



Innovation, Science and
Economic Development Canada

Innovation, Sciences et
Développement économique Canada

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Spectrum Management and Telecommunications

Spectrum Licence Renewal Process for Advanced Wireless Services (AWS-1) and Other Spectrum in the 2 GHz Range

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Canada

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1. Intent

1. Through the release of this document, Innovation, Science and Economic Development Canada (ISED) hereby announces the decisions resulting from the consultation undertaken in [Canada Gazette](#) notice SLPB-002-17 – [Consultation on a Licence Renewal Process for Advanced Wireless Services and other Spectrum](#) (hereinafter referred to as the Consultation).
2. All comments and reply comments received in response to the Consultation are available on ISED's [website](#). Comments and/or reply comments were received from Bell Mobility Inc. (Bell), Bragg Communication Inc. (Eastlink), Canadian Wireless Telecommunications Association (CWTA), ECOTEL Inc., Québecor Média Inc. (Québecor), Rogers Communications Canada Inc. (Rogers), SaskTel, Shaw Communications Inc. (Shaw), TELUS Communications Company (TELUS) and Xplornet Communications Inc. (Xplornet).
3. The following document (hereinafter referred to as the Decision) sets out decisions for the renewal of licences for advanced wireless services (AWS-1) and other spectrum, auctioned in 2008.

2. Mandate

4. The Minister of Innovation, Science and Economic Development, through the [Department of Industry Act](#), the [Radiocommunication Act](#) and the [Radiocommunication Regulations](#), with due regard to the objectives of the [Telecommunications Act](#), is responsible for spectrum management in Canada. As such, the Minister is responsible for developing goals and national policies for spectrum utilization and for ensuring effective management of the radio frequency spectrum resource.

3. Policy objectives

5. In developing policies and licensing frameworks to make spectrum available or to renew existing licences, ISED is guided by the policy objectives of the [Telecommunications Act](#), and the [Spectrum Policy Framework for Canada](#) (SPFC), which seeks to maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum resource. These objectives, along with the enabling guidelines outlined in the SPFC, continue to provide relevant direction to ISED in the delivery of its mandate to manage Canada's spectrum resource.

6. ISED recognizes that Canadians want three things from their telecom services: high quality, broad coverage and affordable prices. Canadians rely on mobile services to access a variety of mobile applications, such as multi-media services, social networking and Internet browsing, to do business, connect with others, and to manage finances, health and homes.

7. Through the [Innovation and Skills Plan](#) and its focus on people, technologies and companies, the Government of Canada is committed to promoting growth across all sectors of the Canadian economy. Today's economy is digital. The ubiquity of wireless technologies and services across sectors is a defining feature of this digital economy. The spectrum discussed in this Decision supports the development of Canada's digital economy and the goals of the

Innovation and Skills Plan by enabling Canadians to participate in the digital economy. This spectrum also allows Canadian companies to take advantage of the latest technologies to better compete globally. Consequently, ISED's objectives for the renewal of the relevant licences are to:

- foster innovation and investment,
- support sustained competition so that consumers and businesses benefit from greater choice, and
- facilitate deployment and timely availability of services across the country, including rural areas.

4. Background

8. In 2008, ISED issued spectrum licences for advanced wireless services (AWS-1) and other spectrum in the 2 GHz band. Of the 292 licences made available through the auction, 282 were awarded to 15 licensees. Of the 105 MHz of spectrum made available, 40 MHz was set aside exclusively for new entrants.

9. The bands addressed in this Decision include:

- (a) advanced wireless services band 1710-1755 MHz/2110-2155 MHz (AWS-1);
- (b) personal communications services (PCS) extension bands 1910-1915 MHz/1990-1995 MHz (G Block); and
- (c) 1670-1675 MHz (hereinafter referred to as I Block).

10. The above licences were issued for a 10-year term. With the licence terms near expiration, ISED issued [Canada Gazette](#) notice SLPB-002-17 *Consultation on a Licence Renewal Process for Advanced Wireless Services and other Spectrum*. The Consultation sought input on six primary issues: the state of AWS-1, G Block and I Block equipment; eligibility for renewal; availability of equipment for opportunistic access; licence terms; deployment requirements; and other conditions of licence for the new licences.

11. These bands are bound by the [Policy Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range](#) (Policy Framework) and the [Licensing Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range](#) (Licensing Framework).

5. State of AWS-1, G Block and I Block equipment ecosystems

12. In the Consultation, ISED sought comments on the state of the equipment ecosystem development for use of the AWS-1, G Block and I Block frequency bands.

Comments

13. Bell, Eastlink, ECOTEL, Québecor, Rogers, SaskTel, Shaw and TELUS agreed that an established and robust ecosystem exists for the AWS-1 band. Rogers noted that the 3rd Generation Partnership Project (3GPP) is currently in the process of developing standards for (5G) wireless technology and that the AWS-1 band is a strong candidate for standardization in the first phase (3GPP Release 15). The CWTA and Xplornet did not respond to this issue.

14. All respondents, with the exception of Eastlink and Québecor who were silent on this issue, agreed that, although slow to emerge, the equipment ecosystem for the G Block is now established and is continuing to develop. Shaw and TELUS noted that carrier aggregation continues to be a challenge.

15. All respondents that commented on the I Block, with the exception of Québecor who was silent on the issue, agreed that there is currently no known equipment ecosystem for this band. Furthermore, with no standardization by 3GPP and no known mobile devices that operate in this band, no new developments are expected in the near future. Bell did note that 5G development could make the I Block spectrum commercially attractive but that the prospect and timing of this occurring was uncertain.

Discussion

16. The equipment ecosystem for the AWS-1 band appears well established, and there is ongoing development of devices for the G Block. There is general consensus regarding the lack of an equipment ecosystem for the I Block. These views were considered in the development of the decisions below.

6. Renewal eligibility

17. The AWS-1, G Block and I Block spectrum licences auctioned in 2008 will expire over a span of almost two years. The majority of licences will expire in December 2018, while the last of the licences will expire in March 2020.

18. In the Consultation, ISED proposed to renew the auctioned AWS-1, G Block and I Block licences where the licensee was able to demonstrate compliance with all conditions of licence.

