Spectrum Management and Telecommunications

Licensing Framework for Residual Spectrum Licences in the 700 MHz, 2500 MHz, 2300 MHz and PCS-G Bands
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1. **Intent**

1. Through the release of this paper, Innovation, Science and Economic Development Canada (ISED), on behalf of the Minister, is hereby announcing the decisions resulting from the consultation process undertaken in Canada Gazette notice SLPB-003-17, *Consultation on a Licensing Framework for Residual Spectrum Licences in the 700 MHz, 2500 MHz, 2300 MHz, PCS and 1670-1675 MHz Bands*, hereinafter referred to as the Consultation. The residual licences were unassigned or returned spectrum licences from previous licensing processes.

2. ISED sought comments on licensing considerations related to auction format, rules and process, as well as on conditions of licence for residual spectrum licences as follows:
   - **700 MHz Band** – three licences: C1 block (5 + 5 MHz, Tier 4) in Yukon, Nunavut and Northwest Territories
   - **2500 MHz Band** – sixty-two licences (Tier 3, Tier 4 in the North):
     - A Block – seven licences (10 + 10 MHz)
       - Ontario: Kingston
       - British Columbia: Kootenays, Nanaimo, Courtenay, Thompson/Cariboo, Prince George, Dawson Creek
     - G Block – five licences (10 + 10 MHz)
       - Ontario: Guelph/Kitchener, Niagara-St. Catharines, London/Woodstock
       - British Columbia: Okanagan/Columbia, Victoria
     - H Block – forty-one licences across the country (10 MHz)
     - I Block – nine licences
       - five 10 MHz licences in Manitoba and Saskatchewan
       - four licences in the North (three 20 MHz licences, one 10 MHz licence)
   - **2300 MHz Band** – four licences (15 + 15 MHz, Tier 4):
     - Quebec: Sept-Iles
     - Ontario: Sarnia (partial)
     - Saskatchewan: Estevan
     - Nunavut
   - **PCS-G Block** (1910-1915/1990-1995 MHz) – two licences: (5 + 5 MHz, Tier 2) New Brunswick and Northern Ontario
   - **1670-1675 MHz (I Block)** – eight licences (5 MHz, Tier 2):
     - Newfoundland and Labrador
     - Nova Scotia and Prince Edward Island
     - Southern Quebec
     - Eastern Ontario and Outaouais
     - Southern Ontario
     - Saskatchewan
     - Alberta
     - British Columbia
3. All comments and reply comments received on this Consultation are available on ISED’s website. Comments and/or reply comments were received from: Airnet Wireless Inc. (Airnet), Bell Mobility Inc. (Bell), Bragg Communications Inc. (Eastlink), British Columbia Broadband Association (BCBA), Corridor Communications Inc. (CCI Wireless), Ecotel Inc. (Ecotel), Ice Wireless Inc. (Ice Wireless), Ligado Networks Inc. (Ligado), Nokia, Rogers Communications (Rogers), Saskatchewan Telecommunications (SaskTel), Shaw Communications Inc. (Shaw), TELUS Communications Company (TELUS) and Xplornet Communications Inc. (Xplornet).

4. The following document (hereinafter referred to as the Framework) sets out the decisions on the licensing framework for the residual spectrum to be auctioned. These include decisions related to the band plans, pro-competitive measures, auction format, and rules and conditions of licence for the licences assigned through this process.

2. Background

5. 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 resource use and for ensuring effective management of the radio frequency spectrum resource.

6. In developing a licensing framework for residual spectrum licences in the above-mentioned bands, ISED has been guided by the policy objectives of the Telecommunications Act, and the Spectrum Policy Framework for Canada (SPFC), which states that the objective of the spectrum program is to maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum resource. These objectives and enabling guidelines as listed in the SPFC continue to be relevant for guiding ISED in delivering its mandate of spectrum management. ISED will also be guided by the general approaches and processes outlined in the Framework for Spectrum Auctions in Canada (FSAC).

7. ISED recognizes that Canadians want three things from their telecom services: high quality services, broad coverage and affordable prices. Mobile communications have become integrated into the daily lives of Canadians as they increasingly rely on mobile services to access a variety of mobile applications, such as multi-media services, social networking and Internet browsing, on a day-to-day basis to do business, connect with others, and to manage finances, health and homes.
8. Through the Innovation and Skills Plan and its focus on skills, research, technology and commercialization, program simplification, and investment and scale, the Government of Canada is committed to promoting innovation-led growth across all sectors of the Canadian economy. Today’s economy is digital. The ubiquity of digital technologies and services across sectors is a defining feature of this digital economy. This spectrum will support the development of Canada’s digital economy and the Innovation and Skills Plan’s priorities by enabling all Canadians to participate in the digital economy. This spectrum will also allow Canadian companies to take advantage of the latest technologies to better compete globally. Consequently, ISED’s objectives for the allocation of residual spectrum licences are:

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

3. Band plan and available licences

9. In accordance with the FSAC, should a licence not receive a bid during an auction, ISED may make this licence available at a later date. Available licences, including any licences that were forfeited after the close of the auction, may be offered in a subsequent re-auction or through an alternative process (such as a first-come, first-served process [FCFS]).

10. ISED consulted on making the following licences available through a residual auction.

3.1 700 MHz band

11. The auction of residual licences for Mobile Broadband Services (MBS) in the 700 MHz band was held in August 2015, in accordance with the Licensing Framework for Residual Spectrum Licences in the 700 MHz and AWS-3 Bands. At the conclusion of the auction, three licences remained unassigned (depicted in figure 1 below, shown in blue, and as shown in table 1).

Figure 1: 700 MHz band plan

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>A’</th>
<th>B’</th>
<th>C’</th>
<th>C1</th>
<th>C2</th>
<th>C1’</th>
<th>C2’</th>
</tr>
</thead>
<tbody>
<tr>
<td>698 MHz</td>
<td>704 MHz</td>
<td>710 MHz</td>
<td>716 MHz</td>
<td>722 MHz</td>
<td>728 MHz</td>
<td>734 MHz</td>
<td>740 MHz</td>
<td>746 MHz</td>
<td>751 MHz</td>
<td>756 MHz</td>
<td>777 MHz</td>
</tr>
</tbody>
</table>

Available spectrum
### Table 1: Available frequency blocks and service areas

<table>
<thead>
<tr>
<th>Tier</th>
<th>Service area name</th>
<th>Population</th>
<th>Frequency</th>
<th>Block C1 (10 MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-170</td>
<td>Yukon</td>
<td>35,928</td>
<td>746–751 MHz/777–782 MHz</td>
<td>5 + 5 MHz</td>
</tr>
<tr>
<td>4-171</td>
<td>Nunavut</td>
<td>35,975</td>
<td>746–751 MHz/777–782 MHz</td>
<td>5 + 5 MHz</td>
</tr>
<tr>
<td>4-172</td>
<td>Northwest Territories</td>
<td>41,668</td>
<td>746–751 MHz/777–782 MHz</td>
<td>5 + 5 MHz</td>
</tr>
</tbody>
</table>

### 3.2 2500 MHz band

12. The auction of spectrum licences for Broadband Radio Services (BRS) in the band 2500-2690 MHz was held in May 2015, in accordance with the *Licensing Framework for Broadband Radio Service (BRS) – 2500 MHz Band* (hereinafter referred to as the 2500 MHz Framework). At the conclusion of the auction, 16 licences remained unassigned. These licences, along with other 2500 MHz licences which were returned to ISED total 62 licences (see figure 2 and table 2). Spectrum available to be licensed includes 20 MHz (10+10) of paired spectrum in the A Block, 20 MHz (10+10) of paired spectrum in the G Block, 10 MHz of unpaired spectrum in the H Block, and 25 or 15 MHz of unpaired spectrum in I Block (including the respective 5 MHz restricted band, see *2500 MHz Framework Restricted Bands*).

#### Figure 2: 2500 MHz band plan

![2500 MHz band plan](image-url)
### Table 2: Available 2500 MHz frequency blocks and service areas

<table>
<thead>
<tr>
<th>Tier</th>
<th>Service area name</th>
<th>Population</th>
<th>Frequency</th>
<th>MHz</th>
<th>Block</th>
<th>Pairing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-020</td>
<td>Kingston</td>
<td>177,314</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>10 + 10</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td>3-050</td>
<td>Kootenays</td>
<td>139,312</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>10 + 10</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td>3-054</td>
<td>Nanaimo</td>
<td>194,922</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>10 + 10</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td>3-055</td>
<td>Courtenay</td>
<td>118,732</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>10 + 10</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td>3-056</td>
<td>Thompson/Cariboo</td>
<td>184,040</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>10 + 10</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td>3-057</td>
<td>Prince George</td>
<td>188,487</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>10 + 10</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td>3-058</td>
<td>Dawson Creek</td>
<td>68,387</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>10 + 10</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td>3-027</td>
<td>Guelph-Kitchener</td>
<td>737,544</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>10 + 10</td>
<td>G</td>
<td>Paired</td>
</tr>
<tr>
<td>3-029</td>
<td>Niagara-St. Catharines</td>
<td>380,354</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>10 + 10</td>
<td>G</td>
<td>Paired</td>
</tr>
<tr>
<td>3-030</td>
<td>London/Woodstock/St. Thomas</td>
<td>854,082</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>10 + 10</td>
<td>G</td>
<td>Paired</td>
</tr>
<tr>
<td>3-051</td>
<td>Okanagan/Columbia</td>
<td>436,342</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>10 + 10</td>
<td>G</td>
<td>Paired</td>
</tr>
<tr>
<td>3-053</td>
<td>Victoria</td>
<td>458,861</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>10 + 10</td>
<td>G</td>
<td>Paired</td>
</tr>
<tr>
<td>3-001</td>
<td>Newfoundland and Labrador</td>
<td>520,176</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-002</td>
<td>Prince Edward Island</td>
<td>142,907</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-003</td>
<td>Mainland Nova Scotia</td>
<td>792,184</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-004</td>
<td>Cape Breton</td>
<td>131,379</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-005</td>
<td>Southern New Brunswick</td>
<td>167,985</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-006</td>
<td>Western New Brunswick</td>
<td>216,311</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-007</td>
<td>Eastern New Brunswick</td>
<td>361,300</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-010</td>
<td>Chicoutimi-Jonquiere</td>
<td>367,474</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-011</td>
<td>Eastern Townships</td>
<td>555,933</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-014</td>
<td>Upper Outaouais</td>
<td>125,576</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-016</td>
<td>Pembroke</td>
<td>113,567</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-017</td>
<td>Abitibi</td>
<td>193,926</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-018</td>
<td>Cornwall</td>
<td>69,729</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-019</td>
<td>Brockville</td>
<td>83,713</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-020</td>
<td>Kingston</td>
<td>177,314</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-021</td>
<td>Belleville</td>
<td>197,975</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-022</td>
<td>Cobourg</td>
<td>65,180</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
<tr>
<td>3-023</td>
<td>Peterborough</td>
<td>211,418</td>
<td>2585-2595 MHz 2680-2690 MHz</td>
<td>10</td>
<td>H</td>
<td>Unpaired</td>
</tr>
</tbody>
</table>
3-024  Huntsville  82,705  2585-2595 MHz  10  H  Unpaired
3-028  Listowel/Goderich/Stratford  135,596  2585-2595 MHz  10  H  Unpaired
3-031  Chatham  99,868  2585-2595 MHz  10  H  Unpaired
3-032  Windsor/Leamington  401,719  2585-2595 MHz  10  H  Unpaired
3-033  Strathroy  170,680  2585-2595 MHz  10  H  Unpaired
3-034  North Bay  125,647  2585-2595 MHz  10  H  Unpaired
3-035  Sault Ste. Marie  130,515  2585-2595 MHz  10  H  Unpaired
3-036  Sudbury  178,872  2585-2595 MHz  10  H  Unpaired
3-037  Kirkland Lake  112,511  2585-2595 MHz  10  H  Unpaired
3-038  Thunder Bay  230,904  2585-2595 MHz  10  H  Unpaired
3-044  Edmonton-Makao, AB* (3-044-007)  1,642,088  2585-2595 MHz  10  H  Unpaired
3-045  Medicine Hat/Brooks  198,798  2585-2595 MHz  10  H  Unpaired
3-046  Lethbridge  189,709  2585-2595 MHz  10  H  Unpaired
3-047  Calgary  1,582,542  2585-2595 MHz  10  H  Unpaired
3-048  Red Deer  260,727  2585-2595 MHz  10  H  Unpaired
3-049  Grande Prairie  196,772  2585-2595 MHz  10  H  Unpaired
3-050  Kootenays  139,312  2585-2595 MHz  10  H  Unpaired
3-054  Nanaimo  194,922  2585-2595 MHz  10  H  Unpaired
3-055  Courtenay  118,732  2585-2595 MHz  10  H  Unpaired
3-056  Thompson/Cariboo  184,040  2585-2595 MHz  10  H  Unpaired
3-057  Prince George  188,487  2585-2595 MHz  10  H  Unpaired
3-058  Dawson Creek  68,387  2585-2595 MHz  10  H  Unpaired
4-170  Yukon  35,928  2585-2595 MHz  10  H  Unpaired
3-039  Winnipeg  1,098,765  2605-2620 MHz  15**  I  Unpaired
3-040  Brandon  179,251  2605-2620 MHz  15**  I  Unpaired
3-041  Regina  392,289  2605-2620 MHz  15**  I  Unpaired
3-042  Moose Jaw  101,361  2605-2620 MHz  15**  I  Unpaired
3-043  Saskatoon  601,055  2605-2620 MHz  15**  I  Unpaired
3-044  Edmonton  1,642,295  2595-2620 MHz  25**  I  Unpaired
4-170  Yukon  35,928  2595-2620 MHz  25**  I  Unpaired
4-171  Nunavut  35,975  2595-2620 MHz  25**  I  Unpaired
4-172  Northwest Territories  41,668  2595-2620 MHz  25**  I  Unpaired

*3-044-007 is a combination of Tier 3-044 and the Alberta portion of Tier 3-043.
** Includes restricted band.

