

**Innovation, Science and
Economic Development Canada**

Spectrum Management and Telecommunications

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Notice No. SLPB-002-19

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

Comments

of

Xplornet Communications Inc.

August 2, 2019

EXECUTIVE SUMMARY

1. Xplornet Communications Inc. (“Xplornet”) welcomes the opportunity to provide its comments with respect to the *Consultation on a Licensing and Policy Framework for Spectrum in the 3500 MHz Band* (“Consultation”) currently being undertaken by Innovation, Science and Economic Development Canada (“ISED”).
2. In designing the auction framework to allocate spectrum in the 3500 MHz Band (“3500 MHz spectrum”), ISED is tasked with ensuring that the auction will promote the objective of the Spectrum Policy Framework for Canada¹ (“Spectrum Policy Framework”). Specifically, ISED must ensure that the auction will allocate 3500 MHz spectrum in a manner that maximizes the economic and social benefits that Canadians derive from the spectrum. The enabling guidelines set out in the Spectrum Policy Framework are designed to assist ISED in achieving this objective.
3. Following the directions of the enabling guidelines, we submit that ISED’s design for the present auction should consider the following themes:
 - The auction should address and balance the interests of **all** Canadians in new 5G services;
 - The auction should promote technological innovation in rural and urban areas; and
 - The auction should be inclusive in order to promote the competition needed to maximize the above goals.
4. In the present comments, we have provided input to ISED to assist it in fostering these themes.
5. There is a pressing and immediate need for 3500 MHz to serve Canadian consumers in both rural and urban environments. Both rural and urban Canadians

¹ DGTP-001-07, *Spectrum Policy Framework for Canada*.

need access to this spectrum in order to take advantage of technological innovation and change. ISED is faced with the challenge of balancing these needs to ensure that all Canadians can derive immediate benefits from 3500 MHz spectrum.

6. In balancing these interests, ISED should focus on addressing the most immediate needs of rural and urban Canadians in the present auction. ISED has announced that it intends to release significantly more mid-band spectrum (namely spectrum in the 3700-4200 MHz band) in three years time. This spectrum can be used to address the future needs for rural and urban providers.
7. As we describe in this submission, while the immediate needs of rural and urban Canadians are not the same – rural Canadians require immediate access to spectrum to support the delivery of advanced broadband services, whereas in large urban centres 3500 MHz will drive mobile developments – these needs are real and significant. The present auction should ensure that spectrum is allocated in a balanced and fair way to benefit all Canadians.
8. By balancing urban and rural priorities, and ensuring that the auction is inclusive of all parties who are investing to serve Canadians – including rural, urban, new entrant and national providers – ISED can drive technological innovation and advance the objective of the Spectrum Policy Framework for Canadians.
9. In this submission, we discuss certain measures that we believe will effectively balance urban and rural priorities to achieve these goals. Indeed, the application of a set-aside and the avoidance of a spectrum cap will be essential to meeting these objectives.
10. We additionally provide recommendations concerning unique interference management considerations that arise as part of the present auction. In order to mitigate these risks, we recommend that spectrum blocks encumbered by existing partial-tier licences should not be auctioned as part of ISED's proposed process.

11. Within this submission, we have equally provided responses to the specific questions set out by ISED in the Consultation. To the extent we have not addressed specific questions at the present time, we reserve our right to further address these matters in our reply comments.

FURTHERING THE OBJECTIVE OF CANADA'S SPECTRUM POLICY FRAMEWORK

12. The Spectrum Policy Framework sets out a core objective that requires ISED to manage spectrum in order “[t]o maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum resource.” The design of the present auction must further this objective.

13. The Spectrum Policy Framework sets out a number of enabling guidelines that are designed to assist ISED in achieving the above objective. We submit that the following enabling guidelines are particularly relevant to the present auction process and provide helpful instruction to ISED as it designs an auction framework:

- “(a) Market forces should be relied upon to the maximum extent feasible;
- (b) Notwithstanding (a), spectrum should be made available for a range of services that are in the public interest;
- (d) Regulatory measures, where required should be minimally intrusive, efficient and effective;
- (f) Spectrum management practices, including licensing methods, should minimize administrative burden and be responsive to changing technology and market place demands; and
- (h) Spectrum policy and management should support the efficient functioning of markets by:

...

- Making spectrum available for use in a timely fashion;

...

- Ensuring that appropriate interference protection measures are in place.”² [Emphasis added]

14. An auction process inherently enables guideline (a). By allocating spectrum through an auction, ISED is relying on market forces to act as the primary driving force behind spectrum allocation.

15. However, market forces alone cannot ensure the objective of the Spectrum Policy Framework is met. The enabling guidelines tell us that market forces must be tempered through regulatory measures designed to ensure spectrum is made available to support a range of services that serve the public interest. The auction design must also ensure that spectrum is allocated to respond to changing technology and market place demands. We would submit that those market place demands are different in urban and rural areas.

16. Following the directions of the enabling guidelines, we submit that ISED’s design for the present auction should consider the following themes:

- The auction should address and balance the interests of **all** Canadians in new 5G services;
- The auction should promote technological innovation in rural and urban areas; and
- The auction should be inclusive in order to promote the competition needed to maximize the above goals.

17. Furthermore, the auction should be designed in an efficient manner that minimizes the administrative burden on participating parties. It must also consider any unique interference measures that are required.

² Spectrum Policy Framework, page 9.

18. Before responding to the specific questions set out in the Consultation, below are some overarching views on these central themes.