Comments

19. All respondents agreed with the proposal that AWS-1 and G Block licences be renewed where licensees could demonstrate compliance with all conditions of licence. Shaw noted that the licences do not contain mandated deployment requirements, but rather reference “deployment targets” to be taken into account when considering renewal. Shaw supports a short-term conditional renewal (two years) for AWS-1 and G Block licences that have not met the deployment targets, but that have actionable business plans and dedicated budgets. Shaw added that eligibility for renewal for the balance of the full 20-year term should apply once targets have been met.

20. Comments regarding the renewal of the I Block proposed a wide range of options. Eastlink noted that the lack of an equipment ecosystem would make it impossible to meet any deployment requirements and suggested that I Block licences be renewed regardless of deployment. In their reply comments, Rogers supported the renewal of I Block licences to give licence holders an opportunity to recoup their acquisition costs.

21. Initially, Bell proposed a five-year extension to allow for the commercial development of suitable equipment. Bell noted that a similar approach was used in 2009 when ISED extended the licence term for 24 GHz and 38 GHz spectrum. In its reply comments, Bell also supported the renewal of licences for 10-20 years, adding that ISED could establish a five-year checkpoint to review the status of the ecosystem and adjust deployment targets accordingly. Bell suggested that either option would allow licensees to rapidly deploy services once equipment becomes available, further suggesting that returning licences to ISED would result in a minimum two-year delay before deployment could take place.

22. SaskTel recommended that all of the I Block licences be held by ISED until there is greater clarity regarding how this spectrum will be used. TELUS did not support renewing the I Block licences where conditions of licence have not been met, regardless of the lack of an equipment ecosystem.

Discussion

23. As stated in the *Framework for Spectrum Auctions in Canada* (FSAC), at the end of the initial licence term, or any subsequent term, licensees will have a high expectation of renewal unless a breach of licence condition has occurred, a fundamental reallocation of spectrum to a new service is required or an overriding policy need arises.

24. ISED is not planning a fundamental reallocation of this spectrum, nor does it see any overriding policy need that would preclude renewal of these licences. Accordingly, ISED proposed to renew the licences where the licensee can demonstrate that they are in compliance with all licence conditions, including deployment.

25. As noted by Shaw, these licences referred to “deployment targets” rather than “deployment requirements.” In the Consultation, ISED proposed that deployment will be considered satisfied where the licensee can demonstrate that they are actively providing commercial mobile wireless services with their licence to at least the minimum levels set out in appendix C of the Licensing Framework. If licensees were to fail to deploy to the minimum level, they would not be eligible for a new long-term spectrum licence under the renewal process.

26. Bell noted that ISED previously provided a short-term extension for the 24 GHz and 38 GHz bands based on the circumstances at that time. Since that time, technological advancements and the growing demand for digital connectivity have significantly increased the demand for spectrum. In managing the spectrum resource for the socio-economic benefit of Canadians, ISED must consider the competing demands for access to the limited spectrum supply. At present, technology in the I Block has not developed and there is uncertainty as to the optimal

use of this band for the foreseeable future. In light of the high demand for spectrum and the current uncertainty in this band, ISED does not consider that an extension of the licence term is warranted.

27. Regarding Bell's concern that future I Block deployment would be delayed without a licence extension or renewal, ISED is of the view that the time required to develop a new device ecosystem would allow time for further consultation prior to a licensing process.

28. Given the lack of equipment, it is anticipated that I Block licences will likely not be eligible for a new licence term through this renewal process and, in that case, they will be returned to ISED. Any returned licences will be offered through a subsequent licensing process that will be the subject of a future consultation.

29. ISED requires that spectrum, a limited public resource, be put to use in a timely manner. In order to be eligible for a new licence through this renewal process, licensees must have deployed and be actively providing commercial mobile wireless services to, at a minimum, the levels set out in appendix C of the Licensing Framework. In addition to deploying spectrum themselves, licensees are reminded that commercial arrangements with third parties for the use of the spectrum can also be an effective way for licensees to meet deployment requirements in their licence area. These arrangements would require ISED approval through a subordinate licence application process.

Decision

B. Where all conditions of licence for the auctioned AWS-1, G Block and I Block licences have been met, including the deployment conditions as set out in paragraph 29 above, licensees will be eligible for new spectrum licences through this renewal process.

7. Licence term

30. The auctioned AWS-1, G Block and I Block spectrum licences were awarded with 10-year terms from the date of issuance.

31. The Consultation sought comments on the proposal to renew auctioned 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.

Comments

32. All respondents who provided comments on this issue supported a new 20-year term for AWS-1 and G Block licences where all conditions of licence have been met. Eastlink noted that a 20-year term is consistent with recently awarded licences, and strengthens the incentive to invest

in network infrastructure expansions by providing additional certainty around investment recovery.

33. ECOTEL's support for a 20-year term included a caveat that deployment conditions should be adjusted so that remote populations are served well in advance of the licence term expiry.

34. ECOTEL and TELUS agreed to the renewal of I Block licences for a new term of 10 years, where all conditions have been met.

35. Eastlink, Xplornet, and in their reply comments Rogers and Shaw, all supported renewing I Block licences for a new term of 20 years noting that the additional time would give licensees an opportunity to benefit from the investment made in the licences and would allow an equipment ecosystem to develop.

36. SaskTel suggested that ISED hold the I Block licences until such time as an equipment ecosystem develops. However, SaskTel would support a shorter 10-year term if licenses were to be renewed; adding that the shorter term would give more flexibility for ISED to reassess the prospects for the spectrum.

Discussion

37. As noted in the Consultation, the *Framework for Spectrum Auctions in Canada* (FSAC), published in March 2011, adopted a flexible approach in determining licence terms, allowing for licence terms up to 20 years. The FSAC recognises that licence terms in excess of 10 years create greater incentive to invest. The recent 700 MHz, 2500 MHz and the AWS-3 licences, as well as the Cellular and PCS licences that were issued through a renewal process, all had 20-year licence terms.

38. Given that the AWS-1 band and G block are well established, and are unlikely to have any usage changes in the foreseeable future, a licence term of 20 years would give a strong incentive for companies to invest in their networks. The I Block ecosystem, however, is far less developed, and a shorter licence term of 10 years would allow the band's status to be reviewed within a shorter time frame in order to determine how the band develops.

