areas. Cogeco also notes that the percentage of available population in the encumbered or partial licences included in Table A1 of Annex A of the Consultation Document appears to vary from a low of 1% in the case of a block in 4-129 Lloydminster to a high of 99.99% for a block in 4-086 London/Woodstock/St. Thomas.
141. Cogeco does not consider that blocks with such great differences between them should necessarily be treated the same way, or that a block with 99.99% of the population available should necessarily be treated differently from one with 100% of the population available, and considers that ISED should establish clear criteria for classifying encumbered blocks and principles for treating them differently. Cogeco notes, however, that the variation among encumbered blocks, and the need for different categories of “encumbrance”, may be significantly reduced if ISED adopts Cogeco’s proposal set out above to treat lightly encumbered blocks as unencumbered blocks.

142. Further, Cogeco considers that encumbered blocks, whether bundled or not, should count towards the spectrum cap. These licences are in many cases operationally similar to unencumbered blocks and excluding them from the cap would enable licensees to circumvent the intent of the cap. Further, they are being auctioned as separate products, and at a different opening price which reflect the level of encumbrance. Bidders can therefore express their preference for unencumbered licences, if that is their intention, and shift their bids to lower-priced encumbered licences otherwise. Cogeco notes though that, if ISED adopts Cogeco's proposal set out above to treat lightly encumbered blocks as unencumbered blocks, the anti-competitive effect of excluding bundled encumbered blocks from the cap would be significantly reduced.

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

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

Q4B—ISED is seeking comments on its proposal to categorize all blocks won by 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.

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.

143. Cogeco generally agrees with ISED's proposal to use generic licences. With respect to ISED's other proposals, Cogeco reserves the right to comment further during the reply comments period of the consultation process.

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

144. Cogeco supports ISED's proposal to use anonymous bidding during the auction.

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

145. Cogeco supports ISED’s proposal to use to use the Clock Auction (CA) format for the 3500 MHz auction, including the use of anonymous bidding and generic licenses. A CA is described by ISED as:

... a two-stage auction format that provides a simultaneous multiple-round clock stage for generic blocks to determine the quantity of blocks won in each product, followed by an assignment stage to determine the specific frequency assignment of each license. (par. 76, Consultation Document)

146. As will be described in greater detail in this response below, the CA format addresses in Cogeco’s view the “threshold problem” of the Combinatorial Clock Auction (CCA) format which has the effect of excluding smaller and regional bidders from the auction. However, the CA format significantly increases the exposure risk to bidders, when compared to the CCA format, and a number of modifications to the proposed CA format are required in order to mitigate this risk.

The Threshold Problem

147. Cogeco believes that the Clock Auction (CA) format would lead to a better outcome for the auction, particularly for small and regional bidders, than the Combinatorial Clock Auction (CCA) format, principally because the “threshold problem” in CCA auctions can impede smaller bidders from winning licences.

148. In a CCA auction, the winners are determined by the non-overlapping set of indivisible packages that represent the maximum bid value outcome for the auction. This means that, in order for a small bidder to win its package of licences, it may have to rely on other small bidders in order to collectively outbid a larger bidder. The bid of that large bidder sets the “threshold” through its demand for a large set of licences that a small bidder, with a demand for a smaller set of licences, would find almost impossible to overcome.

149. For example, consider a hypothetical auction of one licence in each of four regions (A, B, C, and D). A large bidder, Bidder 1, wishes to acquire licences in all four regions.
150. Bidder 2, a smaller regional bidder, wishes to buy the licences for regions B and C only. As can be seen in the table below, Bidder 2 cannot compete on its own with Bidder 1's large package bid of "ABCD", even if Bidder 2's valuation for regions B and C is the same as that of the large Bidder 1.

<i>Threshold Problem</i>	Valuations	
	Bidder 1	Bidder 2
Region A valuation	\$ 75	\$ -
Region B valuation	\$ 50	\$ 50
Region C valuation	\$ 50	\$ 50
Region D valuation	\$ 25	\$ -
Package Value	\$ 200	\$ 100

151. In this example, with these as the only bids, Bidder 1 will win ABCD with its bid of \$200. Under the rules of a CCA auction, this represents a better outcome for the auction than Bidder 2 acquiring licences for regions B and C only for \$100 and leaving licences in regions A and D unsold. However, it also means Bidder 2 is in effect excluded from the auction.
152. In order for Bidder 2 to win its desired licences for regions B and C, it has to count on the presence of other regional bidders targeting regions A and D. Further, the other bidders would have to have similar valuations to that of Bidder 1 for those two regions in order for Bidder 2 and the other regional bidders to outbid Bidder 1 as a group. However, Bidder 2 cannot be confident there are such other regional bidders because, under the anti-collusion rules, Bidder 2 is precluded from entering into discussions with other potential auction participants prior to the auction.
153. Alternatively, Bidder 2 would have to bid significantly over \$200 to acquire Regions B and C in order to displace Bidder 1 entirely. This would mean that Bidder 2 would have paid more than what the market considers to be the appropriate value for those licences.
154. This threshold problem therefore creates a very high risk for smaller bidders in CCA auctions. In the above example, one small bidder cannot know if other

small bidders will bid to fill in the gaps to collectively outbid a larger bidder, and the alternative is for the small bidder to bid well over valuation to try to displace a large bidder.

155. The threshold problem would be even more significant in an auction of Tier 4 or Tier 5 licences, where large bidders would place package bids consisting of many service areas across large regions of the country. Small operators simply cannot overcome the threshold problem in these circumstances.
156. Cogeco therefore does not support the use of the CCA format for the 3500 MHz auction.

Exposure Risk

157. The CA format, while preferable to the CCA format, has an exposure risk problem. Because bidders cannot specify indivisible packages of licences and may therefore win any subset of the packages they bid, bidders are exposed to the risk of winning fewer licences than may be required to compete effectively in the market.³⁰
158. Consider a second scenario using the same hypothetical auction in which there is one licence available in each of four regions (A, B, C, and D). A bidder wishes to acquire licences in all four regions but not in any one region alone. The bidder therefore places one bid for ABCD.
159. In an auction using the CA format, a bid of ABCD is interpreted as a bid for:

A by itself,
B by itself,
C by itself,
D by itself,
AB as a pair (without C or D),
AC as a pair (without B or D),
AD as a pair (without B or C),
etc.

³⁰ The exposure risk affects in particular bidders who are not already mobile operators because they do not have other mobile spectrum they can aggregate to offset leaving the 3500 MHz auction with an insufficient amount of spectrum.

