SaskTel Comments:

Gazette Notice SLPB-002-19

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

August 2, 2019

This document has been developed by SaskTel and has been submitted to Innovation, Science and Economic Development Canada as part of the consultation process on Gazette Notice SLPB-002-19 “Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band.” The document is to remain in its entirety and at all times the property of SaskTel.

EXECUTIVE SUMMARY

1. The following is a summary of SaskTel's submission in response to Gazette Notice SLPB-002-19 *Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band* ("the Consultation").

2. This consultation is timely. The 3500 MHz band is a high priority spectrum for 5G services. Globally there is a lot of activity by many administrations to allocate this spectrum for mobile 5G services, and the 3rd Generation Partnership Project (3GPP) has included this band in industry standards as one of the first bands for 5G. Canada needs to follow with a timely spectrum auction in order to take advantage of the new 5G technology, and therefore allow Canadians to benefit from the new wireless broadband services being offered by new 5G networks.

3. SaskTel has reviewed the Consultation with the Department's proposed policies and rules for the 3500 MHz licensing process. As a regional-based service provider, SaskTel has provided the Department input, suggestions, and recommendations on the questions raised in the Consultation.

Pro-Competitive Measures:

4. SaskTel has reviewed the Department's assessment of the wireless industry, the 3500 MHz band plan and available spectrum for auction, the current state of wireless technology, the anticipated deployment of new 5G technologies, and the state of competition in the wireless market. We agree with the Department's assessment that pro-competitive measures are required to level the playing field and leverage the benefits of fair competition and support a fourth operator in wireless markets.

5. Large national mobile service providers (MSP's), having the financial capacity to dominate a spectrum auction, will not support spectrum being owned by regional carriers or new entrants. This has been demonstrated in recent CCA auctions where national package bids were used to shut out regional carrier efforts to acquire spectrum.

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6. SaskTel has experience being shut out of spectrum by members of the Big Three. Our experience is that when SaskTel has to compete against the Big Three with no restrictions, they take steps to shut out SaskTel from acquiring spectrum, despite very aggressive bidding on SaskTel's part. A good example of this is the recent AWS-3 spectrum auctions. That is why Saskatchewan spectrum prices are usually higher than the national spectrum average, despite the rural nature of the spectrum blocks. There must be limits on the Big Three or else they will dominate the acquisition of spectrum to the detriment of sustainable competition.

7. History proves that pro-competitive measures within the auction are needed if the objective is to support the regional carriers or a fourth national carrier – all to the benefit of the industry and its consumers.

8. SaskTel is recommending the imposition of a spectrum cap of 50 MHz. As part of the 3500 MHz transition process, many incumbent licence holders will receive 3500 MHz flexible use licences in exchange for their existing fixed spectrum licences. Depending on the licence area and the amount of existing fixed licence holdings, the amount of flexible use spectrum held by the incumbent licence holders will be either 20, 50 or 60 MHz.[1] Considering the entire band available is only 200 MHz wide, the result is that the incumbents can in some areas hold a very large percentage of the total band prior to the start of the auction.

9. For this reason, a spectrum cap is essential. A spectrum cap of 50 MHz is a good balance between the need for licensees to provide high bandwidth to subscribers, and the need to avoid undue spectrum concentration. No one licensee could therefore acquire more than 50 MHz or 25% of the entire band. A spectrum cap of 50 MHz out of a total of 200 MHz of spectrum will ensure at least four service providers have the ability to access this very valuable spectrum.

10. SaskTel recommends that the proposed spectrum cap apply to the unencumbered spectrum blocks being auctioned, as well as to the encumbered licence blocks where the percentage of population available in the encumbered licence block is 50% or greater of the total Tier 4 population. The spectrum cap must also apply to all Tier 4 flexible use licences issued through the transition

[1] Based upon the amounts given in Table A1 of Annex A of the Consultation.

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process and including as well grid-cell and sub-divided partial licences where the population included in the grid-cell or sub-divided licence is equal to or greater than 50% of the population of the associated Tier 4 service area.

11. SaskTel recommends a Set-Aside spectrum of 50 MHz. SaskTel is recommending that 50 MHz of the unencumbered licence blocks available for auction in each licence area be designated as set-aside spectrum. This will allow smaller regional operators and other new entrants in a market the opportunity to acquire 3500 MHz spectrum without having to challenge the financial backing of the national mobile wireless service providers. In order to promote competition from regional operators and other new entrants, it is essential that a portion of the band be designated as set-aside spectrum.

12. The designation of 50 MHz of set-aside spectrum is 25% of the total 200 MHz wide 3500 MHz spectrum band. This proportion is less than the amount designated in the 600 MHz spectrum auction where 3 out of 7 blocks (approximately 43%) were set aside. Therefore, a set-aside of 50 MHz of the 3500 MHz spectrum being auctioned is reasonable and appropriate.

Set-Aside Eligibility:

13. SaskTel agrees with the Department's proposal to limit the eligibility criteria to bid on set-aside spectrum licences to those entities 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.[2]

14. The Department's proposal that any set-aside spectrum licences acquired by set-aside-eligible bidders in the auction would not be transferable to set-aside-ineligible entities for the first five years of the licence term is logical in the circumstances. It aligns with past practices and incents entities to only bid on

[2] The Consultation, paragraph 39

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spectrum they intend to deploy rather than collecting the spectrum on a speculative basis.

Licence Areas and Available Spectrum:

15. SaskTel agrees that it is most appropriate to use Tier 4 service areas for the 3500 MHz licensing process primarily because the incumbent licences are all based on Tier 4 or partial Tier 4 licences, or smaller grid-cell licensing. Although Tier 2 service areas are preferred for mobile spectrum, in this case it would be very difficult for Tier 2 licences to co-exist adjacent to Tier 4 incumbent licences. Therefore, SaskTel agrees with the proposal to auction Tier 4 spectrum licences in the 3500 MHz band.

16. The Department's proposal to include all remaining spectrum, including encumbered Tier 4 areas, in the auction licensing process, as shown in Table A1 of Annex A of the Consultation is appropriate. This will allow the opportunity to fully utilize the spectrum in most if not all of the geography of each Tier 4 service area, while still allowing incumbent licence holders to continue to provide services as per their existing service areas.

17. SaskTel agrees with the Department's proposal to include in the assignment rounds of the auction the Tier 4 licences issued through the transition process along with the full and partial Tier 4 spectrum licences acquired in the auction process. This will allow for the most effective assignment of frequencies for all licences in the 3500 MHz band.

18. SaskTel strongly agrees with the Department's proposal to guarantee the assignment of contiguous spectrum for licensees acquiring multiple flexible use Tier 4 spectrum licences in a given area either through the auction process or through the transition process. SaskTel believes this should also apply to partial area licences acquired through the auction.

19. SaskTel agrees with the Department's proposal to classify all partial tier licences as encumbered blocks.

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20. However, SaskTel disagrees with the Department's proposal to bundle encumbered spectrum licences with "similar" geographical coverage, and/or "similar" population coverage. Using generic licences in a Clock Auction format licensing process requires that the licences be substitutable. To be substitutable, the licences for each product must be identical in terms of bandwidth, geographical coverage, population coverage, and other terms and conditions. Licences that are "similar" are NOT substitutable.

21. As shown for the three Weyburn licence areas as depicted in Figure B1 of the Consultation, the differences between licences may seem insignificant, but for planning of rural network deployments these differences are significant.

22. Therefore, SaskTel recommends only bundling encumbered licence blocks that are identical in terms of bandwidth, coverage, and therefore population.

Auction Format and Rules:

23. SaskTel agrees with the Department's proposals to use generic licences, and emphasizes that generic licences must be substitutable, and therefore they must be identical in bandwidth, geographical coverage, and population coverage, and not just "similar".

24. SaskTel agrees with the Department's proposals to establish categories for encumbered and unencumbered blocks, as well as the proposal to establish non-set-aside and set-aside categories for the unencumbered blocks.

Clock Auction Format:

25. SaskTel is pleased that the Department has proposed to use a clock auction format for the 3500 MHz spectrum auction. The two-stage auction format allows for price discovery, and the allocation of multiple blocks of spectrum. At the conclusion of the clock rounds, bidders will know exactly which licences that they have won, and the base price for those licences.

26. SaskTel agrees with the Department's proposed range of between 1-20% for percentage increments in clock prices in the clock rounds, rounded up to the nearest thousand-dollar increment. We also agree with the proposed activity

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requirement rules for the clock rounds, and the proposal to set the activity level between 90% and 100% for all clock rounds.