An auction that balances the interests of all Canadians in 5G services

19. The 3500 MHz spectrum is in high demand. As a valuable mid-band frequency, this spectrum offers propagation characteristics that enable it to support the advanced telecommunications services that Canadians rely on today, as well as the innovative new services of tomorrow, such as 5G technology. This is true – although with unique contextual considerations and applications – for Canadians in both rural and urban areas of the country. All Canadians are poised to benefit from 5G technology through the allocation of 3500 MHz spectrum.

There is a critical need for 3500 MHz spectrum to support rural Internet connectivity

20. In rural areas of the country, there is significant and immediate demand for 3500 MHz spectrum to support high-speed Internet connectivity. The 3500 MHz spectrum has historically been deployed to support this purpose; however, rural wireless providers are now facing extreme shortages of spectrum. Indeed, no spectrum allocations have been made to support rural wireless for more than five years. This is despite the fact that residential Internet use has increased by nearly 500%³ over that same period.
21. In light of these pressures, wireless service providers are struggling to meet their customers' needs and are hindered in their ability to deploy new services in anticipation of their future needs. Indeed, supported by necessary spectrum, rural 5G deployments have the potential to revolutionize rural connectivity, providing fibre-like speeds.
22. This lack of spectrum has recently been exacerbated by spectrum policy decisions. In 2014, as part of DGSO-007-14, *Decision Regarding Policy Changes in the 3500*

³ According to the CRTC's 2013 Communications Monitoring Report, average residential monthly Internet usage was 33.8 GB in 2012. See page 143. According to the CRTC's 2018 Communications Monitoring Report, average residential monthly Internet usage in 2017 was 166 GB. See Infographic 4.10.

MHz Band (3475-3650 MHz) and a New Licensing Process (the “2014 Decision”), ISED determined that 3500 MHz spectrum would undergo a fundamental reallocation to become flexible use spectrum to support mobile wireless services in addition to fixed services.

23. In SLPB-001-19, *Decision on Revisions to the 3500 MHz Band to Accommodate Flexible Use and Preliminary Decisions on Changes to the 3800 MHz Band* (the “2019 Decision”), ISED determined that wireless service providers who are actively using 3500 MHz spectrum to serve customers would be required to return portions of this spectrum to be auctioned through the present process.
24. As a result of the above, demand for 3500 MHz spectrum for rural Canadians is at an all-time high. Without access to 3500 MHz spectrum, the broadband gap will continue to grow and rural Canadians will be left further behind.
25. Accordingly, in designing the present auction framework, ISED faces the challenge of creating a level playing field for rural broadband providers who require 3500 MHz spectrum to serve rural Canadians.

5G network deployments in large urban centres require 3500 MHz spectrum

26. While 3500 MHz is a critical input for rural broadband, there is also an immediate need for 3500 MHz spectrum to support technological innovation, particularly in large urban centres. As noted by ISED:

“Spectrum releases in Canada are designed to align with international market developments and the continual evolution of wireless technologies around the world. By ensuring that the spectrum being made available reflects global trends, emerging 5G standards are the equipment ecosystem that is expected to materialize in the coming years, Canada positions itself to benefit from the next generation of smartphones and other advanced wireless devices.”⁴

⁴ 2019 Decision, paragraph 15.

...

ISED recognizes that the 3500 MHz band is one of the key bands for the development of 5G networks in many countries. It is expected that this band will be one of the first bands in which 5G technologies will be launched in Canada.”⁵

27. ISED has further noted that “5G mobile services will first be deployed in large urban population centres”⁶. Consistent with this view, ISED has developed a transition plan to move current licensees off of 3500 MHz spectrum that prioritizes redistribution of this spectrum in urban centres. While a six-month transition period has been provided for spectrum to serve large urban centres, current licensees will not be required to vacate their 3500 MHz spectrum for a period of two to three years outside of large urban population centres.⁷ Large urban centres face an immediate and pressing need for 3500 MHz spectrum.

28. In its auction framework, ISED must balance the immediate needs for 3500 MHz to serve Canadians in rural and large urban areas.

An auction that promotes technological innovation in both rural and urban areas

29. By effectively balancing the interests of both rural and urban Canadians, ISED will equally promote technological innovation in all areas of the country.

30. As noted above, the 5G wireless networks that 3500 MHz spectrum will support are poised to revolutionize Canada’s telecommunications landscape. As stated by ISED in the Consultation:

“Beyond initial improvements to the speed and capacity of mobile broadband networks and services, 5G technologies are expected to

⁵ 2019 Decision, paragraph 115.

⁶ 2019 Decision, paragraph 140.

⁷ 2019 Decision, Decision D13.

transform services across all sectors of the economy including manufacturing, healthcare and transport.”⁸

31. While there is no question that 5G deployments will foster significant innovation in urban environments, the release of 3500 MHz will equally transform the rural telecommunications environment.
32. Xplornet can attest to this as a leader in bringing innovative new services to rural Canadians. Over the last 14 years, Xplornet has proven that rural broadband can be provided in a reliable and affordable manner using wireless technology. We have advanced download speeds from less than 512 kbps to 25 Mbps through the adoption of four generations of wireless technology. We were the first provider in North America to trial 3500 MHz spectrum with LTE technology in order to bring innovative new services to our customers.
33. As a result of our continual upgrades and investments, we have grown to become one of the 10 largest Internet Service Providers (“ISPs”) in Canada. Our LTE network, which is supported by 3500 MHz spectrum, carries more traffic per day than Bell’s entire mobile wireless network⁹.
34. The need to support investment and innovation in rural connectivity has never been a greater priority than it is today. In 2016, the Canadian Radio-television and Telecommunications Commission (“Commission”) formally recognized the vital role the Internet plays in the lives of Canadians. In TRP 2016-496¹⁰, the Commission explicitly declared broadband services to be a basic telecommunication service and established a universal service objective designed to ensure that “Canadians, in urban areas as well as in rural and remote areas, have access to voice services and broadband Internet access services, on both fixed and mobile wireless networks.”¹¹ The Commission described that it would

⁸ Consultation, paragraph 7.