3.3  2300 MHz (WCS) band

13. Licences in the 2300 MHz band were previously auctioned: in February 2004, August 2004 and January 2005 (a two-phase residual auction process), and a further residual auction was held in June 2009, in accordance with the Licensing Framework for the Auction of Residual Spectrum Licences in the 2300 MHz and 3500 MHz Bands. As a result of the licence renewal process following the Decisions Concerning the Renewal of 2300 MHz and 3500 MHz Licences, four 2300 MHz licences were returned to ISED in 2014 and 2015. The consultation proposed that these four licences of 30 MHz (15+15) paired spectrum in Block A be included in this licensing process.
Figure 3: 2300 MHz band plan

Table 3: Available 2300 MHz frequency blocks and service areas

<table>
<thead>
<tr>
<th>Tier</th>
<th>Service area name</th>
<th>Population</th>
<th>Frequency</th>
<th>MHz</th>
<th>Block</th>
<th>Pairing</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-065</td>
<td>Port-Cartier/Sept-îles</td>
<td>46,983</td>
<td>2305-2320 MHz</td>
<td>15+15</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2345-2360 MHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-092</td>
<td>Sarnia* (4-092-002)</td>
<td>103,643</td>
<td>2305-2320 MHz</td>
<td>15+15</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2345-2360 MHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-119</td>
<td>Estevan</td>
<td>46,006</td>
<td>2305-2320 MHz</td>
<td>15+15</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2345-2360 MHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-171</td>
<td>Nunavut</td>
<td>35,975</td>
<td>2305-2320 MHz</td>
<td>15+15</td>
<td>A</td>
<td>Paired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2345-2360 MHz</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*4-092-002 is a subdivision of Tier 4-092 and includes Sarnia, Forest and the immediate vicinity.

3.4 1910-1915/1990-1995 MHz (PCS-G Block) band

The auction of PCS-G band spectrum licences was held in May 2008, in accordance with the Licensing Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range (hereinafter referred to as the AWS-1 Framework). At the conclusion of the auction, two 1910-1915/1990-1995 MHz licences remained unassigned (see figure 4 and table 4). These licences of 10 MHz (5+5) paired spectrum in the G Block are available to be licensed.

Figure 4: 1910-1915/1990-1995 MHz (PCS-G Block) band plan
Table 4: Available PCS-G frequency blocks and service areas

<table>
<thead>
<tr>
<th>Tier</th>
<th>Service area name</th>
<th>Population</th>
<th>Frequency</th>
<th>MHz</th>
<th>Block</th>
<th>Pairing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-003</td>
<td>New Brunswick</td>
<td>745,596</td>
<td>1910-1915 MHz, 1990-1995 MHz</td>
<td>5+5</td>
<td>G</td>
<td>Paired</td>
</tr>
<tr>
<td>2-009</td>
<td>Northern Ontario</td>
<td>778,449</td>
<td>1910-1915 MHz, 1990-1995 MHz</td>
<td>5+5</td>
<td>G</td>
<td>Paired</td>
</tr>
</tbody>
</table>

3.5 1670-1675 MHz (I Block) band

The auction of 1670-1675 MHz (I Block) spectrum licences was held in May 2008, in accordance with the AWS-1 Framework. At the conclusion of the auction, eight licences remained unassigned.

Figure 5: 1670-1675 MHz (I Block) band plan

![1670-1675 MHz (I Block) band plan]

Table 5: Available 1670-1675 MHz (I Block) frequency blocks and service areas

<table>
<thead>
<tr>
<th>Tier</th>
<th>Service area name</th>
<th>Population</th>
<th>Frequency</th>
<th>MHz</th>
<th>Block</th>
<th>Pairing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-001</td>
<td>Newfoundland and Labrador</td>
<td>520,176</td>
<td>1670-1675 MHz</td>
<td>5</td>
<td>I</td>
<td>Unpaired</td>
</tr>
<tr>
<td>2-002</td>
<td>Nova Scotia and Prince Edward Island</td>
<td>1,066,470</td>
<td>1670-1675 MHz</td>
<td>5</td>
<td>I</td>
<td>Unpaired</td>
</tr>
<tr>
<td>2-005</td>
<td>Southern Quebec</td>
<td>5,895,985</td>
<td>1670-1675 MHz</td>
<td>5</td>
<td>I</td>
<td>Unpaired</td>
</tr>
<tr>
<td>2-006</td>
<td>Eastern Ontario and Outaouais</td>
<td>2,435,880</td>
<td>1670-1675 MHz</td>
<td>5</td>
<td>I</td>
<td>Unpaired</td>
</tr>
<tr>
<td>2-008</td>
<td>Southern Ontario</td>
<td>10,609,746</td>
<td>1670-1675 MHz</td>
<td>5</td>
<td>I</td>
<td>Unpaired</td>
</tr>
<tr>
<td>2-011</td>
<td>Saskatchewan</td>
<td>1,094,705</td>
<td>1670-1675 MHz</td>
<td>5</td>
<td>I</td>
<td>Unpaired</td>
</tr>
<tr>
<td>2-012</td>
<td>Alberta</td>
<td>4,070,844</td>
<td>1670-1675 MHz</td>
<td>5</td>
<td>I</td>
<td>Unpaired</td>
</tr>
<tr>
<td>2-013</td>
<td>British Columbia</td>
<td>4,647,973</td>
<td>1670-1675 MHz</td>
<td>5</td>
<td>I</td>
<td>Unpaired</td>
</tr>
</tbody>
</table>
3.6 Summary of comments, discussion and decision

Summary of comments

16. There was general support for the choice of licences being made available through this licensing process with some suggested changes. Bell, Rogers and SaskTel do not consider that the 1670-1675 MHz I Block should be licensed at this time. Bell, Ecotel, Rogers, SaskTel and TELUS commented that an equipment ecosystem has not yet developed anywhere in the world for I Block and the band remains undefined by 3rd Generation Partnership Project (3GPP).

17. Nokia and Ligado noted that the 3GPP has studied adding the band to their list of supported bands. Nokia indicated that it and others are developing base station equipment for the band. Nokia and Ligado proposed that if the band was not auctioned, ISED could consider offering the licences on a FCFS basis in the future.

18. TELUS suggested that all available PCS FCFS licences be included in this auction and that 2500 MHz spectrum licences be excluded from this licensing process and sold via an auction format that includes price discovery.

Discussion

19. In accordance with the Framework for Spectrum Auctions in Canada, where the demand for spectrum is not expected to exceed the supply, ISED generally uses a first-come, first-served licensing process to award spectrum licences. In instances where the demand for spectrum is expected to exceed supply, a competitive licensing process, such as an auction, is generally used. With respect to the licences in the 700 MHz, 2500 MHz, 2300 MHz and PCS-G block, ISED expects that demand will exceed supply and will therefore be included in the auction of residual licences. In reference to TELUS’ suggestion that all available PCS FCFS licences be included in this auction, it is noted that since 2003, ISED has made some PCS spectrum available for licensing on a FCFS basis, however ISED has no evidence to suggest that PCS licences, other than G Block, warrant an auction process.

20. Regarding the I Block licences, Nokia and Ligado indicated that the 3GPP has studied the possibility of adding the band to their list of supported bands. This would allow for a device ecosystem. ISED notes that although 3GPP has studied the band, in particular during the 2012-2014 timeframe, this does not confer any special status or guarantee of eventual acceptance. Currently, the 1670-1675 MHz band is not a supported band and there is no indication of acceptance in the near future.
21. Nokia indicated that it and others are developing base station equipment for the band. ISED notes that these developmental base stations may eventually drive a consumer handset ecosystem, but general handset availability would likely be years away.

22. The majority of respondents suggested that ISED not auction these licences until there is more clarity on timing of ecosystem development.

23. Given the current absence of an equipment ecosystem for spectrum in the 1670-1675 MHz band (I Block), and the lack of any impending development in the near future, ISED will not offer these licences through this residual auction process. In accordance with the FSAC and ISED’s expectation of excess demand, a total of 71 licences will be made available in the 700 MHz, 2500 MHz, 2300 MHz, and PCS-G bands through this licensing process, as shown in table 1, table 2, table 3 and table 4.

**Decision**

D1 — The following licences will be included in the Auction of Residual Licences: 700 MHz, 2500 MHz, 2300 MHz, and PCS-G Block. The 1670-1675 MHz I Block spectrum licences will not be included in this process.

4. **Competitive measures**

24. The original 700 MHz auction process (2014) as well as the 700 MHz and AWS-3 residual auction process (2015) included a spectrum cap of two paired blocks, applicable to all licensees, and a cap of one prime paired block (blocks B, C, C1, and C2) applicable to large wireless service providers. In the Consultation, ISED proposed that the spectrum caps that applied in the previous licensing processes for the 700 MHz band continue to apply.

25. The 2500 MHz auction (2015) included a spectrum cap of 40 MHz, excluding the restricted bands at 2570-2575 MHz and 2615-2620 MHz, applicable to all licensees, with the exception of the Northwest Territories, Yukon and Nunavut service areas where there was no limit. In the Consultation, ISED proposed that the spectrum caps that applied in the 2500 MHz Framework continue to apply.

26. For the other licences being auctioned, no competitive measures were proposed.
4.1 Summary of comments, discussion and decision

Summary of comments

700 MHz

27. Eastlink, Ecotel, Rogers, Shaw and Xplornet supported the proposal to maintain the spectrum aggregation limit in the 700 MHz band. The BCBA, supported by Airnet, agreed with the proposed aggregation limits, but noted that the limits are not enough to ensure competition in rural areas. It suggested that spectrum aggregation limits be extended from five years to ten years to reduce speculative acquisitions that may act as a further barrier to regional and local carriers who would compete in rural markets. The BCBA also suggested smaller licence areas and a new set-aside for entities with annual sales under $10 million.

28. Ice Wireless suggested that new licensees should be limited to a single paired block in the 700 MHz band in order to promote competition in the North through new entry. It also proposed that priority be given to bidders with no existing licences within a given band before considering bids from licensees who already hold spectrum in a band and that spectrum aggregation rules apply to all bands.

29. Bell, SaskTel, and TELUS did not support maintaining the spectrum aggregation limits on the 700 MHz band, noting that in their view, their competitors are no longer new entrants and do not require regulatory protection. Bell proposed that as this will be the third attempt to sell the 700 MHz licences, the aggregation limit should be removed and the spectrum should be made available to the widest range of bidders.

2500 MHz

30. Eastlink, Ecotel, Rogers, Shaw and Xplornet supported the proposed spectrum aggregation limit in the 2500 MHz band. CCI Wireless proposed maintaining the aggregation limits on the 2500 MHz licences and that the limit should be in place for the entire initial term of the licence. CCI Wireless argued that, if the limits are in place for a period less than the term of the licence, it encourages the purchase of spectrum for the purpose of reselling it at a later date, discouraging the expedited deployment of infrastructure to provide services to Canadians. It is also of the view that ISED should consider setting limits for all licensed spectrum held by an organization including its affiliates and/or associates.

31. Bell, SaskTel and TELUS did not support spectrum aggregation limits on the 2500 MHz band. Bell is of the view that there will be limited competition that will keep the final price for the spectrum artificially low. SaskTel suggested that the residual spectrum blocks included in this licensing process not count towards the spectrum aggregation limits. TELUS is of the view that the spectrum aggregation limits should be increased to 60 MHz (excluding the restricted bands) for all interested parties given that Bell, Rogers and SaskTel each have 65 MHz in all or the majority of the top markets within their operating territory.
Other bands

32. Bell, Rogers, SaskTel and TELUS supported the proposal to not impose competitive measures on other licences issued through this licensing process.

33. Ecotel proposed that PCS spectrum should be reserved for new players that were not present during the 2008 AWS auction. Eastlink submitted that protective measures could be reasonable for the PCS-G Block spectrum as there is more certainty around available equipment and suggested that these licences should be set-aside for operating mobile wireless services providers who are not national incumbents, with more than 10% of the market share. Xplornet proposed that there should be aggregation limits for the PCS-G Block and I Block licences.

Discussion

34. ISED considers spectrum aggregation limits to be an appropriate mechanism for managing the concentration of 700 MHz and 2500 MHz spectrum to support ISED’s objective of sustained competition. Maintaining the limits for five years from the date of licence issuance encourages participation from entities that intend to use the spectrum to deploy services.

35. Ice Wireless suggested limiting new licensees to a single paired block in the 700 MHz band. ISED considers that maintaining the current limit is sufficient to provide opportunity for interested service providers to acquire licences in the North and to offer competitive services.

36. Consistent with the previous 700 MHz and 2500 MHz licensing processes, ISED continues to be of the view that an in-band spectrum aggregation limit for a period of five years will promote competition in the provision of wireless services.

37. Eastlink and Ecotel disagreed with the ISED proposal to not introduce competitive measures in the PCS-G Block. ISED does not consider that competitive measures are warranted in the 2300 MHz and PCS-G Block bands at this time. Multiple wireless service providers currently have PCS-G Block licences across the country to offer services to Canadians and the spectrum being auctioned was unassigned during a previous auction.

38. ISED notes that all commercial mobile spectrum licence transfer requests are subject to review under the Client Procedure Circular, CPC-2-1-23, Licensing Procedures for Spectrum Licences for Terrestrial Services, and the Framework Relating to Transfers, Divisions and Subordinate Licensing of Spectrum Licences for Commercial Mobile Spectrum (Transfer Framework). As commercial mobile services are permitted in the 700 MHz, 2500 MHz, 2300 MHz and PCS-G bands, the Transfer Framework will apply to spectrum licences in these bands. ISED views the licencing of this spectrum as an opportunity to support competition and to enable regional service providers to improve their wireless networks.
Decision

D2 — Competitive measures will be as follows:

a. The spectrum aggregation limits that applied in the previous licensing process for the 700 MHz licences will continue to apply for licences as part of this residual auction process as set out in section 3 — Spectrum aggregation limits of annex A;

b. The spectrum aggregation limits that applied in the previous licensing process for the 2500 MHz licences will continue to apply for licences as part of this residual auction process as set out in section 3 — Spectrum aggregation limits of annex B; and

c. There will be no spectrum aggregation limits on 2300 MHz and PCS-G Block licences as part of this residual auction process.

5. Conditions of licence

39. ISED sought comments on the likely timeframe for availability of equipment capable of providing access to licensed spectrum on an opportunistic basis, licence terms, deployment levels, as well as on the proposed conditions of licence.

5.1 Summary of comments, discussion and decision

Summary of comments

Access to licensed spectrum on an opportunistic basis

40. Bell, Rogers, SaskTel and TELUS were of the view that opportunistic sharing technology is years away from commercial deployment. Significant development or deployments of cognitive or dynamic spectrum access systems could be up to five years away, with testing and implementation much later. CCI suggested that equipment may be available on a commercial basis in ten years.

41. Xplornet proposed that there should be a full public consultation in advance of any change in current spectrum management policies. Bell, Eastlink, Rogers, SaskTel and TELUS shared this view and requested more detail regarding how the proposed opportunistic access system would function.