39. Consistent with the FSAC, and noting that the Minister of Innovation, Science and Economic Development retains the discretion to amend terms and conditions of licence at any time, a licence term of 20 years will apply to renewed AWS-1 and G Block licences. A licence term of 10 years will apply to the I Block.

Decision

D. Where all conditions of licence for the auctioned AWS-1 and G Block licences have been met, including the deployment requirements as set out in paragraph 29 above, licensees will be eligible for new spectrum licences for a 20-year term through this renewal process.

Where all conditions of licence have been met, including the deployment requirements as set out in paragraph 29 above, I Block licensees will be eligible for new spectrum licences for a 10-year term through this renewal process.

8. Equipment capable of providing access to licensed spectrum on an opportunistic basis

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

Comments

41. Bell, Eastlink, Québecor, Rogers, SaskTel, Shaw and TELUS were of the view that opportunistic sharing technology is years away from commercial deployment with most of these estimating that significant development or deployments of cognitive or dynamic spectrum access systems could be up to five years away, with testing and implementation much later. All respondents, with the exception of ECOTEL, suggested that this question was premature and required further study and consultation. Concerns included the importance of identifying this type of access as a condition of licence before spectrum is initially licensed, to allow companies to consider their rights and obligations prior to making business and investment decisions.

42. Rogers suggested that ISED be cautious when exploring opportunistic sharing and look first at bands with open spectrum designations, bands with users in restricted geographic areas, or lightly licensed mobile bands. Bell recommended that ISED first conduct trials with greenfield spectrum before consulting on the prospect of opportunistic access to spectrum that is already in use.

Discussion

43. As noted in the Consultation, ISED recognizes that wireless technology is ever evolving and that developments such as cognitive radio and dynamic spectrum access are expected to provide opportunities for increased efficiency of spectrum access. Recognizing that the technologies that would allow opportunistic access to spectrum are nascent, ISED will not implement any specific provisions to allow this kind of use at this time. ISED notes however, that given the decision to renew the licences for a 20-year term, changes could be forthcoming prior to the end of the licence term, subject to future consultation. ISED will continue to monitor the development of these technologies with a view to enhancing the efficient use of spectrum.

9. New deployment requirements

44. Deployment requirements are a condition of licence that compels licensees to deliver services to a minimum percentage of the population within the licence area, by a specified

timeline. ISED uses deployment requirements to facilitate deployment and timely availability of services across the country, including rural areas.

45. In the 2008 auction process, the licenses were issued using Tier 2 and Tier 3 licence areas. Each Tier 2 area is made up of a number of smaller Tier 3 areas, and each Tier 3 area is made up of a number of smaller Tier 4 areas. In the 2008 process, ISED used the term “roll-out targets” to set the minimum population coverage to be reached by year five of the licence term, for each of the Tier 2 and Tier 3 licences.

46. The Consultation considered expanding the deployment requirements for the new licences to encourage deployment of services to a greater percentage of the population. It presented two deployment options that would provide this increased coverage. The first option was to apply the same deployment requirements as established for the 2014 [Technical, Policy and Licensing Framework for Advanced Wireless Services in the Bands 1755-1780 MHz and 2155-2180 MHz \(AWS-3\)](#). In this process, the 20-year licences were auctioned using Tier 2 licence areas, but deployment was required by year eight, to a percentage of the population within each Tier 3 service area that made up the Tier 2 licence. Should this proposal be adopted, licensees would be required to expand their coverage to a percentage of each Tier 3 area that makes up the Tier 2 licence areas (see annex B).

47. The second option was to increase the requirement more substantially by requiring licensees to deploy to a percentage of each Tier 4 area within the Tier 2 or 3 licence areas, within eight years of the issuance of a new licence (see annex C).

48. ISED also sought comments on the application of the Tier 4 deployment requirement option for the I Block licences issued through the renewal process. ISED further stated that at a minimum, renewed I Block licences would be required to maintain the current deployment requirements listed in appendix C of the Licensing Framework.

Comments

49. Eastlink, Québecor, Rogers, Shaw, and Xplornet opposed the Tier 4 population coverage levels but supported the Tier 3 levels. Reasons for the opposition to Tier 4 levels included: the increased risk of interference to established networks brought on by the need to coordinate mid-band mobile spectrum with other operators in these smaller tier areas, and the high cost of deployment to rural areas in comparison to low-band spectrum.

50. Bell, ECOTEL, SaskTel and TELUS supported Tier 4 coverage, with some caveats. Bell and TELUS suggested that Tier 4 would be premature for G Block licences due to the delayed development. ECOTEL claimed that eight years to reach the Tier 4 milestones is too long and that a term of five years would provide a better incentive for carriers to consider new business arrangements and subordination agreements to achieve broader population coverage.

51. Bell, Eastlink, Rogers and Shaw suggested that the population coverage requirements for the I Block remain at the existing level. SaskTel and Shaw suggested that if the levels were to be

increased, they should be set at the Tier 3 level. ECOTEL suggested that ISED relax I Block coverage level requirements.

52. Bell and TELUS commented that Tier 4 requirements would be premature for the I Block due to the lack of an ecosystem development.

Discussion

53. When ISED first implemented deployment conditions, most of the requirements could be met by serving the major urban centres within the licence area. Such requirements typically did not encourage rural deployment. Currently, most AWS-1 licensees exceed the deployment conditions set in 2008.

54. A new licence term issued through a renewal process provides an opportunity to expand coverage to additional communities, including rural areas. Through this licence renewal process, ISED intends to expand the initial deployment requirements and promote further coverage for rural Canadians.

55. Either deployment option outlined in the Consultation would encourage increased deployment of services across the country. The implementation of Tier 4 coverage levels would better support ISED's objective of timely availability of services across the country, however, ISED notes the significant investment that will be required to achieve this goal. For this reason, a phased deployment approach will be applied. Deployment requirements at a Tier 3 level will be required eight years from the date of the licence issuance, and a Tier 4 level requirement will be required by the end of the 20-year licence term.