160. In other words, the bid ABCD implies bids for all of the possible subsets of ABCD. Further, the bidder may win any of the subsets, even though the bidder is only interested in the complete set of ABCD, for example, because none of the subsets of ABCD would support the bidder's business plan. The bidder is therefore exposed to considerable risk that it would win and have to pay for spectrum licences that it cannot use in practice. This would be a suboptimal outcome, both for the bidder and for consumers, as there would be a greater likelihood of the spectrum ultimately not being used or not being used as effectively as it could have been.
161. Cogeco submits that there are elements of the CA format as proposed by ISED that need to be addressed in order to reduce this exposure risk and to ensure maximum opportunity and fairness for all bidders. In particular, Cogeco recommends ISED make changes to the proposed CA format in three areas:
- Bid types;
 - Activity rules; and
 - An Extended Round;
162. Cogeco notes that the changes it proposed to the encumbrance threshold in its response to Question 3 would also help mitigate the exposure risk problem by increasing the number of spectrum licences available. It would, however, not address the problem directly.

Bid Types

163. The CA format as proposed by ISED appears to be very similar to what was first used by the Federal Communications Commission (FCC) in the US for the Forward Auction portion of the Broadcast Incentive Auction held in 2016 (FCC Auction 1002). The FCC recently used the CA format for a second time in an auction of 24 GHz licenses held earlier in 2019 (FCC Auction 102).
164. In Auction 1002, the FCC allowed three bid types per product in each licence area per round: simple bids, switch bids and all-or-nothing bids.
165. These bid types were an important component of the FCC auction format since there were multiple blocks available to bid on in each licence area and the blocks could fall into more than one category (unimpaired and impaired, as well

as “reserve” blocks). The different bid types thus gave bidders a better ability to specify desired packages as the bidding progressed.

Simple Bids

166. In contrast to the FCC, ISED appears to be contemplating only one type of bid, simple bids. In its description of bidding, ISED states:

...a bidder can bid either to maintain its demand for a product at the round's clock price or to request to change its demand at a price associated with the round. (par. 6, Annex C, Consultation Document)

167. This description implies that ISED anticipates only allowing bidders to make one type of bid, a “simple” bid to change demand. In Cogeco’s view, ISED should include switch bids and all-or-nothing bids in the CA format, in addition to simple bids.

Switch Bids

168. Switch bids tie two bids together – a bid to increase demand on one product in a given area is contingent on being able to reduce demand on another product in the same area.³¹ This reduces the risk of having to bid on both products A and B in order to win just A, or just B.

169. The switch bid would be important in the 3500 MHz auction to allow bidders to tailor demand amongst the different products that will be in the auction. In particular, depending on relative prices, bidders may want to switch from unencumbered to encumbered blocks or vice versa. Eligible bidders may also wish to switch from set-aside to open products, if the auction includes set-aside blocks.

170. Per ISED’s current proposal, there could be multiple categories of encumbered blocks.³² For example, the Consultation Document states that in Weyburn, Saskatchewan (Tier 4 area 4-120), according to Consultation Annex D, Table D2, there could be four different encumbered products: one block covering

³¹ In the CA format, a reduction in demand may not be allowed if the result would lead to aggregate demand being below supply. See par. 80, Consultation Document.

³² Adopting Cogeco’s proposal to treat lightly-encumbered blocks as unencumbered would partly address this issue.

10,592 population, one block covering 9,036 population, one block covering 7,986 population and one block covering 3,216 population (see Table D2, Annex D, Consultation Document). In addition, there would be 8 unencumbered blocks available (see Table A1, Annex A, Consultation Document). A bidder targeting Weyburn would therefore have 5 different products to consider.

171. The switch bid would provide greater assurance to bidders of being able to specify a desired package, without having to bid on multiple products independently in order to win only one of them.

All-or-Nothing Bids

172. All-or-nothing bids mean that a bidder could specify that it would bid on a quantity of licences at a certain price point and, if that could not be satisfied, that it would take zero quantity.
173. An all-or-nothing bid is unlike a simple bid. A simple bid means, for example, if a bidder has processed demand in the previous round of four blocks and wishes to bid zero blocks at a higher price point in the next round, the auction process interprets the bid as being for 4, 3, 2, 1 or 0 blocks at the price point where the bid is placed.
174. If the same bid is specified as an all-or-nothing bid, on the other hand, the auction process considers that the bid represents only the demand of 4 blocks or the demand of 0 blocks.
175. The all-or-nothing bid helps to reduce exposure risk within the tier areas. For example, a bidder may be initially targeting 4 blocks in an area, but as prices increase the bidder may reduce its target to 2 blocks.
176. As the clock rounds near their end – i.e. aggregate demand approaches supply across all products – the bidder may wish to indicate that it would accept 2 blocks at the current round price, but that if the price increases further, it would exit the auction with zero blocks.

177. With a simple bid of zero blocks, the bidder's processed demand could be 2, 1 or 0 blocks, even though the bidder never actually indicated explicitly to the auctioneer that it wanted to bid on 1 block.³³
178. However, one 10 MHz block may not be an operationally desirable quantity of spectrum. Exiting the auction with one block may therefore be a costly and useless outcome for the bidder.
179. An all-or-nothing bid would address this issue by mitigating the possibility of undesirable auction outcomes during the auction, allowing a bidder in this example to exit the auction either with two blocks or with zero blocks, but not with one block.
180. Cogeco therefore recommends that ISED include the all-or-nothing bid type in the CA auction format for 3500 MHz spectrum.
181. Cogeco notes that, given the unattractiveness of holding only one 3500 MHz block,³⁴ a one-block winner might wish to enter into agreements with other licensees to operationalize the use of that block post-auction. The possibilities for this to occur, however, could be limited by ISED's rules for transferability and divisibility.
182. As proposed by ISED, if the auction has a set-aside and if a set-aside eligible bidder ends the auction with an undesirable package such as holding only one block in various areas, then it would look post-auction to ways of combining this undesirable spectrum holding with other operators in order to improve its ability to provide service. It would however be very restricted in terms of opportunities to engage in post-auction transactions to transfer or subordinate their licenses, as these other operators might not be set-aside-eligible (par. 167, Consultation Document). In other words, the bidder would be effectively unable to mitigate its exposure risk post-auction.

³³ Per par. 25 of Annex C of the Consultation Document, for a bid to reduce demand, the general principle is that the bid is applied to the maximum extent possible while ensuring that the reduction does not cause aggregate demand to fall below supply for that product (or to fall further below supply, if it is already below supply).