42. Some respondents noted the importance of identifying dynamic spectrum 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. Rogers stated that ISED should be cautious when exploring opportunistic sharing and that ISED should explore sharing in bands with open spectrum designations, lightly licensed mobile bands or bands with
users in restricted geographic areas. Bell suggested that as opportunistic spectrum access capabilities mature, ISED could consider access only for greenfield spectrum, as identifying opportunistic spectrum access as a condition of licence before spectrum is initially licensed provides licensees with the opportunity to factor this condition into their business cases and set their auction participation strategies accordingly.

License terms

43. ISED proposed 20-year licence terms for all bands with the exception of I Block, for which a 10-year licence term was proposed.

44. Ecotel, Ice Wireless, SaskTel, Shaw, TELUS and Xplornet supported the proposed licence terms. Bell and Rogers agreed with the licence terms with the exception of the 1670-1675 MHz I Block band, which they do not recommend licensing as part of this process. CCI Wireless was of the view that the licence terms should be for five years in order to facilitate deployment of infrastructure and encourage organizations to only bid on those licences they intend to use in the immediate future.

Deployment requirements

45. For 700 MHz, 2500 MHz, 2300 MHz and PCS-G Block licences, ISED proposed 10-year deployment requirements, as specified in annex E. For 1670-1675 MHz (I Block) licences, 8-year deployment requirements were proposed.

46. Rogers, SaskTel, Shaw and Xplornet supported the proposed deployment levels. Eastlink supported the deployment levels with the exception of I Block, which should remain as they were in the 2008 licensing process. Bell did not oppose the proposed deployment levels, however if I Block is auctioned, it recommended that I Block deployment requirements be reviewed and adjusted after five years depending on the status of the development of the ecosystem. TELUS was of the view that the deployment requirements are too weak, with the exception of I Block, however believes it would be unfair to accelerate the timelines for residual licences. Ecotel noted that the licences should be auctioned on a Tier 4 basis, with Tier 4 deployment levels. The BCBA, supported by Airnet, observed that with the use of small licence areas such as hexagons, deployment requirements would encourage investment into Canada’s underserved areas.

Other conditions of licence

47. ISED proposed other conditions of licence that were consistent with conditions of licence from previous licensing processes for each individual band.

48. Bell and TELUS suggested that the mandatory roaming requirements be removed as they are of the view that the condition of licence is a disincentive for carriers to invest in infrastructure. Eastlink and Shaw both opposed Bell and TELUS’ suggestions. Rogers supported the mandatory roaming requirement.
49. Bell, Rogers and TELUS advocated for the removal of the research and development (R&D) condition, or at least a lowering of the 2% level. The BCBA recommended keeping the R&D condition.

50. The BCBA, Bell, Rogers, SaskTel and TELUS requested lessening of the annual reporting requirements, to reduce the frequency with which the data is collected or the level of reporting required at certain points in time.

51. Bell and Rogers observed that lawful intercept requirements should be limited to capabilities that are provided for in industry standards and incorporated in commercially available equipment. Bell indicated that its comments apply to all licences and not only to the residual auction.

52. Comments were received regarding methods for increasing service to rural areas. Ecotel commented that an additional condition should be added to facilitate, or make mandatory, subordination agreements in locations where licensed spectrum is not put to use. BCBA was of the view that the areas being licensed should be small, even smaller than Tier 4, in order to provide service to rural Canadians.

Discussion

Access to licensed spectrum on an opportunistic basis

53. As noted in the Consultation, ISED recognizes that the current rate of wireless technology development is ever evolving and these developments, such as cognitive radio and dynamic spectrum access, are expected to provide opportunities for increased efficiency for spectrum access. Recognizing that the technologies that would allow new sharing paradigms and opportunistic access to spectrum are nascent, ISED will not implement any specific provisions to allow this kind of use at this time, but notes that changes could be forthcoming, subject to a future consultation that could apply to the licences auctioned in this residual auction process. ISED will continue to monitor the development of these technologies with the view to enhancing the efficient use of spectrum.

Licence terms

54. ISED notes that a longer licence term provides businesses with the certainty required to invest in the deployment of networks. Longer licence terms are also appropriate when the use of the spectrum is well established and stable.

55. Consistent with the FSAC, which states that where the spectrum use is not anticipated to change longer terms such as 20 years would be offered, the licence terms will be adopted as proposed.
Deployment requirements

56. The proposed conditions of licence regarding deployment reflect the minimum population coverage that licensees are required to meet within a specific timeframe. ISED’s objective is to see spectrum put to use to for all Canadians. Licensees are strongly encouraged to make use of all of their spectrum holdings in all areas, either by putting the spectrum to use as the primary licensee, or through subordinate licensing, or other types of arrangements such as the transfer or division of licences that would see the spectrum used by others for the benefit of Canadians.

57. As the proposed deployment requirements are consistent with ISED’s stated objective to facilitate deployment and timely availability of services across the country, including rural areas, the deployment requirements condition of licence will be adopted as proposed.

Mandatory roaming

58. 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.

59. Comments received noted particular concerns with regard to whether mandated roaming for national operators encourages fair competition, infrastructure deployment and coverage. In addition, respondents questioned whether the original intention in mandating roaming — which they articulated as “to encourage the emergence of new entrants” — remains relevant in the current environment. Recognizing the opposing views received on the proposed condition of licence for mandatory roaming, ISED may consult in the future to review this condition of licence in the context of all commercial mobile bands. Therefore, the mandatory roaming condition of licence will remain as proposed.

Research and development

60. R&D requirements align with the spectrum objectives of the 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 following a public consultation, modifying the condition of licence requiring licensees to invest a portion of their adjusted gross revenues in R&D activities, as published in SLPB-002-14, *Decisions on Conditions of Licence Regarding Research and Development and Learning Plans*. This revised condition of licence applies to all existing spectrum and satellite licences that are currently subject to the R&D condition of licence.
61. 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 conditions of licence will be adopted as proposed.

**Annual reporting**

62. Many comments indicated that annual reporting should be removed or modified to result in less frequent reporting and lowering of the administrative burden on licensees. Currently, spectrum licence conditions include a requirement to submit an annual report to ISED to provide some basic information on spectrum use as well as existing company reports. This provides valuable information. ISED will consider respondents’ concerns regarding possible streamlining of the information required to be submitted as part of annual reporting, for future changes to this condition of licence.

63. As the annual reporting condition of licence is consistent with licences for the same bands issued through previous auctions, the annual reporting condition of licence will be adopted as proposed.

**Lawful intercept**

64. The condition of licence on lawful intercept was first introduced in 1996 for Personal Communications Services (PCS) spectrum licences. Since then, this condition has been applied to most spectrum licences that carry public traffic to and from the public networks. The requirement has been slightly modified over the years to remain meaningful as technology evolved, and to ensure consistency with the *Telecommunications Act* and related regulations.

65. As the proposed condition of licence is consistent with licences issued for the same bands through previous auctions and renewals, the lawful intercept condition of licence will be adopted as proposed.

**Other terms**

66. Comments regarding subordination agreement conditions have been considered and may provide options for increasing service to rural Canadians in the future.

67. However, to maintain consistency with other bands and as the other proposed conditions of licence are consistent with licences for the same bands issued through previous auctions, the conditions of licence will be adopted as proposed.
Decision

D3a — The 20-year licence terms will apply as proposed for the 700 MHz, 2500 MHz, 2300 MHz and PCS-G Block licences being auctioned in this licensing process as set out in annexes A through D;

D3b — The deployment levels will apply as proposed for each of the licences as set out in annex E; and

D3c — The other conditions of licence will apply as proposed for the 700 MHz, 2500 MHz, 2300 MHz and PCS-G Block licences being auctioned in this licensing process as set out in annexes A through D.

6. Auction format and rules

6.1 Auction format and timing

68. As stated in the FSAC, ISED’s objective is to select an auction design that is optimal for the spectrum being offered and the circumstances that exist at the time. The auction format should be simple, fair and transparent for bidders and lead to an efficient assignment of spectrum. In the selection of an auction format and related rules, consideration is given to the characteristics of the spectrum being auctioned; for example, the quantity and size of the blocks, as well as the similarities and complementarities that may exist among the blocks. In past auctions, ISED has used a simultaneous multiple round ascending (SMRA) auction, a combinatorial clock auction (CCA) or a sealed-bid auction format.

69. A sealed-bid auction requires applicants to submit their bids to ISED prior to the receipt deadline. Following the receipt deadline for bids, departmental officials will open the bids, rank them and provisionally award a licence or licences to the highest bidder(s). If the highest bidder for a particular licence is found eligible to be the licensee, that bidder would be awarded the licence and would pay the second price or opening bid.

70. In its Consultation, ISED sought comments on its proposal to use a sealed-bid auction format for this auction of residual licences. ISED also sought comments on the timeline outlined in the Proposed Table of Key Dates.

6.1.1 Summary of comments, discussion and decision

Summary of comments

71. Bell, CCI Wireless, Eastlink, Ecotel, Ice Wireless, Rogers and Shaw were in support of using the sealed-bid auction format.
72. SaskTel did not agree with the proposed auction format, stating that the lack of price discovery and the large number and variety of licences proposed to be awarded in this auction better lends itself to the SMRA format.

73. TELUS and Xplornet noted that the 2500 MHz licences specifically would benefit from an auction format that provides for price discovery.

74. The BCBA, supported by Airnet, preferred a sealed bid format in major metropolitan areas and a first-come, first-served (FCFS) approach for the rural areas, at little or no cost.

75. In relation to the proposed timelines, respondents were generally supportive (Eastlink, Ecotel, Ice Wireless, Rogers, Shaw, TELUS, Xplornet).

76. SaskTel suggested that if an SMRA auction was implemented, it could be conducted during the latter half of February 2018 with the initial and final payments due as per the March dates identified in the Proposed Table of Key Dates.

**Discussion**

77. As stated in the Consultation, ISED has proposed to use a sealed-bid auction format given the nature of licences available in various bands for this auction process, the fact that the value has been well established in recent auctions and market transactions and in order to make this spectrum available in a timely manner. A sealed-bid auction format was recently used in the Auction of Residual Spectrum Licences in the 700 MHz and AWS-3 Bands, which was held in August 2015.

78. In response to the suggestion that an FCFS licensing approach be used, given the indication of a potential excess demand for the available spectrum, a competitive licensing process is considered to be appropriate.

79. When proposing an auction format, ISED must consider the benefits of an auction format versus the complexity of and time required to run the auction. Although both CCA and SMRA formats provide stakeholders with the benefit of price discovery through the multiple rounds, these formats are more complex and time consuming. Given that available licences represent a limited amount of spectrum in various bands, for which the value has been recently established in auctions and market transactions, ISED is of the view that the use of a sealed-bid auction format would be optimal.
Decision

D4 — ISED will use a sealed-bid auction for the auction of residual licences in the 700 MHz, 2500 MHz, 2300 MHz, and PCS-G Block bands. The auction will be held in accordance with the revised Table of Key Dates.

6.2 Package bidding for the 2500 MHz licences

80. Given the large number of 2500 MHz licences being offered across many geographical areas, there may exist some complementarities or interdependencies between these regional licences. However, in a single round sealed-bid auction without package bidding, there is a risk that a bidder may win some, but not all of the licences required for its business plan. This is known as the exposure risk.

81. ISED sought comments on its proposal to mitigate this exposure risk by allowing package bidding for the 2500 MHz licences. Each package bid would be treated as an all-or-nothing bid and the package would be awarded in its entirety, or not at all.

82. It was proposed to limit the package bidding options, allowing for a package of the paired 2500 MHz licences, and also allowing for multiple packages of the unpaired Tier 3 licences (Tier 4 in the North), within a Tier 2 area (see table 6).

6.2.1 Summary of comments, discussion and decision

Summary of comments

83. Bell, Eastlink, Ice Wireless, Rogers and Shaw agreed with the package bidding proposed by ISED for the 2500 MHz licences. Ecotel also agreed but requested that the licences be auctioned at the Tier 4 level.

84. CCI Wireless, TELUS and Xplornet did not support the proposal for package bidding as set out by ISED.

85. TELUS was concerned that the predetermined groupings failed to address any exposure risk across larger regions and also failed to address exposure risk across Frequency Division Duplex (FDD) and Time Division Duplex (TDD) frequency blocks in the same region.

86. Xplornet did not favour the packages assembled by ISED as it felt that it may work against non-incumbent carriers and suggested that large metropolitan areas should be packaged separately.
Discussion

87. Package bidding allows bidders to express their value for a combination of licences as a group. If bidders were only able to bid on 2500 MHz licences individually, there would be an exposure risk for bidders trying to acquire some combination of available paired licences or available unpaired licences within Tier 2 areas. The bidder may win some licences in the desired package but not others. In the absence of price discovery it may be safer for bidders to place values on packages rather than on individual licences in order to reduce the exposure risk.

88. The Consultation proposed to divide the 2500 MHz licences into 15 groups (A, B, C,…, O) for the purpose of package bidding (see table 6). If a bidder was interested in licences in a particular group, it could submit bids on all desirable packages within this group, but the number of such packages per group could not exceed 500. This grouping was proposed in order to keep the number of available packages at a reasonable level. Bidders would not be able to bid on packages that include licences from different groups.

89. In each group, bidders will be able to win no more than one of their bids. These bids may be submitted on individual licences or packages of licences. The winning bid(s) in each group will be determined by finding a combination that generates the highest value for this group; the bids in this combination would be the winning bids. Bidders will be required to pay second prices, which will be determined in a way similar to previous combinatorial auctions organized by ISED. Further information on the determination of provisional licence winners and prices can be found in annex F—Bidding examples.

90. There will be no package bidding with respect to the 700 MHz, 2300 MHz and PCS-G Block licences offered in this auction.

Decision

D5 — ISED will allow package bidding in the sealed-bid auction format for residual licences in the 2500 MHz band. ISED will divide the 2500 licences in groups for the purpose of package bidding as defined in table 6.

Table 6: Groups of 2500 MHz licences for the purpose of package bidding

<table>
<thead>
<tr>
<th>Group</th>
<th>Tier #</th>
<th>Service area name</th>
<th>Block</th>
<th>Frequency</th>
<th>MHz</th>
<th>Pairing</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>3-020</td>
<td>Kingston</td>
<td>A/A'</td>
<td>2500-2510 / 2620-2630</td>
<td>10+10</td>
<td>Paired</td>
</tr>
<tr>
<td></td>
<td>3-027</td>
<td>Guelph/Kitchener</td>
<td>G/G'</td>
<td>2560-2570 / 2680-2690</td>
<td>10+10</td>
<td>Paired</td>
</tr>
<tr>
<td></td>
<td>3-029</td>
<td>Niagara-St. Catharines</td>
<td>G/G'</td>
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</tbody>
</table>

* Includes restricted band.
** 3-044-007 is a combination of Tier 3-044 and the Alberta portion of Tier 3-043.

