

SaskTel Comments:

Gazette Notice SLPB-002-17

Consultation on a Licence Renewal
Process for Advanced Wireless Services
and other Spectrum

July 25, 2017

EXECUTIVE SUMMARY

1. The following represents a summary of SaskTel's Comments in response to SLPB-002-17, *Consultation on a Licence Renewal Process for Advanced Wireless Services and other Spectrum* ("the Consultation").
2. With the inclusion of some modifications proposed by SaskTel, we agree with the Department's proposed renewal process for the AWS-1 and PCS G Block spectrum licences, including the proposed licence conditions. The proposed process will facilitate the renewal of AWS-1 and PCS G Block licences where the licensee can demonstrate compliance with existing licence conditions, including deployment requirements.
3. The AWS-1 and PCS G Block spectrum bands are now well developed, and SaskTel agrees with the Department in that no fundamental changes or reallocations are required for this spectrum, either now or in the long term. Therefore, licence renewal is warranted for those licensees that are in compliance with licence conditions.
4. SaskTel agrees with the proposed licence conditions for the renewed licences, although SaskTel has recommended some proposed modifications to the deployment requirements for the Tier 4 service areas.
5. SaskTel agrees with the proposal to impose deployment requirements for each Tier 4 service area for each AWS-1 and PCS G spectrum licence. However, because the AWS-1 and PCS G Block spectrum is better suited for urban deployments, SaskTel believes the requirements as proposed in the Consultation would be quite onerous and unrealistic for those rural based Tier 4 service areas without a major population centre greater than 10,000 people to support the urban spectrum. In Saskatchewan, this includes the Watrous (4-126) and Northern Saskatchewan (4-130) Tier 4 service areas.
6. As proposed in the Consultation, even in these sparsely populated rural based Tier 4 service areas, all AWS-1 and PCS G licensees would be mandated to deploy all AWS-1 and PCS G spectrum blocks to many very small rural communities, some with less than 200 or 300 people, simply to meet the deployment requirements. This is a

very large amount of bandwidth for a very small number of consumers, and not realistic for sparsely populated rural areas.

7. SaskTel has proposed an alternate requirement for rural Tier 4 service areas. We propose that, for the rural based Tier 4 service areas without a population centre of more than 10,000 people, AWS-1 and PCS G block licensees be required to provide wireless service using any spectrum to the minimum population service levels within eight years, as detailed in Annex C of the Consultation. This would allow the wireless service provider the flexibility to utilize the optimum spectrum type and amount to serve these sparsely populated rural areas. The rural residents would still benefit from being offered a quality wireless broadband service.
8. SaskTel also made a proposal to make a minor adjustment to the population service requirement for the Prince Albert Tier 4 (4-128), suggesting a more realistic requirement of 30 or 35% population served within eight years. This is based on the fact that the AWS-1 and PCS G blocks are urban centric spectrum, and on the relative population of the City of Prince Albert compared to the remainder of the Tier 4 service area.¹
9. In light of the long term stability being shown in the AWS-1 and PCS G spectrum bands, SaskTel agrees that a 20-year term is appropriate for these renewed licences.
10. In response to the Department's query on the time frame for the introduction of devices capable of opportunistic spectrum access, SaskTel does not foresee any significant development in this area for at least the next five years. SaskTel also strongly urges the Department to consider that any modifications in licensing or spectrum management policies to include opportunistic spectrum access will be a substantial change for spectrum users. Any proposals to introduce such devices should be made very cautiously, and only after an extensive and thorough public consultation studying the potential impacts to not only existing and proposed network technologies but business and investment models as well.

¹ As per 2011 Census Population figures, the City of Prince Albert with 35,129 residents constitutes approximately 26% of the 130,853 residents in the Prince Albert Tier 4 (4-128), as per Annex C of the Consultation.

11. For the I Block spectrum, there is no industry or regulatory activity in this band.
SaskTel agrees with the Department in their assessment that there is a total absence of deployments in this band. Therefore, although SaskTel is not opposed to offering renewal to existing I Block licensees that demonstrate compliance to licence conditions, SaskTel does not seriously believe any I Block licensee can demonstrate meeting their deployment requirements.

12. Furthermore, SaskTel does not believe that I Block licences should be renewed or reissued at this time. Due to the complete lack of activity, and no apparent future direction at all on the I Block spectrum, SaskTel recommends that the I Block spectrum licences be held by the Department until such time that a direction on the I Block emerges.

