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Subject: **Canada Gazette Notice No. SLPB-002-17, Consultation on a Licence Renewal Process for Advanced Wireless Services and Other Spectrum, published 25 May 2017 – Comments**

Bell Mobility is pleased to submit the attached Comments in the above-noted consultation.

Yours truly,

[ Original signed by R. Malcolmson ]

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Attachment

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**CANADA GAZETTE NOTICE NO. SLPB-002-17**

**CONSULTATION ON A LICENCE RENEWAL PROCESS FOR  
ADVANCED WIRELESS SERVICES AND OTHER SPECTRUM**

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**COMMENTS  
OF  
BELL MOBILITY INC.**

**25 JULY 2017**

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## 1.0 EXECUTIVE SUMMARY

E1. In Canada Gazette Notice No. SLPB-002-17, *Consultation on a Licence Renewal Process for Advanced Wireless Services and Other Spectrum* (the Notice), Innovation, Science and Economic Development Canada (ISED) seeks comments on the renewal process for the following spectrum bands:

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

E2. As stated in the Notice: "ISED is not planning any fundamental reallocation of this spectrum, nor does it see any overriding policy need that would preclude renewal of these licences".<sup>1</sup> Therefore, in keeping with the *Framework for Spectrum Auctions in Canada* (FSAC)<sup>2</sup>, licensees should have a high expectation of renewal.<sup>3</sup>

E3. We support ISED's proposals to renew, for a term of 20 years, the AWS-1 and G Block licences that have met their Conditions of Licence (CoL). However, as no equipment ecosystem has yet developed for I Block spectrum, we recommend extending the term of the current I Block licences for five years. At the end of this period, ISED will be in a better position to consider the appropriate course of action for this band.

E4. We have limited insight into the likely timeframe in which equipment capable of providing access to licensed spectrum on an opportunistic basis will become commercially available. However, we note that there are fundamental spectrum management, policy, financial, security and service quality risks that ISED should consider before mandating such a change. To mitigate these risks, when the relevant technology has matured to the point where it can be deployed on a commercial basis, we recommend that ISED first conduct extensive trials with Greenfield spectrum before consulting with licensees on the prospect of deploying the capability for spectrum that is already in use.

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<sup>1</sup> The Notice, paragraph 18.

<sup>2</sup> FSAC, Issue 3, March 2011, [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/dgso-001-11-framework-e.pdf/\\$FILE/dgso-001-11-framework-e.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/dgso-001-11-framework-e.pdf/$FILE/dgso-001-11-framework-e.pdf).

<sup>3</sup> The Notice, paragraph 17.

E5. With respect to spectrum deployment requirements, we do not object to ISED's proposal to expand the requirements to the Tier 4 population coverage level as a CoL when the AWS-1 licences are renewed. However, in consideration of the still-developing equipment ecosystem for G Block, and the complete lack of an equipment ecosystem for I Block, as well as our recommendation to extend the current I Block licenses for five years, expanding the deployment requirements for these bands would be premature and is not supported.

E6. With regard to the proposed CoLs set out in Annex A of the Notice, we recommend eliminating the condition related to research and development (R&D) expenditures for several reasons, as explained in section 7.2 of our Comments. We also recommend eliminating the condition on mandatory roaming because recent initiatives by the Canadian Radio-television and Telecommunications Commission (the Commission) make this CoL duplicative and, therefore, unnecessary. Finally, we recommend changes to the annual reporting CoL which will ease the regulatory burden on licensees and ISED alike.

## **2.0 EQUIPMENT ECOSYSTEMS**

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

1. We agree with ISED that there is a well-established equipment ecosystem for AWS-1<sup>4</sup> and a developing equipment ecosystem for G Block<sup>5</sup>. We estimate that about 35% of the devices currently in the market support G Block, including devices from manufacturers such as Apple, Samsung, Blackberry, HTC, LG and Motorola. To our knowledge, an equipment ecosystem for I Block has not yet developed anywhere in the world and the band remains undefined by 3GPP.<sup>6</sup> It is possible that the development and deployment of 5G could make I Block spectrum commercially attractive but the prospect and timing of this occurring is uncertain.

## **3.0 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**

2. We support ISED's proposal to renew AWS-1, G Block and I Block licences that have met their CoLs. This is consistent with CPC-2-1-23, which states that "[a]t the end of the licence term, licensees will normally be issued new licences following a renewal process unless one of the following situations takes place: a breach of a licence condition occurs, a fundamental reallocation of spectrum to a new service is required, or an overriding policy need arises".<sup>7</sup>

3. It has not been possible for licensees to deploy I Block spectrum due to the lack of an equipment ecosystem. Therefore, as will be discussed further below, although the I Block deployment requirements have not been satisfied, we recommend an extension to the current licence terms.