56. The 20-year licence term with two deployment milestones requires significant deployment but allows for flexibility of individual business cases. However, should licensee's business plans fall short of either of the deployment requirements; licensees are encouraged to pursue commercial arrangements with third parties for the use of the spectrum to increase deployment in their licence area. Both deployment requirements and the use of subordinate licencing align with ISED's goal to ensure that the spectrum is put to use for the economic and social benefit of Canadians.

Decision

E., F. and G. Deployment levels for the AWS-1, G Block and I Block licences issued through this renewal process will apply as follows:

- **Tier 3 population coverage level, within the first eight years of the new licence term as set out in annex B;**
- **Tier 4 population coverage level, by the end of the 20-year new licence term as set out in annex C.**

10. Other conditions of licence

57. In addition to conditions of licence already discussed, ISED sought comments on all other 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 of the Consultation. Conditions of licence that received comments are discussed below.

Mandatory roaming

Comments

58. Bell and TELUS opposed the mandatory roaming condition of licence, suggesting that it was no longer necessary. Pointing to the recent Canadian Radio-television and Telecommunications (CRTC) decision regarding tariffs for roaming services, TELUS proposed that ISED initiate a consultation to reconsider the mandatory roaming condition of licence as set out in the [CPC-2-0-17](#).

59. Bell recommended the removal of the mandatory roaming condition of licence for all spectrum licences. They asserted that a condition of licence requiring national wireless carriers to provide roaming to other national wireless carriers is at odds with the principle of facilities-based competition and is a disincentive to investment in network infrastructure.

60. Eastlink, Québecor, Rogers and Shaw all supported maintaining the mandatory roaming condition of licence. Rogers expressed the view that because only carriers who build and operate their own home networks are entitled to roaming, investment incentives remain present. In their reply comments, Eastlink, Québecor and Shaw opposed Bell and TELUS' suggestion to remove the condition, adding that the CRTC decision only applies to the rates for roaming on the national carriers' networks. They suggested that the mandatory roaming condition of licence continues to be necessary for the provision of roaming services for all network operators.

Discussion

61. ISED notes that the mandatory roaming condition of licence applies to all licensees in the Cellular, Personal Communications Services (PCS), Advanced Wireless Services (AWS), Mobile Broadband Service (MBS) and Broadband Radio Service (BRS) bands. Any changes to this condition would need to be considered in the context of all commercial mobile bands.

62. Comments received expressed particular concerns with potential impacts on competition and infrastructure deployment. Questions were also raised as to whether the original intent of mandatory roaming remains relevant in the current environment. Recognizing the views received on this issue, ISED may consult in the future to review this condition of licence in the context of all commercial mobile bands. At this time, the mandatory roaming condition of licence will remain as proposed.

Research and development (R&D)

Comments

63. Bell, CWTA, Eastlink, Québecor, Rogers, Shaw and TELUS requested that this condition be eliminated.

64. Rogers noted that the United States., United Kingdom and Australia do not impose an R&D condition of licence and expressed the view that market forces will ensure that wireless equipment manufacturers and licensees continue to invest heavily in R&D. Bell proposed that ISED should eliminate this condition of licence or, at a minimum, lower the revenue exemption threshold and the 2% spending requirement.

Discussion

65. R&D requirements align with the spectrum objectives of the federal government, namely to foster innovation and investment, and to maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum resource. In February 2014, ISED released a decision, modifying the R&D condition, as published in SLPB-002-14, [Decisions on Conditions of Licence Regarding Research and Development and Learning Plans](#).

66. R&D continues to be recognized as a significant contributing factor to the ongoing success of the digital economy in Canada. Maintaining the R&D requirement supports research, technology and investment for the current and future prosperity of Canadians. As such, the R&D condition of licence will be adopted as proposed.

Annual reporting

Comments

67. Bell, CWTA, Eastlink, Québecor and SaskTel argued that annual reporting should be streamlined to reduce the administrative burden on licensees and ISED. Bell, CWTA and Québecor suggested that the interval between the submissions of certain reports be lengthened. Bell, CWTA and SaskTel also proposed a model where companies would be required to provide documents only when specifically requested by ISED.

68. In their reply comments, Eastlink, Rogers, Shaw and TELUS supported these proposals.

Discussion

69. As noted above, all but ECOTEL and Xplornet indicated that annual reporting should be removed or modified in order to decrease the administrative burden on licensees. Currently, spectrum licence conditions include a requirement to submit an annual report along with existing company reports to ISED to provide basic information on spectrum use. While this reporting provides ISED with valuable information, the concerns of respondents have been noted. ISED may consult in the future to review this condition of licence.

70. At this time, the annual reporting condition of licence will be adopted as proposed.

Lawful intercept

Comments

71. Bell noted that it does not object to the condition of licence, however, added that if Bill C-59, *An Act respecting national security matters*, introduced by the federal government on June 20, 2017, is enacted, it is likely that a lawful intercept condition will become moot.

72. Rogers commented that ISED should clarify the condition of licence to limit lawful interception capabilities to those that are provided for in industry standards and incorporated in commercially available equipment.

Discussion

73. The condition of licence on lawful intercept was first introduced in 1996 for Personal Communications Services (PCS) spectrum licences. This condition has been applied to most spectrum licences that carry public traffic to and from the public networks. The requirement has been modified over the years to ensure consistency with the *Telecommunications Act* and related regulations.

74. In order to ensure continued provision of intercept capabilities as authorized by law, the condition will be adopted as proposed.

Decision

H. The conditions of licence in annex A will apply to all AWS-1, G Block and I Block licences issued through this renewal process.

11. Fees for renewed spectrum licences

75. ISED stated in [*Framework for Spectrum Auctions in Canada*](#) that for licences issued through a renewal process, licence fees that reflect some measure of market value will apply. A separate consultation will be launched to determine the spectrum licence fees that will apply to new spectrum licences issued through this renewal process. Any fees will only apply after a consultation process.

12. Next steps

76. Licences that are not renewed will be reassigned through a subsequent licensing process. This subsequent licensing process will be the subject of a future consultation.

77. ISED will also launch a consultation on fees applicable to new licences issued through renewal processes.

13. Obtaining copies

78. All spectrum-related documents referred to in this paper are available on ISED's [Spectrum Management and Telecommunications](#) website.