INTRODUCTION

13. The following represent Saskatchewan Telecommunications' (SaskTel's) Comments in response to SLPB-002-017, *Consultation on a Licence Renewal Process for Advanced Wireless Services and other Spectrum* ("the Consultation").
14. The section numbering of the remainder of this document corresponds to the numbering of the consultation paper released by the Department. 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

6. **AWS-1**
7. **G Block**
8. **I Block**

A. ISED invites comments on the assessment of the AWS-1, G Block and I Block equipment ecosystems.

15. SaskTel agrees with the ISED assessment of the equipment ecosystems for these spectrum bands.
16. The AWS-1 LTE ecosystem is very well developed, with numerous AWS-1 capable LTE devices on the market. SaskTel uses the AWS-1 band primarily for providing LTE capacity in urban areas.
17. The 3GPP organization has standardized LTE band 25 to include the PCS G Block, and SaskTel is seeing an increasing number of band 25 capable LTE devices on the market. A large number of new devices coming onto the market now include band 25. The number of band 25 capable devices currently available now makes the business case for PCS Block G deployments achievable. As more of the new devices enter the ecosystem, the number of band 25 capable devices is expected to increase substantially.

18. SaskTel agrees with the Department's assessment of the I Block ecosystem. We are not aware of any deployments in this block, nor of any plans to develop the I block spectrum for LTE or for any new services. Because there are no apparent plans to develop this spectrum, the Department needs to carefully consider if there is a need to renew the I block licences at this time, or simply ask licence holders to return their licences upon expiry and issue new licences at a later date when and if appropriate.

9. Renewal Eligibility

B. ISED invites comments on the proposal to renew AWS-1, G Block and I Block licences that have met their conditions of licence.

AWS-1 and PCS G Block:

19. SaskTel agrees with the Department in their assessment that there is no need for any fundamental reallocation of the AWS-1 and PCS G block spectrum. The AWS-1 spectrum is well developed in both Canada and the U.S., and any change in allocation would actually be harmful to the wireless industry.

20. Although the PCS G block spectrum has only recently become standardized by the 3GPP for use with LTE, SaskTel does believe PCS G block deployments are now feasible.

21. SaskTel agrees with the ISED proposal to renew AWS-1 and PCS G Block spectrum licences where the licensee can demonstrate that they are in compliance with all licence conditions, including deployment conditions as per the deployment levels listed in Appendix C of the Licensing Framework.²

I Block:

22. As noted above, the complete lack of any development or deployment of I Block spectrum requires special consideration. While SaskTel agrees with the Department's proposal to offer licence renewal to those licensees that can demonstrate compliance to all licence conditions, and in particular meeting deployment conditions, SaskTel does not expect any licensee to meet their

² Gazette Notice DGRB-011-07 "Licensing Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range", Dec 22, 2007.

deployment requirements. The inevitable result will be that all of the I block licences will be returned to the Department.

23. SaskTel does not believe it is appropriate to renew or reissue I Block spectrum licences at this time. We recommend that all of the I Block licences be held by the Department until such time that the industry direction on the I Block spectrum becomes more clear.

10. Conditions of licence for new licences issued under the renewal process

C. ISED invites comments on the likely timeframe for availability of equipment capable of providing access to licensed spectrum on an opportunistic basis.

24. SaskTel is somewhat following developments in technology and protocols for cognitive and opportunistic access to spectrum. Although research advancements are being made, and some devices are being tested, SaskTel feels that it is premature at this time for the Department to make any policy decisions based on this early research work on opportunistic spectrum access.
25. In comparison to the pace of developments in wireless technologies such as 5G, LTE in both licensed and unlicensed spectrum, and even Wi-Fi protocols, there is less focus on developing and testing cognitive radio systems and dynamic spectrum access (DSA) protocols.
26. Although SaskTel recognizes that opportunistic spectrum access could be one solution to future spectrum shortages, we see this as a long term solution to spectrum congestion. SaskTel does not anticipate any significant development or deployments of cognitive or DSA systems in exclusively licensed spectrum bands such as the AWS-1 and PCS bands for at least the next 5 years, and likely much later.
27. As previously stated, SaskTel feels it is very premature to make any policy decisions on opportunistic spectrum access at this time.
28. SaskTel also strongly recommends that any proposed changes in policy or licence conditions only be made after an extensive and thorough public consultation, conducted at the time when industry direction on opportunistic spectrum access becomes clear. Any movement towards introducing opportunistic access to spectrum

in exclusively licensed spectrum is a major change not only to the existing and future network technologies and service levels, but also to the network service provider's business and investment models. SaskTel cautions the Department that potential impacts to existing and future wireless networks, service levels, and business models from any proposed changes to licensing frameworks or spectrum management policies to accommodate opportunistic access to spectrum must be carefully considered.