⁹ Based on subscriber numbers and average subscriber usage as set out in the CRTC’s 2018 Communications Monitoring Report.

¹⁰ Telecom Regulatory Policy CRTC 2016-496, *Modern telecommunications services – The path forward for Canada’s digital economy*.

¹¹ TRP 2016-496, paragraph 37.

consider the universal service objective to be achieved when Canadians can access speeds of at least 50 Mbps download and 10 Mbps upload (“Universal Service Objective”).¹² In Budget 2019, the Government of Canada set a national target for 95% of Canadian homes and businesses to have access to Internet services delivering the Universal Service Objective by 2026 and 100% by 2030.¹³

35. The Government of Canada has committed substantial public funds to help promote the deployment of new infrastructure in rural and remote areas. Indeed, in addition to the significant funds that have already been allocated, the Government of Canada has committed an additional \$5-6 billion to support rural broadband over the next 10 years.¹⁴

36. Wireless solutions are not only essential to meeting the Government of Canada’s targets for rural connectivity, but new technological innovations will enable wireless applications to deliver fibre-like experiences in the coming years, revolutionizing rural broadband. At Xplornet, we are continually expanding and upgrading our network to bring advanced broadband services to more and more Canadians. Currently, Xplornet is preparing to bring 5G services to rural Canada on the same timeline as urban Canada. In 2020, we are positioned to begin offering broadband services at 100 Mbps download speeds across Canada – exceeding the Universal Service Objective and making a significant contribution to closing the broadband gap for rural Canadians. 5G technology will allow us to increase our service offerings well beyond these speeds in the coming years. However, our ability to deploy these innovative new services hinges on access to 3500 MHz spectrum, just like the case for 5G deployments in urban Canada.

Policy recommendations to balance the interests of rural and urban Canadians and promote technological innovation

37. We believe that there are concrete regulatory measures that ISED can implement in its auction design to effectively balance rural and urban interests and promote

¹² TRP 2016-496, paragraph 80.

¹³ Budget 2019, page 95.

¹⁴ *Ibid.*

technological innovation across the country. However, as a preliminary note, we wish to highlight that ISED does not need to strive to fully satisfy ***all*** demand of either rural or urban Canadians for mid-band spectrum in the present auction.

38. Indeed, as noted in the 2019 Decision, ISED intends to release more valuable mid-band spectrum in 2022.¹⁵

39. ISED also noted that the 3650-3700 MHz block could be aligned with either the 3700-4200 MHz band, or the spectrum being auctioned in the present proceeding.¹⁶

40. As significant additional mid-band spectrum will be made available within the next few years, ISED does not need to address all future demands for spectrum as part of the present process. These future demands can be further addressed through the 2022 auction, which will equally align with the transition periods that have been established to move currently licensees of 3500 MHz spectrum off of their spectrum.

41. Accordingly, in balancing urban and rural priorities, ISED should seek to further the immediate demands of all parties in a fair manner.

42. The following are regulatory measures that we believe will assist ISED in balancing the interests of rural and urban Canadians.

A set-aside should be applied as part of the framework

43. In order to design an auction that can effectively balance support for technological innovation in rural and urban Canada, ISED should strive to design an inclusive

¹⁵ See, 2019 Decision, paragraph 177:

As a result of international developments and comments received, ISED is adding [the 3700-4200 MHz] band to its planned spectrum releases and targeting a 2022 auction process. A future consultation will address changes to the Canadian Table of Frequency Allocations (CTFA), the amount of spectrum for flexible use, the spectrum utilization policy and the band plan, as well as the potential for implementing a SAS or similar database, and technical and policy considerations to optimize the use of this spectrum.”

¹⁶ 2019 Decision, paragraph 170.

auction that empowers diverse types of providers – including rural, urban, new entrant and national providers – to participate and succeed in obtaining spectrum.

44. Applying a set-aside as part of the auction framework is critical to allow for this. Without a set-aside, rural and new entrant providers are unlikely to win a sufficient amount of spectrum to promote the above goals.
45. For example, rural providers have a very different business case than urban providers and this limits their ability to effectively compete for spectrum on the same terms.
46. In the case of a rural wireless provider, far fewer customers will be served with the same amount of spectrum. While a typical mobile subscriber uses an average of 2GB of data per month¹⁷, a typical rural household uses 166GB per month¹⁸. Accordingly, all other variables held constant, an urban mobile provider can serve over 80 times as many subscribers as a rural wireless provider with the same amount of spectrum.
47. Further to this, however, the urban provider has additional advantages concerning its ability to leverage its spectrum across a greater subscriber base. This is because, in urban deployments, and particularly in 5G deployments, the distances that the urban provider requires the spectrum to cover are much smaller than those required by the rural wireless provider (which are typically spans of 20-30 km). By being able to deploy the spectrum over shorter distances, the urban provider is able to leverage a greater degree of spectrum re-use, serving more customers with the same spectrum block. These factors allow the business case of the urban provider to out-bid a rural wireless provider in all cases, unless accommodations are made in the auction design through a set-aside.
48. The large national providers also have significant stores of spectrum, including national footprints of 2500 MHz and the recently acquired 600 MHz spectrum

¹⁷ CRTC, 2018 Communications Monitoring Report, Infographic 4.9.