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<sup>4</sup> The Notice, paragraph 8.

<sup>5</sup> The Notice, paragraphs 11 and 12.

<sup>6</sup> 3GPP is the 3rd Generation Partnership Project, a mobile communications industry collaboration that organizes and manages the development of mobile communications standards.

<sup>7</sup> CPC-2-1-23, *Licensing Procedure for Spectrum Licences for Terrestrial Services*, Issue 4, October 2015, page 2.

**4.0 EQUIPMENT CAPABLE OF PROVIDING ACCESS TO LICENSED SPECTRUM ON AN OPPORTUNISTIC BASIS**

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

4. At this time, we have limited insight into the likely timeframe in which equipment capable of providing access to licensed spectrum on an opportunistic basis will become commercially available. As explained in the Notice, accessing licensed spectrum on an opportunistic basis relies on the development of dynamic spectrum access and cognitive radio capabilities. These capabilities are not commercially available at this time and, based on our understanding of the state of R&D in this area; it appears unlikely that these capabilities will be commercially viable for at least the next five years.

5. Beyond the technological viability of opportunistic spectrum access, there are risks to imposing such a CoL, which would constitute a fundamental change to Canadian spectrum management policy, that ISED should carefully consider. To begin, without any details concerning the potential technologies, applications and associated business cases that could be employed, any policy decision on this issue could have negative unintended consequences. It could also undermine the value of spectrum auctioned or otherwise licensed by ISED in the future as it could be possible for service providers to use spectrum without participating in an ISED auction or alternative licensing process. At this early stage of the underlying technologies' development, opportunistic spectrum access could also introduce new risks to both the quality of service provided to Canadians and the security/privacy of wireless networks in Canada.

6. As opportunistic spectrum access capabilities mature, ISED should consider thoroughly exploring such access to Greenfield spectrum before doing so for spectrum that is already in use. Clearly identifying opportunistic spectrum access as a CoL before spectrum is initially licensed provides potential licensees with the opportunity to factor this condition into their business cases and set their auction participation strategies accordingly. Companies who invest millions or, in some cases, billions of dollars deploying spectrum must clearly understand all of their rights and obligations upfront.

7. After the concept is proven with Greenfield spectrum and the technologies and business cases are understood, then ISED should initiate a comprehensive consultation to examine the implications on the Canadian spectrum management system of implementing such a

fundamental change for spectrum that has already been licensed. Addressing the issue in a comprehensive manner rather than in the context of a particular spectrum band or renewal process would allow for a more robust evaluation of the opportunity and avoid unintended consequences. One important consideration that the consultation would need to address is the lead time that licence holders would require to adapt/transform their networks and operating systems to this fundamental new spectrum management principle.

## 5.0 **RENEWAL 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**

8. We support a 20-year licence renewal term for AWS-1 and G Block licences that have complied with their CoLs. Long-term, or indeed indefinite, licence terms are appropriate in consideration of the very significant investments required by carriers to deploy spectrum, the need to coordinate with international standards bodies and equipment manufacturers, and the technology lifecycles common in the wireless industry.

9. In consideration of the undeveloped equipment ecosystem for I Block spectrum, we recommend that ISED extend these licences for five years to allow for the commercial development of suitable equipment. ISED took this approach in a similar situation when it extended the licences for 24 and 38 GHz spectrum in 2007. At that time, ISED concluded:

Licensees have noted that the availability of suitable and affordable radio equipment is hindering deployment. After careful review of their submissions we concur that the reasons outlined justify an extension of the deployment requirement deadline.<sup>8</sup>

We believe the current circumstances warrant a similar extension for I Block licences.

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<sup>8</sup> Gazette Notice No. DGRB-003-07 - *Extension of the Implementation of Spectrum Usage Deadline for 24 and 38 GHz Licences*, available at: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08770.html>.



## **6.0 DEPLOYMENT REQUIREMENT**

### **6.1 AWS-1 and G Block 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**

10. It is unusual for ISED to expand spectrum deployment requirements as part of a licence renewal and we would not support such a change in all cases. However, for the AWS-1 spectrum in question we do not object to ISED's proposal to increase the deployment requirements to the Tier 4 population coverage level within eight years of the new licence term. Should ISED wish to accelerate deployment even further, we would also support a deadline of five years after the start of the new licence term. ISED's proposed approach, applied on a selective basis and under the current circumstances, would be consistent with the Government's longstanding support of facilities-based competition.

