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Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band, Notice No. SLPB-002-19

Reply Comments

of

SHAW COMMUNICATIONS INC.

September 20, 2019

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I. INTRODUCTION AND EXECUTIVE SUMMARY

1. The following constitute the reply comments of Shaw Communications Inc. ("Shaw"), on behalf of itself and Freedom Mobile Inc. ("Freedom" or "Freedom Mobile"), to Innovation, Science and Economic Development Canada (the "Department" or "ISED") in connection with the proceeding initiated by *Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band,* Notice No. SLPB-002-19 (the "Consultation" or "Consultation Document").

A Critical Policy Moment

2. In the context of this consultation, the Department is presented with a critical moment in Canada's mobile wireless market. Competition is intensifying, and consumers are seeing unprecedented price decreases and service rivalry. The Big 3 national wireless incumbents – Bell, Telus and Rogers – are facing intensifying market discipline from strengthening regional competitors like Freedom. As a result of Freedom's leadership on data affordability in Canada with its Big Gig plans, in the weeks surrounding this consultation's launch, each of the Big 3 was forced to follow our lead and offer its own version of "unlimited" data, permanently changing the face of Canadian wireless competition. Canadians now have access to more data, more affordable plans, and more diversity of offerings than ever before.

3. At the same time, there are fundamental risks that threaten the momentum of dynamic wireless competition in Canada and the regional new competitors that are driving it. The assumptions underlying competitive facilities-based wireless businesses are being challenged through an ongoing policy proceeding at the CRTC, which is considering the regulation of resale-based wholesale access to wireless networks.[1] Of more direct relevance to this consultation, new regional competitors like Freedom could face foreclosure by the Big 3 from critical 5G spectrum bands, including the 3500 MHz spectrum, unless ISED intervenes with a pro-competitive and pro-investment set-aside.

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[1] See Telecom Notice of Consultation CRTC 2019-57, *Review of mobile wireless services,* 15 May 2019 ("TNC 2019-57"), which provides a "preliminary view" that mobile virtual network operators (MVNO) should have regulated access to Big 3 incumbent networks.

4. This confluence of events emerges just as the world's mobile wireless ecosystems are embarking on the transition to 5G – a complex evolutionary shift that entails massive investments and access to extensive spectrum and infrastructure resources. The impact and importance of 5G have been well canvassed throughout this and other Department consultations.[2] It is clear that the full promise of 5G can only be realized if there is robust competition among facilities-based operators. The success of 5G depends on an innovative wireless connectivity market that provides choice and affordability to consumers, application developers, and the broad and changing range of participants in our digital economy, culture and society. None of that is possible without robust competitive pressure from a strong player that can contend with the Big 3.

5. The Department needs to maintain its focus on well-designed pro-competitive spectrum policies so that today's momentum can be carried through to achieve a competitive 5G environment. Reflecting the voices of many and diverse Canadians, fifteen municipal governments or associations from across Canada have submitted comments to this consultation expressing clear support for a pro-competitive set-aside of 3500 MHz spectrum.[3]

6. As discussed throughout our submissions below, in order to mitigate the risk of Big 3 foreclosure of regional competitors, Shaw has proposed a carefully crafted set-aside that would see up to 50 MHz of spectrum available for exclusive bidding by eligible new competitors, with a reduced amount in certain areas where less spectrum is available.[4] We have supplemented our set-aside proposal with an additional in-band cap of 50 MHz, in order to address distinct spectrum concentration concerns. At the same time, we have proposed suitable set-aside eligibility requirements, deployment conditions and opening bid prices that will reinforce the Department's objectives of promoting competition, network expansion and timely deployment.

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[2] Shaw, Initial Comments dated 2 August 2019, paragraph 11.
[3] Burlington*, Cambridge*, Edmonton, Leduc*, Lethbridge*, Association of Manitoba Municipalities, Moose Jaw*, Prince George*, Michael Thompson (Deputy Mayor and Councillor, Scarborough Centre)*, Selkirk, Stonewall*, Strathcona*, Victoria* and Winnipeg. Asterisked bodies explicitly called for a set-aside or a set-aside plus cap.
[4] As discussed below, this would be 40 MHz in those areas listed in Annex G of the Consultation Document where less than 80 MHz of 3500 MHz spectrum would be available in the auction, or 50% of the available spectrum in those areas not listed in Annex G of the Consultation Document where less than 80 MHz of 3500 MHz spectrum would be available in the auction.

Freedom and Other New Regional Competitors Are Changing Canada's Wireless Market

7. Freedom's belief that Canadians deserve more wireless competition is reflected in the risks we have taken. Since 2016, Freedom has invested over $3.4 billion to establish itself as a facilities-based competitor, with spectrum and network investments having transformed our 2G network into a competitive LTE-Advanced network in less than three years. In 2019, we significantly expanded the coverage of our competitive network to include millions of additional Canadians that live in a range of different communities, including larger centres, smaller towns and more remote areas.[5] Freedom has proven its ability to efficiently and rapidly deploy spectrum, when we have access to it, consistent with the Department's objectives.

8. Also consistent with the Department's objectives, Freedom's investments have translated directly into heightened market competition. Whether it's our Big Gig plans[6] or our "Absolute Zero" promotion[7], Freedom has changed the Canadian wireless market by driving the Big 3 (and their sub-brands) to provide more talk, text and high-speed data at lower prices across all market segments.[8]

9. According to the CRTC's most recent *Communications Monitoring Report*, prices for mobile packages dropped significantly from 2016 to 2018. 2018 prices for mobile services offering 150 to 450 minutes of voice service and up to 1GB of data decreased by approximately 22 per cent when compared to 2016, while prices for mobile services offering 2GB of data or more decreased by approximately 32 per cent compared to 2016.[9] The most significant drop was observed for services offering 5 gigabytes (GB) of data or more (the average monthly price for a mobile service with unlimited voice, text

[5] Victoria, Red Deer, Brockville, Belleville, Coburg, Pembroke, Cornwall, Medicine Hat, Nanaimo, Kelowna, Prince Rupert, Prince George, Kamloops, Courtenay, Campbell River, Cranbrook, Vernon and Lethbridge.
[6] Big Gig offers include unlimited LTE data starting at only $50 per month with no financial penalties or overage charges, and numerous entry-level talk, text and data plans starting at only $15 per month.
[7] "Absolute Zero" provides customers with a smartphone, such as Apple's iPhone XR or Samsung's Galaxy S10e, for free ($0 upfront, $0 extra each month and $0 extra at the end of our standard two-year commitment) when paired with our Big Gig Unlimited plans.
[8] Dr. Eric Emch (Bates White Economic Consulting) "The evolution of facilities-based competition in Canada: Recent gains and regulatory risks," 15 May 2019, report prepared for Shaw Communications Inc. ("Shaw") in Telecom Notice of Consultation CRTC 2019-57 ("Emch (May 2019)"), paragraphs 30 to 37. Also See Shaw(CRTC)5July2019- 203, Table 1, in the proceeding initiated by TNC 2019-57.
[9] CRTC, *Communications Monitoring Report 2019* at 47 and 50, Figure 2.2 – Average prices ($/month) for mobile services (urban and rural) 2016-2018.

messaging and 5 GB of data fell by as much as 35 per cent in 2018, from $78.36 in 2016 to $51.05.[10]

10. More recent data show that, in the period between November 2017, when Freedom first launched its Big Gig offerings, and July 2019, the Big 3's plans have dropped in price by almost half:[11]

    (a) The cheapest plan with at least 10 GB of data was $105 per month before Freedom introduced its Big Gig plans in November 2017. In July 2019, the Big 3 offered 10 GB plans for $75 per month. Freedom continues to offer the cheapest plan at $60 per month for 13 GB of data per month.

    (b) Prior to November 2017, plans with at least 20 GB of data were priced at $175 per month. In July 2019, each of the Big 3 offered 20 GB plans for $95 per month. Freedom continues to offer the cheapest plan at $90 per month for 28 GB of data per month.

11. This is reinforced by the Competition Bureau's review of the state of competition in the Canadian wireless industry between 2017 and 2019, which concluded that where there was a strong regional competitor, not only were prices per GB of data much lower, data usage was substantially greater.[12]

12. As a result of ISED's pro-competitive spectrum policies and the investment and relentless pressure from Freedom and other new facilities-based competitors, Canada's wireless market is finally breaking free from the static, uniform and consumer unfriendly services that have traditionally been offered by the Big 3.

13. To sum up the circumstances in Freedom's markets, as reported by one industry journalist:

> Freedom Mobile has been busy. The Shaw-owned wireless carrier has expanded its network reach in Ontario and several parts in British Columbia. Freedom is known for low-cost plans that include large amounts of data, which Canadians are pining for. Recently, Freedom's main competitors, Rogers, Bell, and Telus, have offered plans to their customers that feature "unlimited" or an "infinite" amount of data for roughly $75 CAD per month. This has spurred a level of

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10 *Ibid.*

11 See Shaw(CRTC)5July2019-211 in the proceeding initiated by TNC 2019-57; and Emch (May 2019).

12 Competition Bureau, Initial Comments dated May 15, 2019 in the proceeding initiated by TNC 2019-57, paragraphs 27-34 and paragraphs 12-26.

> wireless competition in Canada that hasn't been seen since 2008 when all the new carriers were granted a license to operate.[13]

A Set-Aside is Essential for Sustainable Competition in 5G

14. Despite the momentum and progress in Canada's mobile wireless market outlined above, the state of competition is fragile and beset by challenges. The Big 3 continue to dominate the market with 90 percent subscriber share and 92 percent revenue share (CRTC 2018). As noted by the Competition Bureau, this heightens their ability to coordinate behaviour in a way that reinforces their dominance.[14]

15. In contrast to the Big 3, the competitive regional operators are vulnerable at this stage of substantial new investment in 5G. Competitive investment is inherently riskier for new competitors. Freedom operates at half the margin and at over twice the CAPEX intensity as the Big 3.[15] Freedom is still busy trying to extend its network and has only recently secured access to sufficient low-frequency spectrum in order to do so.

16. With spectrum being an essential input for facilities-based wireless competitors, the spectrum advantages of the Big 3 translate directly into competitive market advantages. Our Initial Comments,[16] showed that the Big 3 hold or control 84 per cent of mid-band spectrum. This dominance of mid-band spectrum will only be further exacerbated pursuant to the Department's Reclamation Decision, which will enable fixed wireless licensees to convert up to 60 MHz of spectrum per serving area, case depending, for flexible use.

17. As Professor Peter Cramton observed in the White Paper submitted with our Initial Comments, "[e]ach step in technology – 2G, 3G, 4G, and 5G – requires new investment and new equipment. The steps are evolutionary, not revolutionary. With each step, users rely on the prior technologies whenever the latest technology is unavailable. Incumbent operators leverage their existing spectrum, network, and customers to

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13 Ian Hardy, "Head of Freedom Mobile says a sizable number of customers left Rogers for Freedom over the weekend," Mobilesyrup, available at https://mobilesyrup.com/2019/08/27/freedom-mobile-rogers-promo-numbers/.

14 Competition Bureau, Initial Comments dated May 15, 2019 in the proceeding initiated by TNC 2019-57, paragraphs 13-14.

15 Eric Emch, PhD (Bates White Economic Consulting), ""The evolution of facilities-based competition in Canada – Recent gains and regulatory risks", 15 May 2019, report prepared for Shaw Communications Inc. in the proceeding initiated by Telecom Notice of Consultation CRTC 2019-57, paragraphs 62-63.

16 Shaw, Initial Comments dated 2 August 2019 at 12-13/paragraphs 33 to 38.

develop a business plan for 5G."[17] Amongst other persistently high barriers to competitive investment – such as lack of access to antenna sites – the Big 3's dominance of spectrum holdings looms large. This is particularly acute in the case of the mid-band range of which 3500 MHz spectrum forms part.