79. For further information concerning the decisions outlined in this paper or related matters, contact:

Innovation, Science and Economic Development Canada
c/o A/Senior Director, Spectrum Licensing and Auction Operations
235 Queen Street, 6th Floor
Ottawa, Ontario K1A 0H5

Telephone: 613-302-3436

Fax: 343-291-1269

Email: ic.spectrumauctions-encheresduspectre.ic@canada.ca

Annex A — Conditions of licence

1. The following conditions will apply to the renewed AWS, G Block and I Block spectrum licences. These conditions of licence align with the decisions taken in other processes and the proposals within the Consultation.

2. It should be noted that the licences are subject to the relevant provisions in the *Radiocommunication Act* and the *Radiocommunication Regulations*, as amended from time to time. For example, the Minister of Innovation, Science and Economic Development continues to have the power to amend the terms and conditions of spectrum licences, under section 5(1)(b) of the *Radiocommunication Act*. The Minister may do so for a variety of reasons, including furtherance of the policy objectives related to the band. Such action would normally only be undertaken after consultation.

1. Licence term

3. The term of this licence is 20 years (AWS-1 and G Block) and 10 years (I Block). At the end of this licence term, the licensee will have a high expectation that a new licence will be issued for a subsequent term through a renewal process unless a breach of licence condition has occurred, a fundamental reallocation of spectrum to a new service is required, or an overriding policy need arises.

4. The process for issuing licences after this term and any issues relating to renewal, including the terms and conditions of the new licence, will be determined by the Minister of Innovation, Science and Economic Development following a public consultation.

2. Eligibility

5. The licensee must comply on an ongoing basis with the applicable eligibility criteria in subsection 9(1) of the *Radiocommunication Regulations*. The licensee must notify the Minister of Innovation, Science and Economic Development of any change that would have a material effect on its eligibility. Such notification must be made in advance of any proposed transactions known to the licensee.

3. Licence transferability, divisibility and subordinate licensing

6. This licence is transferable in whole or in part (divisibility), in both bandwidth and geographic dimensions, subject to Innovation, Science and Economic Development Canada's (ISED) approval. A subordinate licence may also be issued in regard to this licence. ISED's approval is required for each proposed subordinate licence.

7. The licensee must make the Transfer Request in writing to ISED. The Transfer Request will be treated as set out in Client Procedures Circular CPC-2-1-23, *Licensing Procedure for Spectrum Licences for Terrestrial Services*, as amended from time to time.

8. The licensee must apply in writing to ISED for approval prior to implementing any Deemed Transfer, which will be treated as set out in CPC-2-1-23. The implementation of a Deemed Transfer without ISED's prior approval will be considered a breach of this condition of licence.

9. Should the licensee enter into any agreement that provides for a Prospective Transfer with another holder of a Licence for commercial mobile spectrum (including any Affiliate, agent or representative of the other licence holder), it must apply in writing to ISED for review of the Prospective Transfer within 15 days of entering into the Agreement, which will be treated as set out in CPC-2-1-23. Should ISED issue a decision indicating that the Prospective Transfer is not approved; it will be a breach of this condition of licence for a licensee to remain in an agreement that provides for the Prospective Transfer for a period of more than 90 days from the date of the decision.

10. In all cases, the licensee must follow the procedures as outlined in CPC-2-1-23.

11. All capitalized terms have the meaning ascribed to them in CPC-2-1-23.

4. Radio station installations

12. The licensee must comply with Client Procedures Circular CPC-2-0-03, [Radiocommunication and Broadcasting Antenna Systems](#), as amended from time to time.

5. Provision of technical information

13. The licensee must provide, and maintain, up-to-date technical information on a particular station or network in accordance with the definitions, criteria, frequency and timelines specified in CPC-2-1-23, [Licensing Procedure for Spectrum Licences for Terrestrial Services](#), as amended from time to time.

6. Compliance with legislation, regulations and other obligations

14. The licensee is subject to, and must comply with, the [Radiocommunication Act](#) and the [Radiocommunication Regulations](#), as amended from time to time. The licensee must use the assigned spectrum in accordance with the [Canadian Table of Frequency Allocations](#) and the spectrum policies applicable to this band, as amended from time to time. The licence is issued on condition that all representations made in relation to obtaining this licence are all true and complete in every respect.

7. Technical considerations and international and domestic coordination

15. The licensee must comply on an ongoing basis with the technical aspects of the appropriate Radio standards specifications (RSS) and Standard radio system plans (SRSP), as amended from time to time. Where applicable, the licensee must use its best efforts to enter into mutually acceptable agreements with other parties for facilitating the reasonable and timely

development of their respective systems, and to coordinate with other licensed users in Canada and internationally.

16. The licensee must comply with the obligations arising from current and future frequency coordination agreements established between Canada and other countries and shall be required to provide information or take actions to implement these obligations as indicated in the applicable SRSP. Although frequency assignments are not subject to site licensing, the licensee may be required through the appropriate SRSP to furnish all necessary technical data for each relevant site.

8. Lawful interception

17. The licensee operating as a telecommunication common carrier using the spectrum for voice telephony systems must, from the inception of service, provide for and maintain lawful interception capabilities as authorized by law. The requirements for lawful interception capabilities are provided in the *Solicitor General's Enforcement Standards for Lawful Interception of Telecommunications* (Rev. Nov. 95) – SGES. These standards may be amended from time to time.

18. The licensee may request the Minister of Innovation, Science and Economic Development to forbear from enforcing certain assistance capability requirements for a limited period of time. The Minister, following consultation with Public Safety Canada, may exercise the power to forbear from enforcing a requirement or requirements where, in the opinion of the Minister, the requirement is not reasonably achievable. Requests for forbearance must include specific details and dates indicating when compliance to the requirement can be expected.