³⁴ Particularly where the winner might not have other mobile spectrum to aggregate with that single block.

183. Cogeco submits therefore that, if ISED decides not to include an all-or-nothing bid in the CA auction format, it should at the very minimum relax the conditions of license on transferability and divisibility for set-aside licensees in areas where it ended the auction with only one block.
184. ISED proposes that, if a set-aside is applied, “*for the first five years of the licence term, a set-aside licence is not transferable to a set-aside-ineligible entity*” (with two narrow exceptions) (par. 167, Consultation Document).
185. Cogeco proposes however that, for set-aside eligible bidders that have acquired a single set-aside block in a licence area, the restriction proposed by ISED for the first five years of the license term for set-aside licenses should not apply to that single set-aside block. In other words, the conditions of licence issued for a set-aside bidder holding one block in a licence area would be the same conditions of licence as for a non-set aside (open) licence.

Activity Rules

186. Cogeco agrees with ISED’s proposal to include an activity requirement of less than 100% of a bidder’s eligibility (par. 90, Consultation Document). Cogeco notes that, in past SMRA auction processes, ISED had defined an “activity requirement” which would increase as the auction progressed. As set out for the AWS-1 / 2 GHz SMRA auction held in 2008:³⁵

... if bidders wish to maintain their eligibility from the previous round, their activity level must correspond to a certain percentage of their eligibility points in each round. This percentage is called the "activity requirement", which will increase as the auction progresses, as follows.

- *In Stage One, the Department expects the figure to be in the range of 70% to 80%;*
- *In Stage Two, the Department expects the figure will be increased to between 80% to 90%; and,*
- *In Stage Three, the figure will be increased to 100%.³⁶*

³⁵ Industry Canada Decision, *Licensing Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range*, DGRB-011-07, 22 December 2007, Section 6.4

³⁶ *Ibid*, page 20.

187. Cogeco submits that ISED should apply this same approach to this auction – i.e. activity starting at 70% to 80%, then increasing to a range of 80% to 90% then to 100%. This will allow bidders to tailor packages and bidding targets as the auction rounds evolve.

Activity Rule Waivers

188. Consistent with rules of prior SMRA auctions, ISED should also provide for activity-rule waivers in the auction for 3500 MHz spectrum. This would allow a bidder to “sit out” rounds without losing eligibility.

189. Consider the example where a bidder places a bid in Round 10 to reduce demand, which is not fully processed. By using a waiver in Round 11, the bidder’s Round 10 bid stays in place but the bidder would not lose eligibility if the bid is fully processed in Round 11.

190. Using a waiver gives a bidder a round to “wait and see.” In the example above it allows for a pause for the bidder to re-assess if a reduction in demand is the right bid at that point in the auction. In the AWS-1 / 2 GHz SMRA auction, ISED provided for 5 waivers per bidder.³⁷ As the CA format is likely to require fewer rounds than an SMRA auction – due to the use of generic licenses – the number of waivers could be limited to 3, for example.

191. Along with the activity rule, waivers provide a way for bidders to de-risk bidding and assess the progress of the auction.

192. Activity rules and waivers are therefore important elements of offsetting the exposure risk in a CA auction process, allowing for example bidders to hold back from bidding on less desirable targets until they are more confident of winning their highest valued licenses.

193. In the second scenario described in the section above on exposure risk (see paragraph 158 above), depending on the relative number of bidding points, Bidder 2 that is seeking to acquire both areas B and C may be able to bid on only B initially and hold bidding points for region C in reserve.

³⁷ *Ibid*, Section 6.6

194. As the auction progresses, if Bidder 2 is confident of winning region B, it could then start bidding on region C under an increased activity rule. While not completely mitigating exposure risk, the activity rule helps the bidder to target winning B and C or neither.

Withdrawals

195. In addition to the activity rule, ISED should also include a “withdrawal” feature in the CA format.

196. A withdrawal could be allowed for any bidder in a given number of rounds of the auction. In the AWS-1 / 2 GHz SMRA auction, ISED allowed for withdrawals of standing high bids in up to 5 rounds of the auction, with an additional penalty if a bidder withdrew more than 5 times.³⁸

197. As in the case of waivers, Cogeco considers that the number of withdrawals allowed under this rule could be limited to 3 for the CA format, given that this auction is likely to require fewer rounds than an SMRA auction.

198. In the CA auction format, including the option of withdrawals would mean that the auction system would have to allow a temporary reduction of demand below supply. For example, if a bidder were to wish to withdraw a bid for 2 blocks in an area where four blocks are available and aggregate demand is equal to supply, a bid for zero blocks would not be accepted as it would result in demand being reduced below supply.

199. Allowing withdrawals would temporarily allow for demand to be below supply. The next round clock price would then be set to the price in most recent round when demand was greater than supply. This could incent bidders who had earlier reduced demand in that area to return, assuming they have sufficient eligibility, and the bidder who withdrew would pay a penalty of the difference between the price at which it withdrew and the price of the actual final clock round (if lower).

200. Cogeco notes that other elements of the CA format may have to be modified to accommodate withdrawals, for example only allowing withdrawals that do not have the effect of stopping the entire auction.

³⁸ *Ibid*, Section 6.9

Extended Round

201. Per par. 93 of the Consultation Document, the “*auction will conclude when there is no excess demand for any product in any service area.*” This means that demand can be below supply when the auction clock rounds conclude and bidders would not be allowed to use a withdrawal to stop the auction.
202. In other words, the auction could end with excess supply (unsold licences). Ending with unsold items is an undesirable and possibly inefficient outcome for the auction. To provide bidders with the opportunity of acquiring licences which remain unsold at the end of the clock rounds, Cogeco recommends that ISED provide for an Extended Round. This would be one additional round during which bidders could bid to add unsold licences to their final clock package, at the price of the last clock round where there was over-demand. Cogeco notes that the Extended Round could, for example, allow for non-set-aside eligible bidders to acquire any unsold set-aside blocks. All unsold blocks would be considered to be “open” blocks for the Extended Round.
203. The Extended Round would be conceptually similar to the Extended Round employed by the FCC in the 600 MHz Forward Auction, which was also a CA format auction. In the FCC’s Extended Round, bidders were given one round to “top up” to meet an aggregate reserve price, if the clock rounds ended with revenues below the aggregate reserve.
204. In the 3500 MHz auction, however, this mechanism could be employed by ISED to allow bidders to buy unsold licences left over from the clock rounds.
205. Cogeco notes that bidders bidding in the Extended Round would be allowed to exceed their eligibility. Since the auction in Stage 3 is assumed to have a 100% activity rule, as noted above, bidding for additional licences means, *ipso facto*, that eligibility would be exceeded. Despite this, the Extended Round would not distort the auction – the clock rounds will have already ended and bidders would still be required to respect spectrum caps.
206. However, allowing bidders to acquire unsold blocks immediately at the end of the auction in an Extended Round would be quicker and more efficient than running a residual auction process at a later date.