18. The totality of spectrum, antenna site, retail distribution, incumbency, and other advantages enjoyed by the Big 3, coupled with the barriers that new competitors face on these same factors, coalesce to provide very strong incentives for the Big 3 to protect and extend their advantages in the 5G environment. In his Reply White Paper appended with these comments, Professor Cramton observes that this is "the market failure that set-asides mitigate by preventing foreclosure and limiting the competitive advantage of dominant incumbents. The result is enhanced competition and innovation."[18]

19. The Big 3 are alone in arguing that the Canadian market is sufficiently competitive so that pro-competitive measures like a set-aside are no longer needed. A set-aside is necessary as it is the only pro-competitive measure that addresses both the significant risk of foreclosure of the new mobile wireless competitors at the hands of the Big 3 and the significant spectrum asymmetries observed between the Big 3 and the regional mobile wireless competitors.

20. Spectrum caps may address spectrum imbalances and are useful when the primary concern is to prevent excessive concentration of spectrum holdings. However, this does not address the significant risk of new competitor foreclosure in Canada today. As with Canada's 600 MHz auction, foreclosure by dominant incumbents in the 3500 MHz auction remains the chief concern and so a set-aside is essential.[19] As evidence of the competitive and consumer-welfare enhancing benefits of the set-aside, Freedom has commissioned the attached Reply White paper by Professor Peter Cramton.

21. We note that the Big 3 have attempted to discredit set asides by mischaracterizing their impact and role in the 600 MHz spectrum auction. As we explain in detail below, the Big

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17 Cramton (July 2019) at 10.
18 Cramton (July 2019) at 10.
19 Cramton (September 2019), page 2.

3 should not blame flawed auction strategies on Departmental policy. The set-aside in Canada's 600 MHz auction did not have a distortive impact on outcomes or pricing, and this is supported with the publicly available bidding data[20] and with the attached paper prepared by Economists Incorporated.

22. In the remainder of these Reply Comments, Shaw summarises its positions and provides its comments in reply on each of the questions posed by the Department in the Consultation Document.

23. Shaw's silence on any point or argument raised by other parties to this Consultation should not be taken as acquiescence on Shaw's part where to do so would be contrary to Shaw's interests.

II. PRO-COMPETITIVE MEASURES (Q1)

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.

24. As explained in our initial comments,[21] the Department should implement pro-competitive measures in the 3500 MHz auction in order to produce a more competitive market structure in the Canadian mobile wireless market. Pro-competitive measures are needed in this auction to:

(a) First, to prevent foreclosure of the new mobile wireless operators by the Big 3;

[20] See Government of Canada, *Auction of Spectrum Licences in the 600 MHz Band,* Bidding Information, online: https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h_sf11331.html
[21] Shaw Initial Comments, dated 2 August 2019, at Section II paragraphs 22-62.

(b) Second, to correct the stark imbalance in spectrum holdings, and mid-band spectrum in particular, between the Big 3 and the new mobile wireless competitors; and

(c) Third, to ensure that none of the Big 3, singly or jointly, enjoy a head-start advantage.

25. In particular, Shaw proposes that the Department apply a spectrum set-aside of up to 50 MHz, depending on the amount of 3500 MHz spectrum available, as follows:

(a) In all areas where at least 80 MHz of spectrum is available, the Department must adopt a 50 MHz set-aside;

(b) In the areas that are listed in Annex G of the Consultation Document as large population centers where less than 80 MHz of spectrum is available, the Department must adopt a 40 MHz set-aside; and

(c) In the areas that are not listed in Annex G of the Consultation Document where less than 80 MHz of spectrum is available, the Department must set-aside 50 per cent of the available spectrum.

26. The set-aside spectrum should consist of spectrum blocks that are not encumbered by existing sub-divided or grid cell licences. Only where there are insufficient unencumbered blocks should encumbered blocks be assigned to the set-aside, and in those cases, the least encumbered blocks should go toward the set-aside.

A. Critical Need for Set-Aside (Q1A and Q1B)

27. Many different parties in this proceeding support the adoption of a spectrum set-aside in the 3500 MHz auction.[22] Additionally, as noted above, 15 municipalities or associations representing municipal interests submitted comments in response to the Consultation

[22] Eastlink Initial Comments dated 2 August 2019 paragraphs 14 and 16; SaskTel Initial Comments dated 2 August 2019 paragraphs 8 and 12; Ecotel Initial Comments dated 2 August 2019 paragraphs 15 and 17; Iristel Initial Comments dated 2 August 2019, paragraphs 8 and 9; Teksavvy Initial Comments dated 2 August 2019, paragraph 22; Shaw , Initial Comments dated 2 August 2019, paragraph 16. See also submissions by Cambridge, Leduc, Lethbridge, Moose Jaw, Prince George, Toronto, Stonewall, Strathcona and Victoria.

and these public sector bodies uniformly support the adoption of a pro-competitive set-aside or a cap in addition to a set-aside.

28. Like Shaw, proponents argue that a set-aside is needed to allow competitors to access valuable 3500 MHz spectrum for 5G services[23] and to address the concentration of spectrum "in the hands of a few players."[24] In particular, they note that there will only be a limited amount of 3500 MHz spectrum available in most service areas in the auction because incumbents, such as Inukshuk (Bell and Rogers) and Xplornet, will already hold a significant amount of the spectrum in the band.[25] .

29. In contrast, the Big 3 incumbents oppose a spectrum set-aside. The incumbents argue, among other things, that a set-aside is no longer necessary because there is a fourth competitor in each region that has the financial means to compete for spectrum in an open auction.[26] In the following sections we explain why pro-competitive measures, and in particular a set-aside, remain necessary in the 3500 MHz band and in the current Canadian context.

30. Many parties, such as SaskTel and Eastlink, share Shaw's concern that without a set-aside, the Big 3 incumbents have the ability and incentive to foreclose competitors from acquiring 3500 MHz spectrum and thereby perpetuate their market power in the 5G era.[27] A set-aside is required as it is the only means that can simultaneously address both the mid-band spectrum imbalance suffered by new facilities-based competitors and the highly elevated risk of foreclosure at the hands of the Big 3.

1. Risk of Foreclosure

31. Without a spectrum set-aside, there is a risk that the incumbents will foreclose competitors from acquiring 3500 MHz spectrum in the auction. This risk of foreclosure

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23 Eastlink, Initial Comments dated 2 August 2019, paragraph 12; SaskTel, Initial Comments dated 2 August 2019, paragraphs 9, 11 and 53; Ecotel, paragraph 12.
24 Ecotel, Initial Comments dated 2 August 2019, paragraph 12.
25 SaskTel, Initial Comments dated 2 August 2019, paragraph 53; Ecotel, Initial Comments dated 2 August 2019, paragraph 13.
26 Bell, Initial Comments dated 2 August 2019, paragraphs 3 and 5; and Rogers, Initial Comments dated 2 August 2019, paragraphs 13 and 63
27 See Shaw, Initial Comments dated 2 August 2019, paragraphs 48 to 62; SaskTel, Initial Comments dated 2 August 2019, paragraphs 5, 6, 54 and 55; Quebecor, Initial Comments dated 2 August 2019, paragraphs 2 and 16; Eastlink, Initial Comments dated 2 August 2019, paragraph 10.

arises from a combination of factors: the incumbents' dominant position, the persistently high barriers to competition in mobile wireless markets, the high capital intensity required of new facilities-based competitors,[28] and the importance and unique characteristics of 3500 MHz spectrum for 5G deployment. These factors combined provide the Big 3 with the means and incentive to foreclose competition in 5G by limiting the 3500 MHz spectrum that competitors can win in the auction.[29]

32. The incumbents' arguments that the foreclosure risk is misplaced and that the regional providers can compete for spectrum in an open auction are not credible.[30] In the Canadian context, the Big 3 have demonstrated their powerful incentives to try to shut down competition through the spectrum auction, going back to the 2008 AWS-1 auction where the new entrants won only seven (7) of the (rather insignificant) open blocks despite actively bidding to acquire the non-set aside spectrum.[31]

33. As Eastlink recounts, regional service providers have consistently attempted to acquire open blocks in successive spectrum auctions but have typically only been able to acquire the set-aside or spectrum cap protected licences.[32]

34. This experience is supported by Quebecor's insight that in the recent 600 MHz auction, all of the open blocks were acquired by the national incumbents.[33] The foregoing is consistent with the Department's view that the wireless incumbents, "likely have the means and the incentive to prevent other service providers from acquiring spectrum licences in an open auction."[34]

35. The foreclosure risk has also been explained by Professor Peter Cramton, a world-renowned expert on spectrum auctions and their dynamics. In his July 2019 report and in its September 2019 reply report prepared for Shaw in this proceeding, Professor

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28 Emch (May 2019), paragraph 62 and Figure 12.
29 Cramton (July 2019), pages 1, 3 and 4: The concern is that the dominant incumbents would inflate bids for 3500 MHz spectrum to exclude competitors.
30 Bell, Initial Comments dated 2 August 2019, paragraphs 5 and 8; and Rogers, Initial Comments dated 2 August 2019, paragraphs 13 and 63.
31 Shaw, Initial Comments dated 2 August 2019, paragraph 51; and Quebec, Initial Comments dated 2 August 2019, paragraph 14.
32 Eastlink, Initial Comments dated 2 August 2019, paragraph 11.
33 Quebecor, Initial Comments dated 2 August 2019, paragraph 14.**]**
34 SLPB-002-19, paragraph 28.

Cramton confirms that the foreclosure risk in Canada is real[35] and, therefore, "preventing foreclosure is the main challenge in Canada's 3500 MHz auction."[36]

2. Mid-Band Spectrum Concentration is a Significant Barrier to Wireless Competition

36. As noted by Professor Cramton[37] and by many parties in this Consultation, 5G networks in Canada require a mix of low-band, mid-band and high-band spectrum to deliver 5G services to Canadians. Mid-band spectrum with its large channel bandwidths, low latency, reliability and favourable wide-area propagation characteristics is considered the "sweet spot" for 5G services. 3500 MHz spectrum is considered the "beachfront property" of 5G and is one of the best bands to deploy 5G technologies.[38] It provides an optimal balance of capacity, latency, quality and coverage needed for 5G. This balance is especially important as service providers build out their 5G networks because it enables faster, more efficient and more extensive 5G deployment.

37. Mid-band spectrum in Canada is highly concentrated in the hands of the wireless incumbents. There are significant spectrum asymmetries that provide these incumbents with a dominant position and head-start in the deployment of 5G compared to competitors and risk creating permanent competitive distortions in the market, absent a set-aside.[39]

38. The Big 3 incumbents collectively possess 84 per cent of mid-band spectrum in Canada (MHz/Pop).[40] This concentration of spectrum in the hands of the Big 3 is further exacerbated by first, the Department's Reclamation Decision and second, the Bell/Telus reciprocal network access agreement, which gives each party access to the other's HSPA and LTE networks. Bell and Telus' pattern of spectrum sharing was evident in the AWS-3, 700 MHz and 600 MHz spectrum auctions.[41] Bell and Rogers will be eligible for flexible use licences in 157 of the 172 proposed Tier 4 services areas through their

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35 Cramton (July 2019), pages 3-5.
36 Cramton (September 2019), page 2.
37 Cramton (July 2019), page 4.
38 Cramton (July 2019), pages 2 and 4.
39 Cramton (September 2019), page 4.
40 Shaw, Initial Comments dated 2 August 2019, paragraph 37 and Figure 3.
41 Shaw, Initial Comments dated 2 August 2019, paragraphs 40 to 42; Rogers, Initial Comments dated 2 August 2019, paragraph 82.

interest in Inukshuk Wireless Partnership ("Inukshuk").[42] They will each have an additional 25 MHz or 30 MHz of spectrum (out of 200 MHz) as a starting point in the 3500 MHz band in the majority of service areas, including 30 MHz in all major urban areas before the auction even commences.[43]

39. There is only a limited amount of 3500 MHz spectrum available in each service area (between 30 MHz and 200 MHz). A set-aside is needed to counteract the incumbents' dominance in mid-band spectrum holdings and the commanding lead that this will give them, particularly in the early stages of 5G deployment. Notably, the Big 3 have already indicated that they plan to commence "full-fledged" 5G commercial deployment starting in 2020.[44] This spectrum advantage, if further augmented in the upcoming 3500 MHz auction, will, in turn, translate into a head start advantage in the race to 5G.