¹⁸ *Ibid.*, Infographic 4.10.

bands that are part of the 5G equipment ecosystems being developed for the large U.S. carriers. Arguably, they do not need to acquire significant rural holdings of 3500 MHz at this time, given their 5G roll-outs will be in the large urban centres and the 3700-4200 MHz spectrum is anticipated to be made available in three years. If this auction is to be inclusive and allow rural providers to acquire 3500 MHz spectrum at an affordable price to roll out 5G in rural areas, there need to be competitive measures to prevent stock piling by large national providers, who each hold between 3 to 6 times the amount of the next largest carriers such as Shaw, Videotron and Xplornet.¹⁹

49. Also, a set-aside will ensure newer entrants have the opportunity to compete and deploy 5G spectrum at the same time as the largest spectrum holders, thereby ensuring new entrants are not put at a competitive disadvantage in the timely deployment of 5G service to their customers.

50. In order to ensure that both rural and urban Canadians can fairly benefit from 3500 MHz spectrum, a set-aside needs to be applied to level the playing field between diverse providers.

Spectrum caps should **not** be applied as part of the framework

51. Spectrum caps should not be applied to the present auction in order to balance the interests of rural and urban Canadians and promote the public interest in maintaining services that Canadians rely on today.

52. As set out in the 2019 Decision, ISED is requiring current licensees to return spectrum that is actively in use to serve Canadians in order to re-auction this spectrum. By re-auctioning the spectrum, ISED is seeking to provide additional

¹⁹ By way of example, in the Napanee tier (4-071), the national providers each have on average 31 million MHz/POP of spectrum in this region. Xplornet and Shaw have an average of 7.5 million MHz/POP. This is a very rural tier 4 area containing only 42,852 people, of which 15,892 are located in the town of Napanee. While Bell and Rogers may only have 30 MHz of 3500 MHz spectrum in this tier, they have substantial other spectrum reserves that are not fully utilized. Accordingly, the large providers should not be allowed to continue to stockpile spectrum, particularly when additional spectrum will be made available in three years.

parties with the opportunity to obtain 3500 MHz spectrum. However, such new uses and technological innovation should not necessarily displace current uses.

53. In the 2019 Decision, ISED emphasized that measures are needed to allow existing licensees to provide services, as not implementing measures of this nature “would be contrary to the 2014 Decision and undermine the policy objective to facilitate the deployment and timely availability of services across the country, including rural areas.”²⁰

54. Accordingly, in designing the present auction, ISED should implement measures that provide existing licensees with the opportunity to obtain the spectrum that they require in order to maintain existing services. Specifically, ISED should not impose spectrum caps in this auction. Existing licensees should not be prevented from having the opportunity to re-purchase spectrum that they were required to return to support current service to customers.

Special considerations related to interference: Licences encumbered by existing partial-tier licences should not be auctioned

55. Finally, before we respond to the specific questions ISED set out in the Consultation, we wish to emphasize important interference matters concerning licences encumbered by existing partial-tier licences. These licences are subject to unique circumstances that warrant special treatment.

56. Xplornet is the licensee of a number of the partial-tier licences that are causing many licences to be encumbered in the proposed auction. ISED has proposed a mechanism to auction off the remaining areas of these encumbered tier 4 licence areas.

57. Xplornet acquired the relevant partial-tier licences in 2008 in a spectrum transfer from MIPPS Inc. (“MIPPS”). MIPPS and Xplornet entered in an agreement for Xplornet to purchase a portion of certain tier 4 licence areas that MIPPS did not

²⁰ 2019 Decision, paragraph 89.

require. MIPPS and Xplornet filed a transfer application with ISED (then Industry Canada).

58. As part of ISED's evaluation of this proposed spectrum transfer, many considerations related to interference arose. ISED was concerned about the close proximity that MIPPS' and Xplornet's networks would be in, and specifically required MIPPS and Xplornet to enter into coordination arrangements to satisfy it that interference concerns would not arise, prior to allowing the transaction.
59. MIPPS and Xplornet entered into an interference mitigation agreement that set out the requirements of each party's network and operations in order to ensure that they would co-exist without issues.
60. Subsequent to this transaction, Inukshuk Wireless Inc. ("Inukshuk") acquired MIPPS' remaining interest in certain of the tier 4 licence areas where Xplornet is operating on a partial-tier licence.
61. Inukshuk deployed a site without regard for the interference mitigation agreement that governed the spectrum it acquired from MIPPS. By deploying a single new tower in one of these tiers not in conformity with the coordination agreement, Inukshuk immediately caused so much interference with our network that 1,100 of our customers immediately lost service. ISED was drawn into the situation immediately for resolution.
62. In light of the sensitivity of existing deployments, if ISED is to allocate the remainder of the tier 4 area where Xplornet holds existing partial-tier licences, these licences must be allocated with the conditions that existing deployments can continue to operate and all new deployments must be coordinated to minimize interference.
63. In order to ensure that these licences are allocated to wireless operators who appreciate the interference complexity and are able to manage the conditions of the coordination agreements, we submit that blocks encumbered by existing partial-tier licences should not be auctioned in the main process.

64. Instead, these licences should be allocated through an application process conducted immediately subsequent to the main auction but before the assignment stage takes place. The price of the encumbered block could be set using the same \$/MHz/Pop figure to be paid for full blocks in the same tier 4 area as determined in the auction. Parties would be given the opportunity to provide ISED with proposals for the services that they would deploy within the encumbered block, and how the deployment would protect the existing infrastructure that is currently in place from interference. ISED could choose the party that is best placed to use the spectrum based on these proposals.
65. In the remainder of this submission, we respond to the specific questions that ISED set out in the Consultation. Where we have not provided comments at this time, we reserve the right to provide further reply to these matters in the course of this proceeding.