### 6.3 Second-price rule

ISED sought comments on the proposal to use a second-price rule to determine the price that winning bidders would be required to pay. A second-price rule requires winning bidders to pay an amount that is sufficient to ensure that no other bidder, or group of bidders, is prepared to pay more for the licence(s) in question. ISED also invited comments on the application of adjusted Vickrey prices for the final payment calculation.
6.3.1 Summary of comments, discussion and decision

Summary of comments

92. There was general support from all respondents on the proposals.

Discussion

93. A second-price rule promotes a more efficient outcome by increasing the incentive for bidders to bid in a way that is consistent with how they truly value the licences. Bidders, knowing that they will only be required to pay the amount determined by the second-price rule, will have a greater incentive to bid truthfully.

94. Given the decision to allow package bidding for 2500 MHz licences, the price(s) for those licences could depend on package bids and/or bids for the individual licences. With package bidding, in some cases, the second price may not be high enough to ensure that there is no alternative bidder or group of bidders prepared to pay more for the licences in question. To address this, ISED will require an additional payment above the second price to ensure that the winning bidder(s) pay an amount that is sufficient to ensure that no other bidder or group of bidders is prepared to pay more for the licence(s) in question. More specifically, ISED will apply bidder-optimal core prices and use the adjusted Vickrey approach, also referred to as “nearest Vickrey” (see annex F). This approach to determine second prices was used in previous auctions conducted by ISED to assign licences in the 700 MHz, AWS-3 and 2500 MHz bands.

Decision

D6 — ISED will implement a second-price rule for the auction of residual licences in the 700 MHz, 2500 MHz, 2300 MHz and PCS-G bands. This will include bidder-optimal core prices and the use of the “nearest Vickrey” approach for package bidding in the 2500 MHz band.

6.4 Opening bids

95. Opening bids are the prices for the spectrum licences at the start of the auction, and the minimum amount that will be accepted for each licence.

700 MHz licences

96. In the original 700 MHz auction (held in 2014), the determination of the opening bid prices took into account the results of past Canadian auctions and reflected the relative value of the licences in the different service areas. For the Service Area 2-014 – Yukon, the Northwest
Territories and Nunavut, the opening bid was $284,000. In the Auction of Residual Spectrum Licences in the 700 MHz and AWS-3 bands (held in 2015) this Tier 2 Service Area 2-014 licence was divided into three Tier 4 areas and the opening bids were adjusted to reflect the smaller licence areas. The opening bid for Yukon was $90,000, for Nunavut it was $85,000 and for Northwest Territories it was $110,000.

97. In order to provide an additional opportunity for interested service providers to acquire the 700 MHz licences in the North, ISED proposed to reduce the opening bids by 50% (see table 7). This reduction would improve the affordability of the licences while also ensuring that Canadians obtain a fair return for the use of this spectrum resource.

2500 MHz licences

98. In the original 2500 MHz auction (held in 2015), the determination of the opening bid prices took into account market transactions for spectrum licences in Canada, prices paid for 2500 MHz spectrum licences assigned in international auctions and technical considerations. Service areas were grouped into four price levels according to Statistics Canada’s 33 defined census metropolitan areas (CMAs) and their population estimates.

Based on relative values for the following groups:

- service areas with a population greater than 2 million (3-25 Toronto, 3-13 Montréal and 3-52 Vancouver) were priced at $0.14/MHz/pop;
- service areas that provide coverage to a CMA with a population between 1 million and 2 million, were priced at $0.10/MHz/pop;
- service areas that provide coverage to a CMA with a population less than 1 million, were priced at $0.065/MHz/pop; and
- all other service areas (those that do not provide coverage to a CMA), were priced at $0.051/MHz/pop.

99. With respect to the available licences, ISED proposed that the same calculations apply (see table 8).

2300 MHz licences (WCS)

100. The WCS licences to be made available through this auction process were first auctioned in February 2004 for a 10-year term. The opening bids were set at the low level of $0.001/MHz/pop reflecting the impact of technical restrictions in the band at that time on the expected value of the licences.

101. Since many technical restrictions on the mobile use of the WCS band were lifted in April 24, 2014, and the equipment ecosystem has advanced, ISED proposed to establish opening bid prices for this band consistent with opening bid prices of 2500 MHz auction held in 2015 (see table 9).
1910-1915/1990-1995 MHz (PCS-G Block) licences

102. This spectrum was first offered for commercial mobile licensing during the 2008 AWS-1 Auction for a 10-year licence term. The opening bid was equivalent to the lower of a) the Personal Communications Services/cellular licence fee or b) the 2001 PCS auction final prices, for each particular licence area. Opening bids were valued at rates in the range from $0.0582/MHz/pop to $0.285/MHz/pop.

103. For the 1910-1915/1990-1995 MHz licences, in order to reflect more recent observations on the value of this spectrum and account for the proposal to issue these licences for a 20-year term, it was proposed in the Consultation that the opening bid prices for these licences be consistent with the opening bid prices of the 2500 MHz auction held in 2015 (see table 10).

6.4.1 Summary of comments, discussion and decision

Summary of comments

104. CCI Wireless, Eastlink, Rogers and Shaw supported the proposed opening bids as set out by ISED in the Consultation. Ecotel was also supportive but expressed that the residual licences to be auctioned should be offered at the Tier 4 level and therefore opening bid prices should be adjusted accordingly.

105. TELUS supported lowering 700 MHz opening bids if aggregation limits are retained. Regarding the 2500 MHz licences, TELUS recommended recalculating the opening bid prices based on the actual market value in the Canadian context established in the 2015 auction. TELUS also proposed further increasing the opening bids for 2300 MHz spectrum, but supported the proposed opening bid prices for PCS-G Block licences.

106. Bell did not support the proposal to reduce 700 MHz opening bids by 50% and proposed that ISED remove the spectrum aggregation limit instead. For the 2500 MHz licences, Bell recommended that the opening bid prices should be increased 1.5 to 2 times, which would bring the opening bid prices closer to what Xplornet paid in the first 2500 MHz auction.

107. Ice Wireless recommended that ISED use the same proposed opening bid prices for the 2500 MHz licences as those proposed for the 700 MHz licences, specifically, $0.051/MHz/pop. SaskTel recommended lowering opening bid prices for the 2500 MHz licences in Saskatchewan (i.e. decreasing the opening bid price for Saskatoon from $0.065/MHz/pop to $0.051/MHz/pop).

Discussion

108. ISED has considered the comments received and further considers that the proposed opening bid prices for the residual spectrum licences represent a fair return to Canadians for the use of this spectrum. Lower reserve prices for the 700 MHz licences in comparison to previous auctions may reduce the risk of spectrum remaining unlicensed and unused. ISED notes that
opening bid prices have been updated to reflect population figures based on Statistics Canada’s 2016 Census information.

**Decision**

D7 — ISED will apply the opening bid prices as stated in tables 7, 8, 9 and 10.

**Table 7: Opening bid prices for the 700 MHz licences**

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<th>Tier</th>
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<th>Population</th>
<th>$/MHz/pop</th>
<th>Opening bid (20-year licence, 10 MHz)</th>
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<td>5+5</td>
<td>41,668</td>
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**Table 8: Opening bid prices for the 2500 MHz licences**

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<th>Tier*</th>
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<th>MHz</th>
<th>Population</th>
<th>$/MHz/Pop</th>
<th>Opening bid (20-year licence)</th>
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<td>10+10</td>
<td>188,487</td>
<td>0.051</td>
<td>$192,000</td>
</tr>
<tr>
<td>3-058</td>
<td>Dawson Creek</td>
<td>A</td>
<td>10+10</td>
<td>68,387</td>
<td>0.051</td>
<td>$70,000</td>
</tr>
<tr>
<td>3-027</td>
<td>Guelph/Kitchener</td>
<td>G</td>
<td>10+10</td>
<td>737,544</td>
<td>0.065</td>
<td>$959,000</td>
</tr>
<tr>
<td>3-029</td>
<td>Niagara-St. Catharines</td>
<td>G</td>
<td>10+10</td>
<td>380,354</td>
<td>0.065</td>
<td>$494,000</td>
</tr>
<tr>
<td>3-030</td>
<td>London/Woodstock/St. Thomas</td>
<td>G</td>
<td>10+10</td>
<td>854,082</td>
<td>0.065</td>
<td>$1,110,000</td>
</tr>
<tr>
<td>3-051</td>
<td>Okanagan/Columbia</td>
<td>G</td>
<td>10+10</td>
<td>436,342</td>
<td>0.065</td>
<td>$567,000</td>
</tr>
<tr>
<td>3-053</td>
<td>Victoria</td>
<td>G</td>
<td>10+10</td>
<td>458,861</td>
<td>0.065</td>
<td>$597,000</td>
</tr>
<tr>
<td>3-001</td>
<td>Newfoundland and Labrador</td>
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<td>10</td>
<td>520,176</td>
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<td>$338,000</td>
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<td>3-002</td>
<td>Prince Edward Island</td>
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<td>10</td>
<td>142,907</td>
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<td>$73,000</td>
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<tr>
<td>3-003</td>
<td>Mainland Nova Scotia</td>
<td>H</td>
<td>10</td>
<td>792,184</td>
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<td>$515,000</td>
</tr>
<tr>
<td>3-004</td>
<td>Cape Breton</td>
<td>H</td>
<td>10</td>
<td>131,379</td>
<td>0.051</td>
<td>$67,000</td>
</tr>
<tr>
<td>Tier*</td>
<td>Service area name</td>
<td>Block</td>
<td>MHz</td>
<td>Population</td>
<td>$/MHz/Pop</td>
<td>Opening bid (20-year licence)</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------</td>
<td>-------</td>
<td>-----</td>
<td>------------</td>
<td>-----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>3-005</td>
<td>Southern New Brunswick</td>
<td>H</td>
<td>10</td>
<td>167,985</td>
<td>0.065</td>
<td>$109,000</td>
</tr>
<tr>
<td>3-006</td>
<td>Western New Brunswick</td>
<td>H</td>
<td>10</td>
<td>216,311</td>
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<td>$110,000</td>
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<tr>
<td>3-007</td>
<td>Eastern New Brunswick</td>
<td>H</td>
<td>10</td>
<td>361,300</td>
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<td>$235,000</td>
</tr>
<tr>
<td>3-010</td>
<td>Chicoutimi-Jonquière</td>
<td>H</td>
<td>10</td>
<td>367,474</td>
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</tr>
<tr>
<td>3-011</td>
<td>Eastern Townships</td>
<td>H</td>
<td>10</td>
<td>555,933</td>
<td>0.065</td>
<td>$361,000</td>
</tr>
<tr>
<td>3-014</td>
<td>Upper Outaouais</td>
<td>H</td>
<td>10</td>
<td>125,576</td>
<td>0.051</td>
<td>$64,000</td>
</tr>
<tr>
<td>3-016</td>
<td>Pembroke</td>
<td>H</td>
<td>10</td>
<td>113,567</td>
<td>0.051</td>
<td>$58,000</td>
</tr>
<tr>
<td>3-017</td>
<td>Abitibi</td>
<td>H</td>
<td>10</td>
<td>193,926</td>
<td>0.051</td>
<td>$99,000</td>
</tr>
<tr>
<td>3-018</td>
<td>Cornwall</td>
<td>H</td>
<td>10</td>
<td>69,729</td>
<td>0.051</td>
<td>$36,000</td>
</tr>
<tr>
<td>3-019</td>
<td>Brockville</td>
<td>H</td>
<td>10</td>
<td>83,713</td>
<td>0.051</td>
<td>$43,000</td>
</tr>
<tr>
<td>3-020</td>
<td>Kingston</td>
<td>H</td>
<td>10</td>
<td>177,314</td>
<td>0.065</td>
<td>$115,000</td>
</tr>
<tr>
<td>3-021</td>
<td>Belleville</td>
<td>H</td>
<td>10</td>
<td>197,975</td>
<td>0.051</td>
<td>$101,000</td>
</tr>
<tr>
<td>3-022</td>
<td>Cobourg</td>
<td>H</td>
<td>10</td>
<td>65,180</td>
<td>0.051</td>
<td>$33,000</td>
</tr>
<tr>
<td>3-023</td>
<td>Peterborough</td>
<td>H</td>
<td>10</td>
<td>211,418</td>
<td>0.065</td>
<td>$137,000</td>
</tr>
<tr>
<td>3-024</td>
<td>Huntsville</td>
<td>H</td>
<td>10</td>
<td>82,705</td>
<td>0.051</td>
<td>$42,000</td>
</tr>
<tr>
<td>3-028</td>
<td>Listowel/Goderich/Stratford</td>
<td>H</td>
<td>10</td>
<td>135,596</td>
<td>0.051</td>
<td>$69,000</td>
</tr>
<tr>
<td>3-031</td>
<td>Chatham</td>
<td>H</td>
<td>10</td>
<td>99,868</td>
<td>0.051</td>
<td>$51,000</td>
</tr>
<tr>
<td>3-032</td>
<td>Windsor/Leamington</td>
<td>H</td>
<td>10</td>
<td>401,719</td>
<td>0.065</td>
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</tr>
<tr>
<td>3-033</td>
<td>Strathroy</td>
<td>H</td>
<td>10</td>
<td>170,680</td>
<td>0.051</td>
<td>$87,000</td>
</tr>
<tr>
<td>3-034</td>
<td>North Bay</td>
<td>H</td>
<td>10</td>
<td>125,647</td>
<td>0.051</td>
<td>$64,000</td>
</tr>
<tr>
<td>3-035</td>
<td>Sault Ste. Marie</td>
<td>H</td>
<td>10</td>
<td>130,515</td>
<td>0.051</td>
<td>$67,000</td>
</tr>
<tr>
<td>3-036</td>
<td>Sudbury</td>
<td>H</td>
<td>10</td>
<td>178,872</td>
<td>0.065</td>
<td>$116,000</td>
</tr>
<tr>
<td>3-037</td>
<td>Kirkland Lake</td>
<td>H</td>
<td>10</td>
<td>112,511</td>
<td>0.051</td>
<td>$57,000</td>
</tr>
<tr>
<td>3-038</td>
<td>Thunder Bay</td>
<td>H</td>
<td>10</td>
<td>230,904</td>
<td>0.065</td>
<td>$150,000</td>
</tr>
<tr>
<td>3-044</td>
<td>Edmonton-Makaao, AB* *(3-44-007)</td>
<td>H</td>
<td>10</td>
<td>1,642,088</td>
<td>0.100</td>
<td>$1,642,000</td>
</tr>
<tr>
<td>3-045</td>
<td>Medicine Hat/Brooks</td>
<td>H</td>
<td>10</td>
<td>198,798</td>
<td>0.051</td>
<td>$101,000</td>
</tr>
<tr>
<td>3-046</td>
<td>Lethbridge</td>
<td>H</td>
<td>10</td>
<td>189,709</td>
<td>0.051</td>
<td>$97,000</td>
</tr>
<tr>
<td>3-047</td>
<td>Calgary</td>
<td>H</td>
<td>10</td>
<td>1,582,542</td>
<td>0.100</td>
<td>$1,583,000</td>
</tr>
<tr>
<td>3-048</td>
<td>Red Deer</td>
<td>H</td>
<td>10</td>
<td>260,727</td>
<td>0.051</td>
<td>$133,000</td>
</tr>
<tr>
<td>3-049</td>
<td>Grande Prairie</td>
<td>H</td>
<td>10</td>
<td>196,772</td>
<td>0.051</td>
<td>$100,000</td>
</tr>
<tr>
<td>3-050</td>
<td>Kootenays</td>
<td>H</td>
<td>10</td>
<td>139,312</td>
<td>0.051</td>
<td>$71,000</td>
</tr>
<tr>
<td>3-054</td>
<td>Nanaimo</td>
<td>H</td>
<td>10</td>
<td>194,922</td>
<td>0.051</td>
<td>$99,000</td>
</tr>
<tr>
<td>3-055</td>
<td>Courtenay</td>
<td>H</td>
<td>10</td>
<td>118,732</td>
<td>0.051</td>
<td>$61,000</td>
</tr>
<tr>
<td>3-056</td>
<td>Thompson/Cariboo</td>
<td>H</td>
<td>10</td>
<td>184,040</td>
<td>0.051</td>
<td>$94,000</td>
</tr>
</tbody>
</table>
Table 9: Opening bid prices for the 2300 MHz (WCS) licences