3. A Spectrum Cap Does Not address the Foreclosure Risk

40. In their initial comments, the Big 3 make proposals aimed at foreclosing competition and should be rejected. Telus and Rogers argue that set-asides are no longer the norm internationally[45] and that a well-designed spectrum cap creates an "effective set-aside"[46] that will ensure that sufficient spectrum is available for regional players.[47] Both Rogers and Telus further argue that a set-aside is unnecessary in the 3500 MHz auction because there will already be a "set aside" and "guaranteed" fourth player (i.e., Xplornet) in most service areas as a result of the Reclamation Decision.[48] In particular, Rogers argues that Xplornet's retained holdings should count towards the Department's objective of promoting regional competitors.[49] Telus, meanwhile, argues that another reason to prefer a cap over a set-aside is that it is in the same boat as the new facilities-based competitors in the 3500 MHz band and that a cap is the only way to guarantee

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42 Shaw, Initial Comments dated 2 August 2019, paragraph 73.
43 Shaw, Initial Comments dated 2 August 2019, paragraph 73. Quebecor, paragraph 16.
44 For example: Michael Lewis, "Rogers says U.S. Huawei ban won't slow down rollout of 5G network," *21 May 2019*, online: https://www.thestar.com/business/technology/2019/05/21/rogers-says-us-huawei-ban-wont-slow-it-down.html
45 Rogers, paragraph 70 and Telus, paragraph 57.
46 Telus, Initial Comments dated 2 August 2019, paragraphs 69 and 70
47 Rogers, Initial Comments dated 2 August 2019, paragraph 14; Telus, Initial Comments dated 2 August 2019, paragraph 31.
48 Telus, Initial Comments dated 2 August 2019, paragraph 81; and Rogers, Initial Comments dated 2 August 2019, paragraphs 30 and 97.
49 Rogers, Initial Comments dated 2 August 2019, paragraphs 30 and 97; and Telus, Initial Comments dated 2 August 2019, paragraph 81.

that it will have access to 3500 MHz spectrum in all areas. In reply and for the reasons discussed below, these arguments must be dismissed.

(a) Cap does not serve same purpose as a set-aside

41. As expected, the Big 3 deny that there is foreclosure risk and are motivated to argue that a spectrum cap would work just as well as a set-aside. As noted by Professor Cramton, this argument fundamentally confuses the different purposes of caps versus set-asides:

> Spectrum caps are the preferred instrument when the purpose is to prevent excessive concentration of spectrum holdings.
>
> Set-asides are preferred when the market failure is the risk of foreclosure of smaller operators by dominant incumbents.[50]

42. Assuming that only a 50 MHz cap is adopted for the 3500 MHz auction, the mobile wireless competitors, such as Freedom, Eastlink and Quebecor, will be left with insufficient 3500 MHz spectrum to provide 5G in some areas and may be completely shut out of acquiring spectrum in many other areas.

43. In particular, we note that Xplornet and other WISPs that primarily provide FWA services are eligible to retain between 20 MHz and 60 MHz of 3500 MHz of spectrum in almost all service areas as a result of the Reclamation Decision. In many areas where existing FWA licensees, such as Xplornet, retain at least 50 MHz of spectrum, the wireless competitors could be foreclosed from acquiring any spectrum if each of the Big 3 incumbents acquired spectrum up to their spectrum cap. These areas, such as Edmonton, Ottawa, Kamloops, Brockville, Kingston, Guelph/Kitchener, Peterborough, London, Brandon, Regina, Saskatoon, Red Deer, Camrose, Kelowna, Prince George, Sherbrooke, Pembroke and Fredericton, deserve strong and sustainable wireless competition. In a best case scenario, wireless competitors would be able to acquire only 30 MHz of spectrum in these areas.

44. Consistent with the foregoing, the Department must dismiss Rogers' argument that Xplornet's retained holdings should count toward ISED's objective of promoting regional

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50 Cramton (September 2019), page 2.

players. Xplornet uses fixed wireless infrastructure to provide Internet access services in rural areas. The intention of the Reclamation Decision was to allow fixed wireless providers to continue to utilize the retained spectrum to provide fixed wireless services. In contrast, the intention of a set-aside is to allow new competitors in the wireless industry to gain access to the set-aside spectrum to providing mobile wireless services that compete effectively against the Big 3. Accordingly, the set-aside in a service area should not be reduced by Xplornet's holdings.

45. Telus and Rogers' spectrum-cap only proposal does not ensure that sufficient 3500 MHz spectrum will be available for the wireless competitors in the auction. Rather, their proposal is clearly designed to *effectively foreclose* wireless competitors from accessing 3500 MHz spectrum and competing in the 5G era.

(b) Telus' situation is nothing like the new facilities-based carriers

46. Telus attempts to cast itself in the same light as new wireless competitors. These attempts are misleading and inaccurate. Telus is part of the jointly dominant Big 3 in the mobile wireless market and already holds a significant portion of mid-band spectrum even after the reclamation.[51] As shown in our initial comments, Telus will hold 26.2% of wireless mid-band spectrum after the reclamation, at least 30 MHz of which was originally gifted PCS spectrum given to Clearnet, which Telus subsequently acquired. Telus also recently gained access to more mid-band spectrum via a subordination arrangement with TerreStar.[52]

47. Additionally, as noted, Telus has an extensive network sharing arrangement with Bell that allows Telus to access Bell's share of Inukshuk's 3500 MHz spectrum. Even in the handful of service areas where Telus will allegedly be foreclosed from acquiring spectrum because of a set-aside, it will still have access to Bell's spectrum. The fact that there will be competition in some markets for non-set-aside spectrum is no reason to ignore the even greater risks faced by the new wireless competitors. Shaw has

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51 See Shaw, Initial Comments dated 2 August 2019, Figure 3.

52 ISED, *Subordination of Licences Held by TerreStar to Telus,* July 2019 <online: http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11533.html >

proposed a balanced, equitable solution, while Telus is trying to monopolize the available spectrum for itself by opposing set-asides outright.

48. There is no comparison between Telus' situation and that of the new wireless competitors. Moreover, given Telus' substantial position in the market, as noted by Professor Cramton, "it is hard to believe that Bell and Rogers would think that they could drive Telus out at a profitable price."[53]

49. Also, Telus' claim that with a spectrum set-aside, incumbents will not be able to serve Canadians beyond large population centres is clearly false. Under Shaw's set-aside proposal, all of the incumbents (including Telus) would be able to bid on between 30 MHz and 150 MHz of spectrum in each service area with a 50 MHz set-aside (i.e., in service areas where at least 80 MHz is available for auction). This includes 150 MHz in Victoria, 90 MHz in Toronto, Vancouver, Montreal, Quebec and Halifax, 70 MHz in Calgary and 40 MHz in Winnipeg, Ottawa, London and Guelph/Kitchener (subject to the proposed in-band spectrum cap).[54]

50. In the service areas without large population centers that have severe supply limitations (e.g., less than 80 MHz of spectrum available), Telus will, at a minimum, be able to bid on 50 per cent of the available spectrum in these areas. This is the same amount as the proposed set-aside.

51. The Big 3 have not raised any arguments or evidence that would alleviate both the real risk of foreclosure in the 3500 MHz band and the mid-band spectrum imbalance. A significant set-aside is needed in the 3500 MHz auction to help level the playing field between the regional operators and the Big 3, stimulating investment and innovation in 5G for the benefit of all Canadians.[55] Canada cannot wait until the release of 3800 MHz spectrum or other future bands to level the playing field in relation to spectrum holdings. If we are shut out of the initial deployment of 5G, we will lose irreparable ground to the wireless incumbents. This outcome would be a significant step back for facilities-based

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53 Cramton (September 2019), page 3.
54 See Shaw, Initial Comments dated 2 August 2019, paragraph 74.
55 Cramton (September 2019), page 6.

competition, innovation and affordability in the wireless market just as Canada enters the 5G era.

B. Incumbents Fail to Counter Compelling Arguments For a Set-aside

52. The Big 3 incumbents are opposed to a set-aside in the 3500 MHz auction that would promote greater competition for 5G services. The incumbents claim, among other things, that: (i) set-asides will delay 5G deployment; (ii) set-asides distort the auction process and harm consumers. As discussed in the preceding section, the incumbents' real motive for opposing set-asides is to foreclose the prospect of strong, self-sustaining, facilities-based competition in the mobile wireless sector, and in particular, to foreclose competition in the coming era of 5G. We nevertheless respond to their arguments below.

1. A Set-aside in 3500 MHz Will Not delay 5G Deployment

53. In their submissions, the Big 3 incumbents and Bell and Telus in particular, falsely claim that a set-aside will delay the deployment of 5G networks and deprive Canadians of access to good quality 5G services[56] and that they should be given the spectrum advantage in 5G because they know how to use the spectrum.

54. These arguments should be seen for what they are – an argument for the *status quo,* for an auction that merely tracks current market share and an argument to extend their dominance for the next 40 years. Professor Cramton rejects these arguments as false:

> The Big 3 argue that spectrum holdings should track current market shares. This argument is false. First, it presumes that the market is mature, and shares of the smaller operators should remain small, rather than increase to produce a more competitive market structure. Second, the argument ignores the reality that small facilities-based operators require at least some minimum of low-band (e.g., 600 MHz) and mid-band (e.g., 3500 MHz) spectrum to provide coverage and capacity to support 5G services. This is true of all operators, but the Big 3 easily satisfy these minimums. The Big 3, with high market shares, can more economically expand capacity with cell density, rather than incremental spectrum. For regional operators, greater cell density is not an economic option until market shares increase. Thus, we should expect

[56] Bell, Initial Comments dated 2 August 2019, paragraph 10; and Rogers, Initial Comments dated 2 August 2019, paragraph 16.

> smaller operators to require a larger share of low- and mid-band spectrum relative to their market shares than the dominant incumbents.[57]

2. Consumers and the Digital Economy will be the Principal Beneficiaries of the Set-Aside

55. The incumbents allege that spectrum set-asides drive up spectrum costs by reducing the supply of spectrum,[58] particularly for ineligible bidders, thereby distorting prices paid by the latter[59] and ultimately, harming consumers.[60]

56. By way of reply, Shaw notes that the Big 3's arguments have no basis in theory or in fact. Professor Cramton states that "the causal connection between higher spectrum prices and higher consumer prices is at best difficult to establish" and "the set-aside encourages competition from regional operators and this enhanced competition reduces prices…".[61] In other words, the real driver of consumer prices is the degree of competition in the market for mobile communications.

57. In addition, the incumbents' claims that set-aside eligible bidders raise costs for set-aside ineligible bidders are incorrect. Indeed, as explained in the White Paper[62] prepared by Economists Incorporated that we have filed with these reply comments, the Big 3 have mischaracterized the results of the 600 MHz auction in a number of ways.