11. The situation with G Block differs from that of AWS-1 because the equipment ecosystem is not as mature and deployment has not progressed as quickly. It would, therefore, not be appropriate to expand the coverage requirement beyond the current levels when the G Block licences are renewed.

### **6.2 I Block Deployment Requirement**

#### **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**

12. The lack of an equipment ecosystem for I Block has prevented this spectrum from achieving the current deployment targets. As a result, we have recommended that ISED extend the current licences, and current deployment requirements, for another five years. In consideration of these circumstances, broadening the deployment target for I Block to Tier 4 population centres at this time would be premature and is not supported.

### **6.3 Other Proposals for Deployment Requirements**

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

13. We have no other proposals for deployment requirements at this time.

### **7.0 OTHER COLS**

#### **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**

14. We note that CoL #1 (licence term) and CoL #10 (deployment criteria) are addressed in the previous sections of our Comments. We have reviewed the remaining proposed CoLs in Annex A of the Notice and offer the following additional inputs.

### **7.1 Lawful Interception**

15. We do not object to the proposed CoL on lawful interception, however, this condition could be impacted by Bill C-59, *An Act respecting national security matters*<sup>9</sup>, introduced by the Government on 20 June 2017. If Bill C-59 is enacted, it is likely that the lawful interception CoLs pertaining to all spectrum, including AWS-1, G Block and I Block, will become moot and should be removed.

### **7.2 Research and Development**

16. Licensees with \$1 billion or more in annual gross operating revenues from the provision of wireless service in Canada must invest, as a minimum, 2% of their wireless revenues in eligible R&D activities related to telecommunications. Eligible R&D activities are those that meet the definition of scientific research and experimental development (SR&ED) adopted in the *Income Tax Act*.<sup>10</sup> Licensees with less than \$1 billion in annual revenues are exempt from the R&D expenditure requirement. As a result of the revenue exemption threshold, it is our understanding that the R&D condition applies to only Bell, Rogers and Telus.

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<sup>9</sup> <http://www.justice.gc.ca/eng/csj-sjc/pl/charter-charte/ns-sn.html>.

<sup>10</sup> The Notice, Annex A, paragraph 19.

17. The proposed R&D condition suffers from a number of weaknesses which, when considered in aggregate, lead to the conclusion that it should be eliminated.

- i) It imposes a regulatory disadvantage in the form of a constraint on the operating flexibility of wireless licensees with limited, if any, evidence that it benefits Canadians or the Canadian wireless industry. In our view, licensees will undertake an appropriate amount of innovation activities (including SR&ED qualifying R&D expenditures) to compete effectively and, therefore, a CoL that mandates a prescribed revenue percentage to be spent on R&D activities is unnecessary.
- ii) The condition inappropriately targets a subset of licensees for this regulatory disadvantage. As the CoL calculates the R&D spending obligation on a percentage of revenue basis, it would not asymmetrically harm smaller providers. Therefore, if the CoL is maintained, there is no valid reason to limit its application to only the largest licensees.
- iii) The 2% spending minimum is out of date. It was imposed on regional carriers in 1991 (26 years ago)<sup>11</sup> when the wireless industry was in its infancy and industry revenues were less than 1/20<sup>th</sup> of current levels.<sup>12</sup> A technology-based industry in an early stage of development, as wireless was in 1991, would be expected to spend a significantly higher portion of its revenues on R&D than a large, well-established industry, as wireless is today. Therefore, if 2% was appropriate 26 years ago, it no longer remains so. In fact, given the large size and success of today's wireless industry, it is inappropriate for ISED to mandate any percentage of revenues to be spent on this particular activity.

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<sup>11</sup> Canada Gazette Notice No. DGRB-001-09, page 9. Note that the R&D expenditure CoL applied to Rogers Cantel beginning in 1983.

<sup>12</sup> This is a conservative estimate based on available information. Canada's wireless revenue in 2015 (\$22.5B) is reported in the Commission's *Communications Monitoring Report 2016*, page 282, Table 5.5.1. Wireless revenue for 1991 was not readily available. However, the OECD's *Communications Outlook 1996* (found at: <https://books.google.ca/books?id=BJDWAqAAQBAJ&pg=PA222&lpg=PA222&dq=oced+communications+outlook&source=bl&ots=npEI0ukrc&sig=ZquNPFOZye43jvahl0IRWd1oaN0&hl=en&sa=X&ved=0ahUKEwjUoOXZ1YPVAhXL6oMKHSyCCj8Q6AEIUDAI#v=onepage&q=oced%20communications%20outlook&f=false>) provides 1993 data for Canada's annual revenue per cellular subscriber (US\$682, p. 57) and year end subscribers (1.3 million, p. 75). The product of these data result in annual revenues of US\$887M which converts to CDN\$1.1 billion using the US/Canada exchange rate from 1993 (\$1.29, p. 249). If data from 1991 and 2016 were available and used to calculate this figure, the prevailing trends in the data indicate that the revenue variance would be considerably larger.