<table>
<thead>
<tr>
<th>Tier</th>
<th>Service area name</th>
<th>Block</th>
<th>MHz</th>
<th>Population</th>
<th>$/MHz/Pop</th>
<th>Opening bid (20-year licence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-057</td>
<td>Prince George</td>
<td>H</td>
<td>10</td>
<td>188,487</td>
<td>0.051</td>
<td>$96,000</td>
</tr>
<tr>
<td>3-058</td>
<td>Dawson Creek</td>
<td>H</td>
<td>10</td>
<td>68,387</td>
<td>0.051</td>
<td>$35,000</td>
</tr>
<tr>
<td>4-170</td>
<td>Yukon</td>
<td>H</td>
<td>10</td>
<td>35,928</td>
<td>0.051</td>
<td>$18,000</td>
</tr>
<tr>
<td>3-044</td>
<td>Edmonton</td>
<td>I1/I2</td>
<td>25***</td>
<td>1,642,295</td>
<td>0.100</td>
<td>$3,285,000</td>
</tr>
<tr>
<td>4-170</td>
<td>Yukon</td>
<td>I1/I2</td>
<td>25***</td>
<td>35,928</td>
<td>0.051</td>
<td>$37,000</td>
</tr>
<tr>
<td>4-171</td>
<td>Nunavut</td>
<td>I1/I2</td>
<td>25***</td>
<td>35,975</td>
<td>0.051</td>
<td>$37,000</td>
</tr>
<tr>
<td>4-172</td>
<td>Northwest Territories</td>
<td>I1/I2</td>
<td>25***</td>
<td>41,668</td>
<td>0.051</td>
<td>$43,000</td>
</tr>
<tr>
<td>3-039</td>
<td>Winnipeg</td>
<td>I2</td>
<td>15***</td>
<td>1,098,765</td>
<td>0.100</td>
<td>$1,099,000</td>
</tr>
<tr>
<td>3-040</td>
<td>Brandon</td>
<td>I2</td>
<td>15***</td>
<td>179,251</td>
<td>0.051</td>
<td>$91,000</td>
</tr>
<tr>
<td>3-041</td>
<td>Regina</td>
<td>I2</td>
<td>15***</td>
<td>392,289</td>
<td>0.065</td>
<td>$255,000</td>
</tr>
<tr>
<td>3-042</td>
<td>Moose Jaw</td>
<td>I2</td>
<td>15***</td>
<td>101,361</td>
<td>0.051</td>
<td>$52,000</td>
</tr>
<tr>
<td>3-043</td>
<td>Saskatoon</td>
<td>I2</td>
<td>15***</td>
<td>601,055</td>
<td>0.065</td>
<td>$391,000</td>
</tr>
</tbody>
</table>

* Licences indicated in grey shading were not available for the 2500 MHz auction in 2015.
** 3-044-007 is a combination of Tier 3-044 and the Alberta portion of Tier 3-043.
*** Includes restricted band.

Table 10: Opening bid prices for PCS-G Block licences

<table>
<thead>
<tr>
<th>Tier #</th>
<th>Service area name</th>
<th>Block</th>
<th>MHz</th>
<th>Licence Term</th>
<th>Population</th>
<th>$/MHz/Pop</th>
<th>Opening bid prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-003</td>
<td>New Brunswick</td>
<td>PCS-G</td>
<td>10</td>
<td>20 years</td>
<td>745,596</td>
<td>0.061</td>
<td>$455,000</td>
</tr>
<tr>
<td>2-009</td>
<td>Northern Ontario</td>
<td>PCS-G</td>
<td>10</td>
<td>20 years</td>
<td>778,449</td>
<td>0.058</td>
<td>$452,000</td>
</tr>
</tbody>
</table>

*4-092-002 is a subdivision of Tier 4-092 and includes Sarnia, Forest and the immediate vicinity.
7. **Bidder participation—affiliated and associated entities**

109. In order to maintain auction integrity, as in past auctions, ISED proposed that there be rules relating to the definition and participation of affiliated and associated entities in order to ensure that each bidder is an independent bidder. As was the case in past auctions, it was proposed that affiliated entities not be allowed to participate separately in the auction. It was also proposed that associated entities only be allowed to participate separately if following a review of their application, ISED is satisfied that their participation would not have an adverse impact on auction integrity. Applicants will be required to publicly disclose information about their beneficial ownership, affiliations and associations.

110. ISED sought comments on its proposed rules regarding affiliated and associated entities and their participation.

### 7.1 Summary of comments, discussion and decision

**Summary of comments**

111. Airnet, BCBA, Bell, CCI Wireless, Eastlink, Ecotel, SaskTel, Shaw, TELUS and Xplornet generally agreed with the proposed rules regarding affiliated and associated entities.

112. Ice Wireless objected to the provision that would allow associated entities to bid separately and also objected to the possibility of having the caps applied separately. Ice Wireless and Rogers noted their concern that the rules regarding associated entities may enable spectrum aggregation in excess of what is permitted by the proposed rules. Rogers suggested that ISED take additional steps beyond the proposed rules regarding affiliated and associated entities, but did not make any specific recommendations.

**Discussion**

113. ISED is of the view that allowing associated entities to apply to bid separately in the auction of residual licences and to have the spectrum aggregation limits applied separately, could take place without having an adverse impact on the integrity of the auction, given the rules in place to maintain the integrity of the auction, including the public disclosure requirements and the rules prohibiting collusion. ISED notes that spectrum sharing arrangements support network and spectrum efficiencies, potentially resulting in better network speeds and coverage for Canadians.

114. Given the above and that the proposed definition of affiliated and associated entities and the rules regarding their participation are consistent with recent auction processes, the definitions will be as proposed in the Consultation.
Decision

D8 — ISED is adopting the definitions of affiliated and associated entities, and the rules regarding their participation in the auction as set out in paragraphs 115 to 128.

7.2 Affiliated entities

115. **Definition of affiliated entities:** An entity will be deemed to be affiliated with a bidder if it controls the bidder, is controlled by the bidder, or is controlled by any other entity that controls the bidder. “Control” means the ongoing power or ability, whether exercised or not, to determine or decide the strategic decision-making activities of an entity, or to manage or run its day-to-day operations.

116. **Presumption of affiliate status:** If a person owns, directly or indirectly, at least 20% of the entity’s voting shares (or where the entity is not a corporation, at least 20% of the beneficial ownership in such entity), ISED will generally presume that the person can exercise a degree of control over the entity to establish a relation of affiliation. The ability to exercise control may also be demonstrated by other evidence. Under this rule, ISED may, at any time, ask a prospective bidder for information in order to satisfy any question of affiliation.

117. Applicants may provide information to ISED to rebut the presumption of affiliate status. Applicants must notify ISED in writing if they are rebutting the presumption and must file material that will enable ISED to review the question and make that determination. It is the responsibility of the applicant to file the appropriate material. Such material may include copies of the relevant corporate documentation relating to both entities; a description of their relationship; copies of any agreements and arrangements between the entities and affidavits or declarations, signed by officers from the two entities, dealing with the control as outlined in the definition of “affiliate” above.

118. Upon receipt of this material, ISED will either make a ruling based on the materials submitted or ask the applicant for further information (and provide a timeline within which to do so).

119. Should the entities fail to provide the relevant information in a timely fashion in order to allow ISED to complete its determination, ISED may make a ruling on eligibility, based on the above, that the entities in question are affiliated.

120. **Eligibility to participate in the auction:** Only one member of an affiliate relationship will be permitted to become a qualified bidder in the auction or the affiliated entities may apply to participate jointly as a single bidder. Affiliated entities must decide prior to the application deadline which entity will apply to participate in the auction. All affiliations must be disclosed at the time of the application.
7.3  Associated entities

121. **Definition of associated entities:** Any entities that enter into any partnerships, joint ventures, agreements to merge, consortia or any arrangements, agreements or understandings of any kind, either explicit or implicit, relating to the acquisition or use of any of the spectrum licences being auctioned in this process will be treated as Associated Entities. Typical roaming and tower sharing agreements would not cause entities to be deemed associated.

122. Depending on the nature of the association, it may not preclude the ability of the entities to participate separately in the auction or to have the 700 MHz or 2500 MHz spectrum caps applied individually.

123. **Eligibility to participate separately in the auction:** Associated entities could be permitted to apply to ISED to participate in the auction separately if, following a review of their application and narrative description of the association, ISED is satisfied that their participation would not have an adverse impact on auction integrity. The submitted narrative (as set out in section 7.5 below) would be assessed to determine whether permitting both entities to participate separately would negatively impact the integrity of the auction process. The auction integrity would be best assured by the transparent disclosure of the relationships between bidders participating in the auction. ISED may request additional documents. Any information considered by the applicant to be confidential should be properly marked as such. If ISED deems it necessary to disclose any information marked as confidential, the applicant would be consulted prior to release.

124. **Eligibility to have caps applied to associated entities separately:** In addition to the above, associated entities could request that the spectrum caps apply individually. To obtain this approval, entities would be required to demonstrate that they intend to compete separately in the applicable licence area and continue to function as competitors to a level satisfactory to ISED. In making this determination, ISED would consider all relevant factors. Depending on the nature of the agreement, documentation may be required that sets out the details of the association, including copies of all arrangements or agreements, for example agreements related to network architecture and spectrum use and documents related to corporate decision making, marketing and customer information, sales and financing. Assessment criteria may include, but would not be limited to, consideration of the degree to which the entities would offer branded services, pricing and device selection that are unique from the other. For additional information on the application of the spectrum cap for associated entities, refer to the condition of licence entitled “Spectrum aggregation limits” in annex A.

125. It should be noted that for the 700 MHz band, agreements between associated entities may have an impact on obligations to serve rural areas.

126. Bidders are reminded that the provisions of the *Competition Act* apply independently of, and in addition to, the proposed policy.
127. Associated entities intending to participate in the auction separately would be required to submit their application at least 10 days in advance of the final application deadline to participate in the auction. This would provide ISED the additional time required to make an assessment of the association and provide a decision on the associated entities’ ability to participate in the auction separately, and have the cap apply individually, if so requested. Should the request be denied, the associated entities would be required to select which member entity will apply to participate in the auction.

128. Applicants should note that all entities participating in the auction will be subject to the same prohibition of collusion rules, as stated in section 7.4.2 Prohibition of collusion.

7.4 Prohibition of collusion and other communications rules

129. The Consultation sought comments on the proposed rules prohibiting collusion and other communication rules. The proposed rules were consistent with the previous auctions for the 700 MHz, 2500 MHz, AWS-3 and the residual 700 MHz and AWS-3 auctions.

7.4.1 Summary of comments, discussion and decision

Summary of comments

130. Airnet, BCBA, Bell, CCI Wireless, Eastlink, Ecotel, Ice Wireless, SaskTel, Shaw, TELUS and Xplornet agreed with the proposed rules regarding the prohibition of collusion and other communication rules.

131. Rogers suggested that ISED integrate its policies and auction rules regarding collusion and affiliated and associated entities within a single framework to ensure that unintended consequences do not benefit one or more bidders. Bell disagreed with Rogers, stating that the current rules and policies regarding collusion and affiliated and associated entities work together to maintain auction integrity.

Discussion

132. In response to the suggestion regarding the integration of the policies and auction rules pertaining to collusion and affiliated and associated entities, ISED notes that the licensing frameworks associated with a specific auction currently reflect an integrated set of rules, based on the conditions at the time of the licensing process.

133. In previous auctions, in order to ensure the integrity of the bidding process, all applicants were prohibited from cooperating, collaborating, discussing or negotiating agreements with other bidders regarding the licences being auctioned or the post-auction market structure. Any such discussions occurring at any time prior to the public announcement of provisional licence winners by ISED were prohibited.
134. In order to maintain the integrity of the auction, bidders are prohibited from signalling either publicly or privately, their bidding intentions or planned post-auction market structure related to the spectrum licences being auctioned, while the auction is ongoing. This would include comments or any communication with or via the media. An example would be making a public announcement regarding which licences the company intends to bid on or its rollout intentions.

135. Please note that Applicants and/or their representatives who fail to comply with the requirements set out in this section, or with any of the other rules set out in this Framework, may be subject to the enforcement provisions set out in section 8.13 below.

136. Given that the proposals are consistent with other auction processes and that there was general agreement with the proposal, the rules will remain as recommended in the Consultation.

Decision

D9a — Consistent with the rules from previous auctions, the prohibition of collusion and other communication rules will apply as stated in paragraphs 137 to 143.

7.4.2 Prohibition of collusion

137. In order to maintain the integrity of the auction, bidders are prohibited from signalling either publicly or privately, their bidding intentions or planned post-auction market structure related to the spectrum licences being auctioned. This would include comments or any communication with or via the media. An example would be making a public announcement regarding which licences the company intends to bid on or its rollout intentions.