9. Research and development

19. The licensee must invest, as a minimum, 2% of its adjusted gross revenues resulting from the use of this licence, averaged over the term of the licence, in eligible research and development (R&D) activities related to telecommunications. Eligible R&D activities are those that meet the definition of scientific research and experimental development adopted in the *Income Tax Act*, as amended from time to time. Adjusted gross revenues are defined as total service revenues, less inter-carrier payments, bad debts, third party commissions, and provincial goods and services taxes collected. The licensee is exempt from R&D expenditure requirements if it, together with all affiliated licensees that are subject to the R&D condition of licence, has less than \$1 billion in annual gross operating revenues from the provision of wireless services in Canada, averaged over the term of the licence. For this condition of licence, an affiliate is defined as a person who controls the carrier, or who is controlled by the carrier or by any person who controls the carrier, as per subsection 35(3) of the *Telecommunications Act*.

10. Deployment requirement

20. Licensees will be required to demonstrate to the Minister of Innovation, Science and Economic Development that this spectrum has been put to use as specified in section 9 and annex B and C of the Decision, within eight years (as specified in annex B, Tier 3) and within 20 years (as specified in annex C, Tier 4) of the issuance of the new licence.

21. Where a licence is transferred, the time limits for deployment (established as per paragraph 20 above) will continue to be counted for the transferred licence from the date the original licence was issued.

11. Mandatory antenna tower and site sharing

22. The licensee must comply with the mandatory antenna tower and site sharing requirements set out in Client Procedures Circular CPC-2-0-17, [Conditions of Licence for Mandatory Roaming and Antenna Tower and Site Sharing and to Prohibit Exclusive Site Arrangements](#), as amended from time to time.

12. Mandatory roaming

23. The licensee must comply with the roaming requirements set out in CPC-2-0-17, as amended from time to time.

13. Annual reporting

24. The licensee must submit an annual report for each year of the licence term, which includes the following information:

- a statement indicating continued compliance with all conditions of licence;
- an update on the implementation and spectrum usage within the area covered by the licence;
- existing audited financial statements with an accompanying auditor's report;
- a statement indicating the annual gross operating revenues from the provision of wireless services in Canada and, where applicable, the annual adjusted gross revenues resulting from the use of this licence, as defined in these conditions of licence;
- a report of the R&D expenditures as set out in these conditions of licence (ISED may request an audited statement of R&D expenditures with an accompanying auditor's report, at its discretion);
- supporting financial statements where a licensee is claiming an exemption based on—together with all affiliated licensees that are subject to the R&D condition of licence—it having less than \$1 billion in annual gross operating revenues from the provision of wireless services in Canada, averaged over the term of the licence;
- a copy of any existing corporate annual report for the licensee's fiscal year with respect to the authorization; and
- other information related to the licence as specified in any notice updating the reporting requirements as issued by ISED.

25. All reports and statements must be certified by an officer of the company and submitted, in writing, within 120 days of the licensee's fiscal year-end. Confidential information provided will be treated in accordance with section 20(1) of the *Access to Information Act*.

26. Reports are to be submitted to ISED at the following address:

Innovation, Science and Economic Development Canada
c/o Manager, Emerging Networks Spectrum Management Operations Branch
235 Queen Street, 6th Floor
Ottawa, Ontario K1A 0H5
Email: ic.spectrumoperations-operationsduspectre.ic@canada.ca

27. Where a licensee holds multiple licences, spectrum implementation reports should be broken down by service area. This information, including the extent of implementation and spectrum usage, is important for analyzing each licensee's individual performance against its conditions of licence. In addition, it allows ISED to monitor the effectiveness of these conditions in meeting the policy objectives regarding the band and ISED's intent that the spectrum be deployed in a timely manner for the benefit of Canadians.

14. Amendments

28. The Minister of Innovation, Science and Economic Development retains the discretion to amend these terms and conditions of licence at any time.

Annex B — Deployment requirements — Tier 3

Eight-year deployment requirements for Tier 3 service areas within each Tier 2 service areas.

Tier 2	Tier 3	Service area name	Population*	Minimum population coverage**
2-01 Newfoundland and Labrador	3-01	Newfoundland and Labrador	520,176	40%
2-02 Nova Scotia and Prince Edward Island	3-02	Prince Edward Island	142,907	40%
	3-03	Mainland Nova Scotia	792,184	50%
	3-04	Cape Breton	131,379	40%
2-03 New Brunswick	3-05	Southern New Brunswick	167,985	60%
	3-06	Western New Brunswick	216,311	40%
	3-07	Eastern New Brunswick	361,300	40%
2-04 Eastern Quebec	3-08	Bas-du-Fleuve/Gaspésie	289,315	25%
	3-09	Québec	1,042,589	60%
	3-10	Chicoutimi-Jonquière	367,474	50%
2-05 Southern Quebec	3-11	Eastern Townships	555,933	40%
	3-12	Trois-Rivières	832,846	40%
	3-13	Montréal	4,381,630	60%
	3-14	Upper Outaouais	125,576	20%
2-06 Eastern Ontario and Outaouais	3-15	Ottawa/Outaouais	1,516,983	60%
	3-16	Pembroke	113,567	25%
	3-18	Cornwall	193,926	60%
	3-19	Brockville	69,729	50%
	3-20	Kingston	83,713	60%
	3-21	Belleville	177,314	50%
	3-22	Cobourg	197,975	40%
	3-23	Peterborough	65,180	60%
2-07 Northern Quebec	3-17	Abitibi	211,418	40%
2-08 Southern Ontario	3-24	Huntsville	82,705	40%
	3-25	Toronto	7,030,750	60%
	3-26	Barrie	716,446	40%
	3-27	Guelph/Kitchener	737,544	60%
	3-28	Listowel/Goderich/Stratford	135,596	25%
	3-29	Niagara-St. Catharines	380,354	60%
	3-30	London/Woodstock/ St. Thomas	854,082	60%
	3-31	Chatham	99,868	60%