27. With the inclusion of Intra-Round bidding in the clock rounds, the Department is free to set higher bid price increments per round. This will allow the auction to proceed more quickly and efficiently, while still allowing bidders to express their value for the spectrum.

28. SaskTel agrees with the proposed methodology for processing bids based on the general principles of only processing bids to increase demand if the proposed activity will not exceed the bidder's eligibility, and only processing bids to decrease demand for a product if the reduction will not cause the aggregate demand for that product to fall below supply or fall further below supply if it is already below supply. We agree with the intent of these rules to guarantee there will never be any unsold blocks for a product once demand becomes equal to or greater than supply.

29. SaskTel also believes that adopting the various mechanisms as proposed in Annex C of the Consultation for processing clock round bids will encourage more honest bidding by making it risky for bidders to "park points" in unwanted licence areas if demand is near or below supply. This will allow for a more efficient auction by reducing gaming opportunities for bidders.

30. SaskTel is particularly pleased that under the proposed auction format there will be no supplementary round. The supplementary round is a part of the CCA auction format previously used by the Department. Bidders therefore will not be faced with the uncertainties and risks and overwhelming complexity of strategic bidding intended solely to hurt other bidders without increasing auction efficiency that is associated with the supplementary round.

31. SaskTel agrees with the proposed structure of the Assignment stage, including the order of the Assignment rounds, and the combination of service areas where appropriate. The utilization of an Assignment stage as well as the inclusion of all licence holders, both incumbent and auctioned licences, in the assignment round ensures that the frequency block assignments will be made most efficiently.

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32. SaskTel agrees with the Department's proposal to apply bidder optimal core prices and to use the "nearest Vickrey" approach to determine the assignment prices, as described in Annex E of the Consultation.

Conditions of Licence for 3500 MHz Flexible Use Licences

33. SaskTel agrees with almost all of the proposed conditions of licence as detailed in section 11 and Annexes H and I of the Consultation. This includes the term of the licences, as well as transferability, divisibility, and subordination of the licences.

Proposed Additional Deployment Requirements Based on Current LTE Coverage

34. However, SaskTel strongly disagrees with the additional deployment requirements proposed for operators currently providing mobile LTE services. Although we understand and agree with the Department's goal to extend 5G services into rural areas[3], the necessary investment in network infrastructure required to meet the deployment targets for operators currently offering LTE based mobile services as proposed in the Consultation are totally unreasonable given the low population densities in rural Saskatchewan and the propagation characteristics of 3500 MHz versus 850 MHz which is the basis of SaskTel's rural LTE coverage.

35. As per paragraph 177 of the Consultation, the proposed requirement is for licensees that currently provide mobile LTE service to put the 3500 MHz spectrum in use to serve 90% of the population currently receiving LTE service within five years of initial licence issue, and 97% within seven years of initial licence issue.

36. In the Consultation the Department has based the required deployment of 3500 MHz spectrum on the population served by the operator's existing LTE network as of June 5, 2019. SaskTel relies on low band 850 MHz LTE infrastructure to serve this population. Compared to 3500 MHz spectrum, the propagation characteristics of 850 MHz allow for a much longer range, and therefore larger coverage areas from each rural cell site. It is not possible to duplicate the coverage provided by 850 MHz LTE using 3500 MHz spectrum. The shorter range of 3500 MHz means that for every deployment at each cell site, there will always be a proportion of

[3] The Consultation, Section 11.3, in particular paragraphs 171-172, and 177

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coverage and therefore population lost when compared to the coverage at 850 MHz.

37. This is clearly shown with a comparison of predicted coverage for 850 MHz versus 3500 MHz. As shown in Figures 1A and 1B of SaskTel's comments,[4] the predicted 3500 MHz coverage that can be obtained by deploying equipment at every SaskTel cell site is far inferior to 850 MHz. Figure 1B for 3500 MHz shows large areas of red and purple (poor and very poor coverage), and more importantly large areas of white (no coverage at all).

38. Meeting the proposed deployment requirement of 97% will require at a minimum the deployment of 3500 MHz 5G networks at every SaskTel cell site, as well as the addition of numerous rural "in-fill" sites requiring new towers to enhance coverage.

39. It must be emphasized that these rural "in-fill" sites will need to be installed in very sparsely populated areas "in the middle of nowhere". There will likely be no infrastructure in the area, requiring the installation not only of towers, but also buildings, access roads, power lines, and fibre facilities. The typical rural cell site is far more expensive to build than a new urban cell site.

40. This amount of investment is unreasonable. These rural residents are being well served by low band 850 MHz LTE and can be well served with 5G using 600 MHz spectrum.

41. Furthermore, the deployment of 5G services in any region must be based on a favourable market opportunity and business case. The time table for deployment of 5G, particularly for rural regions, cannot be arbitrarily set at this time and still align with a reasonable business model.

[4] Figures 1A and 1B can be found in paragraph 148 of this document.

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42. The stringent and arbitrary 3500 MHz deployment requirements as proposed for 3500 MHz flexible use licence holders currently providing mobile LTE services that impose such an excessive short-term network investment directly contradicts the intentions of the Department as given in paragraph 172 of the Consultation:

> *"These time frames will ensure timely deployment of 5G services to all Canadians* ***while permitting some flexibility for licensees to put in place build plans that align with their business strategies****." (emphasis added)*

43. With an extensive rural LTE network, SaskTel is well positioned to deploy 3500 MHz spectrum in rural areas. However, instead of being an incentive to deploy 3500 MHz spectrum in rural areas, the stringent and excessive deployment requirements being proposed are ironically a disincentive to operators such as SaskTel with an extensive rural LTE footprint to acquire the 3500 MHz spectrum. SaskTel's assessment of the proposed stringent deployment requirements is that they will not be in alignment with SaskTel's business strategies.

44. Considering that the goal of the Department is to extend 5G services to all Canadians including rural residents,[5] SaskTel therefore recommends that to meet this goal the deployment requirement for licensees acquiring 3500 MHz flexible use licences should be an obligation to serve a given population with 5G services **using any spectrum band**. Low band spectrum bands such as 600 MHz, 700 MHz, or 850 MHz are far more suitable to serve rural areas, and these bands are being developed for 5G and are being included in new 5G devices.

45. SaskTel also disagrees with the time frames proposed for the deployment requirements specific to operators currently providing mobile broadband LTE services. The time lines for rural deployment as proposed in paragraph 177 of the Consultation are five years and seven years after initial license issue.

46. However, the Protection period for incumbent licensees for almost all Tier 4 service areas are either two years or three years as per the 3500 MHz Decision.[6] Therefore operators such as SaskTel cannot begin deployments in most Tier 4

[5] The Consultation, paragraph 172
[6] 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", section 6.9, Decision D13

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service areas until at least two or three years after licence issue. This simply does not leave enough time to meet these requirements.

47. Furthermore, the seven-year time frame proposed to extend 5G services essentially throughout the entire province of Saskatchewan is too strict. This does not align with SaskTel business strategies for 3G services in deep rural and remote areas and is not in alignment with the Department's objectives given in paragraph 172 of the Consultation.

48. SaskTel recommends that the time frames for all deployment requirements be based on the expiration of the Protection periods for the Tier 4 service area, and not be based on initial licence issue. Furthermore, we recommend that the seven-year time frame be extended to ten years.

49. For the reasons stated above, SaskTel recommends the deployment requirements for service providers presently offering mobile LTE services proposed in paragraph 177 of the Consultation be modified as follows:

> *Licensees will be required to demonstrate to the Minister of Innovation, Science and Economic Development that **the licensee is providing 5G services using any spectrum band(s)** in the licence areas where they offer existing mobile broadband LTE service to cover the following deployment obligations:*
>
> > *i. 90% of the population within its mobile LTE network footprint as of June 5, 2019, within five years of the **expiration of the protection period for incumbent licensees for the Tier 4 service area**;*
> >
> > *ii. 97% of the population within its mobile LTE network footprint as of June 5, 2019, within **ten years of the expiration of the protection period for incumbent licensees for the Tier 4 service area**; and*
> >
> > *iii. 95% of the population outside the large urban population centers, as listed in annex G of this document, in the tiers that contain the large urban population centre within 10 years of the **expiration of the protection period for incumbent licensees for the Tier 4 service area**;*
> >
> > *(modifications emphasized)*

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INTRODUCTION

50. Saskatchewan Telecommunications ("SaskTel" or "the Company") is pleased to provide this response to Gazette Notice SLPB-002-19 *Consultation on a Policy and Licensing Framework for Spectrum in the 3500 MHz Band* ("the Consultation").