RESPONSES TO SPECIFIC CONSULTATION QUESTIONS

QUESTION 1: PRO-COMPETITIVE MEASURES

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.

66. As discussed above, a set-aside is required in this auction to ensure the auction framework effectively balances support for technological innovation in rural and urban Canada. In order to achieve this goal, the auction design must empower diverse types of providers – including rural, urban, new entrant and national providers – to participate and succeed in obtaining spectrum.
67. Applying a set-aside as part of the auction framework is critical to allow for this, as without a set-aside, rural and new entrant providers are unlikely to win a sufficient amount of spectrum to promote the above goals.

68. For example, rural providers have a very different business case than urban providers and this limits their ability to effectively compete for spectrum on the same terms.
69. In the case of a rural wireless provider, far fewer customers will be served with the same amount of spectrum. While a typical mobile subscriber uses an average of 2GB of data per month²¹, a typical rural household uses 166GB per month²². Accordingly, all other variables held constant, an urban mobile provider can serve over 80 times as many subscribers as a rural wireless provider with the same amount of spectrum.
70. Further to this, however, the urban provider has additional advantages concerning its ability to leverage its spectrum across a greater subscriber base. This is because, in urban deployments, and particularly in 5G deployments, the distances that the urban provider requires the spectrum to cover are much smaller than those required by the rural wireless provider (which are typically spans of 20-30 km). By being able to deploy the spectrum over shorter distances, the urban provider is able to leverage a greater degree of spectrum re-use, serving more customers with the same spectrum block. These factors allow the business case of the urban provider to out-bid a rural wireless provider in all cases, unless accommodations are made in the auction design through a set-aside.
71. The large national providers also have significant stores of spectrum, including national footprints of 2500 MHz and the recently acquired 600 MHz spectrum bands that are part of the 5G equipment ecosystems being developed for the large U.S. carriers. Arguably, they do not need to acquire significant rural holdings of 3500 MHz at this time, given their 5G roll-outs will be in the large urban centres and the 3700-4200 MHz spectrum is anticipated to be made available in three years. If this auction is to be inclusive and allow rural providers to acquire 3500 MHz spectrum at an affordable price to roll out 5G in rural areas, there need to be

²¹ CRTC, 2018 Communications Monitoring Report, Infographic 4.9.

²² *Ibid.*, Infographic 4.10.

competitive measures to prevent stock piling by large national providers, who each hold between 3 to 6 times the amount of the next largest carriers such as Shaw, Videotron and Xplornet.²³

72. Also, a set-aside will ensure newer entrants have the opportunity to compete and deploy 5G spectrum at the same time as the largest spectrum holders, thereby ensuring new entrants are not put at a competitive disadvantage in the timely deployment of 5G service to their customers.

73. Accordingly, a set-aside is necessary for ISED to ensure that both rural and urban Canadians can fairly benefit from 3500 MHz spectrum.

74. With respect to the amount of spectrum that should be set aside, this should be set to promote fair access to spectrum by all types of providers. We believe that a minimum of 40 to 60 MHz of spectrum should be set aside in each licence area, except in areas where there are only 30-40 MHz of unencumbered spectrum available for auction. In these areas, a minimum of 10-20 MHz of spectrum should be set aside.

75. While a set-aside is absolutely needed to further the objective of the Spectrum Policy Framework, spectrum caps should be avoided.

76. As set out in the 2019 Decision, ISED is requiring current licensees to return spectrum that is actively in use to serve Canadians in order to re-auction this spectrum. By re-auctioning the spectrum, ISED is seeking to provide additional parties with the opportunity to obtain 3500 MHz spectrum. However, such new uses and technological innovation should not necessarily displace current uses.

77. In the 2019 Decision, ISED emphasized that measures are needed to allow existing licensees to provide services, as not implementing measures of this nature

²³ By way of example, in the Napanee tier (4-071), the national providers each have on average 31 million MHz/POP of spectrum in this region. Xplornet and Shaw have an average of 7.5 million MHz/POP. This is a very rural tier 4 area containing only 42,852 people, of which 15,892 are located in the town of Napanee. While Bell and Rogers may only have 30 MHz of 3500 MHz spectrum in this tier, they have substantial other spectrum reserves that are not fully utilized. Accordingly, the large providers should not be allowed to continue to stockpile spectrum, particularly when additional spectrum will be made available in three years.

“would be contrary to the 2014 Decision and undermine the policy objective to facilitate the deployment and timely availability of services across the country, including rural areas.”²⁴

78. Accordingly, in designing the present auction, existing licensees should not be prevented from having the opportunity to re-purchase spectrum that they were required to return to support current service to customers. A spectrum cap should not be applied as part of the present process.

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.

79. Xplornet supports these proposed criteria for eligibility to bid on set-aside spectrum, with a modification.

80. ISED is proposing that bidders who are currently serving within a province (a tier 2 licence area) may bid for spectrum to serve any tier 4 licence area within that province. We submit that this requirement should be modified to require that, in order to bid for spectrum in a particular tier 4 licence area, the bidder must have been actively providing service in that tier 4 licence area as of June 5, 2019.

81. This modification is recommended for two reasons. Firstly, as we discussed above, in this auction, ISED must balance the allocation of scarce spectrum in a manner that addresses the immediate needs of both rural and urban service providers. The immediate needs of service providers are to deploy this spectrum within existing service footprints to support the rapid introduction of cutting-edge new services in rural and urban Canada. Initial deployments of mid-band spectrum will be to upgrade current network facilities – not to expand to new territories. For

²⁴ 2019 Decision, paragraph 89.

this reason, we do not believe that the present auction should be designed to encourage network expansion, as the proposed tier 2 eligibility assessment does.