Tier 2	Tier 3	Service area name	Population*	Minimum population coverage**
	3-32	Windsor/Leamington	401,719	60%
	3-33	Strathroy	170,680	60%
2-09 Northern Ontario	3-34	North Bay	125,647	50%
	3-35	Sault Ste. Marie	130,515	60%
	3-36	Sudbury	178,872	60%
	3-37	Kirkland Lake	112,511	40%
	3-38	Thunder Bay	230,904	50%
	3-39	Winnipeg	1,098,765	60%
2-10 Manitoba	3-40	Brandon	179,251	30%
2-11 Saskatchewan	3-41	Regina	392,289	50%
	3-42	Moose Jaw	101,361	35%
	3-43	Saskatoon	601,055	50%
2-12 Alberta	3-44	Edmonton	1,642,295	60%
	3-45	Medicine Hat/Brooks	198,798	40%
	3-46	Lethbridge	189,709	50%
	3-47	Calgary	1,582,542	60%
	3-48	Red Deer	260,727	35%
	3-49	Grande Prairie	196,772	35%
2-13 British Columbia	3-50	Kootenays	139,312	25%
	3-51	Okanagan/Columbia	436,342	50%
	3-52	Vancouver	2,858,890	60%
	3-53	Victoria	458,861	60%
	3-54	Nanaimo	194,922	50%
	3-55	Courtenay	118,732	60%
	3-56	Thompson/Cariboo	184,040	50%
	3-57	Prince George	188,487	50%
	3-58	Dawson Creek	68,387	40%
2-14 Yukon, Northwest Territories and Nunavut	3-59	Yukon, Northwest Territories and Nunavut	113,570	30%

* Population figures based on Statistics Canada 2016 Census information.

** Minimum population coverage based on most recent census information available at the time of assessment.

Annex C — Deployment requirements — Tier 4

Twenty-year deployment requirements for Tier 4 service areas within each Tier 2 and 3 service areas.

Tier 2	Service area name	Tier 3	Service area name	Tier 4	Service area name	Population *	Minimum population coverage**
2-01	Newfoundland and Labrador	3-01	Newfoundland and Labrador	4-001	St. John's	255,012	70%
				4-002	Placentia	15,304	30%
				4-003	Gander/Grand Falls/Windsor	144,229	20%
				4-004	Corner Brook/Stephenville	77,974	30%
				4-005	Labrador	27,656	30%
2-02	Nova Scotia and Prince Edward Island	3-02	Prince Edward Island	4-006	Charlottetown	95,350	60%
				4-007	Summerside	47,557	40%
		3-03	Mainland Nova Scotia	4-008	Yarmouth	55,609	50%
				4-009	Bridgewater/Kentville	139,289	50%
				4-010	Halifax	435,820	70%
				4-011	Truro	56,649	40%
				4-012	Amherst	33,373	30%
				4-013	Antigonish/New Glasgow	71,445	40%
		3-04	Cape Breton	4-014	Sydney	131,379	70%
2-03	New Brunswick	3-05	Southern New Brunswick	4-015	Saint John	142,898	70%
				4-016	St. Stephen	25,087	25%
		3-06	Western New Brunswick	4-017	Fredericton	164,871	60%
				4-020	Grand Falls	24,936	30%
				4-021	Edmundston	26,504	60%
		3-07	Eastern New Brunswick	4-018	Moncton	178,500	60%
				4-019	Miramichi/Bathurst	156,025	40%
				4-022	Campbellton	26,776	30%
2-04	Eastern Quebec	3-08	Bas-du-Fleuve/Gaspésie	4-023	Matane	112,039	40%
				4-024	Mont-Joli	37,788	25%
				4-025	Rimouski	56,619	60%
				4-026	Rivière-du-Loup	82,869	50%
		3-09	Quebec	4-027	La Malbaie	28,193	40%
				4-029	Montmagny	56,808	50%
				4-030	Québec	904,330	70%
				4-031	Sainte-Marie	53,258	60%
		3-10	Chicoutimi-Jonquière	4-028	Chicoutimi-Jonquière	218,377	70%
				4-063	Roberval/Saint-Félicien	58,438	30%
				4-064	Baie-Comeau	43,675	50%
				4-065	Port-Cartier/Sept-Îles	46,983	50%

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2-05	Southern Quebec	3-11	Eastern Township	4-032	Saint-Georges	71,425	50%
				4-033	Lac-Mégantic	24,223	50%
				4-034	Thetford Mines	42,019	70%
				4-035	Plessisville	22,772	30%
				4-039	Asbestos	29,744	40%
				4-040	Victoriaville	56,684	70%
				4-041	Coaticook	12,981	40%
				4-042	Sherbrooke	250,227	70%
				4-043	Windsor	16,777	50%
				4-045	Cowansville	29,083	70%
2-06	Eastern Ontario and Outaouais	3-12	Trois-Rivières	4-036	La Tuque	16,219	50%
				4-037	Trois-Rivières	265,152	70%
				4-038	Louiseville	21,708	40%
				4-044	Drummondville	112,390	70%
				4-047	Granby	105,440	70%
				4-048	St-Hyacinthe	92,092	70%
				4-049	Sorel	58,740	60%
				4-050	Joliette	161,106	40%
		3-13	Montréal	4-046	Farnham	29,593	25%
				4-051	Montréal	4,352,037	70%
2-07	Northern Quebec	3-14	Upper Outaouais	4-052	Sainte-Agathe-des-Monts	77,087	30%
				4-054	Mont-Laurier/Maniwaki	48,488	40%
		3-15	Ottawa/Outaouais	4-053	Hawkesbury	64,131	50%
				4-055	Ottawa/Outaouais	1,452,852	70%
		3-16	Pembroke	4-056	Pembroke	82,200	50%
				4-057	Arnprior/Renfrew	31,367	50%
		3-18	Cornwall	4-067	Cornwall	69,729	70%
		3-19	Brockville	4-068	Brockville	70,563	50%
				4-069	Gananoque	13,150	50%
		3-20	Kingston	4-070	Kingston	177,314	70%
2-08	Southern Ontario	3-21	Belleville	4-071	Napanee	42,993	25%
				4-072	Belleville	154,982	40%
		3-22	Cobourg	4-073	Cobourg	65,180	30%
		3-23	Peterborough	4-074	Peterborough	165,516	60%
				4-075	Lindsay	45,902	60%
2-09	Central Ontario	3-25	Guelph	4-058	Rouyn-Noranda	43,108	50%
				4-059	Notre-Dame-du-Nord	16,023	40%
				4-060	La Sarre	19,349	40%
				4-061	Amos	25,096	40%
				4-062	Val-D'Or	44,619	50%
				4-066	Chibougamau	45,730	20%
2-10	Western Ontario	3-26	London	4-076	Minden	20,813	40%
				4-096	Gravenhurst/Bracebridge	61,892	50%