51. SaskTel's detailed responses to the questions posed in the Consultation are below. The section numbering of this document corresponds to the section numbering of the Consultation. Failure to address any particular issue or item, or the Comments made by any other party, should not be construed as agreement with those Comments where such agreement is not in the interests of SaskTel.

SASKTEL RESPONSE TO THE CONSULTATION ON A POLICY AND LICENSING FRAMEWORK FOR SPECTRUM IN THE 3500 MHZ BAND

7. Pro-competitive measures

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

52. SaskTel has reviewed the Department's assessment of the wireless industry, the 3500 MHz band plan and available spectrum for auction, the current state of wireless technology, the anticipated deployment of new 5G technologies, and the state of competition in the wireless market. We agree with the Department's assessment of the need for pro-competitive measures, and we agree with ISED's proposal to adopt pro-competitive measures for the 3500 MHz licensing process.[7]

53. As part of the transition process, multiple incumbent licence holders, including the national MSP's, will be entitled to a given number of flexible use 3500 MHz licences as part of the transition process. The allocation of these blocks to the incumbents prior to the auction fairly compensates the incumbents for their prior rights to a large percentage of this spectrum. However, the transition process should not be a means to disadvantage non-incumbent MSP's from securing a

[7] The Consultation, paragraph 33.

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workable percentage of the spectrum necessitating the pro-competitive measures to level the playing field.

54. Large National MSP's, having the financial capacity to dominate a spectrum auction, will not support spectrum being owned by regional carriers or new entrants. This has been demonstrated in recent CCA auctions where national package bids were used to shut out regional carrier efforts to acquire spectrum.

55. SaskTel has experience being shut out of spectrum by members of the Big Three. Our experience is that when SaskTel has to compete against the Big Three with no restrictions, they take steps to shut out SaskTel from acquiring spectrum, despite very aggressive bidding on SaskTel's part. A good example of this is the recent AWS-3 spectrum auctions. That is why Saskatchewan spectrum prices are usually higher than the national spectrum average, despite the rural nature of the spectrum blocks. There must be limits on the Big Three or else they will dominate the acquisition of spectrum to the detriment of sustainable competition.

56. History proves that pro-competitive measures within the auction are needed if the objective is to support the regional carriers or a fourth national carrier – all to the benefit of the industry and its consumers.

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.

57. As stated above, SaskTel agrees with the Department's assessment of the need to impose pro-competitive measures in the 3500 MHz spectrum auction. SaskTel is <u>recommending the imposition of a spectrum cap of 50 MHz</u> and <u>a set-aside of 50 MHz</u> for the 3500 MHz licensing process.

58. As part of the 3500 MHz transition process, many incumbent licence holders will receive 3500 MHz flexible use licences in exchange for their existing fixed spectrum licences. Depending on the licence area and the amount of existing fixed licence holdings, the amount of flexible use spectrum held by the incumbent

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licence holders will be either 20, 50 or 60 MHz.[8] Considering the entire band available is only 200 MHz wide, the result is that the incumbents can in some areas hold a very large percentage of the total band prior to the start of the auction.

59. For this reason, a spectrum cap is essential. A spectrum cap of 50 MHz is a good balance between the need for licensees to provide high bandwidth to subscribers, and the need to avoid undue spectrum concentration. No one licensee could therefore acquire more than 50 MHz or 25% of the entire band. A spectrum cap of 50 MHz out of a total of 200 MHz of spectrum will ensure at least four service providers have the ability to access this very valuable spectrum.

60. SaskTel recommends that the proposed spectrum cap apply not only to the unencumbered spectrum blocks being auctioned, but also to the encumbered licence blocks where the percentage of population available in the encumbered licence block is 50% or greater of the total Tier 4 population. The spectrum cap must also apply to all Tier 4 flexible use licences issued through the transition process and including as well grid-cell and sub-divided partial licences where the population included in the grid-cell or sub-divided licence is equal to or greater than 50% of the population of the associated Tier 4 service area.

61. As per Table A1 in Annex A of the Consultation many of the encumbered licence blocks have very high percentages of available population. Considering that many of the encumbered licences have a very substantial percentage of available spectrum, in some cases approaching 100%, and therefore comparable to unencumbered licence blocks, it is not appropriate to exclude these encumbered spectrum licences from a spectrum cap when a large portion of the population is available for the licensee. On the other hand, bidders should be encouraged to bid on and acquire licence areas with smaller population percentages as an incentive for the spectrum to be efficiently and fully utilized. Therefore, a 50% population available threshold is a reasonable measure to determine if the licence should be counted towards the spectrum cap.

[8] Based upon the amounts given in Table A1 of Annex A of the Consultation.

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62. In cases where existing licensees already have more spectrum holdings than the proposed spectrum cap of 50 MHz, including grid-cell based licences or sub-divided licences, SaskTel agrees with the Department's proposal that these licensees not be required to divest these excess spectrum holdings to adhere to the spectrum cap.[9] However, these licensees would not be eligible to acquire additional spectrum in the auction or otherwise in service areas where the proposed spectrum cap is met or exceeded.[10]

63. SaskTel is also recommending that 50 MHz of the unencumbered licence blocks available for auction in each licence area be designated as set-aside spectrum. This will allow smaller regional operators and other new entrants in a market the opportunity to acquire 3500 MHz spectrum without having to challenge the financial backing of the national mobile wireless service providers. In order to promote competition from regional operators and other new entrants, it is essential that a portion of the band be designated as set-aside spectrum.

64. The designation of 50 MHz of set-aside spectrum is 25% of the total 200 MHz wide 3500 MHz spectrum band. This proportion is less than the amount designated in the 600 MHz spectrum auction where 3 out of 7 blocks (approximately 43%) were set aside. Therefore, a set-aside of 50 MHz of the 3500 MHz spectrum being auctioned is reasonable and appropriate.

65. Furthermore, the encumbered spectrum licence blocks will be made available for bidding in the auction to both set-aside-eligible and set-aside-ineligible bidders.

[9] The Consultation, paragraph 46.
[10] Ibid.

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If a set-aside is to be applied:

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

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

66. SaskTel agrees with the Department's proposal to limit the eligibility criteria to bid on set-aside spectrum licences to those entities registered with the CRTC as facilities-based providers that are not National Mobile Service Providers (NMSP), 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.[11]

67. In its efforts to promote a competitive marketplace, the Department must support smaller regional service providers and WISP's as they struggle to establish or maintain themselves as a viable fourth carrier in the market. The regional service providers require access to spectrum to provide services to the consumers, and therefore ISED must ensure that regional service providers have a fair opportunity to access spectrum to compete against NMSP's. SaskTel has previous experience being deliberately shut out by larger national mobile service providers in previous spectrum auctions where set-asides were not available.

68. A spectrum set-aside is one mechanism to achieve the goal of providing fair access to spectrum for regional service providers. However, an effective set of eligibility criteria must be employed to ensure the large national MSP's are separated from the regional service providers and WISP's without unintentionally excluding a potential competitive entity. Bidders selected to be eligible for set-aside spectrum must also be in a reasonable position to deploy the set-aside spectrum, otherwise there is a substantial chance that the spectrum will remain idle and be wasted.

[11] The Consultation, paragraph 39

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69. SaskTel agrees with the proposal by ISED to define a "national mobile service provider" as "companies with 10% or more of national wireless subscriber market share" as determined by the 2018 CRTC Communications Monitoring Report.[12] This provides a reasonable delineation between the large dominate national service providers and the smaller regional service providers.

70. Being a facilities-based provider of telecommunications services in a Tier 2 region means that the entity must have a physical presence and at least some network facilities. This physical presence places the entity in a far better position to deploy any spectrum licensed to them. Otherwise the spectrum could remain idle and be wasted. Therefore, SaskTel agrees with the proposal to restrict eligibility for set-aside spectrum to those entities that not NMSP's and are registered with the CRTC as facilities-based providers in the associated Tier 2 service area.

71. SaskTel also notes that this same eligibility criteria for set-aside spectrum was used in the 600 MHz spectrum auction, and as far as SaskTel has heard these criteria worked well for that spectrum licensing process.

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.

72. The Department's proposal that any set-aside spectrum licences acquired by set-aside-eligible bidders in the auction would not be transferable to set-aside-ineligible entities for the first five years of the licence term is logical in the circumstances. It aligns with past practices and incents entities to only bid on spectrum they intend to deploy rather than collecting the spectrum on a speculative basis.

[12] Ibid., paragraph 38

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

73. At this time, SaskTel has no comment on other proposals for eligibility criteria. However, we reserve the right to further address this question in the reply comments for this consultation process.