58. For example, an analysis of the 600 MHz auction shows that the allocation phase winnings of Rogers (more than 86 percent) and Telus (nearly 95 percent) were due to counterfactual bids from other incumbents and ISED. The price that Rogers and Telus paid was determined entirely by the other incumbents and ISED rather than the set-aside eligible bidders.[63]

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57 Cramton (September 2019), page 4.
58 Bell, Initial Comments dated 2 August 2019, paragraph 20; Rogers, Initial Comments dated 2 August 2019, paragraphs 56, 58 and 61; and Telus, Initial Comments dated 2 August 2019, paragraphs 35 and 52.
59 Bell, Initial Comments dated 2 August 2019, paragraph 19; Rogers, Initial Comments dated 2 August 2019, paragraphs 67 and 68; and Telus, Initial Comments dated 2 August 2019, paragraph 52.
60 Bell, Initial Comments dated 2 August 2019, paragraphs ES7 and 19; and Rogers, Initial Comments dated 2 August 2019, paragraphs 56, 61 and 68.
61 Cramton, September 2019, page 2.
62 Economists Incorporated, "Canada 3.5 GHz Auction: Responses to Comments on the Effects of the Set-Aside on Pricing in the 600 MHz Auction", September 20, 2019 ("Economists Incorporated (September 2019)").
63 Economists Incorporated (September 2019), pages 3 to 5.

59. Moreover, to the extent that a set-aside eligible bidder did price Rogers or Telus, the set-aside eligible bidder also priced other set-aside eligible bidders. For example, Novus bid $60,304,000 for a single block of spectrum in British Columbia. This bid shows up in counterfactuals for Shaw (Freedom) and Rogers. Similarly, the only significant amount of pricing power conveyed by set-aside eligible bidders to Telus (above the reserve price) was $49.8 million from Shaw and Videotron combined. This pricing came from bids for 3 blocks in Manitoba (Shaw) and 2 blocks in Eastern Ontario (Videotron). Notably, this same Shaw bid appears in the price calculation for Xplornet, and the Videotron bid appears in Shaw's pricing calculation.[64]

60. Insofar as incumbents' claims refer to set-aside eligible bidders driving up clock prices rather than final prices paid, they ignore the fact that many of these clocks would have increased solely due to bids from incumbents, even without any bids from set-aside eligible bidders. Furthermore, the only way in which higher clock prices in a CCA impact the final price paid is through the ability of bidders to submit bids that show up in each others' counterfactuals (via the GARP rule). However, as established above, the incumbents largely drove up each other's prices.[65]

61. The incumbents also claim that set-asides are taxpayer-funded subsidies.[66] Bell alleges that new entrants have been given more than $5 billion in "spectrum subsidies" through spectrum set-asides since the AWS-1 auction, including $2.7 billion in the AWS-3 auction and $1 billion in the 600 MHz auction.[67] Rogers alleges that regional carriers received between $560.6 million and $2.51 billion in total subsidies in the AWS-3 auction because of the set-aside.[68]

62. While mischaracterizing a spectrum set-aside as a subsidy may be politically expedient, it is economically invalid. Measuring auction revenue under the counterfactual of no set-aside rule would require both demand schedule and bidding strategy information for all bidders. However, the impossibility of performing a correct analysis does not stop

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64 Economists Incorporated (September 2019), pages 4 and 5.
65 Economists Incorporated (September 2019), page 5.
66 Telus, Initial Comments dated 2 August 2019, paragraphs 24 and 48; Bell, Initial Comments dated 2 August 2019, paragraphs ES10, 12, 24, 25 and 33; and Rogers, Initial Comments dated 2 August 2019, paragraphs 63 and 66.
67 Bell, Initial Comments dated 2 August 2019, paragraphs 22 to 24.
68 Rogers, Initial Comments dated 2 August 2019, paragraph 66 and Table 4.

Rogers and Bell from engaging in the fraught exercise of using the price paid by open bidders in the 600 MHz auction to calculate the "subsidy" for set-aside bidders.[69] This is entirely invalid because all prices would be different without the set-aside rule. Therefore, it is not surprising that Rogers and Bell have calculated different "subsidy" amounts.

63. The incumbents continue to ignore the purpose and intent of a set-aside, which is to promote competition in the wireless market.[70] Set-asides are adopted to ensure that there is strong competition and sufficient choice in the wireless marketplace by addressing the risk of foreclosure. The incumbents' claims about set-asides do not take into account the economic and consumer benefits of stronger competition in the market facilitated by set-asides. In particular, Professor Cramton notes that strong competition from set-aside spectrum winners can further generate downward price pressure.[71]

64. The capital-intensive investments made by new facilities-based competitors like Shaw are beginning to drive real and durable change in the Canadian mobile marketplace. The course set by the Government in the AWS-1, AWS-3 and 600 MHz auctions is unquestionably correct. Including a set-aside as part of the 3500 MHz spectrum auction will result in a highly competitive auction process for valuable mid-band spectrum for 5G that is in high demand. This will provide Canadians with significant benefits in the form of better prices for more valuable services.

C. Amount of Set-Aside Must Ensure Sustainable Competition

65. The objective of the set-aside in the 3500 MHz auction is to correct the current mid-band spectrum imbalance of the new facilities-based competitors relative to the Big 3 and to enable new facilities-based competitors to drive competitive market outcomes from the inception of 5G in Canada.

66. In order to be effective in achieving these two objectives, the set-aside must be meaningful. Even though the incumbents will continue to hold a significant advantage in

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69 See Rogers par. 13: Rogers claims "a $634M subsidy as a result of the set-aside in the 600 MHz auction." See also Bell par. ES10: Bell claims "a subsidy of over $1 billion dollars to set-aside eligible bidders."

70 See Bell, Initial Comments dated 2 August 2019, paragraph 25 and Telus, Initial Comments dated 2 August 2019, paragraphs 52 and 88.

71 Cramton (September 2019), page 2.

mid-band spectrum holdings after the 3500 MHz auction, it offers the wireless competitors an opportunity to acquire valuable mid-band spectrum for 5G. The amount of the set-aside must ensure that competitors have the mid-band spectrum they need to make competitive 5G network deployment.

67. Our proposal for up to 50 MHz set-aside (where available), while considerably smaller than the set-aside in the 2008 AWS-1 auction (40 per cent), the 2015 AWS-3 auction (65 per cent) and the recent 600 MHz auction (43 per cent),[72] is supported by many different parties[73] and will provide wireless competitors with the mid-band spectrum they need so that they do not fall behind in the race to 5G.

68. The parties also proposed various different ways to address the uneven amount of spectrum available for auction in each service area as a result of the Reclamation Decision. Generally, in areas where there is less spectrum available for auction than the set-aside amount, Quebecor, Eastlink and Cogeco recommend that the set-aside equal the amount of spectrum available.[74] For example, in areas where there is only 40 MHz of spectrum available, the entire 40 MHz would be set-aside spectrum. We would support this approach.

1. Proposals to Weaken Competition Must be Dismissed

69. Cogeco, and in a similar vein, Ecotel[75] and Iristel,[76] propose to impose a 30 MHz set-aside cap to limit the amount of spectrum that a set-aside eligible bidder can acquire within the set-aside[77] or to otherwise limit the amount of the set-aside to a percentage of the available spectrum in all service areas. By way of reply, these proposals should be dismissed as they would be ineffective in supporting true and sustainable facilities-based competition.

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72 See Quebecor, Initial Comments dated 2 August 2019, paragraph 25; and Shaw, Initial Comments dated 2 August 2019, paragraph 71.

73 Quebecor, Initial Comments dated 2 August 2019, paragraph 24; SaskTel, Initial Comments dated 2 August 2019, paragraph 12. Cogeco and Eastlink propose even higher amounts - 60 MHz and 100 MHz respectively. See Cogeco, Initial Comments dated 2 August 2019, paragraph 68 and Eastlink, Initial Comments dated 2 August 2019, paragraph 14.

74 Cogeco, Initial Comments dated 2 August 2019, paragraph 68; Quebecor, Initial Comments dated 2 August 2019, paragraph 24; and Eastlink, Initial Comments dated 2 August 2019, paragraph 14.

75 Ecotel, Initial Comments dated 2 August 2019, paragraph 17.

76 Iristel, Initial Comments dated 2 August 2019, paragraph 9.

77 Cogeco, Initial Comments dated 2 August 2019, paragraphs 80 and 82.

70. Under these proposals, the set-aside amount would be insufficient to build-out a competitive 5G network and compete effectively in 5G with the wireless incumbents. The set-aside must, to the extent possible, provide competitors with sufficient mid-band spectrum to deploy 5G services, which in Shaw's submission is 50 MHz in each service area. 30 MHz or 40 MHz is insufficient to sustainably compete in 5G with the wireless incumbents, which enjoy a considerable spectrum advantage. If the proposals of Cogeco Ecotel and Iristel are adopted, the Big 3 will face weak competition from wireless competitors, undermining the purpose of a set-aside. In the words of Professor Cramton, "this makes no sense":

> Competition is apt to be best served in many markets with a strong regional operator to discipline the Big 3. In markets that can support multiple regional operators, then the clock auction allows and encourages multiple winners of the set-aside spectrum. Given the limited quantity of 3500 MHz spectrum, mandatory splitting of the set-aside would fragment the mid-band spectrum too much. The important distinction is that the Big 3 are dominant in the wireless market. None of the regional operators are dominant in the wireless market.[78]

71. Given that the 3500 MHz auction will be assigned on a Tier 4 basis and juxtaposed against Cogeco's submissions before the Canadian Radio-television and Telecommunications Commission advocating for mandated MVNO access, it is clear that Cogeco is less interested in building out competitive mobile wireless infrastructure and more interested in resale-based competition. The policy and licensing framework determinations of the spectrum regulator, whose mandate is to maximise the benefits that Canadians derive from the spectrum resource, should not be guided by parties who are only marginally interested in deploying network infrastructure using the resource. Cogeco's proposals are, at root, inconsistent with the Department's objectives for commercial mobile wireless spectrum – maximum promotion of innovation and investment, competition and deployment, and must, therefore, be rejected.

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78 Cramton (September 2019), page 5.

2. Proposal to encumber set-aside blocks must be dismissed

72. Finally, Shaw continues to support the Department's intention that the set-aside spectrum consist of spectrum blocks that are not encumbered by existing sub-divided or grid cell licences.[79] Only where there are insufficient unencumbered blocks should encumbered blocks be assigned to the set-aside, and in those cases, the least encumbered blocks should go toward the set-aside.[80]

73. We note that Telus opposes this proposal and argues that unencumbered spectrum should not be dedicated first to the set-aside because regional providers will likely delay deploying the unencumbered spectrum in areas outside of large population centers (Calgary, Ottawa and Quebec City).[81] Telus also claims that if the incumbents are forced to buy encumbered blocks, they would never be able to serve Canadians in areas beyond the large population centers (because the encumbrances are located outside of the urban core).[82]

74. Telus' opposition rests on an incorrect presumption about competitors' deployment intentions and should be dismissed. Shaw has demonstrated and delivered on its commitment to expand coverage in areas outside of urban centers even while simultaneously facing major transformative investments from 2G to LTE-Advanced. As noted previously, in early 2019 we launched services in Victoria, Prince George, Cranbrook, Kelowna, Lethbridge, Red Deer, Brockville, Belleville, Cobourg, Pembroke, Cornwall, Medicine Hat and Nanaimo, and in the Summer we further expanded our network footprint in Alberta and British Columbia by launching service in non-urban areas such as Kamloops, Prince Rupert, Vernon, Penticton, Courtenay-Comox and Campbell River.

D. Spectrum Cap to Protect Against Spectrum Concentration

75. In addition to the spectrum set-aside, Shaw proposes that the Department apply an in-band spectrum cap of 50 MHz in all Tier 4 service areas.[83] As observed by Professor

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79 SLPB-002-19, Annex C, paragraph 4.
80 Shaw, Initial Comments dated 2 August 2019, paragraph 66.
81 Telus, Initial Comments dated 2 August 2019, paragraph 136.
82 Telus, Initial Comments dated 2 August 2019, paragraph 137.
83 See section III (pages 19-25/paragraphs 63-106) of Shaw's Initial Comments in this Consultation.