Summary

207. Cogeco does not support the use of the Combinatorial Clock Auction (CCA) format for the 3500 MHz auction. The threshold problem associated with the CCA format, exacerbated by the use of Tier 4 service areas, would be a very significant impediment to participation by for small bidders.

208. Cogeco therefore supports ISED's proposal to use the Clock Auction (CA) format, but with certain modifications to mitigate the exposure risk problem, including allowing for switch bids and for all-or-nothing bids as part of clock round bidding in the CA auction, including activity rules, waivers and withdrawals, and adding an Extended Round, after the clock rounds end, for bidders to acquire any blocks that were unsold in the clock rounds. Cogeco's recommendations are summarized in Appendix A to this submission.

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.

209. Cogeco has no specific comments on these matters at this time but reserves the right to provide further comments during the reply comments stage.

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

210. Cogeco has no specific comments on these matters at this time but reserves the right to provide further comments during the reply comments stage.

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.

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.

211. Cogeco recommends that ISED slightly modify the structure of the assignment stage to reflect Cogeco's proposal that 3500 MHz spectrum be licensed on the basis of Tier 5 service areas in the three major metropolitan centres – Toronto, Montréal and Vancouver. Under Cogeco's suggested modification, the first three assignment rounds would be:
- a. Round 1 for the largest Tier 5 service area in the Toronto metropolitan centre;
 - b. Round 2 for largest Tier 5 service area in the Montréal metropolitan centre; and
 - c. Round 3 for the largest Tier 5 service area in the Vancouver metropolitan centre.
212. Cogeco also proposes that ISED add one supplemental rule: in each of Rounds 1, 2 and 3, if there are adjacent Tier 5 service areas that (a) are contiguous with and within the same Tier 4 service area, and (b) satisfy the other constraints of the assignment phase as set out in par. 5 of Annex E of the Consultation Document, then these additional Tier 5 service areas would be added to the assignment area in question.³⁹
213. The next five assignment rounds would be for the remaining top 8 Tier 4 areas as per Table E1 in Annex E of the Consultation Document, i.e. Round 4 for 4-055 Ottawa/Outaouais, Round 5 for 4-136 Calgary, Round 6 for 4-141 Edmonton, Round 7 for 4-030 Québec, and Round 8 for 4-111 Winnipeg.
214. Any remaining Tier 5 service areas within the Tier 4 areas of 4-077 Toronto, 4-051 Montréal and 4-152 Vancouver (i.e. that were not included in Rounds 1, 2 or 3) can then be sequenced with the remaining Tier 4 areas, ranked by population from highest to lowest, consistent with ISED's proposal at par. 2 of Annex E of the Consultation Document, and grouped as appropriate based on the criteria set out at par. 5 of Annex E of the Consultation Document.

³⁹ For example, for Round 2, the Tier 5 for Longueuil could be included with the Tier 5 for Montréal if each bidder in Longueuil needs to be assigned the same number of blocks as in Montréal. Longueuil is contiguous with the Montréal Tier 5, based on Annex B of ISED's on New Service Areas Decision, and it is in the same Tier 4 as Montréal.

215. Cogeco does not consider that this would be difficult to implement, and it would simplify the assignment process.
216. Other than as noted above or in its responses to Questions 3 and 6 above, Cogeco has no specific comments on these matters at this time but reserves the right to provide further comments during the reply comments stage.

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

217. Cogeco notes that the proposed affiliated and associated entity rules are largely consistent with those applied in recent auctions and represent a good starting point for the rules that should apply to this licensing process. Cogeco submits however that they are not acceptable as presently drafted and that they must be modified due to the potential of the special relationship among three of the potential bidders, namely, Bell, Rogers and Inukshuk, to distort the results of the auction and to subvert pro-competitive measures such as a spectrum cap.
218. Under the proposed rules, Cogeco notes that Inukshuk would be considered affiliated with both Bell and Rogers because it is controlled by them, and both Bell and Rogers would each be affiliated with Inukshuk as they each control Inukshuk. However, Bell and Rogers would not be considered to be affiliated with each other, despite their partnership in Inukshuk, as neither controls or is controlled by the other, and both are not controlled by a common entity (par. 108, Consultation Document).
219. As in previous auctions, ISED proposes that only one member of an affiliate relationship can participate in the auction. Cogeco agrees with this proposal. However, if adopted, this proposed rule would mean that, if Bell and Rogers were to direct Inukshuk not to bid for 3500 MHz spectrum in this auction, both Bell and Rogers could participate separately and, under the proposed rules, acquire licences up to any applicable cap.
220. ISED further proposes that a fixed-use licensee that is eligible to apply for a flexible use licence (e.g. Inukshuk) be treated as a bidder, whether or not it participates in the auction (par. 114, Consultation Document). Cogeco notes

that, while this ensures the affiliation rules apply to Inukshuk, it does not operate to make Bell and Rogers affiliated entities with each other. In other words, as noted above, Bell and Rogers could participate separately in the auction and acquire licences up to any applicable cap.

221. However, the proposed rules also appear to allow both Bell and Rogers to obtain access to 3500 MHz spectrum in excess of any applicable cap. Under the proposal at par. 158, subordinate licences would not count towards a spectrum cap, subject to certain conditions, including demonstrating to the satisfaction of ISED that the licensees will continue to actively and independently provide services. Therefore, as long as Inukshuk demonstrates it will continue to provide services (which does not appear to be a high bar, as Inukshuk is not actively providing services to the general public at the present time), Bell and Rogers could acquire subordinate licences for some of Inukshuk's spectrum holdings and thereby exceed any cap in practice. Because Inukshuk is controlled by Bell and Rogers, those two companies could in effect direct Inukshuk to subordinate 3500 MHz spectrum licences to them, which would allow them to gain an unfair advantage over competitors who do not have access to a similar cache of spectrum.
222. The proposed associated entity rules do not address this issue. Under the rules proposed at par. 115, Bell and Rogers would be considered to be associated entities as they have an agreement with respect to 3500 MHz spectrum being auctioned in this process (Cogeco understands that Inukshuk's spectrum licences would be included in the term "*the spectrum licences being auctioned in this process*" because they are to be included in the assignment stage. If this is not the case, Bell and Rogers might not be considered "associated entities" notwithstanding their partnership in Inukshuk, to the extent that their partnership would not extend to new licences to be acquired via this licensing process. This would be a highly peculiar outcome. Cogeco recommends that ISED clarify this point by replacing the words "*the spectrum licences being auctioned in this process*" with the words "*any spectrum in the 3500 MHz band*").
223. In any event, the proposed associated entity rules would allow associated companies to bid separately, so Bell and Rogers could participate separately even if deemed to be associated entities.