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.

74. SaskTel has recommended a spectrum cap be applied of 50 MHz, and we are recommending that this cap include grid-cell and sub-divided spectrum licences where the population covered by the grid-cell or sub-divided licence is 50% or more of the population of the associated Tier 4 service area. In those cases where the population covered by the grid-cell or sub-divided licence is less than half of the population of the entire Tier 4 service area, then this should not count towards the spectrum cap due to the potentially low population covered. To ensure fairness in the process, the spectrum cap must apply to all grid-cell and sub-divided spectrum licences covering 50% or more of the population of the associated Tier 4 service area, i.e. licences issued to incumbents through the transition process, and licences made available through the auction process.

75. As per Table A1 in Annex A of the Consultation many of the encumbered licence blocks have very high percentages of available population. Considering that many of the encumbered licences have a very substantial percentage of available spectrum, in some cases approaching 100%, and therefore comparable to unencumbered licence blocks, it is not appropriate to exclude these encumbered spectrum licences from a spectrum cap when a large portion of the population is available for the licensee. On the other hand, bidders should be encouraged to bid on and acquire licence areas with smaller population percentages as an incentive for the spectrum to be efficiently and fully utilized. Therefore, a 50% population available threshold is a reasonable measure to determine if the licence should be counted towards the spectrum cap.

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76. SaskTel agrees with the Department's proposal to allow the return of grid-cell and sub-divided licenses in order to allow a licensee to increase their eligibility to bid on additional spectrum within the related service area.[13]

8. Licence Areas

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

77. SaskTel agrees with the Department's proposal to use Tier 4 service areas for the 3500 MHz licensing process. Although Tier 2 licences are generally preferred for licensing of mobile services, the incumbent licences are all based on Tier 4 or partial Tier 4 licences, or smaller grid-cell licensing. We do not believe that it will be workable to try to attempt to license Tier 2 spectrum licences along-side existing Tier 4 spectrum licences in the same band and still guarantee contiguous spectrum licence assignments per licensee.

78. It is therefore most appropriate to use Tier 4 service areas for the 3500 MHz licensing process.

8.1 Amount of spectrum available and frequency determination for licences in the 3500 MHz band

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.

79. The Department's proposal to include all remaining spectrum, including encumbered Tier 4 areas, in the auction licensing process, as shown in Table A1 of Annex A of the Consultation is appropriate.

80. This will allow the opportunity to fully utilize the spectrum in most if not all of the geography of each Tier 4 service area, while still allowing incumbent licence holders to continue to provide services as per their existing service areas. This also gives the incumbent partial Tier 4 licence holders the opportunity, should they so choose, to acquire additional spectrum licences to cover the remainder of the

[13] The Consultation, paragraph 46.

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Tier 4 licence area surrounding their existing licence area, allowing for expansion of their network coverage.

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.

81. SaskTel agrees with the Department's proposal to include in the assignment rounds of the auction the Tier 4 licences issued through the transition process along with the full and partial Tier 4 spectrum licences acquired in the auction process. This will allow for the most effective assignment of frequencies for all licences in the 3500 MHz band.

82. We also agree with the Department's proposal to not include sub-divided and grid-cell licences issued as part of the transition process in the assignment rounds of the auction, and to have the determination of the frequency for the grid-cell and sub-divided licences be based upon the assignment round results for the encompassing partial tier licence.

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.

83. SaskTel strongly agrees with the Department's proposal to guarantee the assignment of contiguous spectrum for licensees acquiring multiple flexible use Tier 4 spectrum licences in a given area either through the auction process or through the transition process. SaskTel believes this should also apply to partial area licences acquired through the auction.

84. With the requirements to provide large bandwidths using 5G networks, and the great efficiency gains realized through the use of contiguous spectrum, it is very important from a network efficiency and performance standpoint that all licence holders should benefit from the assignment of contiguous spectrum. Ensuring all licence holders acquire contiguous spectrum blocks ensures that all consumers will benefit from the enhanced services achievable with contiguous spectrum.

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

85. SaskTel agrees with the Department's proposal to classify all partial tier licences as encumbered blocks. This approach has been used by the FCC in some of their auctions in the United States and is an appropriate mechanism to allow for the auction of vacant spectrum throughout each Tier 4 service area.

86. As noted by the Department in the consultation,

> "*ISED recognizes that any spectrum that is partially encumbered will require coordination with the existing licensee and will result in some of the population within the tier area not being available to the new licensee. As such, ISED is proposing that the spectrum made available in the auction for areas that are less than the entire Tier,* ***be considered as encumbered spectrum, no matter how small the encumbrance is in terms of the percentage of population****."*[14]*(emphasis added)*

87. SaskTel agrees with the Department and wishes to emphasize the importance of recognizing all partial tier licences as encumbered, regardless of the amount of encumbrance in terms of population percentage. Any encumbrance, even with a small percentage of population and/or over a small geographical region, will require discussion, coordination and negotiations with the incumbent licence holder. This may likely require the establishment of buffer zones to reduce interference. This added complexity could hinder network deployment using this partial tier licence, and therefore de-valuing this spectrum. This lower spectrum value must be incorporated into the licensing process through the designation as being an encumbered spectrum block.

[14] The Consultation, paragraph 62

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

88. SaskTel disagrees with the Department's proposal to bundle encumbered spectrum licences with "similar" geographical coverage, and/or "similar" population coverage. SaskTel does recommend bundling encumbered licence blocks that are identical in terms of bandwidth, coverage, and therefore population.

89. Using generic licences in a Clock Auction format licensing process requires that the licences be substitutable. To be substitutable, the licences for each product must be identical in terms of bandwidth, geographical coverage, population coverage, and other terms and conditions. Licences that are "similar" are NOT substitutable. Therefore, "similar" licences cannot be bundled and labelled as substitutable generic licences when they are not.

90. SaskTel notes the example given in Annex B of the Consultation where the Department proposes to combine portions of the Weyburn licence areas 4-120-1, 4-120-2, and 4-120-3 into a single product for auction. As clearly shown in Figure B1 of the Consultation, these licence areas are not identical. The differences are significant for rural network deployment, and it would not be appropriate to pass off these differences and call the licences identical and substitutable. SaskTel opposes the bundling of these three Weyburn licences into one product because they are not identical and in general opposes the bundling of any non-identical spectrum licences.

91. SaskTel recommends that only licences that are identical in terms of bandwidth, geographical coverage, and population coverage be candidates for bundling.

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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.

92. SaskTel disagrees with the Department's proposal that the encumbered partial Tier 4 licences would not count towards the spectrum cap during the auction. As stated in our response to question Q1F above, SaskTel is recommending that encumbered partial Tier 4 licences with an available population equal to or greater than 50% of the population of the entire Tier 4 service area should count towards the spectrum cap, for both incumbent licences issued through the transition process and for licences made available through the auction process.

93. SaskTel does agree that any post-auction transfers of the licences issued either through the transition process or through the auction process should count towards the spectrum cap following the same rules as during the auction. For encumbered spectrum licences, this includes maintaining the policy of having encumbered partial Tier 4 licences with an available population of 50% or more of the encompassing Tier 4 service area count towards the spectrum cap. We also agree that any post-auction transfer of encumbered spectrum licences must be subject to the conditions of licence as described in section 11.2 of the Consultation.

9. Auction format and rules

9.1 Generic licences

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

94. SaskTel agrees with the Department's proposal to use generic licences. As noted in the Consultation, the licence blocks are similar in characteristics and utility, therefore the use of generic licences in the auction licensing process is appropriate.

95. As stated in our response to Q3E above, generic licences must be substitutable. SaskTel would like to emphasize that to be substitutable spectrum licences must

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be identical in terms of bandwidth, geographical coverage, population coverage, and other terms and conditions.

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.

96. SaskTel agrees with the Department's 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.

97. SaskTel agrees with the Department's proposals to establish categories for encumbered and unencumbered blocks, as well as the proposal to establish open and set-aside categories for the unencumbered blocks.

98. As stated in our response to Q3E above, generic licences must be substitutable. SaskTel would like to emphasize that to be substitutable spectrum licences must be identical in terms of bandwidth, geographical coverage, population coverage, and other terms and conditions. Therefore, each category product of encumbered spectrum licences must consist of identical spectrum licences, and not a bundle of "similar" licences. For rural deployments, the "slight" differences between "similar" licences are very significant in terms of network engineering and deployment plans.