Cramton, in contrast with a cap within the set-aside, a "spectrum cap for the entire 3500 MHz spectrum is pro-competitive as it limits excessive concentration of the 3500 MHz spectrum into the hands of dominant incumbents."[84]

76. Almost all industry participants in the proceeding, with the exception of Bell and Xplornet, also support the adoption of spectrum caps, in part to address the risk of foreclosure. Our proposed 50 MHz cap is consistent with the amounts recommended by the proponents of a spectrum cap, including Ecotel (40 MHz),[85] SaskTel (50 MHz)[86], Teksavvy (50 MHz)[87] and Cogeco (50 -60 MHz)[88]. With a 50 MHz cap, the Big 3 incumbents will still be able to acquire 3500 MHz spectrum. According to Cogeco, Rogers and Bell would only be restricted from bidding in 5 Tier 4 service areas out of 172 and Telus only in Edmonton. These are areas where the incumbents already possess a minimum of 50 MHz of spectrum.[89]

77. A 50 MHz cap balances the need for licensees to have sufficient capacity to provide high bandwidth services to subscribers and the need to avoid undue spectrum concentration.[90] This is particularly important considering that there are incumbent licensees in 3500 MHz band like Bell and Rogers and that the Reclamation Decision allows all incumbent FWA licensees to reclaim large amounts of spectrum for flexible use.

1. Assessment of Cap for FWA Incumbents Must take into Account their FWA Spectrum

78. In this regard, Shaw submits that the auction framework must be clear in relation to the assessment of the cap in the case of the spectrum held by fixed wireless incumbents:

84 Cramton (September 2019), page 5.
85 Ecotel, Initial Comments dated 2 August 2019, paragraph 14.
86 SaskTel, Initial Comments dated 2 August 2019, paragraph 9.
87 Teksavvy, Initial Comments dated 2 August 2019, paragraph 22.
88 Cogeco, Initial Comments dated 2 August 2019, paragraph 66.
89 Cogeco, Initial Comments dated 2 August 2019, paragraph 62.
90 SaskTel, Initial Comments dated 2 August 2019, paragraph 9.

(a) As a general matter, any 3500 MHz in-band spectrum cap must take into account any spectrum reclaimed and converted to flexible use licences. This rule should be expressly spelled out; and

(b) Bell and Rogers should not be allowed to acquire or have access to 3500 MHz spectrum in excess of any applicable spectrum cap.

79. In relation to Bell and Rogers, it has been pointed out that a potential gap arises from the fact that under the rules as proposed, [91] subordinate licences do not count towards a spectrum cap. This means that if an existing fixed wireless provider exercises the option to convert its fixed wireless holdings to flexible use licences, it could subordinate some or all of these licences post-auction, in which case under the rules as proposed, none of the subordinated spectrum would count for spectrum cap purposes.[92]

80. While the Department appears to have assumed that Bell and Rogers, through Inukshuk Partnership, would exercise the option of dividing up and transferring individual fixed wireless licences as between the partners (as per the precedent in the 2500 MHz band), Shaw is concerned about the ramifications should Bell and Rogers decide to allow Inukshuk to continue to hold and convert the fixed wireless licences to flexible use in Inukshuk's hands, in which case, Inukshuk could subordinate the flexible use licences to Bell and Rogers.

81. Shaw submits that Bell and Rogers should not be allowed to acquire or have access to 3500 MHz spectrum in excess of any applicable spectrum cap. To address this situation, Shaw submits that the proposal at paragraph 158 of SLPB-002-19 should not apply to 3500 MHz spectrum licences held by Inukshuk and subordinated to Bell and Rogers.

2. Special cap for Bell and Telus

82. The persistent coordination between two of the Big 3 dominant providers, Bell and Telus, through their comprehensive reciprocal access agreement, further underscores the need

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91 SLPB-002-19, paragraph 158.
92 Cogeco, paragraph 224.

for pro-competitive measures. Shaw was not alone[93] in pointing out that Bell and Telus will likely pool any 3500 MHz spectrum following the auction and that absent a spectrum cap, these two incumbents will have an insurmountable spectrum advantage. In particular, they could potentially have double the amount of 3500 MHz spectrum as the next largest network, with a speed and capacity advantage that no other operator could match.[94]

83. Shaw is therefore supportive of the suggestion that Bell and Telus should be limited to a total of 80 MHz of 3500 MHz spectrum as between them in any given geographic area for at least 10 years following the issuance of flexible use licences.[95]

E. Eligibility for Set-Aside (Q1C AND Q1E)

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.

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

1. Eligibility for Set-Aside Should Advance Department's Deployment Objectives

84. As noted above, 3500 MHz spectrum is critical mid-band spectrum for 5G services. The set-aside eligibility rules must be designed to promote the efficient use of 3500 MHz

93 Rogers, Initial Comments dated 2 August 2019, paragraphs 184-85.
94 Rogers, Initial Comments dated 2 August 2019, paragraph 21.
95 Rogers, Initial Comments dated 2 August 2019, paragraph 187. Ecotel, Initial Comments dated 2 August 2019, paragraph 56: Ecotel pointed out that given that Inukshuk owns about 75 per cent MHZ/pop of the 3500 MHz band, any in-band spectrum cap must take the Inukshuk spectrum reclaimed by Bell and Rogers into account.

spectrum by carriers that are committed to investing in competitive wireless facilities while preventing speculative bidding and non-viable new entry.

85. Consistent with section IV (pages 25-28/paragraphs 87-95) of Shaw's Initial Comments, Shaw supports limiting the eligibility to bid on set-aside spectrum to licensees of commercial mobile terrestrial spectrum that are:

(a) Not a national mobile service provider ("NMSP") (*i.e.*, any entity with more than 10 per cent of national wireless subscriber market share);

(b) Registered with the CRTC as a facilities-based carrier;

(c) Actively providing commercial telecommunications service to the public in the relevant Tier 2 licence, using access facilities that the person or entity, or its affiliates, owns and operates; and

(d) Actively providing commercial wireless services to the public somewhere in Canada using RAN facilities that are owned and operated by the entity in question.

86. The last criterion is being proposed by Shaw in addition to the three other criteria in order to ensure that entities that have already demonstrated their capacity and commitment to competitive mobile wireless deployment and are therefore best positioned to challenge the dominance of the Big 3, gain access to the spectrum.

87. Shaw's proposed set-aside eligibility criteria will ensure that:

(a) wireless carriers that are bidding on set-aside spectrum in a region have demonstrated a capacity and commitment to making the intensive capital outlays required to compete effectively against the Big 3;

(b) set-aside spectrum in the 3500 MHz band is used to provide more capacity for mobile broadband services and support the deployment of 5G networks; and

(c) there is sufficient competition for the set-aside spectrum.

2. Proposals to unduly narrow set-aside eligibility should be rejected

88. Some other parties in this proceeding have recommended that the Department narrow its eligibility criteria for the set-aside.[96] However, Shaw believes that a number of these proposals should be rejected.

89. Teksavvy proposes that the Department prevent existing regional mobile wireless competitors, like Videotron, Eastlink and Freedom, from being eligible to bid on set-aside spectrum.[97] Teksavvy's proposal will prevent these regional mobile wireless competitors, who are driving real, sustainable competition, from bidding on the set-aside spectrum in favour of those that have not shown the same commitment to investing in wireless and competing with the Big 3 incumbents.

90. With respect, they demonstrate a lack of understanding of what it takes to compete, now and into the future, in mobile wireless markets. Apart from the entirely self-serving nature of these submissions and the fact that they appear to be driven by purely private interests, these proposals are fundamentally misguided. They fail to acknowledge the fact that spectrum is a public resource that must be assigned to maximise the benefits that Canadians derive from the resource and ignore the purpose of a 3500 MHz set-aside – namely, to ensure that Canadians can look forward to a competitive market structure in the era of 5G. We have demonstrated our ability to compete with the incumbents and inject much-needed competition in the markets in which we operate. Teksavvy's proposal will not promote a more competitive marketplace and should therefore be rejected.

91. In addition, both Cogeco and Bell submit that set-aside eligible bidders must be actively providing commercial telecommunications service in the Tier 4 areas in which the entity wishes to bid as a set-aside eligible entity, not the Tier 2 service area.[98] In our opinion, this proposal will restrict competition for set-aside spectrum in the auction. It would also prevent mobile wireless competitors that are expanding their networks from acquiring the

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96 Eastlink, Initial Comments dated 2 August 2019, paragraph XX; Bell, Initial Comments dated 2 August 2019, paragraphs 35 and 38; Cogeco, Initial Comments dated 2 August 2019, paragraph 99; Teksavvy, Initial Comments dated 2 August 2019, paragraph 26; Xplornet, Initial Comments dated 2 August 2019, paragraphs 80 and 81.

97 Teksavvy, Initial Comments dated 2 August 2019, paragraph 26.

98 Cogeco, Initial Comments dated 2 August 2019, paragraph 99; and Bell, Initial Comments dated 2 August 2019, paragraph 38.

mid-band spectrum they need to enter new markets and bring competition to more communities.

3. It Makes No Sense to Expand Set-Aside Eligibility to Include the Big 3

92. Shaw does not support the various proposals to unreasonably broaden the eligibility criteria. In particular, we do not support Telus' opposition to the blanket restriction on NMSPs.[99] Removing this criteria would defeat the purpose of the set-aside.

93. Shaw supports the Department's proposal that the eligibility of affiliated entities, partnerships[100] or of bidders participating jointly[101] will be determined jointly. This means that the eligibility of the venture, partnership or affiliation is based on the shared qualifications of its members. However, should any of the members be a national mobile wireless service provider, then the venture, partnership or affiliation as a whole will be disqualified. As discussed in our response to Q10 and Q11 below, we disagree with Cogeco's suggestion[102] that the Department should "revisit" these rules as they relate to the assessment of set-aside eligibility.

F. Non-Transferability of Set-Aside Licences (Q1D)

If a set-aside is to be applied:

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.

99 Telus, Initial Comments dated 2 August 2019, paragraph 105.

100 SLPB-002-19, paragraph 40: A bidder may be eligible to qualify as a set-aside-eligible bidder based on the eligibility of its affiliated entities or on the eligibility of the partners who control the bidder where the bidder is a partnership.

101 SLPB-002-19, paragraph 117: In the case of a bidding consortium, "the eligibility rules would apply jointly in each licence area. For example, if a set-aside is applied, in the cases where any 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."

102 Cogeco, Initial Comments dated 2 August 2019, paragraph 243.

94. As outlined in our initial comments, Shaw agrees with the limits on transferability of set-aside spectrum for the first five years.

95. Shaw does not agree with the proposal from Cogeco that if ISED does not permit switch or "all-or-nothing" bid option, then the restrictions on post-auction licence transfer and divisibility (SLPB-002-19, para. 167) on set-aside spectrum should be relaxed.[103]

96. This and any other suggestions for the relaxation of the prohibition of transfers of set-aside licences must be rejected. One of the main purposes of these transfer rules is to prevent speculative bidding to ensure that scarce spectrum resources are put to use in a way that maximizes the benefit to Canadians. Read together with its submissions in the CRTC's Wireless Review proceeding, it is clear that Cogeco's proposals are driven by speculation. Cogeco is seeking a cheap win with minimal investment and without having to face the challenges that new competitors face. Moreover, Cogeco fails to explain how its self-serving proposals would deliver any benefit to Canadians.

G. Grid-Cell and Sub-Divided Licences Are Counted Towards Spectrum Cap (Q1F)

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.

97. For the reasons set out in our initial comments, Shaw proposes that encumbered blocks should count toward the spectrum cap if it is at least 90 per cent clear. Our proposal is consistent with many of the other industry participants in the proceeding. This includes Quebecor, which states that if a cap is used, any 'lightly encumbered blocks' should be

103 Cogeco, paragraphs 183-85.

included in the cap. This also includes Cogeco,[104] Eastlink,[105] Ecotel,[106] Teksavvy,[107] Telus,[108] and Rogers.[109]

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

H. Tier 4 Licence Areas Are the Smallest Tiers that Should Be Used (Q2)

98. Consistent with the view of a majority of the parties in this Consultation, Shaw submits that the Department should use, at a minimum, Tier 4 licences areas.