Licence Terms:

D. ISED invites comments on the proposal to renew AWS-1 and G Block licences that have complied with their conditions of licence for a new term of 20 years and I Block licences that have complied with their conditions of licence for a new term of 10 years.

AWS-1 and G Block Licence Term:

29. SaskTel agrees with the proposal to renew the AWS-1 and G Block spectrum licences for a new term of 20 years, where licensees can demonstrate compliance to all licence conditions. The AWS-1 and G block band are well developed, and no change to the use of these bands is anticipated by SaskTel for a long period of time.
30. SaskTel expects a continued reliance on LTE networks for quite some time after 5G networks are introduced. We agree with the Department that no significant changes are expected in these spectrum bands over the long term. At some point in the more distant future when LTE networks are replaced by 5G networks, SaskTel still does not expect any changes to the band plan or spectrum allocations will be required.
31. The 20-year term will allow for more certainty in making the long term investment decisions required by wireless service providers.

I Block Licence Term:

32. SaskTel does not expect any of the I Block spectrum licence holders to meet licence deployment conditions, and as stated by the Department in the Consultation there are no deployments and no activity in this band. SaskTel does not believe the I Block licences should be renewed or re-issued at this time, but instead the I Block licences should be held by the Department until industry direction becomes more clear on this spectrum.

33. However, should the Department choose to offer licence renewal to any of the I Block licence holders, SaskTel does agree with the shorter 10-year term. There is no apparent industry direction on when or if this spectrum will be developed or deployed. With this much uncertainty, the shorter term would give more flexibility for the Department in re-evaluating the prospects for this spectrum when and if this spectrum is developed for use.

Deployment Requirement:

E. ISED invites comments on the proposal to apply deployment levels at the Tier 4 population coverage level, within eight years of the new licence term, as described above and provided in annex C, to the AWS-1 and G Block licences issued through the renewal process.

34. SaskTel agrees in principle with the ISED proposal to apply deployment levels at the Tier 4 population coverage level, within eight years of the new licence term for the AWS-1 and PCS G Block licences. SaskTel does however have concerns about the deployment requirements as detailed in Annex C of the Consultation, and has some recommendations for alternative deployment requirements in predominately rural Tier 4 service areas.

35. As noted in the Consultation, the AWS-1 and PCS G spectrum blocks are best suited for urban deployments. As the Department is well aware, low band spectrum (e.g. 700, 850 MHz) is better suited for rural deployments. SaskTel notes that efforts have been made by the Department to set the population coverage requirements for the AWS-1 and PCS G spectrum to better match urban populations.

Alternative Requirement for Predominately Rural Tier 4 Service Areas:

36. SaskTel notes that two of the eleven Tier 4 service areas in Saskatchewan do not include a major population centre, i.e. no population centres greater than 10,000 residents. The two Tier 4 service areas, namely Watrous (4-126) and Northern Saskatchewan (4-130) consist of a number of small and very small rural communities.

37. In order to meet the proposed deployment requirements in these rural Tier 4 service areas, licensees will be required to deploy all of their AWS-1 and PCS G spectrum block(s) in a number of very small rural communities. In these rural Tier 4 service areas, many of these communities only have populations of perhaps two or three

hundred people each. Extending this further, all AWS-1 and PCS G licensees will be required to deploy all of their AWS-1 and PCS G spectrum blocks in all of these tiny communities.

38. SaskTel does not believe the mandatory deployment of every AWS-1 and PCS G spectrum block in these rural areas is required to provide good quality wireless broadband service to these rural residents. This is far more RF bandwidth than would be necessary to serve the residents in these sparsely populated areas, and would simply be a wasted investment.
39. These rural customers could be far more effectively and efficiently served by network deployments initially utilizing low band spectrum that provides greater coverage, and then deploying sufficient high band spectrum when and if required for additional network capacity. This allows some flexibility for the wireless service provider to meet the financial challenges of serving these very sparsely populated rural areas.
40. Therefore, SaskTel recommends an alternate deployment requirement for rural Tier 4 service areas, i.e. Tier 4 areas without a major population center of 10,000 people, e.g. Watrous (4-126) and Northern Saskatchewan (4-130). Rather than mandating the rural deployment of large numbers of blocks of AWS-1 and PCS G spectrum better suited for urban areas, SaskTel proposes that AWS-1 and PCS G licence holders be required per licence conditions to provide wireless service using any spectrum to a minimum population percentage for each rural Tier 4 service area. This allows the wireless service provider to make the most optimum decisions for the amount and type of spectrum to deploy. Rural consumers will still benefit from being provided a high quality wireless broadband service.
41. SaskTel proposes the following wording be added to the conditions of licence for deployment requirements for renewed AWS-1 and PCS G spectrum licences in predominately rural Tier 4 service areas:

For Tier 4 service areas that do not include a major population center of at least 10,000 people, AWS-1 and PCS G licensees will be required to demonstrate on request to the Minister of Innovation, Science, and Economic Development that the licensee is providing wireless services to the minimum population coverage

requirements as specified in Annex C of the Consultation, within eight years of the issuance of the new licence.

42. Failing that, SaskTel suggests as an alternative that at the very least AWS-1 and PCS G licence holders only be required to “use any AWS-1 or any PCS spectrum” to meet deployment requirements in the rural Tier 4 service areas mentioned above. This would mean that wireless service providers would not be mandated to deploy all of their AWS-1 and PCS G spectrum holdings in sparsely populated rural areas where low population counts and the challenging business case do not support this high amount of bandwidth.

Deployment Requirements per Annex C of the Consultation:

43. SaskTel has reviewed the proposed eight-year deployment requirements for the Saskatchewan based Tier 4 service areas as detailed in Annex C of the Consultation.

44. As stated above, SaskTel agrees with extending the eight-year deployment requirements to the Tier 4 service areas, with the inclusion of the SaskTel recommendations detailed above to better accommodate predominately rural Tier 4 service areas.

45. SaskTel agrees with the proposed deployment levels for the Saskatchewan Tier 4 service areas as listed in Annex C of the Consultation, with the exception of the Prince Albert Tier 4 (4-128) service area.

46. Based on the population of the City of Prince Albert in comparison to the entire Tier 4 service area³, SaskTel feels that the 50% requirement is rather high for AWS-1 and PCS G spectrum which is clearly more suited for urban deployments. SaskTel suggests that a more realistic eight-year deployment requirement for the Prince Albert Tier 4 (4-128) would be in the 30 to 35% range.

F. ISED invites comments on whether or not the proposed Tier 4 deployment option should apply to I Block licences issued through the renewal process.

³ As per 2011 Census Population figures, the City of Prince Albert with 35,129 residents constitutes approximately 26% of the 130,853 residents in the Prince Albert Tier 4 (4-128), as per Annex C of the Consultation.

47. Because of the total lack of industry activity involving I Block spectrum, SaskTel does not believe that any new I Block licences should be issued at this time. SaskTel does not believe any of the current I Block licence holders will meet spectrum licence conditions for deployment, which makes I Block licence renewal inappropriate. SaskTel believes that all of the I Block licences should be returned to the Department, and held by ISED until such time as an industry direction on I Block spectrum emerges.
48. However, in the event that the Department does decide to issue new I Block spectrum licences, and to answer the question posed in the Consultation, SaskTel would suggest that Tier 4 based deployment requirements are not appropriate for the I Block spectrum. Because no developments in this spectrum are anticipated any time soon, it will be very difficult to meet Tier 4 deployment requirements within 8 years. SaskTel suggests that the Tier 3 based deployment requirements as given in Annex B of the Consultation would be more appropriate for any new I Block spectrum licences that might be issued.
49. Furthermore, SaskTel would like to note that deployment requirements are crucial for any new I Block spectrum licences that might be issued. Having the deployment requirements in place allows the greatest flexibility for the Department in any future licensing processes involving the I Block. However, SaskTel does not foresee any industry developments with the I Block spectrum in either the short term or the long term future.

G. ISED invites other proposals for deployment requirements for the AWS-1, G Block and I Block licences issued through the renewal process.

50. SaskTel has made recommendations, as detailed in our responses to Consultation questions E and F above, on alternative proposals for deployment requirements for the AWS-1, G Block, and I Block licences.
51. In particular, SaskTel has made recommendations on an alternate deployment requirement for rural Tier 4 service areas, as well as some adjustments to the proposed requirements for the Prince Albert Tier 4 (4-128) service area. These recommendations are detailed above.