99. As per our response to Q1B, SaskTel recommends that a spectrum cap of 50 MHz be applied to all licence holders, and that this spectrum cap should include both auctioned licences and any licence holdings issued through the transition process. SaskTel recommends that the spectrum cap apply to all unencumbered licence blocks, as well as to encumbered licence blocks where the percentage of the available population is equal to or greater than 50% of the total population of the encompassing Tier 4 service area. For grid-cell and sub-divided licences issued through the transition process, the spectrum cap should apply to these licences if the population covered by the licences is equal to or greater than 50% of the total population of the encompassing Tier 4 service area.

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100. Furthermore, SaskTel recommends that 50 MHz of the unencumbered licence blocks be designated for set-aside-eligible bidders only. The remainder of the unencumbered licences in each Tier 4 would therefore be designated for bidding by set-aside-ineligible bidders.

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 blocks in a service area.

101. As per our response to question Q1B, SaskTel is recommending both a spectrum cap and a spectrum set-aside be applied in the 3500 MHz spectrum auction. A spectrum cap alone will not be sufficient to encourage fair competition given the limited amount of spectrum being auctioned in some licence areas.

9.2 Anonymous bidding

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

102. SaskTel agrees with the proposal to use anonymous bidding during the auction and agrees with the proposed information to be provided to each bidder after each clock round. This includes information on their own bidding, and aggregate demand for each product in each service area for which the bidder is eligible to bid.

9.3 Clock auction format

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

103. SaskTel agrees with the proposal to use a clock auction format for the 3500 MHz spectrum auction. The two-stage auction format allows for price discovery, and the allocation of multiple blocks of spectrum. At the conclusion of the clock rounds, bidders will know exactly which licences that they have won, and the base price for those licences.

104. SaskTel is pleased that winning bidders are guaranteed that their allocated licence blocks will be contiguous. The inclusion of the incumbent spectrum

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holders in the assignment round will also allow for the effective assignment of licence blocks.

105. With the similarity of the licences being auctioned the clock format should allow for a quick auction, particularly if a proper bid increment is employed during the clock rounds. The use of a large bid increment in the earlier rounds and smaller increments in later rounds in combination with the proposed use of intra-round bidding should allow for an efficient auction.

106. SaskTel notes that the clock auction format has successfully been used by the FCC for their 600 MHz spectrum auction.

107. We agree with the Department's assessment that using the Combinatorial Clock Auction (CCA) format to auction a large number of 3500 MHz spectrum licences would be very problematic. In addition, SaskTel has numerous other concerns with the CCA auction format, and therefore opposes the use of the CCA format. SaskTel does not believe there are large concerns about bidder exposure with the Clock Auction format, and any concerns can be mitigated with proper bidding strategies.

108. SaskTel is very pleased that the Department is proposing a Clock Auction format for the 3500 MHz spectrum auction.

9.4 Structure of the clock stage

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.

109. SaskTel has reviewed Annex C of the Consultation and agrees with the Department's proposed structure of the clock stage, and the proposed methodology for calculating processed demands and the posted prices after each round.

110. We note and agree with the proposed use of intra-round bidding allowing bidders to better express spectrum values and demand in their clock round bids, while also allowing the Department to use larger clock price bid increments to reduce the number of rounds. The Department should use larger clock price bid

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increments, especially in the early rounds of the auction when there is a lot of excess demand to speed up the auction process, and use smaller bid increments in later rounds of the auction when the absolute dollar values of bids are much larger.

111. SaskTel agrees with the proposed methodology for processing bids based on the general principles of only processing bids to increase demand if the proposed activity will not exceed the bidder's eligibility, and only processing bids to decrease demand for a product if the reduction will not cause the aggregate demand for that product to fall below supply or fall further below supply if it is already below supply. We agree with the intent of these rules to guarantee there will never be any unsold blocks for a product once demand becomes equal to or greater than supply.

112. SaskTel also believes that adopting the various mechanisms as proposed in Annex C of the Consultation for processing clock round bids will encourage more honest bidding by making it risky for bidders to "park points" in unwanted licence areas if demand is near or below supply.

113. SaskTel is particularly pleased that under the proposed auction format there will be no supplementary round. The supplementary round is a part of the CCA auction format previously used by the Department. Bidders will not be faced with the uncertainties and risks and overwhelming complexity of strategic bidding intended solely to hurt other bidders without increasing auction efficiency that is associated with the supplementary round. At the conclusion of the clock stage bidders will know with absolute certainty which licences they have won and the exact base price for those licences.

114. SaskTel agrees with the proposals to set separate round prices in the clock rounds for the non-set-aside, set-aside, and encumbered products in each Tier 4 service area. We also note the observation in paragraph 50 of Annex C of the Consultation that the posted price of the set-aside product can never exceed the posted price of the non-set-aside product.

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9.5 Price increments in the clock rounds

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

115. SaskTel agrees with the Department's proposed range of between 1-20% for percentage increments in clock prices in the clock rounds, rounded up to the nearest thousand-dollar increment. The proposed range will allow the auction to progress in an efficient and timely manner, while the proposed use of intra-round bidding in the auction will allow bidders to properly express demand for spectrum.

116. The Department should use larger clock price bid increments, especially in the early rounds of the auction when there is a lot of excess demand to speed up the auction process, and use smaller bid increments in later rounds of the auction when the absolute dollar values of bids are much larger.

9.6 Activity rules in the clock rounds

117. SaskTel agrees with the proposed eligibility points and opening bid prices for the 3500 MHz spectrum licences being auctioned as per Annex D of the Consultation.

118. We also agree with the proposed activity requirement rules for the clock rounds, and the proposal to set the activity level between 90% and 100% for all clock rounds.

9.8 Structure of the assignment stage

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

119. SaskTel agrees with the overall proposed structure of the assignment stage as described in section 9.8 and Annex E of the Consultation.

120. Treatment of existing spectrum holdings. SaskTel agrees with the proposal to allow all licence holders, namely incumbent licence holders, existing licensees acquiring spectrum through the transition process, and entities acquiring spectrum through the auction process, to participate in the assignment round. This will be the most efficient method of assigning frequency blocks for all licence holders.

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121. As stated previously in our response to question Q3C, SaskTel agrees with the proposals of the Department that will ensure licensees with multiple spectrum blocks are assigned contiguous spectrum in the assignment stage, as per paragraphs 97 and 98 of the Consultation. This is critical for network efficiency, and SaskTel notes this principal is being followed in the Assignment stage.

122. We agree with the proposed procedures for the assignment of incumbent grid-cell and sub-divided Tier 4 licences through the assignment of the winning bidder of the surrounding partial Tier 4 licence as described in paragraphs 99 and 100 of the Consultation.

123. Assignment stage structure. SaskTel agrees with the proposed structure of the assignment stage as described in paragraphs 101 to 103 and Annex E of the Consultation.

124. Order of the Assignment Rounds and Combination of Service Areas: SaskTel agrees with the order of the Assignment rounds as given in Annex E of the Consultation. We also agree with the Department's proposal to combine service areas into a single assignment area given that certain criteria given in paragraph 103 of the Consultation are met.[15]

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.

125. SaskTel agrees with the Department's proposal to apply bidder optimal core prices and to use the "nearest Vickrey" approach to determine the assignment prices, as described in Annex E of the Consultation.

[15] The Consultation, paragraph 103

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10. Bidder participation: Affiliated and Associated entities

10.1 Affiliated entities

10.2 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. SaskTel agrees with the proposed rules for affiliated and associated bidders for the 3500 MHz auction as detailed in sections 10.1 and 10.2 of the Consultation.

10.4 Prohibition of collusion and other communication rules

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. SaskTel agrees with the proposed rules prohibiting collusion and other communication rules to be applied to bidders and potential bidders in the upcoming 3500 MHz spectrum auction process as detailed in section 10.4 of the Consultation.

11. Conditions of licence for flexible use spectrum licences in the 3500 MHz band

11.1 Licence Term

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. SaskTel agrees with the Department's proposal to issue new flexible use licences in the 3500 MHz band with a 20-year licence term. SaskTel agrees with the proposal to have all 3500 MHz flexible use licences expire 20 years after the initial licence issuance date, as detailed in the Consultation.

129. SaskTel agrees with the proposed conditions of licence regarding the licence term as given in section 11.1 of the Consultation.

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130. SaskTel agrees with the Department's assessment in paragraphs 147 to 149 of the Consultation concluding that a 20-year licence term is appropriate.