99. While a small minority of parties advocated for the use of Tier 5 licence areas, these parties diverged considerably in their proposals.[110] These proposals are driven by their proponents' individual business plans and therefore lack policy justification and should be rejected. Tier 5 licensing would exponentially increase the complexity of a clock auction.

I. Inclusion of Encumbered and Partial Tiers (Q3A to Q3D)

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

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.

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104 Cogeco, paragraph 58.
105 Eastlink, paragraph 22.
106 Ecotel, paragraph 28.
107 Teksavvy, paragraph 29.
108 Telus, paragraph 111.
109 Rogers, paragraph 110.
110 For example, Cogeco insisted on the use of Tier 5 licensing in the three largest urban centres: Cogeco, paragraph 211; See also Ecotel, Initial Comments dated 2 August 2019, paragraph XX; BCBA, Initial Comments dated 2 August 2019, paragraph 32

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

100. As stated in our initial comments, Shaw supports the proposals in Q3A to Q3D.

J. Bundling of Encumbered Blocks (Q3E and Q3F)

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. […] 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.

101. Shaw understands that Q3E and Q3F relate solely to encumbered areas in Napanee, Estevan, Weyburn, Swift Current, Yorkton, Watrous, Lloydminster, Squamish/Whistler, and Nunavut, as per paragraph 58 of the Consultation Document.

102. In its Initial Comments, Shaw sought clarification of the number of blocks to be bundled in each of the identified service areas.[111] Shaw further submits that bundling should be subject to the following rules:

(a) Any decision to bundle encumbered blocks into units larger than 10 MHz should depend on the quantity of unencumbered spectrum in the area in question. If unencumbered spectrum is scarce in a particular service area, bundling encumbered spectrum into blocks that are too large could harm competition;

(b) Bundling should not override the goal of contiguous spectrum assignments. ISED should ensure that blocks purchased at auction are assigned in a manner that maximises contiguous blocks. It is not clear from the Consultation Document how

111 Shaw, Initial Comments dated 2 August 2019, paragraph 141.

bundling would affect the contiguity of auctioned blocks. This should be clarified to ensure that bundling does not negatively affect the contiguity of auction allocations.

103. Regarding Q3F, Shaw does not agree that the bundled encumbered blocks should not count toward the spectrum cap. There are areas with encumbered spectrum (*e.g.* Kamloops, Calgary), where the spectrum is largely unencumbered. Shaw proposes that encumbered blocks should count toward the spectrum cap if it is at least 90 per cent clear.

III. PRODUCT AND BIDDING RULES (Q4-Q5)

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.

A. Generic Licences (Q4A)

104. Regarding Q4A, Shaw generally supports the approach of using generic licences, subject to clarification of the following:

(a) How ISED proposes to define “significantly different levels of encumbrance”;

(b) Whether there could be more than one block supplied for a given level of encumbrance in a given service area.

B. Categorisation of Blocks Won by Set-Aside Eligible Bidders as Set-Aside Blocks (Q4B)

105. Regarding Q4B, Shaw agrees with the Department’s proposal to categorise blocks won by set-aside eligible bidders as set-aside blocks. This is consistent with ISED’s successful implementation of set-asides in the AWS-1 and 600 MHz auctions.

C. Separate Categories for Encumbered and Unencumbered Blocks (Q4C and Q4D)

106. Regarding Q4C, Shaw agrees with the proposal to create separate categories for encumbered and unencumbered blocks, as well as open and set-aside blocks. Consistent with Shaw's submissions in relation to the set-aside, the set-aside spectrum should, to the extent feasible, consist of spectrum blocks that are not encumbered by existing sub-divided or grid cell licences and only where there is insufficient unencumbered blocks should encumbered blocks be assigned to the set-aside. In the latter instance, the least encumbered blocks should be categorised as set-aside.

107. Regarding Q4D, Shaw agrees that there should be separate categories for unencumbered and encumbered blocks.

D. Use of Anonymous Bidding Is Appropriate (Q5)

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

108. Shaw supports the use of anonymous bidding and the Department's original proposal to provide only the combined open and set-aside aggregate demand information.

109. Shaw notes that Rogers expressed concern about aggregation risk and proposed to mitigate this risk by incorporating a requirement that ISED "provide aggregate demand information for each product (open and set-aside), as well as aggregate information for the entire service area."[112] The risk of providing more detailed information is that bidders could use this information for anti-competitive means. Incumbents could use it to "divide up" the auction supply without competing as vigorously as they would otherwise, thereby suppressing auction revenue. Alternatively, incumbents could use additional aggregate demand information to determine when set-aside bidders are bidding in excess of the set-aside in a particular geography and decide to bid more aggressively for the sole purpose of keeping set-aside bidders from getting more spectrum. To this point, ISED must understand that set-aside eligible bidders have essentially been unable to compete with the three large incumbents, which inevitably win everything that is not protected by

112 Rogers, Initial Comments dated 2 August 2019, paragraph 134.

pro-competitive measures. Therefore, Rogers' proposal for aggregate information per service area should be rejected.

IV. AUCTION FORMAT

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

110. As set out in our initial comments, Shaw supports the use of a uniform price clock auction format. While a vast majority of parties also support the auction format, some parties proposed modifications, which we respond to below. Our responses below focus primarily on responding to other parties' unnecessary and complex proposed changes.

A. Proposed Modifications to Activity Rule Should Not Be Adopted

111. Among those parties that supported the use of a clock auction format, certain parties recommended changes to the methodology for calculating eligibility within each clock round. For example, Bell proposed that a bidder's eligibility in a given round be calculated using the larger of its processed activity level in the previous round and its requested activity level in the previous round.[113]

112. Bell's proposal is misguided. An intelligent bidder would use this rule to undermine auction competition and price discovery. Specifically, under such a rule, a bidder could submit add requests that it knew with certainty could not be processed and that would allow it to avoid eligibility point reductions. This would allow the bidder to violate the activity rule in proportion to its initial eligibility in the auction. Therefore, large nationwide bidders could avoid bidding on some large to mid-sized markets until very late in the auction when competition has all but subsided. This would give larger bidders an unfair advantage and would harm competition and price discovery in the auction. Therefore, Shaw strongly recommends that ISED reject this proposal.

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[113] Bell, Initial Comments dated 2 August 2019, paragraphs 67-68. For example Bell states that: *"Bidder's activity should be set equal to eligibility points associated with its processed demand or eligibility points associated with its requested demand, whichever is larger"*

113. Cogeco proposed that the activity rule should gradually increase, starting at 70% and increased to 100% by the end of the auction.[114] Shaw notes that a 70-80 per cent activity rule is more appropriate for an SMRA format, because provisionally winning bids of the SMRA result in less flexibility than generic clock auction bid processing. Activity rules that are too permissive hinder price discovery and increase the likelihood of strategic bidding. The 95 per cent activity rule proposed by ISED has worked well in other countries and is the standard for the uniform price clock auction format with separate product categories and/or geographic licensing. Shaw recommends ISED reject this proposal to use a 70 to 80 percent activity rule to start the auction.

114. Cogeco also proposed that bidders be allowed to sit out up to three rounds of the auction without losing eligibility. Shaw notes that activity rule waivers are generally not used in uniform price clock auctions like the one ISED proposed because they unnecessarily undermine price discovery. Cogeco provides the following example: “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.” Such a waiver would clearly allow a bidder to place a major drop that it knew could not be fully processed but that would confuse the market as to whether a major bidder was exiting the auction or simply applying a waiver. Furthermore, given the characteristics of the 3500 MHz band and the tier 4 service areas, the strong geographic synergies that could justify Cogeco’s proposed waivers are not present. And where there are strong geographic synergies, a CCA with package bidding or a uniform price clock auction with larger geographic licenses would be a superior way to accommodate the expression of these synergies. As it stands, the potential synergies in this auction are only those associated with getting a sufficient number of blocks in a given service area. Protecting those synergies, if deemed absolutely necessary to auction efficiency, would be more appropriately served by relaxing the “no excess supply” constraint to allow for very limited amounts of excess supply. Therefore, Shaw strongly recommends that ISED reject this proposal to allow waivers.

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114 Cogeco, Initial Comments dated 2 August 2019, paragraph 187,

B. Withdrawal Proposal Should Not Be Adopted

115. Cogeco asked that bidders have the option to withdraw in up to three rounds of the auction, provided that the withdrawals do not have the effect of stopping the entire auction. A penalty representing the difference between the price at which it withdrew and the price of the actual final clock round (if lower) would be paid by the withdrawing bidder.[115]

116. Shaw does not support an SMRA-like withdrawal option, as Cogeco proposes. Shaw believes that bidders will not need as much flexibility as Cogeco's proposed withdrawals provide, because if there are synergies in this auction, they are limited to avoiding insufficient spectrum quantities in a given service area. Therefore, ISED may consider a more limited "withdrawal" rule, targeted at alleviating the risk that partially processed drop requests could leave bidders with insufficient spectrum quantities. To this end, the rule could allow a reduction of demand to be processed such that a small amount of excess supply—say, 10 MHz—is allowable. ISED, however, has already stated that it believes that the minimum optimal block size in this band is 10 MHz. Therefore, unless there is convincing evidence that 10 MHz is too small, such a rule would unnecessarily complicate the auction for both ISED and participants.

C. Permission to Place Switch Bids, All-or-Nothing Bids Should Not Be Adopted

117. Bell proposed that bidders have the option of designating individual bids for a given product in a given round as well as overall bids for multiple products in multiple areas at a given price point as "all-or-nothing."[116] Cogeco also proposed that the Department allow bidders to designate bids as all-or-nothing[117] and that parties be permitted to 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.[118]

118. Shaw notes that the all-or-nothing bid type was allowed in the FCC's 600 MHz Incentive Auction. However, it was not used to any significant degree, even though the smallest block size, 2x5 MHz, was considered suboptimal for LTE. As a result, the FCC decided

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115 Cogeco, Initial Comments dated 2 August 2019, paragraphs 195-200
116 Bell, Initial Comments dated 2 August 2019, paragraphs 69-74.
117 Cogeco, Initial Comments dated 2 August 2019, paragraphs 172-180.
118 Cogeco, Initial Comments dated 2 August 2019, paragraphs 168-171.

to drop these types of bids from the recent uniform price clock auction in the 24 GHz band.

119. Shaw further submits that switch bids would only be possible between products in the same service area. This would mean that a bidder could switch between unencumbered blocks and any encumbered blocks that appeared as a separate product category. However, under ISED's proposed rules, encumbered blocks will not have the same number of eligibility points as unencumbered blocks. In this regard, Cogeco's proposal for switch bids is incomplete, because it does not specify how eligibility-point differences would be handled. Even assuming that this question could be resolved in a way that does not provide opportunity for gaming, it is still Shaw's opinion that switch bids are unnecessary.

120. Furthermore, Cogeco asked that "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."[119] As set out in our response to Q1D, one of the main purposes of these transfer rules is to prevent speculative bidding to ensure that scarce spectrum resources are put to use in a way that maximizes the benefit to Canadians. Relaxing the transferability and divisibility conditions will encourage speculation and would run contrary to the objective of maximizing the benefits derived from spectrum and the intent of the auction rules aimed at discouraging speculation.