138. Prohibition of collusion: All applicants, including affiliated and associated entities, are prohibited from cooperating, collaborating, discussing or negotiating agreements with competitors, relating to the licences being auctioned or relating to the post-auction market structure, including frequency selection, bidding strategy and post-auction market strategy, until after the public announcement of provisional licence winners by ISED.

139. Prospective bidders will note that the auction application forms contain a declaration that the applicant will be required to sign certifying that the applicant has not entered into and will not enter into any agreements or arrangements of any kind with any competitor regarding the amount to be bid, bidding strategies or the particular licence(s) on which the applicant or competitors will or will not bid. For the purposes of this certification, “competitor” means any entity, other than the applicant or its affiliates, which could potentially be a bidder in this auction based on its qualifications, abilities or experience.
140. Prospective bidders should note that the definition of “affiliate” for the purposes of this licensing process (defined by reference to “control in fact”) differs from “affiliate” for the purposes of the *Competition Act*. The provisions of the *Competition Act* apply independently of, and in addition to, the policies contained in this Framework.

### 7.4.3 Other communications rules

141. **Discussions on tower sharing**: The prohibition of communication includes discussions about tower and site sharing regarding the licences that are the subject of this auction until after the public announcement of provisional licence winners by ISED. Discussions concerning new arrangements or the expansion of existing sharing arrangements that relate to spectrum outside of licences being offered in this auction process are not prohibited.

142. **Communication with local exchange carriers**: The prohibition of communication includes discussions regarding interconnection services with a local exchange carrier (LEC) that is a qualified bidder (or one of its affiliates/associates) in this auction, where the services relate to spectrum in the bands offered in this auction process.

143. **Consulting services, legal and regulatory advice**: Separate bidders may not receive consulting advice from the same auction consulting company. Separate bidders may receive legal and regulatory advice from the same law firm provided that the law firm complies with the conflict of interest and confidential information requirements of the applicable law society and that the applicants otherwise comply with the provisions set forth in the licensing framework.

### 7.5 Auction integrity and transparency

144. In order to ensure auction integrity and transparency, ISED proposed that all entities wishing to participate in the auction process be required to disclose in writing, as part of their application, the names of affiliated and associated entities and to provide a narrative describing all key elements and the nature of the affiliation or association in relation to the acquisition of the spectrum licences being auctioned and, the post-auction relationships of the said entities. It was proposed that this include arrangements with another potential bidder that relate in any way, directly or indirectly, to the future use of the spectrum being auctioned in this process.

#### 7.5.1 Summary of comments, discussion and decision

**Summary of comments**

145. There were no comments regarding the requirements and procedures that ISED proposed to maintain the integrity and transparency of the auction.
Discussion

146. Given that there were no comments and that these requirements and procedures are consistent with previous auctions, ISED will impose the measures proposed in the Consultation to maintain the integrity and transparency of the auction.

Decision

D9b — In order to protect the integrity of the auction, ISED adopts the rules regarding integrity and transparency set out in paragraphs 147 to 149.

147. Disclosure requirements: Associated entities wishing to participate separately in the auction of residual licences are required to disclose the names of associated entities within their application, and to provide a narrative describing all key elements as well as the nature of the association in relation to the acquisition of the spectrum licences being auctioned and the post-auction relationships of the said entities. The relevant entities may be asked to provide copies of related agreements. Confidential and commercially sensitive information regarding agreements between associated entities will not be disclosed by ISED. However, the narrative will be made available on ISED’s website prior to the auction.

148. Some examples of arrangements that would require disclosure include, but are not limited to, agreements to establish a joint network using spectrum licences acquired by each of the entities and agreements with respect to a joint backhaul network. In addition, agreements such as significant joint equipment purchases must be disclosed. Typical roaming and tower sharing agreements and other agreements, such as the purchase of backhaul capacity, would not cause entities to be deemed associated entities and hence need not be disclosed.

149. The submitted narrative would be made available to other bidders and to the public on ISED’s website prior to the auction in order to ensure transparency of the licensing process.

8. Auction process

150. ISED sought comments on its proposed general process for submitting an application to participate in the residual auction, the general requirements and rules that apply prior to, during and after the auction, the proposed use of the Canada Post ePost Connect services and the proposal to auction some or all of the frequency bands separately.
8.1 Summary of comments, discussion and decision

Summary of comments

151. Bell, Eastlink, Ecotel, Rogers, SaskTel, TELUS and Xplornet supported the proposed auction process. The BCBA, supported by Airnet, suggested that pre-auction deposits be reduced by 50% for entities with less than $10 million in annual revenue.

152. Bell, Ecotel, Rogers, SaskTel and TELUS supported the proposed use of Canada Post’s ePost Connect services for auction applications, associated documentation and bid forms. Xplornet noted that the proposal was acceptable, subject to learning more regarding the logistics of the ePost Connect service. Bell requested training or a preliminary test of the services in order to achieve a level of comfort with using the system. SaskTel noted that there should be a back-up mechanism for the submission of documents in the event the Canada Post ePost Connect services are not available.

153. Regarding the proposal to auction some or all of the frequency bands separately, Bell and SaskTel supported having all the bands auctioned at once. TELUS agreed to have all bands auctioned at once provided that 2500 MHz licences are not included in the auction process. Xplornet was of the view that auctioning 2500 MHz licences should precede the auction of the other residual licences. Ecotel proposed three separate rounds of auctions: the first round would include 700 MHz, 2500 MHz FDD and PCS-G bands; the second would include 2300 MHz only; and the third would include 2500 MHz TDD only.

Discussion

154. As there were no suggested changes to the proposed use of Canada Post ePost Connect services to streamline the submission of auction applications, associated documentation and bid forms, this process will be adopted as proposed. Training and testing of the service will be provided to applicants and will be communicated at the time of auction application request. Additionally, a backup procedure will be implemented in the event of any issue with the ePost Connect service.

155. Regarding the proposal to auction some or all of the frequency bands separately, having considered the comments received, ISED is of the view that having several rounds may result in delays and complications to the auction process without substantial benefits to the stakeholders.

156. Given the considerations above, ISED will adopt the proposals and Canada Post ePost Connect services for auction documentation. Furthermore, all of the bands will be auctioned at the same time.
Decision

D10 — The auction process decisions will apply as follows:
   a. the auction process will apply as set out in paragraphs 157 to 199;
   b. Canada Post’s ePost Connect services will be used for auction applications, associated documentation and bid forms; and
   c. ISED will auction all of the frequency bands at the same time.

8.2 Application to participate

157. To participate in an auction, all applicants must submit a completed application form, along with a financial deposit, details of the applicant’s beneficial ownership, information on any affiliations and associations as discussed in section 7 of this document, and other corporate documentation as required. ISED will publish the list of applicants on its website soon thereafter.

8.3 Submissions

158. In the interest of providing ISED and other bidders with adequate information on the identity of all bidders, applicants are required to fully disclose the beneficial ownership for every entity that it owns, directly or indirectly, 10% or more of the applicant’s voting shares, non-voting shares, partnership interests, or any other beneficial interests, as the case may be. Associated entities wishing to participate separately in the auction of residual licences are required to disclose the names of their associated entities within their application, and to provide narratives describing all key elements and the nature of the association regarding the acquisition of the spectrum licences being auctioned and the post-auction relationships of the said entities. A list of applicants, their beneficial ownership information and the narrative on any associated entity relationships will be made available on ISED’s Spectrum Management and Telecommunications website, prior to the auction, so that all bidders have knowledge of the identity of the other bidders. Applicants are not permitted to change their beneficial ownership within 10 days preceding the start of the auction.

159. Entities are encouraged to approach ISED at least two weeks prior to the application date if seeking guidance or a predetermination as to whether their arrangement or proposed arrangement would be considered to give rise to a finding of association.

8.4 Pre-auction financial deposits

160. In order to enhance the integrity of the auction, ISED will require that all bidders submit a pre-auction financial deposit with their application to participate in the auction.

161. Each participating bidder will be required to submit a financial deposit equal to the opening bid of the licence(s) on which it intends to bid. These amounts will be kept confidential.
162. Financial deposit(s) will be returned to any applicant not found to be a qualified bidder, any applicant that provides written notification to ISED of its withdrawal from the process prior to the auction’s commencement, and any bidder that fails to win a licence during the auction.

8.5 Process to submit applications and financial deposit

163. The application forms, the associated documents (as per the instructions on the application forms) and the total pre-auction financial deposit are to be delivered to the Manager, Auction Operations, by the date specified. ISED, under exceptional circumstances, may decide to accept additional documentation after the deadline, but prior to publication of the list of applicants. Applications that are received without a deposit will be rejected.

164. For previous licensing processes, application forms and associated documents were to be physically delivered to ISED. For this licensing process, in an effort to streamline the submission of the application form, associated documents and bid forms, ISED will use Canada Post’s ePost Connect service. The ePost Connect service is a way for business and government to securely send confidential digital messages and documents over the Internet with bank-grade encryption. The solution is certified to transmit documents up to the Protected B classification level. Canada Post certifies that all data sent through their solution stays within Canada, on Canadian servers.

165. Requests for an auction application form are to be sent to ISED’s Spectrum Auctions email account: ic.spectrumauctions-encheresduspectre.ic@canada.ca. Upon receipt of the requests, ISED will set up the Canada Post ePost account service for each prospective applicant.

166. Through a standard web browser, ISED (the administrator) and the auction applicant (the client) will log into a secure web application. Through the site, ISED will send an initial message to the auction applicant who will receive a notification via email with a link contained in the email. The auction applicant will then click the link, which will bring it to the secure ePost website where it will be prompted to login. If the auction applicant already has an ePost account it can immediately login. Otherwise, the auction applicant will be required to create an account. Regardless, once it logs in, the sent message is associated with that ePost account. Canada Post calls this a conversation.

167. Once the conversation is established, messages can be initiated by either ISED or the auction applicant. A message could be simple text or it could also include files. This will allow ISED to send the application and bid forms to each auction applicant. In turn, the auction applicants will respond back to ISED including sending the completed forms and other relevant documents.

168. For more information, please see the Canada Post ePost Connect website.
169. Similar to previous auction processes, the pre-auction financial deposit must be received by the Manager, Auction Operations by the date specified.

170. Upon receipt of the application and the associated documentation, ISED will send a notification to the applicant, advising that the application materials have been received. This notice will in no way mean that the application materials or the deposit have been approved.

171. The financial deposit must be in the form of a certified cheque, bank draft, money order, wire transfer, or an irrevocable standby letter of credit, payable to the Receiver General for Canada, drawn on a financial institution that is a member of the Canadian Payments Association. The elements required in a letter of credit, as well as a sample letter of credit acceptable to ISED, will be provided as part of the application forms. Multiple letters of credit (or other forms of payment) from one or more financial institutions will be permitted within reason. ISED will treat the financial deposit for an applicant as being the sum of the amounts of each accepted letter of credit, certified cheque, bank draft, money order or wire transfer. Each letter of credit must comply with the conditions laid out herein concerning letters of credit. No letter of credit shall have any conditions requiring ISED to draw on the letters in any particular order of priority, or requiring any letter to be drawn upon completely before drawing upon any other letter. In the event that a qualified bidder does not become a provisional licence winner, the financial deposits that were submitted in the form of a letter of credit will be returned. Refunds to deposits submitted in the form of a certified cheque, bank draft, money order or wire transfer will likely take longer (perhaps several weeks longer) than a refund submitted by way of a letter of credit, as a cheque from the Receiver General for Canada will need to be processed.

172. If, prior to the application deadline, an applicant wishes for any reason to amend any of the forms that it has submitted and/or its financial deposit, it may submit one or more amended forms and/or financial deposit with an accompanying letter explaining that the enclosed form(s) and/or financial deposit are to replace the one(s) previously submitted. Any such amendments are to be received by the Manager, Auction Operations, by the receipt deadline for applications to participate in the auction.

173. Upon receipt of an amended form(s) and/or financial deposit, ISED will send a notification to the applicant that the amended form(s) and/or deposit have been received. The notification will state the amount of the new deposit that has been submitted. Where the financial deposit is in the form of an irrevocable standby letter of credit, the initial irrevocable standby letter of credit will also be returned to the applicant where applicable. Where the financial deposit is in a form other than an irrevocable standby letter of credit, any partial reimbursement of the financial deposit may take several weeks.

174. A list of all applicants will be made public via ISED’s Spectrum Management and Telecommunications website. The publication of this list in no way means that these applicants have been approved as qualified bidders.
8.6 Bidder qualification

175. ISED will review the application forms (and any associated documents) and the accompanying financial deposit after the closing date for the submission of applications. In this initial review, ISED will identify any errors in the application forms or financial deposit. It will also determine whether any additional information related to any affiliate or associated entity of the applicant is required.

176. Applications that are received without a deposit by the application deadline will be rejected.

177. Following the initial review period, ISED will provide applicants with an opportunity to correct any errors or inconsistencies in their application, and will request any additional information related to affiliated or associated entities if required. A copy of the original applications may be returned to the applicant with a brief statement outlining any discrepancies and/or omissions, or requesting additional information. The applicant will be invited, in writing, to resubmit the corrected form and/or the additional information and to physically deliver this to the Manager, Auction Operations, by the date specified in the written statement.

178. Applicants that do not comply with this request will have their application to participate in the auction rejected. Applications that are rejected, including those for which an opportunity has been provided to correct errors or inconsistencies identified by ISED but are still found to be deficient, may be returned to the applicant outlining the deficiencies, along with the applicant’s deposit.

179. Those applicants that have submitted acceptable application materials, including the accompanying financial deposit, will receive a confirmation letter confirming that they are considered a qualified bidder.

180. A list of all qualified bidders, along with information related to their beneficial ownership, affiliates and associated entities will be made public via ISED’s website. Qualified bidders will be sent all information and directions required to submit their bids, including an auction bid form.

8.7 Withdrawal of application forms

181. Applicants wishing to withdraw their application materials and have their financial deposits returned may do so, without prejudice, by sending a written request to the Manager, Auction Operations, on or before the business day preceding the receipt deadline for sealed bids.

8.8 Change of information

182. Only the Auction Authorized Representative of the bidding company may notify the Manager, Auction Operations, of any material changes in the information submitted in the
application documents. Written notification must be sent by the Auction Authorized Representative within five business days of such changes.

183. The Auction Authorized Representative is the individual that is nominated by the applicant to receive all documentation pertaining to this licensing process.