131. However, as per paragraph 150 of the Consultation the Department raises the possibility of future changes to licence conditions that would allow opportunistic access to the exclusively licensed 3500 MHz spectrum. SaskTel cautions the Department to fully consider all the impacts of introducing opportunistic access to spectrum in any band with existing wireless network deployments. Allowing opportunistic access to this or any spectrum with existing deployments would be a significant change in the environment, and even a small increase in interference levels can have a drastic impact on RF network performance, and therefore customer experience. SaskTel recommends that the Department launch a full and comprehensive public consultation prior to the introduction of opportunistic spectrum access in any band, with the goal of determining with certainty the full impact of opportunistic spectrum access on both existing and new wireless network deployments and services.

11.2 Licence transferability, divisibility and subordinate licensing

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

132. SaskTel agrees with the proposals made by the Department regarding transferability and divisibility. We note the intention to treat the 3500 MHz flexible use spectrum licences in the same manner as commercial mobile spectrum licences in accordance with provisions of section 5.6 of CPC-2-1-23, including section 5.6.4.[16]

133. As stated in paragraphs 154 and 155 of the Consultation, the Department proposes to allow licensees that only intend to offer fixed wireless services the ability to transfer or sub-ordinate 3500 MHz spectrum licences by excluding the conditions and analysis from section 5.6.4 of CPC-2-1-23. Under the proposals, the resulting transferred or subordinated licences for fixed services only would

[16] The Consultation, paragraph 153

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include a condition of licence restricting operations and deployment to fixed services only.

134. SaskTel agrees that licensees that will offer only fixed services using their spectrum licences should be able to transfer or subordinate fixed spectrum licences without including the analysis required as per section 5.6.4 of CPC-2-1-23 that applies to commercial mobile wireless spectrum licence transfers.

135. However, SaskTel would recommend that instead of issuing a new flexible use licence with the simple amendment of a condition of licence restricting operation to fixed services only, the Department should instead issue a new fixed spectrum licence rather than a new flexible use licence. Issuing a fixed spectrum licence would be more straightforward, less confusing, and carry more weight in potential enforcement scenarios versus a simple condition of licence amendment restricting deployment to fixed services only.

136. As stated previously, SaskTel is recommending that the Department impose both a spectrum cap of 50 MHz and a set-aside of 50 MHz in the upcoming 3500 MHz spectrum auction, and that these restrictions remain in place for five years following licence issuance.

137. As described in paragraph 157 of the Consultation, SaskTel agrees with the proposal to prohibit the transfer or issuance of any new licences that would allow a licensee to exceed the spectrum cap, or to further exceed the spectrum cap if their prior holdings already exceed the cap, for five years following licence issuance.

138. SaskTel also agrees with the proposal to not permit the transfer of set-aside 3500 MHz spectrum licences to a set-aside-ineligible licensee for five years following licence issuance, as detailed in paragraph 158 of the Consultation.

139. Regarding spectrum subordination, as per paragraph 159 of the Consultation the Department has proposed to allow the subordination of set-aside licences to set-aside-ineligible entities to support a spectrum sharing agreement, should a set-aside be applied. The Department has also proposed that a subordinate licence would not count towards the spectrum cap, should a spectrum cap be adopted. In

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order for these licences to be granted in these cases, the Department has proposed that licensees must demonstrate to the satisfaction of ISED that all conditions given in section 5.6.3 of CPC-2-1-23 are met. Secondly, the licensees must also demonstrate to the Department that they intend to, and will continue to, make use of the 3500 MHz spectrum licences to actively and independently provide services in the applicable licence service areas. The proposed assessment factors and required documentation for the Department's assessment are stated in paragraphs 160 and 161 of the Consultation.

140. SaskTel agrees with the proposed conditions and assessment process for subordination of 3500 MHz spectrum licences as detailed in paragraphs 159 – 162 of the Consultation.

141. The Department has proposed in paragraph 165 of the Consultation to allow for the "exchange" of equal amounts of 3500 MHz spectrum within the same licence area between set-aside-eligible and set-aside-ineligible entities after the announcement of the provisional licence winners. SaskTel recognizes that permitting this exchange of spectrum can promote the efficient utilization of spectrum and agrees with this proposal.

142. Finally, SaskTel agrees with the proposed wording for the conditions of licence on transferability and divisibility as stated in paragraph 167 of the Consultation.

11.3 Deployment requirements

Q14—ISED is seeking comments on the proposed deployment condition of licence as stated [in the consultation] as well as on the proposed levels of deployment.

143. SaskTel does not agree with the proposed deployment conditions of licence as stated in the Consultation. Although we understand and agree with the Department's goal to extend 5G services into rural areas[17], the necessary investment in network infrastructure required to meet the deployment targets for operators currently offering LTE-based mobile services as proposed in the Consultation are totally unreasonable given the low population densities in rural

[17] The Consultation, Section 11.3, in particular paragraphs 171-172, and 177

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Saskatchewan and the propagation characteristics of 3500 MHz versus 850 MHz which is the basis of SaskTel's rural LTE coverage.

144. In the Consultation the Department has stated their goal is to ensure that 5G services are provided in a timely manner to all Canadians, including as much as possible rural residents.[18] SaskTel agrees with this goal, but objects to the proposed 3500 MHz spectrum deployment requirements as proposed in the Consultation in an attempt to achieve this goal. The Department has proposed that licensees acquiring flexible use licences and currently providing mobile broadband LTE services must meet the following deployment obligations as given in paragraph 177 of the Consultation:

> *Licensees will be required to demonstrate to the Minister of Innovation, Science and Economic Development that this spectrum has been put to use in the licence areas where they offer existing mobile broadband LTE service to cover the following deployment obligations:*
>
> > *i. 90% of the population within its mobile LTE network footprint as of June 5, 2019, within five years of the initial licence issuance date;*
> >
> > *ii. 97% of the population within its mobile LTE network footprint as of June 5, 2019, within seven years of the initial licence issuance date; and*
> >
> > *iii. 95% of the population outside the large urban population centers, as listed in annex G of this document, in the tiers that contain the large urban population centre within 10 years of the initial licence issuance date;*

145. **<u>Deployment Requirement Unfavourable to Rural LTE Operators</u>**. SaskTel has an extensive mobile broadband LTE network covering a vast region of rural Saskatchewan. This network uses 850 MHz spectrum to achieve a wide LTE coverage in rural areas to reduce the number of required towers. SaskTel has made great efforts to serve the rural residents of Saskatchewan with a high-quality LTE network. In many instances, the business cases to provide this LTE service are very weak or non-existent. However, SaskTel continues to provide wireless services to deep rural and remote areas of Saskatchewan.

[18] Ibid., paragraph 172

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146. Because SaskTel has moved forward and deployed a mobile LTE network serving rural Saskatchewan that covers a large geographical area with a low population density, the result is that the proposed deployment requirements for 3500 MHz have an unfair negative impact against SaskTel. We understand that this requirement can be reasonably applied to urban coverage areas, however the 3500 MHz band simply cannot match low band spectrum for rural coverage.

147. **3500 MHz versus 850 MHz Coverage**. In the Consultation the Department has based the required deployment of 3500 MHz spectrum on the population served by the operator's existing LTE network as of June 5, 2019. SaskTel relies on low band 850 MHz LTE infrastructure to serve this population. Compared to 3500 MHz spectrum, the propagation characteristics of 850 MHz allow for a much longer range, and therefore larger coverage areas from each rural cell site. It is not possible to duplicate the coverage provided by 850 MHz LTE using 3500 MHz spectrum. The shorter range of 3500 MHz means that for every deployment at each cell site, there will always be a proportion of coverage and therefore population lost when compared to the coverage at 850 MHz.

148. SaskTel has done preliminary studies and investigations into the anticipated coverage of 3500 MHz 5G networks in rural areas. Figures 1A and 1B below show a comparison of our current 850 MHz LTE coverage and the estimated 5G coverage possible with 3500 MHz deployments. The 3500 MHz coverage estimate assumes 3500 MHz equipment is installed at every site where 850 MHz is also deployed.