224. Further, ISED proposes that the in-band spectrum cap, if any, would apply separately to associated companies, as long as the associated companies show they will use the 3500 MHz spectrum to actively and independently provide wireless services. This means Bell and Rogers could both acquire spectrum up to the cap, if any, and then, as described above, use subordinate licences from Inukshuk to exceed that cap. Alternatively, they could subordinate their spectrum to Inukshuk and create a joint network benefiting from spectrum far in excess of any cap, as long as they demonstrate they will continue to provide services (i.e. not networks) independently.
225. In other words, the proposed affiliated and associated entity rules would allow Bell and Rogers to circumvent any spectrum cap that ISED might decide to apply. A spectrum cap is meant to ensure no party can acquire the majority of valuable spectrum and thereby limit competition, and deny consumers the benefits of competition, using that spectrum. An outcome that would allow licensees to circumvent that spectrum cap would be to the clear detriment of competition and consumers.
226. Cogeco proposes therefore that ISED introduce an additional rule, the “common-associated entity” rule. This additional rule is necessary in this particular auction because (1) some 3500 MHz spectrum is already licensed, i.e. less than 100% of the band is available for auction, and (2) likely participants in the auction are affiliated with entities that hold those existing licences and already have agreements in relation to those existing licences.
227. Under this proposed additional rule, entities not affiliated with each other but affiliated with a third common entity would be deemed “common-associated entities”.
228. Like other associated entities, they would be allowed to participate separately in the auction, and may apply to have the spectrum cap applied individually, provided ISED’s other proposed criteria are also satisfied.
229. However, the 3500 MHz spectrum held by the third common entity must be reflected in the respective caps of the “common-associated entities”. Those entities would be permitted to agree among themselves the proportion of the spectrum held by the common affiliated entity that will apply to their own individual caps, provided the total of all such amounts adds up to 100% and is

disclosed to ISED when they apply to participate in the auction. This would allow the parties to agree something other than a 50-50 split, if that were to better reflect their respective economic interests in the common affiliated entity. However, the full amount of the spectrum held by the common affiliated entity must be reflected in the caps applicable to the “common-associated entities.”

230. This proposed additional rule would ensure the purpose of a spectrum cap could not be circumvented and the cap exceeded by partners in another licensee.
231. Cogeco also submits that ISED’s proposed definition of associated entities may be inadvertently unduly restrictive in one respect. ISED notes that “... *in the cases where any one of the entities participating jointly would not qualify as a set-aside-eligible bidder, the bidding consortium would not be eligible to bid on set-aside spectrum*” (par. 116, Consultation Document). This rule ensures a non-set-aside-eligible entity does not partner with a set-aside-eligible entity in order to circumvent the restrictions on set-aside spectrum.
232. The definition, though, does not limit the meaning of the term “*entity*” to a bidder or potential bidder. A potential bidder could enter into arrangements, agreements or understandings relating to the acquisition or use of the spectrum who are not otherwise potential bidders, for example a financing entity, and whose participation in the consortium would not affect the integrity of the auction. However, as it is currently written, a bidding consortium could fail to qualify as set-aside-eligible if one of the entities in the bidding consortium is not a service provider, as it is not providing service, let alone in the relevant Tier 4 service area.
233. In Cogeco’s view, this is an unreasonable constraint on smaller entities who may seek external financing partners. Cogeco recommends therefore that ISED clarify that consortia may qualify to be set-aside eligible, provided that at least one member of the consortium is set-aside-eligible and that none of the non-set-aside-eligible members are licensees, bidders or potential bidders based on their qualifications, abilities or experiences.

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.

234. Cogeco agrees that anti-collusion and communication rules are required in order to preserve the integrity of the auction process. However, Cogeco submits that the proposed rules effectively preclude any new bidding consortia. This might not be in the public interest if such consortia could assist in getting spectrum into the hands of entities willing and able to use it and to provide services to Canadians.
235. ISED proposes at par. 138 of the Consultation Document that if entities “*have had unsuccessful discussions regarding the formation of a consortium to bid as a single bidder,*” only one of the entities would be allowed to participate in the auction. In other words, even failed exploratory discussions which lead nowhere would affect the ability of both of the entities to bid. This provision appears to have been introduced in the rules for the 2500 MHz auction process in 2014 and applied again in the 2014 700 MHz, the 2018 Residual, and the 2019 600 MHz auctions. However, given that the outcome of discussions would be unknown and highly uncertain at the start of the discussions, and given that even unsuccessful discussions that result in the two parties going their separate ways would have such harsh consequences (i.e. at least one of the two parties could not participate in the auction), it is unlikely that either party would consider it advisable even to begin to enter into any discussions.
236. This would have an insurmountable chilling effect on the ability and willingness of any potential bidders to explore possible bidding partnerships. While ISED appears to recognize that “*the spectrum and network efficiencies that can be achieved through various forms of associations and arrangements may help address the high demand for capacity by customers and the high cost of network deployment*” (par. 118, Consultation Document) and appears to allow applicants to approach other entities prior to the auction to discuss joint builds or spectrum sharing agreements (par. 137, Consultation Document), the anti-collusion rules all but ensure no new such associations or arrangements will be negotiated before the auction.
237. Cogeco notes that none of the other rules would have such an effect. For example, the associated company rules do not require disclosure of

unsuccessful negotiations between two bidders. To be “associated,” the entities must “enter into” an agreement or understanding of some kind regarding the spectrum being auctioned in this process – see the wording of the proposed rule at par. 116, Consultation Document. If the two entities fail to come to such an agreement or understanding, they would not be associated.