- iv) The annual reporting requirement related to R&D spending, which provides evidence of compliance with this CoL, is a related but additional regulatory burden. It is an example of one regulation giving rise to another regulation.
- v) The condition inappropriately mixes spectrum management regulation and industrial development policy.<sup>13</sup> As the Government has shown in recent years with various innovation and broadband deployment programs, it has other incentive-based, rather than penalty-based, policy tools at its disposal to encourage desired behaviours from industry participants. In our view, incentive-based policy tools are more consistent with a modern regulatory framework for a successful industry like wireless than penalty-based tools.
- vi) The financial resources required to satisfy the R&D CoL, i.e., spending that meets the definition of SR&ED adopted in the *Income Tax Act*, could potentially be more productively spent on other activities. For example, it may be more productive for a licensee to spend an equivalent amount of money to: hire or train new personnel, deploy new and/or improved network capabilities, introduce new wireless applications or services, undertake R&D activities that do not align with the definition in the *Income Tax Act*, or fund consumer promotions (such as handset subsidies) that encourage wireless adoption. In a competitive wireless marketplace like Canada's, these investment decisions are best left to the discretion of each competitor rather than the Government.
- vii) In recent years, the Canada Revenue Agency (CRA) has changed the eligibility rules for SR&ED spending for purposes unrelated to the R&D CoL. For example, investments in capital related to R&D activities, such as lab hardware and software, are no longer eligible expenditures under CRA's SR&ED rules. The net effect of these rule changes on licensees' R&D expenditure CoLs is to disallow a significant amount of wireless carriers' spending on R&D simply because the activities do not qualify for SR&ED credits. This is an unintended consequence of using a regulatory scheme designed for one purpose (awarding tax credits) for another purpose entirely (satisfying a spectrum CoL).

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<sup>13</sup> This issue was raised in a 2006 OECD report entitled "Telecommunication Regulatory Institutional Structures and Responsibilities" (see: <http://www.oecd.org/internet/broadband/35954786.pdf>) which ISED highlighted in section 6.1 of Canada Gazette No. DGRB-001-09, *Consultation on revisions to the framework for spectrum auctions in Canada* (see: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09371.html#DGRB00109.06>).

- viii) The quality of Canada's wireless services is among the highest in the world – and has been for many years. In fact, the Minister of ISED recently observed that "Canada has some of the world's most advanced and efficient telecom networks" and "virtually all Canadians are covered by the latest wireless technologies".<sup>14</sup> In consideration of this, it is unnecessary for the Government to mandate R&D investments. The CoL is attempting to fix a problem that does not exist.
- ix) The R&D expenditure CoL ignores the large role played by network equipment manufacturers, handset equipment manufacturers and application developers in the R&D of wireless services. These stakeholders work closely with carriers to research and develop new and innovative wireless capabilities but this work is completely unrecognized by the CoL.

18. In summary, as a legacy CoL that was initiated more than 26 years ago, the R&D spending requirement is both unnecessary and out-of-step with today's modern wireless industry. We recommend that ISED eliminate the CoL from all spectrum licence conditions, including those for AWS-1, G Block and I Block. By doing so, ISED will provide licensees with greater operating flexibility to address consumers' needs and will be regulating in a manner consistent with the Government's policy to rely on market forces to the maximum extent feasible.<sup>15</sup>

19. If ISED does not immediately eliminate the R&D spending condition, it should, at a minimum, make two changes to the requirement. First, as noted above, given the scalable nature of a revenue-based regulatory obligation, ISED should significantly lower the revenue exemption threshold to broaden its applicability and make this regulatory requirement more symmetrical among all licensees. Second, the 2% spending requirement should be significantly lowered (e.g., to 1%) in recognition of the changes that the CRA has made to the SR&ED eligibility rules in recent years and the fact that wireless revenues have increased on a massive scale since the spending level was originally put in place.

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<sup>14</sup> Speaking Points of the Honourable Navdeep Bains, PC, MP, Minister of ISED, at the 2017 Canadian Telecom Summit, 5 June 2017, available at [https://www.canada.ca/en/innovation-science-economic-development/news/2017/06/2017\\_canadian\\_telecomsummit.html?=&wbdisable=true](https://www.canada.ca/en/innovation-science-economic-development/news/2017/06/2017_canadian_telecomsummit.html?=&wbdisable=true).