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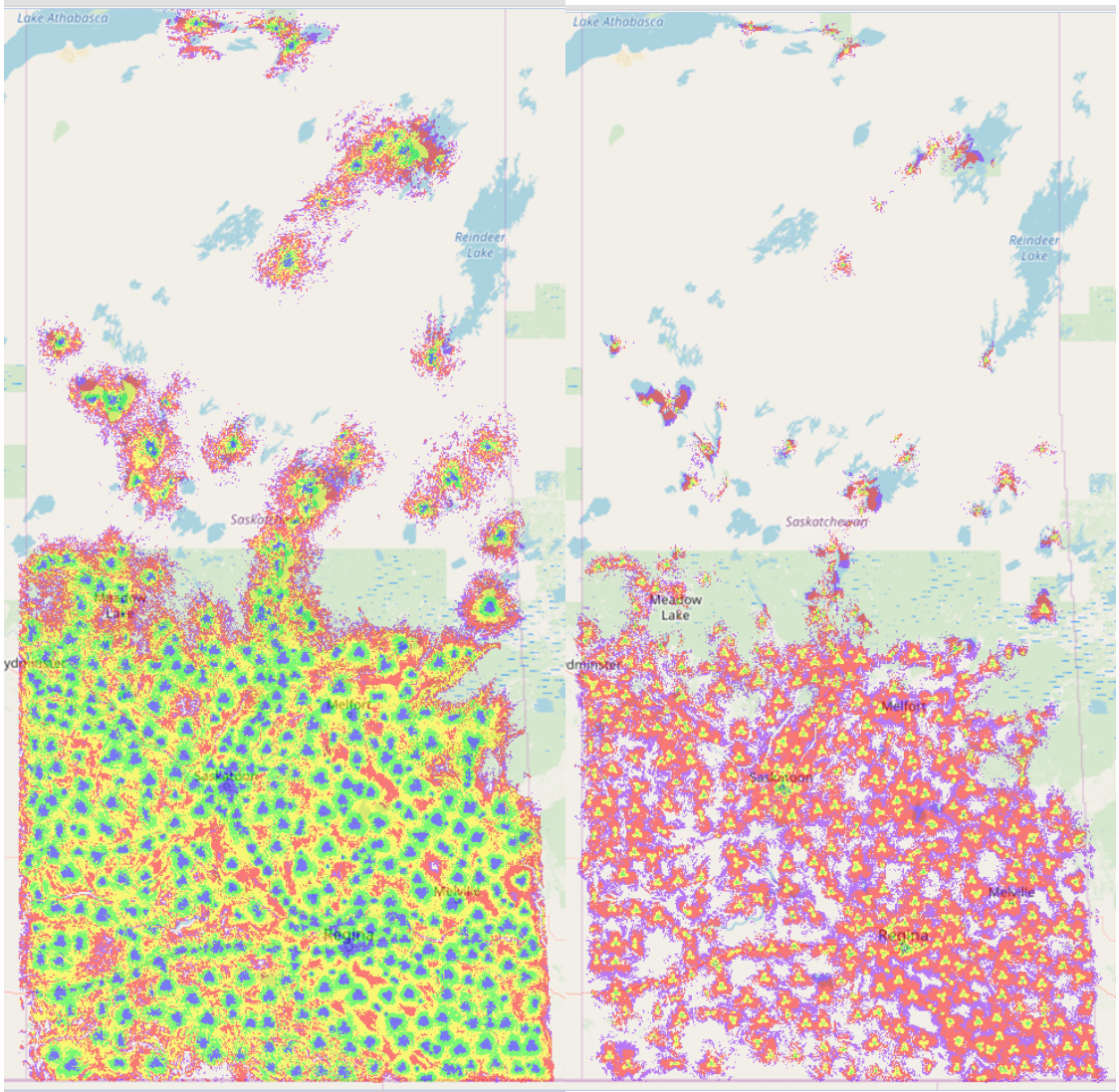

Figure 1A
Current SaskTel 850 MHz LTE Coverage

Figure 1B
Estimated 5G 3500 MHz Coverage

Coverage

- Excellent
- Very Good
- Good
- Poor
- Very Poor Fringe
- No Coverage

149. It must be noted that the colour scales for the quality of coverage for both Figures 1A and 1B are the same. For southern Saskatchewan in particular, please note the relatively small amounts of white, purple, and red coverage areas for the 850 MHz LTE coverage in Figure 1A, compared to the coverage of 3500 MHz. Please

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also note the large amounts of white, purple, and red coverage areas for the 3500 MHz coverage in Figure 1B for the same southern Saskatchewan region. Again, the 3500 MHz coverage predictions were computed assuming 3500 MHz equipment is deployed at every SaskTel cell site where 850 MHz LTE is currently operating.

150. One can easily see the very large gaps in coverage expected in rural areas with 3500 MHz. Whereas very large regions are covered with 850 MHz, there is a very significant shortfall in coverage with 3500 MHz. This shortfall is sufficient enough to make it extremely difficult if not impossible to meet the 97% of LTE population covered. As can clearly be seen in Figure 1B, meeting the proposed deployment requirement of 97% will require at a minimum the deployment of 3500 MHz 5G networks at every SaskTel cell site, as well as the addition of numerous rural "in-fill" sites requiring new towers to enhance coverage.

151. It must be emphasized that these rural "in-fill" sites will need to be installed in very sparsely populated areas "in the middle of nowhere". There will likely be no infrastructure in the area, requiring the installation not only of towers, but also buildings, access roads, power lines, and fibre facilities. The typical rural cell site is far more expensive to build than a new urban cell site.

152. This amount of investment is unreasonable. These rural residents are already being well served by low band 850 MHz LTE and can be well served with 5G services using 600 MHz spectrum.

153. Furthermore, the deployment of 5G services in any region must be based on a favourable market opportunity and business case. The technical performance of 5G technologies in a rural environment needs to be verified in a field trial as a pre-requisite to deployment planning. The time table for deployment of 5G, particularly for rural regions, cannot be arbitrarily set at this time and still be expected to align with a reasonable business model.

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154. The stringent and arbitrary 3500 MHz deployment requirements as proposed for 3500 MHz flexible use licence holders currently providing mobile LTE services that impose such an excessive short-term network investment directly contradicts the intentions of the Department as given in paragraph 172 of the Consultation:

> *"These time frames will ensure timely deployment of 5G services to all Canadians* ***while permitting some flexibility for licensees to put in place build plans that align with their business strategies****." (emphasis added)*

155. With an extensive rural LTE network, SaskTel is well positioned to deploy 3500 MHz spectrum in rural areas. However, instead of being an incentive to deploy 3500 MHz spectrum in rural areas, the stringent and excessive deployment requirements being proposed are ironically a disincentive to operators such as SaskTel with an extensive rural LTE footprint to acquire the 3500 MHz spectrum. SaskTel's assessment of the proposed stringent deployment requirements is that they will not be in alignment with SaskTel's business strategies.

156. The deployment requirements as proposed are wasteful and very inefficient. The goals of the Department can be achieved at a much lower cost and with greater benefit to consumers.

157. **5G Services**. As stated in the Consultation, the goal of the Department is to encourage the deployment of 5G services to all Canadians, including rural residents.[19] SaskTel notes that the provision of 5G services is not restricted to any one band of spectrum, and any measures imposed to encourage 5G deployment should not be dependent on 3500 MHz spectrum only. Furthermore, consumers of 5G services are not concerned about the spectrum band being used to serve them, their concern is a good 5G experience. To them the spectrum band being used is irrelevant.

158. SaskTel therefore recommends that to meet the goal of providing 5G services to all Canadians including rural residents, the deployment requirement for licensees acquiring 3500 MHz flexible use licences should be an obligation to serve a given population with 5G services **using any spectrum band**. Low band spectrum

[19] The Consultation, paragraph 172

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bands such as 600 MHz, 700 MHz, or 850 MHz are far more suitable to serve rural areas, and these bands are being developed for 5G and are being included in new 5G devices.

159. **Deployment Requirement Timeframes**. SaskTel also disagrees with the time frames proposed for the deployment requirements specific to operators currently providing mobile broadband LTE services. The time lines for rural deployment as proposed in paragraph 177 of the Consultation are five years and seven years after initial license issue.

160. However, the Protection period for incumbent licensees for almost all Tier 4 service areas are either two years or three years as per the 3500 MHz Decision.[20] Therefore operators such as SaskTel cannot begin deployments in most Tier 4 service areas until at least two or three years after licence issue. With these two-year and three-year Protection periods in place, licence holders then only have two or three years to meet the five-year requirements. Similarly, licensees only have four or five years to meet the more stringent seven-year requirements as proposed in the Consultation. This is simply not enough time to meet these requirements.

161. Furthermore, the seven-year time frame proposed to extend 5G services essentially throughout the entire province of Saskatchewan is too strict. This does not align with SaskTel business strategies for 5G services in deep rural and remote areas, and is not in alignment with the Department's objectives given in paragraph 172:

> *"These time frames will ensure timely deployment of 5G services to all Canadians* ***while permitting some flexibility for licensees to put in place build plans that align with their business strategies****." (emphasis added)*

162. SaskTel recommends that the time frames for all deployment requirements be based on the expiration of the Protection periods for the Tier 4 service area, and

[20] 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", section 6.9, Decision D13

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not be based on initial licence issue. Furthermore, we recommend that the seven-year time frame be extended to ten years.