238. Applicants must provide a list of affiliated and associated companies, and include with that list a description of the nature of the affiliation or association (see par. 129, Consultation Document). This description would include arrangements with other potential bidders. However, as noted before, if the negotiations fail to result in an agreement, arrangement or understanding, there would be nothing to disclose.
239. The associated entity rules therefore would appear to allow companies to discuss potential partnerships, insofar as only discussions that lead to agreements, arrangements or understanding would need to be disclosed.
240. The proposed anti-collusion rules would expressly prohibit discussions by bidders regarding any of the licences being auctioned or the post-auction market structure (per par. 132, Consultation Document). The term “the licences being auctioned” appears to include existing licences acquired via the transition process, as these are included in the assignment stage of the auction. There is a limited exception allowed for discussions relating to the transfer of existing licences prior to the deadline to apply to participate in the auction (per par. 134, Consultation Document). The proposed rules would also prohibit bidders from signalling either publicly or privately their intentions regarding bidding or the post-auction market structure related to the 3500 MHz band (i.e. not just in relation to spectrum being auctioned) (see par. 133, Consultation Document).
241. It is reasonable to consider that an entity would not be a “*bidder*” until it applies to participate in the auction. At first glance, this would therefore appear to allow entities to have discussions regarding the spectrum included in this auction process up until the earlier of the deadline to apply to participate or the date either party actually applies to participate.
242. The proposed anti-collusion rules would also require a bidder to certify that is not entered into and will not enter into any agreement or arrangement of any kind with any other entity who “*could potentially be a bidder in this auction*” (see

par 135, Consultation Document). That list of prohibited entities (“*potential bidders*”) is very broad, and would certainly include any entities who are existing licence holders or who might be possible partners in a bidding consortium. However, this certification applies to actual or potential agreements and arrangements. It would therefore not apply to discussions which do not result in any such actual or potential agreement or arrangement. In theory, but for the statement at par. 138 of the Consultation Document regarding unsuccessful discussions, exploratory discussions could take place, as long as they end in an agreement or end conclusively without an agreement prior to the start of the auction process.

243. Cogeco notes ISED’s statement at par. 249 of the BRS Licensing Framework Decision that “*although restricting discussions both prior to and during the auction process means that bidders would lose the full advantage of forming associations prior to the auction, it is necessary in order to maintain auction integrity. Furthermore, bidders can avail themselves of the full advantage of forming associations after the auction.*”⁴⁰ It is not clear whether any such associations have been formed after any of the auctions held following the introduction of this rule. However, it is clear that the benefit of exploring whether an association might be feasible or beneficial to the parties has been lost. Cogeco submits that this is not in the public interest and recommends ISED revisit its approach in this respect.

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.

244. Cogeco agrees with the proposed 20-year licence term and the proposed wording of the condition of licence. Cogeco also agrees with the proposal to terminate all 3500 MHz spectrum licences on the same date, whether they were issued through the auction process or the transition process. This

⁴⁰ Industry Canada Decision, *Licensing Framework for Broadband Radio Service (BRS) – 2500 MHz Band*, SLPB-001-14, 10 January 2014 (“BRS Licensing Framework Decision”), par. 249.

proposal appears reasonable as it would harmonize all flexible-use licences and simplify the licence renewal process in due course.

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

245. Cogeco considers that the proposed condition of licence related to transferability and divisibility is generally appropriate. In particular, the provisions of section 5.6.4 of CPC-2-1-23 must apply as ISED will be issuing flexible use licences which by definition could be used to provide commercial mobile services. However, Cogeco agrees with the accommodation proposed for transferees who notify ISED that the licences will be used to provide fixed services only following the transfer. Cogeco recommends that such transferees certify on an annual basis that the licences continue to be used to provide fixed services only.
246. However, Cogeco also considers that three modifications to the proposed condition relation to transferability and divisibility are required because of the unique circumstances of this licensing process.
247. First, ISED proposes that, as an exception to the usual rule that set-aside licences cannot be transferred to a set-aside-ineligible entity, an exchange of equal amounts of 3500 MHz spectrum in the same licence area could be allowed between set-aside-eligible and a set-aside-ineligible entities. Cogeco is of the view that this is appropriate where the two licences are equivalent as, in those circumstances, the swap would not result in any effective change in the rights, obligations or advantages of any of the participants in the market.
248. However, under the proposed deployment conditions of licence, some licences could have unique deployment requirements (e.g. the “5G” deployment requirements described at par. 171 of the Consultation Document). In those cases, the licences are not equivalent and swaps of identical amounts of spectrum but with different conditions of licence could affect competition in the market. Cogeco recommends therefore that, where such unique deployment conditions exist, the swap of identical amounts of spectrum between set-aside-eligible and set-aside-ineligible licensees be permitted on condition that the unique deployment conditions remain with the original licensee and not be

transferred with the licence. If the unique deployment requirement remains tied to the original licensee and not to the licence, the spectrum licences will be equivalent and a swap of equal amounts between a set-aside-eligible and a set-aside-ineligible entity would be acceptable.

249. Second, as noted in the response to Question 10 above, Cogeco is concerned that, under the proposed rules, a spectrum cap could be circumvented by licensees who are partners in a third licensee.
250. Cogeco proposes therefore that ISED add a requirement that subordinate licences would count towards a subordinate licensee's spectrum cap in circumstances where the principal licensee and subordinate licensee are affiliated or associated under ISED's affiliated or associated entity rules for the 3500 MHz auction. That is, the subordinated spectrum would count towards the cap of the subordinate licensee if the two licensees are not dealing at arm's-length, for example, if one licensee is controlled by the other, or if one licensee consists of a partnership which is controlled by the other licensee.
251. If the two licensees are not dealing at arm's-length, the subordinate licensee should be permitted to acquire subordinate spectrum only up to the level of the applicable cap or must be required to return 3500 MHz spectrum before it can be permitted to subordinate more spectrum from the other licensee.
252. Third, as discussed above at paragraphs 181 and following, a single 10 MHz block may not be an operationally desirable quantity of spectrum and a winner of such a single block may seek ways to combine it with the spectrum of others in the same area. However, the proposed rules on transferability and divisibility would limit its ability to do.
253. Including an all-or-nothing bid option in the CA auction format would allow a set-aside bidder to mitigate the risk of this happening, and Cogeco recommends that ISED provide for all-or-nothing bids. However, Cogeco proposes that, if ISED decides not to include an all-or-nothing bid in the CA auction format, ISED should relax the restriction on transferability of that single set-aside block. In other words, where set-aside eligible bidders that have acquired a single set-aside block in a licence area, the restriction proposed by ISED for the first five years of the licence term for set-aside licenses should not apply to that single set-aside block, and the same conditions of licence issued

for a set-aside bidder holding one block in a licence area would be the same conditions of licence as for a non-set aside (open) licence.