121. Bell also proposed that the Department allow optional overall "all-or-nothing" bids. Shaw submits that this proposal is unnecessary and is more consistent with the spirit of a CCA auction rather than the simpler uniform price clock auction design proposed by ISED. Furthermore, Bell fails to clarify how bid processing would take place in the event that multiple bidders submitted such bids. With only two bidders, A and B submitting such overall all-or-nothing bids, it is unclear what a bid queue would look like. If the price point on A's bid were lower than the price point on B's bid, and both cannot be processed

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119 Cogeco, Initial Comments dated 2 August 2019, paragraphs 183-85.

together, does ISED then attempt to process B's bid with A's hold bid? This clearly becomes exponentially more complicated with more than two bidders. Shaw strongly recommends that ISED reject this proposal. Given ISED's decision to use tier 4 licensing, this proposal from Bell could not reasonably be incorporated into ISED's proposed clock auction design.

D. Shaw's Comments Regarding the Proposal to Adopt an Extended Round

122. Cogeco proposed that the clock auction format include an "Extended Round, which would be one round after the clock rounds end."[120] Shaw notes that the primary utility of this proposal is to address the possibility that Cogeco's other proposals, a spectrum cap of 30 MHz within the set-aside and the withdrawal rule, could create excess supply. As discussed above, Shaw rejects the idea of a spectrum cap within the set-aside. Without that particular spectrum cap, something like an extended round could still be useful to clean up excess supply in the event that ISED either adopts a limited withdrawal rule or relaxes the "no excess supply" rule. However, ISED should only consider a withdrawal rule if the extended round prohibits bidders from acquiring blocks from which they previously withdrew. Without this prohibition, withdrawals could potentially be used to signal, which is counter to auction efficiency. Moreover, any such extended round should occur prior to the assignment round so that all spectrum acquired can be assigned contiguously.

V. STRUCTURE OF THE CLOCK STAGE AND CALCULATION OF PROCESSED DEMANDS AND POSTED PRICES (Q7)

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.

123. Shaw supports the Department's proposals concerning the proposed structure of the clock stage and the proposed methodology for calculating processed demands and posted prices after each clock round, as described in Annex C of the Consultation Document.

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120 Cogeco, Initial Comments dated 2 August 2019, paragraphs 201-206

124. Shaw notes that some parties have proposed to eliminate intra-round bidding. Shaw has reviewed these submissions and for the reasons set out below, submits that there is no cause to revise the clock stage rules in Annex C.

A. Proposal to Eliminate Intra-Round Bidding Should Not Be Adopted

125. Iristel[121] and Teksavvy[122] asked that the Department eliminate intra-round bidding because this greatly complicates the auction and "disproportionately disadvantages smaller organizations who do not necessarily have a team of economists and game theory specialists at their disposal." This proposal should be rejected. Intra-round bidding is a crucial element of the uniform-price clock auction design. It allows bidders to accurately express their demand while also allowing the auction to progress at a reasonable pace. It presents no significant complexity burden, as bidders are always free to bid at the clock prices themselves if they choose.

126. Telus stated that while it believed that the use of intra-round bidding could support an efficient auction outcome, it was concerned about the fact that ISED linked intra-round bidding with the use of large bid increments. Telus opposed the use of large bid increments and elaborated on this concern in its response to Q.8. Shaw supports the Department's proposed increments. They encourage a reasonable auction pace while still allowing for full bid expression through intra-round bidding.

VI. BID INCREMENTS (Q8)

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

127. Shaw generally agrees with the Department's proposed approach, with one modification to reduce the potential distortive effect of large bid increments on smaller licences as described below.

128. Rogers proposed a price increment rounding rule depending on population levels to reduce bid inflation in the case of smaller licences.[123] By rounding new clock prices to the

121 Iristel, Initial Comments dated 2 August 2019, paragraph 30.
122 Teksavvy, Initial Comments dated 2 August 2019, paragraphs 59-71.
123 Rogers, Initial Comments dated 2 August 2019, paragraphs 148-156.

nearest $1,000, inexpensive licences, *e.g.*, 4-163 Golden ($3,000 opening bid price), will experience disproportionate increases through the early rounds of the auction. To reduce such distortions, Rogers proposes rounding to the nearest $100. Shaw agrees with Rogers's proposed rule change.

129. Shaw agrees with Telus' comment that in using its discretion to determine price increments, ISED should strike a balance between auction progress and price discovery.[124] For this, increments in the range of 5-10% are the norm, both within Canada and internationally. In particular, increments greater than 10% are very seldom used in the uniform-price clock auction or any other spectrum auction design.

VII. ASSIGNMENT STAGE (Q9)

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.

A. Eliminate Proposal to Present "Fake" Bid Options to Bidders during Assignment Rounds

130. The Consultation Document proposes to:

(a) conduct a separate assignment round for each of the eight (8) most populated service areas sequentially, in descending order of population.

(b) wherever possible, create assignment areas that consist of a combination of two or more continuous service areas.

(c) create assignment sessions for six areas at one time after the completion of the first eight assignment rounds.

131. While Shaw generally agrees with the Department's proposed approach, as noted in our Initial Comments[125] and like several other parties, Shaw disagrees with the presentation of assignment bid options that do not represent feasible assignments. As such, Shaw

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124 Telus, Initial Comments dated 2 August 2019, paragraphs 162-165.
125 Shaw, Initial Comments dated 2 August 2019, paragraph 152.

proposes that the Department eliminate the proposal to present bidders with infeasible bid options.

B. No Priority Access to Desirable Higher Frequencies Should Be Given

132. Rogers correctly recognizes that there may be a premium on assignments adjacent to the 3800 MHz band. It would indeed be valuable for bidders to combine their 3500 MHz winnings with whatever they might win in a future auction of the 3800 MHz band. However, Rogers' proposal to deal with this situation is flawed.

133. Rogers proposed that individual bidders and joint networks that acquire no more than 60 MHz be given higher priority to the desirable higher frequencies in the assignment stage in order to "make it easier for them to catch up with networks with access to larger combined holdings, who have less need to aggregate spectrum later."[126] Rogers further submitted that in the event that the Department does not adopt Rogers' proposal to adopt a joint network spectrum cap, then network sharers should be prohibited from access to large amounts of spectrum from the top of the 3500 MHz band. The way to deal with this problem, according to Rogers, was to simply require that national operators give an undertaking prior to the auction not to combine spectrum subsequent to the auction.[127]

134. Teksavvy submitted that open bidders should not be included with set aside bidders in the assignment round, particularly in the event that ISED does not accept Teksavvy's proposal to create separate products for unencumbered blocks overlapping LTE band 42 and LTE band 43 as per its answer to Q4.A.[128] In this case, Teksavvy proposed that the Department give priority to small regional operators in the upper portion of the 3500 MHz band.

135. By way of reply, Shaw submits that ISED should not engage in picking toehold positions for some bidders over others. Instead, the Department should commit to a complete defragmentation of both bands after the 3800 MHz auction, ensuring that all licensees

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126 Rogers, Initial Comments dated 2 August 2019, paragraph 40
127 Rogers, Initial Comments dated 2 August 2019, paragraphs 157-178.
128 Teksavvy, Initial Comments dated 2 August 2019, paragraphs 75-76.

have contiguous holdings across both bands. This is the simplest and most efficient way to address the 3800 MHz option value.[129]

C. Parties' Other Proposals Should Be Rejected

136. Shaw notes that several other parties proposed a number of modifications to the Department's Q9A proposals:

(a) Bell and Videotron opposed the Department's proposal to create assignment sessions for six areas at one time after the completion of the first eight assignment rounds:

(i) Bell proposed that the Department conduct a separate assignment round for each service area (subject to the creation of assignment areas) and that the rounds proceed sequentially in descending order of population.[130]

(ii) Videotron asked for the elimination of the simultaneous assignment round until the 20 most populous areas have been assigned. Videotron cited the inherently distortive effects of a bidder's preference for a package in one territory being susceptible to being blocked by a bidder's preference for a package in a different territory.[131]

(b) Cogeco proposed that the first three assignment rounds be reserved to the assignment of the largest Tier 5 service area in Toronto, Montreal, and Vancouver first.[132]

(c) Cogeco further proposed that in each of these first three assignment rounds, if there are adjacent Tier 5 service areas that are contiguous with and within the same Tier 4 service area and satisfy the other constraints of the assignment phase as set out in paragraph 5 of Annex E of SLPB-002-19, then these additional Tier 5 service areas would be added to the assignment area in question. Telus similarly

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129 Indeed, Rogers mentions a defragmentation in a brief parenthetical after making the other proposal: see Rogers, Initial Comments dated 2 August 2019, paragraph 40.
130 Bell, Initial Comments dated 2 August 2019, paragraph 77.
131 Quebecor, Initial Comments dated 2 August 2019, paragraph 64.
132 Cogeco, Initial Comments dated 2 August 2019, paragraph 211.

proposed that ISED take geographic self-contiguity into consideration in the assignment round on the principle that variation in frequency assignments across service areas should be minimised using an unbiased optimisation algorithm.[133]

(d) Cogeco proposed a detailed sequencing of the remaining assignment rounds on a Tier 4 basis.[134]

137. Shaw submits that these additional proposals are unnecessary. They would add additional complexity to the auction without enhancing auction integrity, fairness or efficiency.

D. Nearest Vickrey Appropriate for Determining Assignment Prices.

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.

138. As noted in our initial comments, Shaw endorses the use of the "nearest Vickrey" approach in determining assignment prices.

VIII. BIDDER PARTICIPATION RULES: AFFILIATED AND ASSOCIATED ENTITIES (Q10-Q11)

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

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

1. Shaw believes that the bidder participation rules are critically important to ensure the integrity of the auction. We do not oppose the clarifications to the rules set out in the Consultation Document. However, we reiterate our position set out in our initial comments that it remains unclear as to whether the auction rules are complete in ensuring the integrity of the set-aside. Specifically, Shaw is concerned about the possibility of an incumbent using set-aside eligible entities as vehicles to gain access to

133 Telus, Initial Comments dated 2 August 2019, paragraphs 168-181.
134 Cogeco, Initial Comments dated 2 August 2019, paragraphs 213-214.

set-aside spectrum and influence the outcome of the auction by preventing Shaw and other strong new competitors from gaining access to this spectrum.

2. With respect to other parties' comments on the proposed 3500 MHz bidder participation rules,[135] we note that the Bell-Rogers Inukshuk partnership was the main focus. In addition, Cogeco suggested, without being specific, that the Department should revisit its approach to the anti-collusion rules, implying that they should be relaxed. Shaw addresses the parties' submission in relation to these two items below.

A. Any Arrangements relating to 3500 MHz Spectrum Should Trigger Departmental Review

3. Rogers argued that fixed use licensees who do not apply to bid in the auction should not be considered a bidder or potential bidder in the auction on grounds that included that Rogers and Bell, through Inukshuk Partnership, should not have to publicly divulge who holds or will hold flexible licences at the time of the auction.[136]

4. Rogers' position and arguments are antithetical to transparency and auction integrity. Not only should they be completely rejected, they highlight the need to further tighten the rules so that Rogers and Bell cannot indirectly undermine the transparency and fairness of the auction.

5. The proposed definition of an association is limited to arrangements pertaining to "the spectrum licences being auctioned in this process."[137] The definition of an association should be modified to specify that an association arises where parties have entered into any arrangement pertaining to "any spectrum in the 3500 MHz band." The rules should be modified to require that any and all arrangements relating to the 3500 MHz band (including arrangements or agreements pertaining to post-auction transfers, subordination or transactions of any kind) would have to be disclosed and reviewed by the Department in advance of the auction.

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135 See Cogeco, Ecotel, Iristel, and Rogers, Initial Comments dated 2 August 2019, respectively.
136 Rogers, Initial Comments dated 2 August 2019, paragraph 183.
137 Cogeco, Initial Comments dated 2 August 2019, paragraph 222.