163. **Summary and Recommendations**: For the reasons stated above, SaskTel recommends the deployment requirements for service providers presently offering mobile LTE services proposed in paragraph 177 of the Consultation be modified as follows:

> *Licensees will be required to demonstrate to the Minister of Innovation, Science and Economic Development that* ***the licensee is providing 5G services using any spectrum band(s)*** *in the licence areas where they offer existing mobile broadband LTE service to cover the following deployment obligations:*
>
> > *i. 90% of the population within its mobile LTE network footprint as of June 5, 2019, within five years of the* ***expiration of the protection period for incumbent licensees for the Tier 4 service area****;*
> >
> > *ii. 97% of the population within its mobile LTE network footprint as of June 5, 2019, within* ***ten years of the expiration of the protection period for incumbent licensees for the Tier 4 service area****; and*
> >
> > *iii. 95% of the population outside the large urban population centers, as listed in annex G of this document, in the tiers that contain the large urban population centre within 10 years of the* ***expiration of the protection period for incumbent licensees for the Tier 4 service area****;*
> >
> > *(modifications emphasized)*

11.4 Other conditions of licence

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

164. With the exception of the proposed Deployment Requirements detailed in section H10 of Annex H, SaskTel agrees with all of the other proposed conditions of licence for flexible use licences as outlined in Annex H of the Consultation.

165. SaskTel's recommendations for modifications to the Deployment Requirements in the conditions of licence in Annex H can be found in paragraph 163 above in SaskTel's response to Q14.

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12. 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.

166. SaskTel agrees with the Department's proposal to amend all FWA conditions of licence based on the proposed conditions of licence as given in Annex I of the Consultation.

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

167. SaskTel agrees with the proposal to apply the amendment to the conditions of licence for all FWA licences as per the proposed conditions of licence given in Annex I of the Consultation effective June 5, 2020.

13. Auction Process

13.1 Application to participate

13.2 Opening bids

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

168. SaskTel agrees with the proposed methodology for determining the opening bids, and the opening bid amounts for the encumbered and unencumbered licence blocks as given in Annex D of the Consultation.

13.3 Proposed eligibility points for the 3500 MHz spectrum auction

13.4 Pre-auction deposits

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 [in the Consultation].

169. SaskTel agrees with the proposed eligibility points for the 3500 MHz spectrum licensed as shown in Annex D of the Consultation, and we agree with the proposed amount and proposed process for submitting pre-auction deposits.

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15. Licence renewal process

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

170. SaskTel agrees with the proposed license renewal process as outlined in the Consultation.

CONCLUSION

171. SaskTel has reviewed the Consultation with the Department's proposed policies and rules for the 3500 MHz licensing process. As a regional-based service provider, SaskTel has provided the Department input, suggestions, and recommendations on the questions raised in the Consultation.

172. Based upon our assessment and our experience in previous auctions, we agree with the Department **that pro-competitive measures will be required** to level the playing field and therefore allow for the benefits of fair competition and for the support of a fourth player in wireless markets.

173. SaskTel has **recommended a spectrum cap of 50 MHz** that should apply not only to unencumbered spectrum blocks acquired in the auction, but also to licences issued to incumbent licence holders through the transition process, and all partial Tier 4 licence blocks where the available population is 50% or more of the total population of the associated Tier 4 service area. With a total bandwidth of 200 MHz in the 3500 MHz band, a spectrum cap of 50 MHz will allow at least four operators to access the very valuable 3500 MHz spectrum.

174. SaskTel also **recommends that 50 MHz** of the spectrum being auctioned be **designated as set-aside spectrum**. This is a reasonable portion of the total 200 MHz spectrum in the 3500 MHz band, and allows a smaller fourth operator in each market to acquire spectrum without having to compete against the financial resources of the large national mobile service providers.

175. SaskTel generally agrees with most of the spectrum auction policies and rules as proposed by the Department. This includes the use of Tier 4 licence areas, and

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the inclusion of all available spectrum, including partial Tier 4 licence blocks, in the auction process.

176. However, SaskTel **does not agree** with the bundling of "similar" partial Tier 4 licence blocks. Even apparently small differences in geographical coverage or population can have a significant impact on rural network deployment planning. For the use of generic licences in a Clock Auction format, the licences must be substitutable, and therefore the licences must be identical in terms of bandwidth, geographical coverage, and population coverage. Therefore, SaskTel recommends that only identical partial Tier 4 licence blocks be candidates for bundling or combining.

177. SaskTel is pleased that the Department is guaranteeing that licensees acquiring multiple blocks of spectrum in either the transition process or the auction process will be assigned contiguous blocks of spectrum. Contiguous spectrum greatly enhances network efficiency and performance, and this will greatly enhance consumer experience by allowing network operators to more efficiently deliver larger bandwidths to individual users.

178. SaskTel is also pleased with the choice of a Clock Auction format for the 3500 MHz spectrum auction. This format does not feature a Supplementary round. This will make for a far more efficient and effective auction because upon the conclusion of the clock rounds bidders will know with certainty which licences have been won, and the exact amount of the base price for these licences. As well, the lack of a supplementary round eliminates the gaming opportunities and submission of non-winning bids solely to hurt other bidders, and therefore leading to a much more efficient and effective spectrum auction process.

179. SaskTel agrees with almost all of the proposed licence terms and conditions as proposed in the Consultation. However, **SaskTel opposes the proposed additional deployment conditions for existing operators providing mobile LTE services**. SaskTel's LTE network has been deployed over large areas of rural and remote Saskatchewan, primarily based on 850 MHz spectrum that provides a larger coverage area from each cell site. It is almost impossible to meet the proposed requirement of serving 97% of our current LTE coverage that

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is based on 850 MHz using 3500 MHz spectrum. The propagation characteristics of the higher frequency 3500 MHz band simply does not allow the same coverage as 850 MHz. Our preliminary coverage studies have confirmed this. The large gaps in coverage can only be met by the addition of numerous "in-fill" sites.

180. The only way SaskTel can meet the proposed deployment requirement is at a minimum with the installation of 3500 MHz 5G infrastructure at every SaskTel cell site within 7 years. The 3500 MHz band is not well suited for rural deployments, and this is certainly not in alignment with SaskTel's business strategies.[21] This strict deployment requirement is unreasonable and almost impossible to meet. SaskTel is well positioned to deploy the spectrum in rural areas as per the Department's goals for efficient spectrum utilization, but this strict deployment requirement is actually a disincentive to acquire 3500 MHz spectrum.

181. As per the Consultation, the intent of the Department is to extend the benefits of new 5G technologies and services to all Canadians, including rural residents.[22] SaskTel therefore **recommends that the deployment requirement for operators currently providing mobile LTE services be modified** from deployment of 3500 MHz spectrum **to deployment of 5G services using any spectrum band**. SaskTel notes that consumers are not concerned about which spectrum band is being used to serve their device, they simply desire the benefits of 5G, regardless of the spectrum band being used.

182. SaskTel also has serious concerns with the five-year and seven-year time frames for the deployment requirement for current providers of LTE mobile services. The Department has decided to grant two- and three-year protection periods for incumbent licence holders.[23] With these protection periods in place, licensees only have two or three years to meet the five-year time frame. The level of annual investment that would be required to meet the requirement in such a short period of time is not reasonable at all. The seven-year time frame overall is simply too

[21] Paragraph 172 of the Consultation states that the goal of the Department is to have in place deployment requirements that align with the business strategies of licence holders.
[22] The Consultation, paragraphs 171-172
[23] As per 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", June 2019.

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short to meet the Department's proposed requirement, and the protection periods exasperates the situation.

183. SaskTel has **therefore recommended** that the **additional deployment requirements** proposed for current providers of mobile LTE service be **based on the provision of 5G services using any spectrum band**, and that the **time frames begin after expiration of the protection period for the Tier 4 service area**.

184. We **also recommend that the seven-year time frame be extended to ten years**, and that this ten-year period begin after expiration of the protection period for the associated Tier 4 service area. Although SaskTel does believe 5G services will be deployed in rural areas, the time frames for rural 5G deployments to meet our business strategies are not clear at this time. However, we believe with a reasonable probability that the ten-year target can be met.

185. SaskTel is pleased to have had the opportunity to provide our inputs and comments to the important issues raised in this Consultation and hopes that our submission will provide a fuller view of these issues to the Department.

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