8.9 Submission of auction bids

184. Completed bid form(s), which include the bid amount for each licence, or combination of licences for which the bidder is placing a bid(s), must be received by the Manager, Auction Operations, by the receipt deadline. ISED will be using the Canada Post ePost Connect service for the electronic submission of bid forms. The amount of each bid must reflect the amount that the bidder is willing to pay for the associated licence(s). All bids must be in dollars only, not cents. No bids will be accepted after 12:00 p.m., noon, EDT, on the receipt deadline for sealed bids. Following the auction, ISED will publish a list of all bids received on its website.

8.10 Determination of provisional licence winners

185. The bids will be examined by ISED officials following the receipt deadline for sealed bids. To be considered valid, a bid must be equal to or greater than the opening bid price; the previously submitted deposit must be equal to or greater than the amount of the opening bid price of the licence being bid upon; the bid form(s) must be completed correctly; and the bid must be submitted by a qualified bidder. Note that, in all instances where there is no second bid, the opening bid prices noted in section 6 will be considered the second highest bid (see annex F for bidding examples).

186. Where a bid is placed on a licence on which the bidder is not eligible to bid, that bid will be ignored.

187. Bids for the 700 MHz, 2300 MHz and PCS-G bands will be made per licence; the winning bid will be the highest for each licence.

188. Bids for the 2500 MHz band can be made for individual licences and/or some combination of the available licences in each group of licences that the bidder is interested to obtain. The winning bids for each group of 2500 MHz licences would be calculated by determining the combination of bids that generates the highest sum in this group; the bids in this combination would be the winning bids. Bidders would be able to win, at most, one of the bids it placed in each group of the 2500 MHz licences. For example, a bidder that places bids for each of the individual licence in the group but not for any packages would only be able to win one of the licences in the group.

189. A reserve bid at the opening bid price will be included in the determination of provisional winning bidders and the prices to be paid for each licence. In this process, it is as if ISED is a bidder in the auction, placing a bid on all licences at the opening bid price. In the 2500
MHz band, including a reserve bid for all licences ensures that the incremental value that a bidder would be prepared to pay for an additional licence is at least the opening bid price of that licence. The reserve bids for the 2500 MHz licences will not be treated as a package, but rather as having been placed by different bidders. Therefore, in all instances where there is no second bid, the opening bid prices noted in section 6.4 will be considered the second highest bid (see annex F for bidding examples).

190. To mitigate the possibility of a tie, bidders are encouraged not to bid in round figures. For the 700 MHz, 2300 MHz and PCS-G bands, in the event of a tie, bidders involved in the tie will be requested to enter a second bid in an attempt to break the tie. For the 2500 MHz band, in the event of a tie in a group of licences, bidders involved in the tie will be requested to resubmit their bids for this group of licences in an attempt to break the tie. If required, ISED will provide tied bidders the details of the procedure to submit further bids to break the tie. This procedure will be repeated until there is no tie.

191. At a future date following the determination of the provisional licence winners, ISED will publish, on its website, a list of all bids received, the name of the provisional licence winner(s) and the licence(s), if any, that did not receive bids. ISED will also notify the provisional winning bidder(s) and inform them of payment requirements.

192. The auction will be considered closed upon publication of the provisional winning bidder(s).

8.11 Final payment

193. Within 10 business days following the publication of provisional licence winners, each provisional licence winner will be required to submit 20% of its final payment. The remaining portion, 80% of the final payment, will be due within 30 business days of the announcement of the provisional licence winners. Failure by the winning bidder to make these final payments by the deadline will result in the licence not being issued, and the bidder will be subject to the applicable forfeiture penalty (see section 8.12). These final payments will be non-refundable. If the licence winner fails to make these payments within the specified period, then the provisional winner’s irrevocable standby letter of credit will be drawn upon.

194. All payments must be made by certified cheque, bank draft, or wire transfer, payable to the Receiver General for Canada, drawn on a financial institution that is a member of the Canadian Payments Association.

195. These bid payments for the initial 20-year term are in lieu of any fees fixed for radio authorization under the Radiocommunication Act or any other Act.
8.12 Forfeiture penalties

196. Following the conclusion of the auction, winning bidders that fail to comply with the specified payment schedule or fail to come into compliance with the eligibility requirements of the Radiocommunication Regulations, will be considered disqualified and will forfeit their ability to obtain licences through this process. Furthermore, non-compliant bidders will be subject to a forfeiture penalty in the amount of the difference between the forfeited bid and the ultimate price of the licence—to be determined by a subsequent licensing process.

197. In the event of licence forfeiture, the bidder’s irrevocable standby letter of credit will be drawn upon for the full amount of the interim proxy forfeiture penalty, which will be the full amount bid for the licence(s) forfeited. If the interim proxy forfeiture penalty is greater than the full amount of the bidder’s irrevocable standby letter of credit, combined with any partial payment, or if the letter of credit has been returned or has expired, then the difference will be owing and payable to the Receiver General for Canada.

198. A winning bidder that forfeits on a licence (or any of that bidder’s affiliated and associated entities) will not be eligible to bid on any subsequent licensing process for the related band.

8.13 Enforcement of the auction rules

199. Applicants and/or their representatives, who fail to comply with the requirements or rules set out in any section of this Framework, may be subject to one or more of the following depending on the circumstances:

a) the applicant may be disqualified from bidding or continuing to bid;
b) the applicant’s bids may be deemed invalid;
c) any and all licences issued to the applicant under this Framework may be revoked;
d) the applicant may be subject to the appropriate forfeiture penalties as outlined in section 8.12; and
e) the applicant may be subject to administrative monetary penalties or prosecution under the Radiocommunication Act.

9. Post-auction licensing process for unassigned licences

200. ISED sought comments on the proposed post-auction licensing process for unassigned licences as part of this licensing process.

201. All respondents that commented on this issue supported or did not object to the proposed post-auction licensing process. The process will be implemented as proposed.
Decision

D11 — The post-auction licensing process will apply as set out in paragraphs 202 to 206.

202. ISED will consider making unassigned licences available for licensing through an alternative process, which could include a subsequent auction at a later date or a first-come, first-served licensing process. The timing and form of such a process will depend on the demand for the available licences. ISED may conduct a public consultation should it consider it necessary.

Licence renewal

203. Following the end of the initial 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. The Minister of Innovation, Science and Economic Development retains the power to fix and amend the terms and conditions of spectrum licences during the term of the licence and at the end of the term in accordance with subsection 5(1) of the Radiocommunication Act.

204. As noted in the FSAC, licence fees that reflect some measure of market value will apply to licences issued through a renewal process. Accordingly, the renewal process will serve to determine whether new licences will be issued, the terms and conditions that will apply to the new licences and the applicable licence fees.

205. Generally, approximately two years prior to the end of the licence term, ISED will review whether there is a need for a fundamental reallocation of the spectrum to a new service, or whether an overriding policy need has arisen. ISED notes that a review of the licensee’s continued compliance with the conditions of licence can occur at any time, however, as part of the renewal process, ISED will assess each licensee’s compliance with the conditions of licence.

206. ISED will launch a public consultation to discuss whether, in light of the above-noted issues, new licences should be issued for a subsequent term. The consultation paper will also propose, and invite comments on, licence conditions and fees that would apply during the subsequent licence term.

10. Clarification questions process

207. As done in previous auctions, ISED will accept written questions soliciting clarification of the rules and policies set out in this Framework from the date of publication up to the deadline as specified in the Table of Key Dates. Written questions and ISED’s responses will be made public on ISED’s website. Every effort will be made to post the questions received, along with
ISED’s written responses, in the shortest time frame possible. Questions that are of a similar nature and subject matter may be grouped and summarized. Questions regarding bidding procedures will be addressed in packages intended for qualified bidders, and will not be included in this clarification process unless they are deemed to be critical information for potential bidders requiring an immediate response. These answers will be considered as clarification of the policies set out in this Framework. Applicants are encouraged to submit questions as soon as possible.

208. ISED may also amend or supplement the auction rules and procedures contained in this Framework. Any such amendment or supplement will be published on ISED’s website and will be sent to all qualified bidders.

209. Questions regarding this auction may be sent to: Senior Director, Spectrum Licensing and Auction Operations at ic.spectrumauctions-encheresduspectre.ic@canada.ca.

11. Obtaining copies

210. All spectrum-related documents referred to in this paper are available on ISED’s Spectrum Management and Telecommunications website.

211. For further information concerning the process outlined in this Framework or related matters, contact:

Innovation, Science and Economic Development Canada  
c/o Senior Director, Spectrum Licensing and Auction Operations  
235 Queen Street (6th Floor, East Tower)  
Ottawa, Ontario K1A 0H5  
Telephone: 613-302-3436  
Fax: 343-291-1269  
Email: ic.spectrumauctions-encheresduspectre.ic@canada.ca
Annex A — Conditions of licence — 700 MHz

The following conditions of licence apply to the 700 MHz licences being auctioned through this process.

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 (paragraph 5(1)(b) of the Radiocommunication Act). The Minister of Innovation, Science and Economic Development may do so for reasons including furtherance of the policy objectives set out in section 7 of the Telecommunications Act and the policy objectives related to this band. Such action would normally only be undertaken after consultation.

1. Licenceterm

The term of this licence is 20 years. At the end of this 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.

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

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 for any proposed transactions within its knowledge.

3. Spectrum aggregation limits

The licensee must comply with the spectrum aggregation limits as follows:

A limit of two paired spectrum blocks in the 700 MHz band within blocks A, B, C, C1 and C2 is applicable to all licensees.
A limit of one paired spectrum block within blocks B, C, C1 and C2 is applicable to all licensees which are large wireless service providers. Large wireless service providers are defined as companies with 10% or more of the national wireless subscriber market share, or 20% or more of the wireless subscriber market share in the province of the relevant licence area. The determination of subscriber market share will be based on the 2012 CRTC Communications Monitoring Report.

These spectrum aggregation limits will continue for five years from the date of licence issuance. No transfer of licences or issuance of new licences will be authorized if it would result in a licensee exceeding the spectrum aggregation limits during this period. Any change in ownership or control of a licensee or any other agreement that has the effect of granting a right or interest in a 700 MHz licence to another licensee in this band may be considered as a licence transfer for the purpose of this condition of licence whether or not the licensee name is changed as a result. The licensee must request approval by the Minister of Innovation, Science and Economic Development for any change that would have a material effect on its compliance with these spectrum aggregation limits. Such a request must be made in advance for any proposed transactions within its knowledge. At any time, at the request of ISED, the licensee will be required to provide updated information demonstrating ongoing compliance with this condition of licence.

4. Licence transferability, divisibility and subordinate licensing

This licence is transferable in whole or in part (divisibility), in both bandwidth and geographic dimensions, subject to ISED’s approval. A subordinate licence may also be issued in regard to this licence, subject to ISED’s approval.

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. 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 the prior approval of ISED will be considered a breach of this condition of licence.

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.

In all cases, the licensee must follow the procedures as outlined in CPC-2-1-23.
The terms “affiliate”; “agreement”; “deemed transfer”; “licence”; “prospective transfer”; “subordinate licence”; and “transfer request” have the meaning ascribed to them in CPC-2-1-23. Subordinate licences will generally count towards the subordinate licensee’s spectrum aggregation limit unless the primary licensee and the subordinate licensee demonstrate to the satisfaction of ISED that they will be separately and actively providing services to customers in the applicable licence area. Where approval for a subordinate licence that would otherwise exceed the spectrum aggregation limit is granted, licensees must implement their plans to the satisfaction of ISED for at least the duration of the aggregation limits that are in place. Any modifications to these plans must be submitted to ISED for approval.

ISED may consider requests from licensees to exchange spectrum blocks in the same geographic area provided that the exchange does not result in the spectrum aggregation limit being exceeded or an increase in spectrum licence holdings for existing licensees that already exceed the aggregation limit. ISED may grant such requests based on the merits of the proposal.

5. **Treatment of existing spectrum users**

The licensee must comply with the displacement policies set out in SMSE-002-12, *Policy and Technical Framework: Mobile Broadband Services (MBS) – 700 MHz Band, Broadband Radio Service (BRS) – 2500 MHz Band.*

6. **Radio station installations**

The licensee must comply with Client Procedures Circular CPC-2-0-03, *Radiocommunication and Broadcasting Antenna Systems,* as amended from time to time.

7. **Provision of technical information**

When ISED requests technical information on a particular station or network, the licensee must provide the information in accordance with the definitions, criteria, frequency and timelines specified in the request. For further information, refer to Client Procedures Circular CPC-2-1-23, *Licensing Procedure for Spectrum Licences for Terrestrial Services,* as amended from time to time.

8. **Compliance with legislation, regulation and other obligations**

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.
9. **Technical considerations, and international and domestic coordination**

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.

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.

10. **Lawful interception**

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). These standards may be amended from time to time.

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 of Innovation, Science and Economic Development, 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 of Innovation, Science and Economic Development, the requirement is not reasonably achievable. Requests for forbearance must include specific details and dates indicating when compliance to the requirement can be expected.

11. **Research and development**

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 which 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*.

12. **Rural deployment requirements**

Where the licensee holds licences for two or more paired blocks of 700 MHz spectrum in a licence area, or has access to two or more paired blocks of 700 MHz spectrum in a licence area either directly or indirectly, the licensee must deploy 700 MHz spectrum:

a) to cover 90% of the population of its HSPA network footprint as of March 2012, within five years of the issuance of the initial 700 MHz licence; and

b) to cover 97% of the population of its HSPA network footprint as of March 2012, within seven years of the issuance of the initial 700 MHz licence.

For the purpose of this condition, “access” includes situations where a licensee enters into an agreement with another 700 MHz licensee in the same licence area that provides the ability to carry the other licensee’s subscriber traffic (other than via a typical roaming agreement) regardless of whether the frequencies of both licensees are in use. In determining whether a party has access, ISED may review documentation that sets out the details of any agreement to use the spectrum, agreements related to network architecture or any other technical or commercial information or agreements between the parties.

The licensee must notify the Minister of Innovation, Science and Economic Development of any new agreement that would provide the licensee with access to spectrum in any licence area where this condition has not yet been satisfied. In addition, the licensee must provide the Minister of Innovation, Science and Economic Development with any documentation or information related to spectrum access or HSPA network footprints at the Minister of Innovation, Science and Economic Development’s request.

13. **General deployment requirement**

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 annex E, within 10 years of the initial issuance of the licence.

Where the licence is transferred during the initial 10 years, the requirement for the new licensee to deploy will continue to be based on the initial licence issuance date. Deployment by a subordinate licensee will count towards the requirement of the primary licensee.
14. **Mandatory antenna tower and site sharing**

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.

15. **Mandatory roaming**

The licensee must comply with the mandatory roaming 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.

16. **Annual report**

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.
All reports and statements are to 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 subsection 20(1) of the *Access to Information Act*.