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		3-25	Toronto	4-077	Toronto	7,030,750	70%		
		3-26	Barrie	4-078	Alliston	129,279	50%		
				4-081	Kincardine	185,818	50%		
				4-094	Barrie	352,290	60%		
				4-095	Midland	49,059	50%		
		3-27	Guelph/ Kitchener	4-079	Guelph/Kitchener	707,534	70%		
				4-080	Fergus	30,010	50%		
		3-28	Listowel/ Goderich/ Stratford	4-082	Listowel/Goderich	84,257	30%		
				4-088	Stratford	51,339	60%		
		3-29	Niagara- St. Catharines	4-083	Fort Erie	31,072	70%		
				4-084	Niagara-St. Catharines	349,283	70%		
		3-30	London/ Woodstock/ St. Thomas	4-085	Haldimand/Dunnville	37,398	40%		
				4-086	London/Woodstock/ St. Thomas	678,149	70%		
				4-087	Brantford	138,535	70%		
		3-31	Chatham	4-089	Chatham	68,885	70%		
				4-091	Wallaceburg	30,983	40%		
		3-32	Windsor/ Leamington	4-090	Windsor/Leamington	401,719	70%		
		3-33	Strathroy	4-092	Sarnia	123,953	70%		
				4-093	Strathroy	46,727	60%		
2-09	Northern Ontario	3-34	North Bay	4-097	North Bay	104,524	60%		
				4-098	Parry Sound	21,123	40%		
		3-35	Sault Ste.Marie	4-099	Elliot Lake	29,520	50%		
				4-105	Iron Bridge	20,162	30%		
				4-106	Sault Ste. Marie	80,833	60%		
		3-36	Sudbury	4-100	Sudbury	178,872	60%		
		3-37	Kirkland Lake	4-101	Kirkland Lake	32,402	50%		
				4-102	Timmins	42,086	50%		
				4-103	Kapuskasing	38,024	30%		
		3-38	Thunder Bay	4-104	Kenora/Sioux Lookout	64,826	30%		
				4-107	Marathon	24,923	30%		
				4-108	Thunder Bay	121,061	70%		
				4-109	Fort Frances	20,095	40%		
		2-10	Manitoba	3-39	Winnipeg	4-110	Steinbach	64,764	30%
				4-111		Winnipeg	830,151	70%	
				4-112		Lac du Bonnet	58,076	20%	
				4-113		Morden/Winkler	51,609	40%	
				4-115		Portage la Prairie	21,273	50%	
				4-117		Creighton/Flin Flon	22,228	30%	
				4-118		Thompson	50,665	30%	
		2-11	Saskatchewan	3-40	Brandon	4-114	Brandon	103,743	60%
				4-116		Dauphin	75,508	20%	
				4-119		Estevan	46,006	20%	
				4-120		Weyburn	22,877	50%	

				4-123	Yorkton	63,024	30%
				4-124	Regina	260,382	70%
3-42	Moose Jaw	4-121	Moose Jaw		55,141	60%	
			4-122	Swift Current	46,219	40%	
3-43	Saskatoon	4-125	Saskatoon		306,824	70%	
		4-126	Watrous		27,288	20%	
		4-127	Battleford		99,433	25%	
		4-128	Prince Albert		130,446	50%	
		4-130	Northern Saskatchewan		37,064	20%	
2-12	Alberta	3-44	Edmonton	4-129	Lloydminster	37,539	50%
				4-140	Vegreville	15,396	40%
				4-141	Edmonton	1,325,857	70%
				4-142	Edson/Hinton	49,814	40%
				4-143	Bonnyville	83,631	20%
				4-144	Whitecourt	32,669	40%
				4-145	Barrhead	23,437	40%
				4-146	Fort McMurray	73,953	70%
		3-45	Medicine Hat/ Brooks	4-131	Medicine Hat/Brooks	107,233	70%
				4-133	Stettler/Oyen/ Wainwright	51,420	30%
				4-139	Camrose	40,145	50%
		3-46	Lethbridge	4-132	Lethbridge	189,709	50%
		3-47	Calgary	4-134	High River	120,208	40%
				4-135	Strathmore	45,478	40%
				4-136	Calgary	1,416,856	70%
		3-48	Red Deer	4-137	Red Deer	206,387	60%
				4-138	Wetaskiwin/Ponoka	54,340	40%
		3-49	Grande Prairie	4-147	Peace River	86,745	25%
				4-148	Grande Prairie	110,027	50%
2-13	British Columbia	3-50	Kootenays	4-149	East Kootenay	60,371	30%
				4-150	West Kootenay	78,941	25%
		3-51	Okanagan/ Columbia	4-151	Kelowna	362,815	60%
				4-159	Merritt	15,649	50%
				4-162	Salmon Arm	51,024	50%
				4-163	Golden	6,854	50%
		3-52	Vancouver	4-152	Vancouver	2,731,567	70%
				4-153	Hope	26,093	25%
				4-157	Powell River	26,865	50%
				4-158	Squamish/Whistler	74,365	50%
		3-53	Victoria	4-154	Victoria	458,861	70%
		3-54	Nanaimo	4-155	Nanaimo	194,922	60%
		3-55	Courtenay	4-156	Courtenay	118,732	60%
		3-56	Thompson/ Cariboo	4-160	Kamloops	106,972	40%
				4-161	Ashcroft	15,070	20%
				4-164	Williams Lake	38,440	40%
				4-165	Quesnel/Red Bluff	23,558	40%

		3-57	Prince George	4-166	Skeena	56,234	30%
				4-167	Prince George	94,607	70%
				4-168	Smithers	37,646	20%
		3-58	Dawson Creek	4-169	Dawson Creek	68,387	40%
2-14	Yukon, Northwest Territories and Nunavut	3-59	Yukon, Northwest Territories and Nunavut	4-170	Yukon	35,928	60%
				4-171	Nunavut	35,975	25%
				4-172	Northwest Territories	41,668	50%

* Population figures based on Statistics Canada 2016 Census information.

** Minimum population coverage based on most recent census information available at the time of assessment.