<sup>15</sup> The "Enabling Guidelines" in ISED's *Spectrum Policy Framework for Canada* notes that "Market forces should be relied upon to the maximum extent feasible" (see: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08776.html#s44>). In addition, the Government's *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives, SOR/2006-355*, states that "the Commission should (i) rely on market forces to the maximum extent feasible as the means of achieving the telecommunications policy objectives, and (ii) when relying on regulation, use measures that are efficient and proportionate to their purpose and that interfere with the operation of competitive market forces to the minimum extent necessary to meet the policy objectives".

### 7.3 **Mandatory Roaming**

20. ISED first made the provision of wholesale roaming services to wireless carriers mandatory in 2008.<sup>16</sup> At that time, the Commission had forborne from regulating both retail and wholesale mobile wireless services for many years and was showing no signs of reversing that decision.

21. In TRP 2015-177<sup>17</sup>, the Commission determined that it would mandate the provision, and regulate the rates, of GSM-based wholesale roaming services provided by Bell, Rogers and Telus to all other wireless carriers. In that same policy, the Commission concluded that it would be inconsistent with the objectives of the *Telecommunications Act* to mandate the provision, or regulate the rates, of other wholesale roaming services or the GSM-based wholesale roaming services provided to Bell, Rogers and Telus. In other words, in TRP 2015-177, the Commission established duplicative roaming regulations to those contained in ISED's CPC-2-0-17.

22. In consideration of the Commission's investigation into the competitiveness of wholesale roaming markets in Canada, and its decision to regulate the GSM-based wholesale roaming services provided by Bell, Rogers and Telus to non-national carriers, the proposed CoL on mandatory roaming is unnecessary and asymmetrical.

23. A mandatory roaming CoL that requires national wireless carriers to provide roaming to other national wireless carriers is at odds with the principles of facilities-based competition and creating incentives to invest in network infrastructure. Specifically, the mandatory roaming CoL creates an opportunity for network arbitrage whereby one carrier can make the strategic decision not to invest in or upgrade its own network in favour of roaming on one or more of its competitors' networks.

24. The fact that wholesale roaming rates are commercially negotiated but subject to mandatory arbitration in the event of a dispute effectively means that the rates do not reflect true market value. The rates are, instead, subject to downward pressure because: a) the provision of wholesale roaming services is mandatory; and b) the rates imposed in arbitration typically reflect historic rates.

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<sup>16</sup> See CPC-2-0-17, *Conditions of Licence for Mandatory Roaming and Antenna Tower and Site Sharing and to Prohibit Exclusive Site Arrangements*, paragraph 7, <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09081.html>.

<sup>17</sup> Telecom Regulatory Policy CRTC 2015-177, *Regulatory Framework for wholesale mobile wireless services*, paragraph 128.

25. To the extent that ISED's regulation of wholesale roaming services may result in different and/or conflicting commercial outcomes for wireless carriers than the Commission's wholesale roaming regulations, then ISED's proposed CoL on mandatory roaming introduces unnecessary regulatory uncertainty for all market participants.

26. In consideration of the above factors, we recommend the removal of the proposed mandatory roaming CoL for the licences in question, as well as all other spectrum licences.

#### **7.4 Annual Reporting**

27. The proposed CoLs require licensees to submit an annual report which provides spectrum deployment, financial and other information. We appreciate that ISED must monitor spectrum licensees to fulfill its mandate and that licensee-specific information may be an important element of the monitoring exercise. However, the effort required by licensees to prepare the annual reports is significant and it is uncertain that the value that ISED receives from these reports is commensurate with the effort that licensees expend in their preparation. For example, we estimate that our annual ISED report, which addresses all of our licenced spectrum, requires approximately 200 hours to prepare. We therefore recommend that ISED reduce the regulatory burden on licensees related to annual reporting.

28. One way in which the annual reporting regulatory burden on licensees and ISED alike can be lowered is by reducing the frequency with which the data is collected. For example, information could be collected every five years for 20-year licences and once every two or three years for shorter licence terms. In addition, ISED should consider streamlining the scope and/or amount of information requested in the reports to only those data that are essential to ISED's monitoring activities.

29. As an alternative to regularly scheduled data collection, ISED could modify the CoL such that licensees are required to provide information on ISED's request, with appropriate notice. For example, ISED could issue a request for information three months in advance of its due date and customize the request to the department's particular needs for the licences in question. Under this model, the expectation is that only a subset of the current data would be collected and it would be collected on an as-needed basis only (i.e., less frequently than the current annual schedule).