82. Assessing eligibility for set-aside spectrum based on tier 4 areas appropriately ensures that spectrum can be focused on the meeting the immediate needs of Canadians. Indeed, ISED should consider applying such a criterion to govern eligibility to bid for a tier 4 licence generally in this auction, and not only with respect to eligibility to bid for set-aside spectrum.

83. Secondly, we equally believe that the current spectrum should be awarded to bolster existing networks because the spectrum that is to be auctioned is being used to actively serve Canadians today. If Canadians are going to lose access to this spectrum, it should be re-deployed as quickly as possible for their continued benefit. Targeting the spectrum to be auctioned in the present process to deployments within existing serving territories will most effectively return the benefits of these resources to rural and urban Canadians.

84. In preparing for the release of further mid-band spectrum in the auction of the 3700-4200 MHz band scheduled to take place in 2022, ISED may consider the appropriateness of encouraging network expansion by resuming an eligibility assessment based on service within tier 2 licence areas.

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.

85. We agree that licences that have been designated as set-aside licences should be subject to the proposed restrictions on transfers.

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

86. We are not proposing additional eligibility criteria at this time.

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.

87. We do not support the application of a cap, nor do we believe that licences encumbered by existing partial-tier licences should be auctioned by ISED.

88. However, if a cap were to be applied, neither grid-cell nor sub-divided licences should count toward the cap, unless a bidding party that holds an existing partial-tier licence wins spectrum covering the same tier area as their existing partial-tier licence, thereby creating a full tier 4 licence area.

89. Indeed, if the holder of an existing partial-tier licence wishes to bid for spectrum to serve the remaining areas of the tier 4 licence area that are not covered by its existing licence, its existing licences should have no impact on its ability to bid for this spectrum.

90. If the holder of an existing partial-tier licence wishes to bid for a full tier 4 block in the same tier in which it currently holds a partial-tier licence, the party should not be required to return its partial-tier licence in order to bid for a full tier licence (should the amount of spectrum sought exceed a cap). Instead, as a condition of winning a full tier licence, the bidder who holds an existing partial tier licence should be required to return its partial-tier licence (if holding both licences exceeds the limits of a spectrum cap). The returned partial-tier licence could then be allocated with the process we propose be used for spectrum blocks encumbered by partial-tier licences (see our response to Q3A).

QUESTIONS 2 AND 3: LICENSING AREAS

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

91. Tier 4 licensing is most appropriate for the present auction.

92. In the case of rural wireless providers, rural applications most effectively leverage 3500 MHz spectrum to cover distances spanning 20 km to 30 km. However, this distance is determined by the uplink (return path) capabilities of the consumer premise equipment. The downlink spectrum, using power levels that are appropriate to go through trees found in most rural settings, is typically capable of travelling 100 km. If this spectrum were licensed on a tier 5 basis, this would significantly impact the efficiency with which the 3500 MHz spectrum could be deployed by requiring the reduction of the power to stay within a small tier 5 area. This will compromise the ability to provide effective and affordable broadband service to rural Canadians. Accordingly, licensing 3500 MHz spectrum on a tier 5 basis would not be appropriate and could undermine the Government of Canada's goal of providing improved rural broadband services to Canadians.
93. Licensing this spectrum using larger licensing areas, such as tier 3 licence areas, is equally inappropriate. Tier 3 areas are not necessary to accommodate the efficient deployment of the spectrum and would not encourage local deployment because a provider could focus only on the larger population centre in the tier 3 area. Further, the larger size of these territories could exclude many parties from effectively participating in the auction.

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

94. We do not believe that licences encumbered by existing partial-tier licences should be allocated using the auction process. As we described above, these licences are subject to unique circumstances that warrant special treatment.
95. Xplornet is the licensee of a number of the partial-tier licences that are causing many licences to be encumbered in the proposed auction. ISED has proposed a mechanism to auction off the remaining areas of these encumbered tier 4 licence areas.
96. Xplornet acquired the relevant partial-tier licences in 2008 in a spectrum transfer from MIPPS. MIPPS and Xplornet entered in an agreement for Xplornet to

purchase a portion of certain tier 4 licence areas that MIPPS did not require. MIPPS and Xplornet filed a transfer application with ISED (then Industry Canada).

97. As part of ISED's evaluation of this proposed spectrum transfer, many considerations related to interference arose. ISED was concerned about the close proximity that MIPPS' and Xplornet's networks would be in, and specifically required MIPPS and Xplornet to enter into coordination arrangements to satisfy it that interference concerns would not arise, prior to allowing the transaction to be approved.
98. MIPPS and Xplornet entered into an interference mitigation agreement that set out the requirements of each party's network and operations in order to ensure that they would co-exist without issues.
99. Subsequent to this transaction, Inukshuk acquired MIPPS' remaining interest in certain of the tier 4 licence areas where Xplornet is operating on a partial-tier licence.
100. Inukshuk deployed a site without regard to the mitigation interference agreement that governed the spectrum it acquired from MIPPS. By deploying a single new tower in one of these tiers not in conformity with the coordination agreement, Inukshuk immediately caused so much interference with our network that 1,100 of our customers immediately lost service. ISED was drawn into this situation immediately.
101. In light of the sensitivity of these deployments, if ISED is to allocate the remainder of the tier 4 areas where Xplornet holds existing partial-tier licences, these licences must be allocated with the conditions that existing deployments can continue to operate and all new deployments must be coordinate to minimize interference.
102. In order to ensure that these licences are allocated to wireless operators who appreciate the interference complexity and are able to manage the conditions of the coordination agreements, we submit that blocks encumbered by existing partial-tier licences should not be auctioned in the main process.