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

254. Cogeco is of the view that the proposed general deployment requirements are acceptable and notes that the 20-year deployment requirements set out in Annex F of the Consultation Document are consistent with the 20-year deployment requirements of the recently-auctioned 600 MHz licences. The 10-year deployment requirements appear, however, to be higher than the 10-year deployment requirements imposed in 2014 on 2500 MHz spectrum licences, notwithstanding that the spectrum shares similar propagation characteristics.
255. Cogeco is also of the view that the proposed modified general deployment requirement for licences issued through the transition process after the auction where the mobile LTE deployment requirements do not apply, is also acceptable.
256. However, Cogeco has a number of concerns regarding the proposed additional “rural deployment” requirements for licensees who operated mobile LTE networks as of June 5, 2019.
257. Cogeco notes that the two requirements set out at paragraph 171 of the Consultation Document and called “Timely 5G coverage” are similar in most material respects to the “rural deployment requirements” included as conditions of licence for licensees holding two or more paired blocks of 700 MHz spectrum.⁴¹ Cogeco is therefore not opposed to including a similar condition in 3500 MHz spectrum licences.
258. It is, however, unclear what ISED intends by “timely 5G coverage” in the context of this proposed condition, or what ISED intends by the other requirement set out at par. 171 (with respect to “5G in rural areas around urban

⁴¹ See Industry Canada Decision, *Licensing Framework for Mobile Broadband Services (MBS) – 700 MHz Band*, DGSA-001-13, 7 March 2013, at par. 320. An obvious difference between the 700 MHz condition and the proposed 3500 MHz condition is that the former refers to HSPA networks while the latter refers to LTE networks, which did not exist in 2013.

centres”). While the term “5G” is mentioned in the text of the Consultation Document at par. 171, it is not used in the language of the proposed condition, either at par. 177 or in Annex H. As a result, the proposed condition would require the licensee to provide network coverage at the specified levels by the specified dates, but it does not appear to require deployment of 5G networks specifically. It is not clear, therefore, that ISED’s proposed condition of licence would achieve the intended objective.

259. It is also unclear how ISED intends to measure compliance with these two conditions. At par. 171 of the Consultation Document, ISED refers to requiring the licensee to “*provide service coverage*” to the specified percentage of population within the mobile LTE footprint as of June 5, 2019. In the text of the proposed condition itself at par. 177, ISED refers to demonstrating that the spectrum “*has been put to use*” in the licence areas where the licensee operated a mobile LTE network as of June 5, 2019. However, ISED does not define what it means by “*service coverage*” or “*put to use*”. A licensee could conceivably comply with the proposed condition simply by installing the transmitters necessary to provide the required population coverage without actually providing services to Canadians in those areas, much as Inukshuk appears to be doing today with its 3500 MHz spectrum. If ISED’s objective is the timely deployment of services using the spectrum to Canadians in rural areas, it is not clear the proposed condition would be effective at achieving that objective.
260. Cogeco recommends that ISED clarify in the condition of licence that “*put to use*” means “*actively provide services to unaffiliated customers on a commercial basis using the spectrum.*” This would help ensure the spectrum is actually being used to provide services to Canadians, and not merely occupied by the use of a few transmitters.
261. The effect of condition of licence “d” for “Service Providers Offering Mobile Services” is also unclear. As drafted, it appears to require a transferee to comply with the initial 5, 7 and 10-year coverage obligations of the transferor (i.e., the original licensee) by the original deadlines, whether or not the transferee is a mobile service provider or was a mobile service provider on June 5, 2019. This would severely affect the secondary market for this spectrum, as few entities (and certainly no entities without a pre-existing network of towers) would be in a position to assume the coverage obligations of

the original mobile licensee over a shorter period of time. Given that the purpose of permitting licence transfers and spectrum subordination is to facilitate putting spectrum resources into the hands of entities who will use it in a timely manner to provide services to Canadians, thereby maximizing the economic and social benefits that Canadians derive from the use of the radio frequency spectrum, a policy which discourages such transfers will not enable ISED to achieve its policy objectives for 3500 MHz spectrum.

262. Cogeco submits that, to avoid this undesirable result, this proposed condition of licence should not apply to transferees who did not have an LTE network as of June 5, 2019. That is, the condition should be tied to the licensee and not to the spectrum block itself. The condition should be transferred with the licence only where both the transferor and the transferee had an LTE network as of June 5, 2019.

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

263. Cogeco considers that these conditions of licence are generally acceptable but reserves the right to comment further during the reply comments stage.

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.

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

264. Cogeco considers that these proposals are generally acceptable as they would update and harmonize the conditions of all FWA licences. Cogeco also considers the proposal to apply the amendment on June 5, 2020 to be acceptable as this will provide licensees with a reasonable period of time to decide whether to renew their licences for another one-year term.

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

265. Cogeco considers that the proposed prices per MHz per pop are generally acceptable, in particular because they are generally consistent with the per MHz per pop prices applied to the opening bids in the 2015 auction of spectrum licences in the 2500 MHz band and in the 2018 auction of residual spectrum licences in the 2300 and 2500 MHz bands.
266. It is however not clear how ISED determined the higher price per MHz per pop to be applied to service areas with populations greater than 2 million. While ISED states that the increase is “*due to the increasing value seen in in recent Canadian auctions in those areas*” (par. 191, Consultation Document), similar mid-band spectrum (2500 MHz) was last auctioned in the Toronto, Montreal and Vancouver areas in 2015 and the results of that auction did not lead ISED to change the price per MHz per pop for opening bids for such spectrum in the residual auction of 2018. Cogeco therefore encourages ISED to provide greater transparency in its pricing decisions.
267. Cogeco also notes that this decision to increase the price per MHz per pop in the 4-077 Toronto, 4-051 Montréal and 4-152 Vancouver service areas significantly increases the opening bids for those areas. The high opening bids are prohibitive for smaller entities who might otherwise be interested in serving those areas. Cogeco recommends therefore that ISED revert to the original price of \$0.14/MHz/pop and allow the auction process to determine the appropriate price for this spectrum.
268. Cogeco notes that ISED would need to adjust the opening bids in the major metropolitan centres of Montréal, Toronto and Vancouver to reflect the use of Tier 5 service areas. The price per MHz per pop would remain the same, though.