B. Anti-Collusion Rules Should be Maintained

6. Cogeco requests that the Department "revisit its approach" of restricting discussions towards a potential association prior to the auction without being specific as to exactly how it wanted the rules to be modified.[138]

7. Shaw fundamentally disagrees with the intent behind Cogeco's submissions. In Shaw's view, the anti-collusion and communication rules are essential to preserving auction integrity and should be maintained. Parties should not be free to discuss prohibited topics with impunity as this would irretrievably damage the transparency and fairness of the auction process.

IX. CONDITIONS OF LICENCE FOR NEW FLEXIBLE USE SPECTRUM LICENCES IN THE 3500 MHZ BAND (Q12-Q15)

A. 20-Year Licence Terms (Q12)

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.

8. Shaw supports the Department's proposals in relation to Q12.

B. Transferability and Divisibility of Licences (Q13)

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

9. Shaw supports the Department's proposals in relation to Q13.

C. Deployment Conditions (Q14)

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

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138 Cogeco, Initial Comments dated 2 August 2019, paragraphs 236-243.

10. Shaw supports the proposed general deployment obligations set out in Annex F of the Consultation Document.

1. Additional deployment conditions for LTE Operators not appropriate

11. Consistent with Shaw's initial comments,[139] there is widespread opposition to the Department's proposal to adopt additional requirements for licensees that currently operate a mobile LTE network.[140] For example, Rogers[141], Quebecor[142] and SaskTel[143] note that current LTE networks have been deployed using low-band spectrum, which has more favourable propagation characteristics. Meeting the same coverage with 3500 MHz spectrum would result in massive costs and delay the roll-out of 5G, particularly in rural areas.

12. The additional requirements will especially harm new competitors like Shaw who are in the process of investing billions of dollars to expand and build network infrastructure. The new requirements will upend our investment strategy and put us at a significant disadvantage in meeting the deployment requirements compared to the Big 3, who have had a decades-long start in building-out their networks in rural areas. The costs of meeting the additional deployment obligations would be so prohibitive for Quebecor that it has indicated that it may have to refrain from purchasing spectrum in the 3500 MHz in certain service areas.[144] As Professor Cramton explains, the wireless competitors currently have a much higher intensity of capital investment relative to revenues than the Big 3, which would need to increase to even more significant levels to meet the additional deployment requirements.[145]

13. We recognize that the intent behind the Department's proposal is to promote timely rural deployment. However, licensees already have an incentive to deploy 5G as fast as possible. We agree with Eastlink that the factors that would likely delay the timely

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139 Shaw, Initial Comments dated 2 August 2019, Section V.

140 See Bell, Initial Comments dated 2 August 2019, paragraph 89; Rogers, Initial Comments dated 2 August 2019, paragraph 200; Quebecor, Initial Comments dated 2 August 2019, paragraph 71; Eastlink, Initial Comments dated 2 August 2019, paragraph 40; SaskTel, Initial Comments dated 2 August 2019, paragraph 34.

141 Rogers, Initial Comments dated 2 August 2019, paragraph 202;

142 Quebecor, Initial Comments dated 2 August 2019, paragraphs 71 and 73.

143 SaskTel, Initial Comments dated 2 August 2019, paragraph 34.

144 Quebecor, Initial Comments dated 2 August 2019, paragraph 76.

145 Cramton (July 2019), page 9.

deployment of 5G would be outside of our control (e.g., equipment ecosystem or inability to access infrastructure on time). It would therefore be unduly punitive for the Department to burden licensees with the additional deployment requirements.

14. For similar reasons, we do not support Telus' proposal that the Department require licensees to meet the Year 20 target in Year 12 and add 25 per cent to the new Year 12 target.[146] Telus' various proposals to accelerate deployment requirements are aimed at putting disproportionate pressure on competitors that are still in the process of building out their networks.

2. No incumbent head start

15. Shaw reiterates that in order to ensure a competitive 5G environment, existing licensees should not be given a head-start advantage in any form. In keeping with the submissions found at Section VII of our Initial Comments in this Consultation, Shaw reiterates that in large urban population centres,

(a) The protection period cannot be longer than six months in urban areas from the date of issuance of flexible use licences to either an existing licensee or a new licensee.

(b) As soon as flexible use licences have been issued to either the existing licensee or to the competitor, the protection period for that existing licensee must begin to run.

(c) In the alternative, where the existing licensees cannot demonstrate continued service to subscribers that it had on June 8, 2018, the existing licensees should not be entitled to protection and notification periods. Just as existing licensees are required to transition only when its continued operations in a specific area would constrain deployment by a new licensee, new licensees should be required to notify and protect only where its new operations would constrain an existing licensee.

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146 Telus, Initial Comments dated 2 August 2019, paragraphs 193 to 195.

3. Deployment deadlines should be based on expiration of protection periods

16. In its Initial Comments (page 36/paragraphs 127-130), Shaw submitted that regardless of the level of deployment obligations adopted in the licensing framework, where the entry of a competitive new licensee has been delayed due to the application of notification and protection measures, the deployment timelines should be extended to take account of the delayed implementation and in-service dates arising from the transition process.

17. We agree with Bell and SaskTel that the timeframe for all deployment requirements should be based on the expiration of the protection periods for Tier 4 service areas and not based on the initial licence issuance. Like Shaw, SaskTel notes that operators cannot begin to deploy in most Tier 4 service areas until two or three years after licence issuance because of the protection period for incumbent licensees.

18. Shaw urges the Department to adopt Shaw's proposal to extend the deadlines for meeting the deployment obligations as a function of actual in-service dates.

4. Payment obligations should also flow from when the spectrum is usable

19. Bell proposed that final payments of 80 per cent of winning bids not be due until 30 days after the spectrum is put in service. While the wording of Bell's proposal was not restricted to situations in which a protection period in the transition plan applied, Bell justified this proposal on such grounds. At a minimum, Bell proposed that final payment of 80 per cent of winning bids not be due until 31 January 2021 or 30 business days following the announcement of provisional licence winners.

20. Shaw agrees that given the particularities of 3500 MHz spectrum, the final payments representing 80 per cent of the winning bid amounts should not be due until 30 days after the spectrum is put in service.

D. Annex H Conditions of Licence (Q15)

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

1. R&D condition should be removed

21. In our Initial Comments, Shaw recommended that the Department remove the proposed Research and Development (R&D) condition of licence in Annex H of the Consultation Document and all other mobile wireless spectrum licences.

22. Both Bell and Rogers also propose removing the R&D requirement.[147] However, we do not support Bell's alternative proposal to significantly lower the threshold for the R&D expenditure requirement (Licensees with less than $1 billion in annual gross operating revenues from wireless services in Canada, averaged over the term of the licence, are exempt from the R&D expenditure requirement).[148] Bell's proposal is designed to harm emerging competitors and competition. The Department expressly increased the revenue threshold in 2014 to $1 billion because the department recognized that the R&D condition placed an administrative and financial burden on small and medium-sized licensees.[149]

2. Mandatory roaming remains essential

23. We disagree with Bell and Telus' proposals to remove and/or revise the mandatory roaming condition of licence, including Telus' proposal to eliminate the requirement to provide in-footprint roaming. We share Rogers' view that mandatory roaming remains essential.[150] The mandatory roaming condition of licence is an important part of the Department's policy of promoting facilities-based competition. Facilities-based competitors like Shaw require roaming as we expand and build-out our networks.

24. In particular, we do not support Bell and Telus' proposal to limit mandatory roaming to existing network technologies and not future 5G networks.[151] There is no legitimate basis to distinguish between different wireless technologies and carve-out 5G from the mandatory roaming condition. Their proposal is designed to give them a competitive

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147 Bell, Initial Comments dated 2 August 2019, paragraph ES32; and Rogers, Initial Comments dated 2 August 2019, paragraph 207.
148 Bell, Initial Comments dated 2 August 2019, paragraph 100.
149 The Department, *Decisions on Conditions of Licence Regarding Research and Development and Learning Plans,* 19 February 2014, paragraphs 14, 17 and 19.
150 Rogers, Initial Comments dated 2 August 2019, paragraph 213.
151 Bell, Initial Comments dated 2 August 2019, paragraph 115; and Telus, Initial Comments dated 2 August 2019, paragraphs 210 and 211.

edge in 5G and limit competition, which is precisely the type of behaviour that the mandatory roaming condition protects against.

X. AMENDING THE CONDITIONS OF LICENCE FOR ALL CURRENT FIXED WIRELESS ACCESS LICENCES (Q16)

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.

25. Shaw supports the Department's proposals in relation to Q16.

XI. OPENING BIDS AND ELIGIBILITY POINTS (Q17-Q18)

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

A. Opening Bid Amounts Should be Reduced (Q17)

26. In our Initial Comments,[152] we demonstrated how the proposed national average opening bid price for all unencumbered blocks in all Tier 4 service areas ($0.147/MHz-pop) is higher than the final prices paid in many international jurisdictions that have recently auctioned mid-band 5G spectrum. In a similar vein, Quebecor and Telus pointed out that the Department's proposed opening bid prices exceed nearly all global comparators (national average opening bid and end prices for 5G 3 GHz spectrum) since 2017.[153]

27. Unreasonably high spectrum costs add to the financial and other risks involved in deploying a 5G network. The more we expend on critical 3500 mid-band spectrum resources due to high prices leaves us with less capital to fund 5G network deployment.

28. Accordingly and consistent with the views of several interested parties in this Consultation, the Department should reduce its proposed opening bid price of $0.232 per MHz-pop in service areas with populations over $2 million to the range of $0.17.

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152 See section VI (pages 31-32/paragraphs 107-113) of our Initial Comments in this Consultation.

153 Telus, Initial Comments dated 2 August 2019, paragraph 229; and Quebecor, Initial Comments dated 2 August 2019, paragraph 86.

This is similar to Quebecor's proposal to reduce the opening bid price and is in line with the opening bid prices in mid-band 2500 MHz spectrum and with the prices paid globally.[154]

B. Eligibility Points Should Be Smoothed in 18 Most Populated Markets (Q18)

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.

29. As set out in our initial comments, the eligibility point structure that ISED has proposed is too dramatically weighted toward just three licence areas. The consequence of this eligibility point structure is that even if ISED implements a high initial activity rule (between 90 and 95 percent, for example), bidders will have an incentive to park insincere demand in the top markets for the added flexibility it affords. This will likely result in a highly sequential auction, harming price discovery and efficiency.

30. To reduce the degree of sequential bidding, we reiterate the proposal set out in our initial comments[155] that ISED smooth eligibility points by population within the 18 most populated markets (the first decile of market areas). ISED's proposal allocates 8,190 eligibility points to the 18 most populated markets. That is, in markets that comprise a total of 69.3 percent of the population of Canada, ISED is assigning 87.8 percent of the eligibility points, which is entirely appropriate. Therefore, Shaw suggests that ISED simply smooth these 8,190 bid points based on population within the 18 most populated markets. The resulting eligibility point structure would be as follows:

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154 Quebecor, Initial Comments dated 2 August 2019, paragraph 89.
155 Shaw, Initial Comments dated 2 August 2019, pages 48-49/paragraphs 171-174.

Table – Proposed Eligibility Points Within 18 Most Populated Markets

Area Rank	*Name*	*ISED Bid Points*	*Proposed Points*
1	Toronto	3,260	2,370
2	Montréal	2,020	1,470
3	Vancouver	1,270	920
4	Ottawa/Outaouais	290	490
5	Calgary	280	480
6	Edmonton	270	450
7	Québec	120	310
8	Winnipeg	110	280
9	Guelph/Kitchener	90	240
10	London/Woodstock/St.Thomas	90	230
11	Victoria	60	160
12	Halifax	60	150
13	Windsor/Leamington	50	140
14	Kelowna	50	130
15	Barrie	50	120
16	Niagara-St.Catharines	50	110
17	Saskatoon	40	90
18	Trois-Rivières	30	50

XII. LICENCE RENEWAL PROCESS (Q19)

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

31. Shaw supports the Department’s renewal process as proposed at Q19.

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