103. Instead, these licences should be allocated through an application process conducted immediately subsequent to the main auction but before the assignment stage takes place. The price of the encumbered block could be set using the same \$/MHz/Pop figure to be paid for full blocks in the same tier 4 area as determined in the auction. Parties would be given the opportunity to provide ISED with proposals for the services that they would deploy within the encumbered block, and how the deployment would protect the existing infrastructure that is currently in place from interference. ISED could choose the party that is best placed to use the spectrum based on these proposals.

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.

104. Through its frequency-assignment process, we submit that existing operators should be given priority. These operators have invested to deploy networks that are configured to use radio equipment (i.e., both radios and customer premise equipment) with current spectrum holdings and that may not be compatible with other blocks. Changing these configurations could result in significant service disruptions for customers.

105. In the 2019 Decision, ISED emphasized that measures are needed to allow existing licensees to provide services, as not implementing measures of this nature “would be contrary to the 2014 Decision and undermine the policy objective to facilitate the deployment and timely availability of services across the country, including rural areas.”²⁵

²⁵ 2019 Decision, paragraph 89.

106. Providing assignment priority to avoid requiring existing licensees to unnecessarily expend resources in order to deploy new radio equipment is a measure that would promote the determinations set out in the 2019 Decision. More importantly, customers should not have their service disrupted or be inconvenienced. If an existing operator is assigned a block that is not compatible with existing consumer premise equipment, thousands of customers could face the inconvenience of having their service disrupted until they can be at home to allow their equipment on their houses to be changed. ISED and all operators have a responsibility to minimize the potential disruption this licensing process has on consumers. Accordingly, we believe that existing licensees should be granted assignment priority to continue using the blocks that they are currently using wherever possible.

107. With respect to the assignment of contiguous spectrum, Xplornet agrees with ISED's proposal that contiguous spectrum should be assigned to parties who win full or partial tier licences through the auction process, as well as to parties with full tier licences from the transition should be assigned contiguous spectrum.

108. ISED has further proposed that parties with partial tier licences from the transition will not be guaranteed contiguous spectrum. We recommend that this proposal be modified to provide that, should a party holding a partial tier licence from the transition win a licence adjacent to this licence, the abutting licences should be provided with contiguous spectrum. Contiguous licences should be granted to the greatest degree possible in order to best serve Canadians.

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

109. We do not object to this proposal.

Q3E: ISED is seeking comments on the proposal to bundle the remaining portions of the encumbered areas offered in the auction as a combined encumbered block of 20, 30, 40 MHz or more, depending on the number of 10 MHz blocks being bundled. In particular the bundle would include the tier areas where existing sub-divided or grid cell licenses are encumbering the majority of the tier. This would apply where the geography of the remaining portions is the same or similar, and/or

the remaining area covers as relatively small population. Comments on the proposed list of encumbered service areas where multiple blocks may be combined for the purpose of the auction are also sought.

110. We support ISED's proposal to bundle encumbered areas as described. It will minimize the number of parties coordinate to avoid interference.

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 licenses post-auction would be subject to the spectrum cap and the conditions of licence as described in section 11.2.

111. We do not support the application of a spectrum cap.
112. However, if a cap were to be applied, we agree with ISED's proposal that bundled encumbered blocks would not count towards the spectrum cap. In subsequent transfers, the bundled spectrum may be considered in spectrum concentration assessments.

QUESTIONS 4 TO 9: AUCTION FORMAT AND RULES

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

113. We support ISED's 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.

114. We do not support this proposal. If a set-aside-eligible bidder wins open blocks of spectrum, these do not need to be subject to the transfer restrictions associated with set-aside spectrum blocks. These blocks should be treated the same as all other open blocks, and ISED should consider the competitive impacts of a proposed transfer through its standard analysis as set out in Client Procedure Circular CPC 2-1-23, *Licensing Procedures for Spectrum Licences for Terrestrial Services*.

115. Blocks of spectrum won by set-aside-eligible bidders may be designated as open or set-aside blocks following the conclusion of the auction as part of the assignment process.

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.

116. As described in our response to Q3A, blocks encumbered by existing partial-tier licences should not be included in the auction. They should be allocated using a separate process subsequent to the main auction.

117. We do not believe that it is necessary for separate categories of licences to be created for different types of licences to be allocated as part of the auction. With respect to open versus set-aside spectrum blocks, whether each licence awarded is a set-aside or an open licence may be designated after the auction has concluded.

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 [sic] in a service area.

118. We do not support the application of a spectrum cap and we believe that it is critical for the auction to provide for set-aside spectrum in order to further the objective of the Spectrum Policy Framework.

119. As described in response to Q3A, licences encumbered by existing partial-tier licences should not be allocated as part of the main auction.

Q5: ISED is seeking comments on the use [of] anonymous bidding during the auction.

120. We support the use of anonymous bidding.

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

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.

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

121. We generally support the use of the proposed clock auction format.
122. We support the use of a format that reduces the administrative burden of participating in the auction for service providers, as contemplated by enabling guideline (f) of the Spectrum Policy Framework.

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

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

123. We generally support the structure of the proposed assignment round, but reserve our right to provide further comments.
124. We submit that, prior to engaging in the assignment round, ISED should provide parties with the opportunity to collectively determine agreed-upon assignments, subject to pre-defined conditions (i.e., existing operators should not be required to move to different spectrum blocks causing customer disruption). This could involve a closed-door meeting amongst all parties eligible to participate in the assignment round to negotiate spectrum assignments. Such a meeting could address equipment range issues to avoid potential customer disruption.
125. The formal assignment round could be used as a dispute resolution tool to assign spectrum where parties fail to otherwise agree.