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.

269. As in the case of the level of opening bids, the number of eligibility points associated with service areas in the major metropolitan centres of centres of Montréal, Toronto and Vancouver to reflect the use of Tier 5 service areas.

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

270. Cogeco has no comment at this time on the proposed renewal process and reserves the right to comment further during the reply comments period of the consultation process.

ANNEX A

Summary of Cogeco Recommendations

Competitive Measures

- There should be an in-band auction cap of 60 MHz, including unencumbered and encumbered blocks. This is the largest possible cap leaving 80% of the Tier 4 license areas with MHz that is greater than the cap.
- There should be a set-aside of 60 MHz in addition to the in-band auction cap. This would leave 50% of the MHz-pop in the auction available to “open” bidders.
- The in-band auction cap and the set aside would be limited to the maximum amount of spectrum available in each area. For example, in a case where there is only 40 MHz available in total, the cap would be 40 MHz and the set aside would be 40 MHz.
- ISED should implement an additional cap of 30 MHz on the amount of set aside spectrum that any one set-aside-eligible bidder can acquire, i.e. there should be a “set aside cap”. 30 MHz will provide opportunities for at least two bidders in 171 out of 172 Tier 4 areas.
- Eligibility for set-aside spectrum should be based on actively providing services in the Tier 4 area in which the entity wishes to bid as a set-aside-eligible entity, not the entire Tier 2 service area in which the Tier 4 service area is situated.

Encumbrance Threshold

- The threshold used to define “encumbrance” should be relaxed to simplify the auction by treating marginally encumbered service areas (where less than 15% to 25% of the population is encumbered) as being unencumbered. This would increase the supply of unencumbered blocks in the auction, making more competitive measure options feasible.

Clock Auction Format

- Cogeco supports ISED's proposal to use the Clock Auction (CA) format, but recommends changes to mitigate the exposure risk problem.
- ISED should allow for switch bids and for all-or-nothing bids as part of clock round bidding in the CA auction,
- The CA format should include an activity rule that could start at 70% to 80% of eligibility, progress to up to 90% and then 100% to end the auction.
- The CA format should include activity rule waivers. Consistent with past practice, this could allow bidders to "sit out" for up to 3 rounds of the auction without losing eligibility.
- The CA format should include a withdrawal option, similar to that used in SMRA auctions, where a withdrawal comes with a possible penalty and cannot be used to artificially stop the auction.
- ISED should add an Extended Round to the auction. This would consist of one round after the Final Clock round where all bidders would be able to bid to acquire unsold blocks at the final clock price up to the in-band auction cap amount. Unsold set-aside blocks would be treated as "open" in the Extended Round and available to any bidder. Bidders would be allowed to exceed current eligibility to buy unsold blocks, subject to the in-band auction cap.

Major Metropolitan Areas

- The Tier 4 service areas covering the three large metropolitan centres of Toronto, Montréal and Vancouver should be divided into the Tier 5 service areas that nest within them. ISED would then licence 3500 MHz spectrum on the basis of Tier 5 service areas in those metropolitan areas and on the basis of Tier 4 service areas elsewhere.
- The structure of the assignment stage should be modified slightly: the first three assignment rounds would be for largest Tier 5 service areas in Toronto, Montréal, and Vancouver. The next five assignment rounds would be for the remaining top 8 Tier 4 areas. Any remaining Tier 5 service areas within the Tier 4 areas of Toronto, Montréal and Vancouver (i.e. that were not included in

Rounds 1, 2 or 3) can then be sequenced with the remaining Tier 4 areas, ranked by population from highest to lowest, consistent with ISED's proposal.

- ISED should add one supplemental rule: in each of Rounds 1, 2 and 3, if there are adjacent Tier 5 service areas that (a) are contiguous with and within the same Tier 4 service area, and (b) satisfy the other constraints of the assignment phase as set out in par. 5 of Annex E of the Consultation Document, then these additional Tier 5 service areas would be added to the assignment area in question.

"Common-Associated Entities" Rule

- ISED should consider entities not affiliated with each other but affiliated with a third common entity to be "common-associated entities". They would be allowed to participate separately in the auction, and may apply to have the spectrum cap applied individually, provided ISED's other proposed criteria are also satisfied. However, the 3500 MHz spectrum held by the third common entity must be reflected in the respective in-band auction caps of the "common-associated entities". Those entities would be permitted to agree among themselves the proportion of the spectrum held by the common affiliated entity that will apply to their own individual caps, provided the total of all such amounts adds up to 100% and is disclosed to ISED when they apply to participate in the auction.

Anti-collusion Rules

- The anti-collusion rules should be modified to allow potential bidders to discuss potential bidding partnerships prior to the deadline for auction, without affecting the rights of the potential bidders to bid separately if the discussions should not result in an agreement, arrangement or understanding.

Transferability Conditions

- Where unique deployment conditions are applied to a licence (e.g. the "5G" deployment requirements), the swap of identical amounts of spectrum between set-aside-eligible and set-aside-ineligible licensees should be permitted on condition that the unique deployment conditions remain with the original licensee and not be transferred with the licence.

- Subordinate licences should count towards a subordinate licensee's spectrum cap in circumstances where the principal licensee and subordinate licensee are affiliated or associated under ISED's affiliated or associated entity rules for the 3500 MHz auction, i.e. where the two licensees are not dealing at arm's-length, for example, if one licensee is controlled by the other, or if one licensee consists of a partnership which is controlled by the other licensee.
- If ISED does not include an all-or-nothing bid option in the clock auction format, ISED should relax the conditions of licence on transferability and divisibility for a set-aside eligible licensee in areas where it ended the auction with only a single set-aside block in a licence area. In these cases, the conditions of licence for the set-aside eligible bidder would be the same as for an open block.

Deployment Conditions

- ISED should define "*put to use*" in the deployment condition of licence as "*actively provide services to unaffiliated customers on a commercial basis using the spectrum.*" This would help ensure the spectrum is actually being used to provide services to Canadians, and not merely occupied by the use of a few transmitters.
- Condition of licence "d" for "Service Providers Offering Mobile Services" should not apply to transferees who did not have an LTE network as of June 5, 2019. The condition should be tied to the licensee and not to the spectrum block itself, and should be transferred with the licence only where both the transferor and the transferee had an LTE network as of June 5, 2019.

Opening Bids

- ISED should revert to the original price of \$0.14/MHz/pop and allow the auction process to determine the appropriate price for this spectrum.

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