52. SaskTel welcomes the opportunity to discuss our proposals in more depth with the Department.

Proposed Conditions of Licence:

H. ISED invites comments on the proposed conditions of licence for the AWS-1, G Block, and I Block licences issued through the renewal process as set out in annex A.

53. SaskTel agrees with the proposed conditions of licence for the AWS-1 and PCS G Block spectrum licences as per Annex A of the Consultation.

54. Having said that, SaskTel would like to propose some modifications to the conditions for annual reporting to help reduce administrative burdens both for the Department as well as for licence holders. In Annex A of the Consultation, licence condition 13 states that licensees must submit an annual report for each year. This includes corporate annual reports and financial statements, along with detailed deployment reports on the implementation of each spectrum licence. For those operators currently required to adhere to the research and development (R&D) investment requirements, the annual report also requires submission of audited financial statements and a detailed R&D expenditure report. As wireless networks grow and evolve, and the number of licences held by operators increases, the administrative burdens to create and manage these reports multiplies as well.

55. SaskTel suggests that the Department consider moving from an annual reporting process to an “on request” model where the Department would request each licence holder to provide these reports such as the deployment updates only when required by the Department. We believe this will reduce the administrative burdens on both the Department and spectrum licence holders, while still preserving the ability to maintain timely access to the information required by the Department to manage the spectrum licences.

CONCLUSION

56. For the AWS-1 and PCS G blocks, SaskTel agrees with the Department’s proposal to renew AWS-1 and PCS-G spectrum licences to those licensees that can demonstrate compliance to licence conditions, including deployment requirements.

57. Overall, SaskTel agrees with the proposed licence conditions for the new AWS-1 and PCS G Block spectrum licences to be issued as part of the renewal process. SaskTel also agrees with the proposed deployment requirements being based on deployment levels in each Tier 4 service area. However, because of the challenges of using urban centric AWS-1 and PCS G Block spectrum in rural areas, SaskTel has proposed some modifications to the deployment requirements to better accommodate serving sparsely populated rural Tier 4 service areas. Specifically:

- For rural based Tier 4 service areas without a major population centre greater than 10,000 residents, SaskTel proposes that deployment requirements from Annex C be based on providing wireless service to these residents, using any spectrum. This allows the service provider the flexibility to utilize the most optimum spectrum type and amount to serve these sparsely populated rural areas, and the rural residents will still benefit from the availability of a quality wireless broadband service.
- Based on the population of the City of Prince Albert compared to the remainder of the Tier 4 service area, SaskTel has proposed a more realistic population deployment requirement in the 30% to 35% range for the Prince Albert Tier 4 (4-128). This is a reduction from the 50% requirement proposed in Annex C of the Consultation.

58. SaskTel believes that the administrative burdens associated with compliance to the annual reporting condition of licence could be lessened by moving from submission of full annual reports to a model where specific reports and information such as deployment updates could be provided when required at the request of the Department.

59. SaskTel agrees that with the apparent long term regulatory stability in the well-developed AWS-1 and PCS G blocks a new 20-year term for renewed licences is appropriate, and will allow for long term investment stability in the wireless industry.

60. On the other hand, the complete absence of activity in the I Block spectrum requires a different regulatory approach. SaskTel does not believe that I Block spectrum licences should be renewed or re-issued. Should the Department offer a renewal

option to existing I Block licensees, SaskTel does not expect any licensee can demonstrate compliance to deployment requirements and other licence conditions.

61. SaskTel recommends that the I Block licences be held in reserve by the Department until such time as an industry direction on the I Block spectrum emerges.
62. Although opportunistic spectrum access technologies and protocols offer the ability to increase spectrum utilization and efficiency overall, SaskTel is of the view that such technology deployment in licensed spectrum such as the AWS-1 and PCS bands is still in the far future. It is too premature for the Department to make any licensing or spectrum management policy decisions at this time.
63. SaskTel also strongly urges the Department to consider that any modifications to licensing or spectrum management policies would constitute a substantial change for wireless service providers. There could be serious impacts not only on existing and future network technologies, but also to service levels and business models. SaskTel strongly recommends prior to any proposed changes to accommodate opportunistic spectrum access that the Department conduct an extensive and thorough public consultation to fully assess the impacts and consequences of any changes.
64. SaskTel thanks the Department for the opportunity to provide input into these crucial matters. It is our hope that our comments will assist in providing a fuller view of the required terms and conditions for the AWS-1, G Block, and I Block renewal process that will fairly treat all parties and provide maximum benefit to consumers in all regions of Canada, particularly those in rural areas.