QUESTIONS 10 AND 11: BIDDER PARTICIPATION: AFFILIATED AND ASSOCIATED ENTITIES

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

126. We support the proposed rules for affiliated and associated entities.

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.

127. We support the proposed collusion and communication rules.

QUESTIONS 12 TO 15: CONDITIONS OF LICENCE FOR FLEXIBLE USE SPECTRUM IN THE 3500 MHz BAND

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

128. We support ISED's proposals. Licensees should be provided with a 20-year licence term in light of the significant investments that are required to deploy 3500 MHz spectrum. For the same reason, this spectrum should be accompanied with a high expectation for renewal. We also agree that the termination dates for all licences should be coordinated.

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

129. Subject to our comments in response to Q4B, we support the proposed conditions of licence related to transferability and divisibility.

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

130. Xplornet was shocked by the proposed deployment levels because they do not require the 3500 MHz spectrum to be put to use in a manner consistent with the urgent need for the redeployment of this spectrum that has been used to justify taking it back from operators who are currently using it to provide service to Canadians.

131. As we have said many times, the spectrum being removed from Xplornet and being auctioned in this process is in use serving Canadians today and often deployed well above the required deployment levels in the existing conditions of licence. It is inconceivable that the Government of Canada would disconnect

Canadians and then let the spectrum lay fallow – unused – for potentially 10 or more years.

132. Those parties that sought access to the 3500 MHz spectrum and called for its return claimed there was an urgent need for the spectrum and that ISED needed to act quickly to ensure Canada was not left behind in the development and implementation of 5G technology.

133. ISED should take these parties at their word and require fast implementation of this first allocation of the 3500 MHz spectrum for the benefit of all Canadians.

134. In order to return the benefits of this spectrum to Canadians, we submit that, at a minimum, the five-year deployment levels for new licences should be at least equal to the current deployment levels that exist in the relevant tier 4 licence areas. The proposed levels of deployment fall far below this standard in many cases.

135. We submit that ISED should revise its proposed deployment levels in this manner to encourage the rapid deployment of 3500 MHz spectrum. We do not believe that doing so would place an unreasonable burden on service providers, particularly given the immediate, pressing need of service providers to deploy this spectrum within existing network footprints. Even as a small operator, Xplornet was able to achieve similar deployment levels to the ones we are proposing within a five-year period. Accordingly, we have no reason to believe that other service providers could not achieve these levels for all Canadians.

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

136. Xplornet supports the conditions of licence outlined in annex H.

137. However, it appears section H4 Licence Transferability, Divisibility and Subordinate Licensing repeats rules set out in *Licensing Procedure for Spectrum Licences for Terrestrial Services*, CPC 2-1-23. In the event ISED subsequently changes CPC 2-1-23, it may still need to undertake to amend each of the 3500

MHz licences to alter section H4. To avoid that administrative issue, it may be prudent to incorporate by reference CPC 2-1-23 into section H4 without expressly repeating the provisions.

QUESTION 16: AMENDING THE CONDITIONS OF LICENCE FOR ALL CURRENT FIXED WIRELESS ACCESS LICENCES

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.

138. We note that ISED wishes to ensure that all first-come-first-serve licences are subject to L8, *Spectrum Licences in 3.5 GHz issued on First-Come First-Served basis after the 2014 Renewal Process* condition of licence. We support this proposal.

139. Where a first-come-first-serve licensee is encumbering a tier and wins a complementary partial tier in the auction, such that it holds multiple licences that together cover the entire tier, a new, single tier 4 licence should be issued to the licensee subject to conditions of licence associated with the auction.

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

140. Xplornet believes this amendment should apply as of the date that new licences are issued as part of the present process. However, with respect to the proposal to reinstate the payment of fees, it seems inappropriate to require payment of spectrum fees prior to the transition to flexible use, based on an old grid cell or users connected basis, particularly when existing operators are incurring expenses associated with the proposed transitions and return of spectrum, and face the costs associated with the auction.

QUESTIONS 17 AND 18: AUCTION PROCESS

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

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.

141. We generally do not object to the proposals set out in annex D. However, we note that the pre-auction deposits set out in annex D are highly burdensome for smaller bidders. We believe that set-aside-eligible bidders should only be required to provide pre-auction deposits representing 50% of the amounts set out in annex D. This would continue to serve ISED's goals while reducing the burden on smaller entities.

QUESTION 19: LICENCE RENEWAL PROCESS

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

142. We support the proposed renewal process.

CONCLUSION

143. There is a pressing and immediate need for 3500 MHz spectrum to serve both rural and urban Canadians.

144. With its design of the present auction, consistent with the Spectrum Framework Policy, ISED must ensure that the auction process will maximize the economic and social benefits that Canadians derive from the spectrum.

145. Following the directions of the enabling guidelines, we submit that ISED's design for the present auction should consider the following themes:

- The auction should address and balance the interests of all Canadians in new 5G services;
- The auction should promote technological innovation in rural and urban areas; and
- The auction should be inclusive in order to promote the competition needed to maximize the above goals.

146. By balancing urban and rural priorities, and ensuring that the auction is inclusive of all parties who are investing to serve Canadians – including rural, urban, new

entrant and national providers – ISED can drive technological innovation and advance the objective of the Spectrum Policy Framework for Canadians.

147. To this end, we submit that the application of a set-aside and the avoidance of a spectrum cap will be essential to meeting these objectives.

148. In this submission, we have provided our initial recommendations to ISED concerning the structure of the auction process. We thank ISED for the opportunity to provide these comments and look forward to elaborating on our positions in our reply comments.

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