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

Innovation, Science and Economic Development Canada  
Spectrum Management Operations Branch  
Manager, Emerging Networks  
235 Queen Street (6th Floor, East Tower)  
Ottawa, Ontario K1A 0H5

17. **Amendments**

The Minister of Innovation, Science and Economic Development retains the discretion to amend these terms and conditions of licence at any time.
Annex B — Conditions of licence — 2500 MHz

The following conditions of licence apply to the 2500 MHz licences being auctioned through this process.

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 (paragraph 5(1)(b) of the Radiocommunication Act). The Minister of Innovation, Science and Economic Development may do so for reasons including furtherance of the policy objectives set out in section 7 of the Telecommunications Act and the policy objectives related to this band. Such action would normally only be undertaken after consultation.

1. **Licence term**

   The term of this licence is 20 years. At the end of this 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.

   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**

   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 for any proposed transactions within its knowledge.

3. **Spectrum aggregation limits**

   The licensee must comply with the spectrum aggregation limit as follows:

   A limit of 40 MHz in the 2500 MHz band, excluding the restricted bands at 2570-2575 MHz and 2615-2620 MHz, applies to all licensees, with the exception of the Northwest Territories, Yukon and Nunavut service areas, where there is no limit.

   The spectrum aggregation limit will continue for five years from the date of licence issuance. No transfer of licences or issuance of new licences will be authorized if it would result in a licensee exceeding the spectrum aggregation limit during this period. Any change in ownership or control...
of a licensee or any other agreement that has the effect of granting a right or interest in a 2500 MHz licence to another licensee in this band may be considered as a licence transfer for the purpose of this condition of licence, whether or not the licensee name is changed as a result. The licensee must request approval by the Minister of Innovation, Science and Economic Development for any change that would have a material effect on its compliance with the spectrum aggregation limit. Such a request must be made in advance for any proposed transactions within its knowledge. At any time, at the request of ISED, the licensee will be required to provide updated information demonstrating ongoing compliance with this condition of licence.

4. Licence transferability, divisibility and subordinate licensing

This licence is transferable in whole or in part (divisibility), in both bandwidth and geographic dimensions, subject to ISED’s approval. A subordinate licence may also be issued in regard to this licence, subject to ISED’s approval.

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. 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 the prior approval of ISED will be considered a breach of this condition of licence.

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.

In all cases, the licensee must follow the procedures as outlined in CPC-2-1-23. The terms “affiliate”; “agreement”; “deemed transfer”; “licence”; “prospective transfer”; “subordinate licence”; and “transfer request” have the meaning ascribed to them in CPC-2-1-23. Subordinate licences will generally count towards the subordinate licensee’s spectrum aggregation limit unless the primary licensee and the subordinate licensee demonstrate to the satisfaction of ISED that they will be separately and actively providing services to customers in the applicable licence area. Where approval for a subordinate licence that would otherwise exceed the spectrum aggregation limit is granted, licensees must implement their plans to the satisfaction of ISED for at least the duration of the aggregation limits that are in place. Any modifications to these plans must be submitted to ISED for approval.
ISED may consider requests from licensees to exchange spectrum blocks in the same geographic area provided that the exchange does not result in the spectrum aggregation limit being exceeded or an increase in spectrum licence holdings for existing licensees that already exceed the aggregation limit. ISED may grant such requests based on the merits of the proposal.

5. Treatment of existing spectrum users

The licensee must comply with all displacement and/or transition policies set out in SMSE-005-11, *Decisions on the Band Plan for Broadband Radio Service (BRS) and Consultation on a Policy and Technical Framework to License Spectrum in the Band 2500-2690 MHz*. In addition, the licensee must not cause harmful interference to the grandfathered stations in Manitoba, as per DGSO-001-10, *Decisions on the Transition to Broadband Radio Service (BRS) in the Band 2500-2690 MHz and Consultation on Changes Related to the Band Plan*.

6. Radio station installations

The licensee must comply with Client Procedures Circular CPC-2-0-03, *Radiocommunication and Broadcasting Antenna Systems*, as amended from time to time.

7. Provision of technical information

When ISED requests technical information on a particular station or network, the licensee must provide the information in accordance with the definitions, criteria, frequency and timelines specified in the request. For further information, refer to Client Procedures Circular CPC-2-1-23, *Licensing Procedure for Spectrum Licences for Terrestrial Services*, as amended from time to time.

8. Compliance with legislation, regulation and other obligations

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.

9. Technical considerations, and international and domestic coordination

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.
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.

10. **Lawful interception**

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). These standards may be amended from time to time.

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 of Innovation, Science and Economic Development, 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 of Innovation, Science and Economic Development, the requirement is not reasonably achievable. Requests for forbearance must include specific details and dates indicating when compliance to the requirement can be expected.

11. **Research and development**

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 which 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*.
12. **General deployment requirement**

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 annex E, within 10 years of the initial issuance of the licence.

Where the licence is transferred during the initial 10 years, the requirement for the new licensee to deploy will continue to be based on the initial licence issuance date. Deployment by a subordinate licensee will count towards the requirement of the primary licensee.

13. **Mandatory antenna tower and site sharing**

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.

14. **Mandatory roaming**

The licensee must comply with the mandatory roaming 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.

15. **Annual report**

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 research and development expenditures as set out in these conditions of licence. ISED may request an audited statement of research and development 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.

All reports and statements are to 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 subsection 20(1) of the *Access to Information Act*.

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

Innovation, Science and Economic Development Canada
Spectrum Management Operations Branch
Manager, Emerging Networks
235 Queen Street (6th Floor, East Tower)
Ottawa, Ontario K1A 0H5

16. Amendments

The Minister of Innovation, Science and Economic Development retains the discretion to amend these terms and conditions of licence at any time.
Annex C — Conditions of licence — 2300 MHz

The following conditions of licence apply to the 2300 MHz licences being auctioned through this process.

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 (paragraph 5(1)(b) of the Radiocommunication Act). The Minister of Innovation, Science and Economic Development may do so for reasons including furtherance of the policy objectives set out in section 7 of the Telecommunications Act and the policy objectives related to this band. Such action would normally only be undertaken after consultation.

1. Licence term

The term of this licence is 20 years. At the end of this 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.

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

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 for any proposed transactions within its knowledge.

3. Licence transferability, divisibility and subordinate licensing

This licence is transferable in whole or in part (divisibility), in both bandwidth and geographic dimensions, subject to ISED’s approval. A subordinate licence may also be issued in regard to this licence, subject to ISED’s approval.
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. 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 the prior approval of ISED will be considered a breach of this condition of licence.

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.

In all cases, the licensee must follow the procedures as outlined in CPC-2-1-23. The terms “affiliate”; “agreement”; “deemed transfer”; “licence”; “prospective transfer”; “subordinate licence”; and “transfer request” have the meaning ascribed to them in CPC-2-1-23. Subordinate licences will generally count towards the subordinate licensee’s spectrum aggregation limit unless the primary licensee and the subordinate licensee demonstrate to the satisfaction of ISED that they will be separately and actively providing services to customers in the applicable licence area. Where approval for a subordinate licence that would otherwise exceed the spectrum aggregation limit is granted, licensees must implement their plans to the satisfaction of ISED for at least the duration of the aggregation limits that are in place. Any modifications to these plans must be submitted to ISED for approval.

ISED may consider requests from licensees to exchange spectrum blocks in the same geographic area provided that the exchange does not result in the spectrum aggregation limit being exceeded or an increase in spectrum licence holdings for existing licensees that already exceed the aggregation limit. ISED may grant such requests based on the merits of the proposal.

4. Treatment of existing spectrum users

The licensee must comply with the displacement policies set out in Appendix 3 of the Policy and Licensing Procedures for the Auction of Spectrum Licences in the 2300 MHz and 3500 MHz Frequency Bands (revised July 2004).
5. **Radio station installations**

The licensee must comply with Client Procedures Circular CPC-2-0-03, *Radiocommunication and Broadcasting Antenna Systems*, as amended from time to time.

6. **Provision of technical information**

When ISED requests technical information on a particular station or network, the licensee must provide the information in accordance with the definitions, criteria, frequency and timelines specified in the request. For further information, refer to Client Procedures Circular CPC-2-1-23, *Licensing Procedure for Spectrum Licences for Terrestrial Services*, as amended from time to time.

7. **Compliance with legislation, regulation and other obligations**

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.

8. **Technical considerations, and international and domestic coordination**

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.

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.
9. **Lawful interception**

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). These standards may be amended from time to time.

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 of Innovation, Science and Economic Development, 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 of Innovation, Science and Economic Development, the requirement is not reasonably achievable. Requests for forbearance must include specific details and dates indicating when compliance to the requirement can be expected.

10. **Research and development**

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 which 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*.

11. **General deployment requirement**

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 annex E, within 10 years of the initial issuance of the licence.
Where the licence is transferred during the initial 10 years, the requirement for the new licensee to deploy will continue to be based on the initial licence issuance date. Deployment by a subordinate licensee will count towards the requirement of the primary licensee.

12. **Mandatory antenna tower and site sharing**

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.

13. **Mandatory roaming**

The licensee must comply with the mandatory roaming 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.

14. **Annual report**

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.
All reports and statements are to 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 subsection 20(1) of the *Access to Information Act*.

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

Innovation, Science and Economic Development Canada  
Spectrum Management Operations Branch  
Manager, Emerging Networks  
235 Queen Street (6th Floor, East Tower)  
Ottawa, Ontario K1A 0H5

**15. Amendments**

The Minister of Innovation, Science and Economic Development retains the discretion to amend these terms and conditions of licence at any time.
Annex D — Conditions of licence — 1910-1915/1990-1995 MHz (PCS-G Block)

The following conditions of licence apply to the PCS-G Block licences being auctioned through this process.

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 (paragraph 5(1)(b) of the Radiocommunication Act). The Minister of Innovation, Science and Economic Development may do so for reasons including furtherance of the policy objectives set out in section 7 of the Telecommunications Act and the policy objectives related to this band. Such action would normally only be undertaken after consultation.

1. Licence term

The term of this licence is 20 years. At the end of this 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.

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

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 for any proposed transactions within its knowledge.

3. Licence transferability, divisibility and subordinate licensing

This licence is transferable in whole or in part (divisibility), in both bandwidth and geographic dimensions, subject to ISED’s approval. A subordinate licence may also be issued in regard to this licence, subject to ISED’s approval.
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. 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 the prior approval of ISED will be considered a breach of this condition of licence.

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.

In all cases, the licensee must follow the procedures as outlined in CPC-2-1-23. The terms “affiliate”; “agreement”; “deemed transfer”; “licence”; “prospective transfer”; “subordinate licence”; and “transfer request” have the meaning ascribed to them in CPC-2-1-23. Subordinate licences will generally count towards the subordinate licensee’s spectrum aggregation limit unless the primary licensee and the subordinate licensee demonstrate to the satisfaction of ISED that they will be separately and actively providing services to customers in the applicable licence area. Where approval for a subordinate licence that would otherwise exceed the spectrum aggregation limit is granted, licensees must implement their plans to the satisfaction of ISED for at least the duration of the aggregation limits that are in place. Any modifications to these plans must be submitted to ISED for approval.

ISED may consider requests from licensees to exchange spectrum blocks in the same geographic area provided that the exchange does not result in the spectrum aggregation limit being exceeded or an increase in spectrum licence holdings for existing licensees that already exceed the aggregation limit. ISED may grant such requests based on the merits of the proposal.

4. **Treatment of existing spectrum users**

The licensee must comply with the displacement policies set out in the *Policy and Licensing Procedures for the Auction of Additional PCS Spectrum in the 2 GHz Frequency Range* (June 2000).
5. **Radio station installations**

The licensee must comply with Client Procedures Circular CPC-2-0-03, *Radiocommunication and Broadcasting Antenna Systems*, as amended from time to time.

6. **Provision of technical information**

When ISED requests technical information on a particular station or network, the licensee must provide the information in accordance with the definitions, criteria, frequency and timelines specified in the request. For further information, refer to Client Procedures Circular CPC-2-1-23, *Licensing Procedure for Spectrum Licences for Terrestrial Services*, as amended from time to time.

7. **Compliance with legislation, regulation and other obligations**

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.

8. **Technical considerations, and international and domestic coordination**

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.

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.
9. **Lawful interception**

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). These standards may be amended from time to time.

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 of Innovation, Science and Economic Development, 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 of Innovation, Science and Economic Development, the requirement is not reasonably achievable. Requests for forbearance must include specific details and dates indicating when compliance to the requirement can be expected.

10. **Research and development**

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 which 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*.

11. **General deployment requirement**

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 annex E, within 10 years of the initial issuance of the licence.
Where the licence is transferred during the initial 10 years, the requirement for the new licensee to deploy will continue to be based on the initial licence issuance date. Deployment by a subordinate licensee will count towards the requirement of the primary licensee.

12. Mandatory antenna tower and site sharing

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.

13. Mandatory roaming

The licensee must comply with the mandatory roaming 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.

14. Annual report

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.
All reports and statements are to 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 subsection 20(1) of the *Access to Information Act*.

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

Innovation, Science and Economic Development Canada  
Spectrum Management Operations Branch  
Manager, Emerging Networks  
235 Queen Street (6th Floor, East Tower)  
Ottawa, Ontario K1A 0H5

### 15. Amendments

The Minister of Innovation, Science and Economic Development retains the discretion to amend these terms and conditions of licence at any time.
Annex E — Deployment requirements for residual licences

700 MHz licences

Table E1: Ten-year deployment requirements for 700 MHz licences

<table>
<thead>
<tr>
<th>Tier 4</th>
<th>Service area name</th>
<th>Frequency</th>
<th>Population*</th>
<th>Minimum population coverage**</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-170</td>
<td>Yukon</td>
<td>746-751 MHz 777-782 MHz</td>
<td>35,928</td>
<td>20%</td>
</tr>
<tr>
<td>4-171</td>
<td>Nunavut</td>
<td>746-751 MHz 777-782 MHz</td>
<td>35,975</td>
<td>20%</td>
</tr>
<tr>
<td>4-172</td>
<td>Northwest Territories</td>
<td>746-751 MHz 777-782 MHz</td>
<td>41,668</td>
<td>20%</td>
</tr>
</tbody>
</table>

* Population figures based on Statistics Canada 2016 Census information.
** Based on most recent census information available at the time of assessment.

2500 MHz licences

Table E2: Ten-year deployment requirements for 2500 MHz licences

<table>
<thead>
<tr>
<th>Tier #</th>
<th>Service area name</th>
<th>Frequency</th>
<th>Population*</th>
<th>Minimum population coverage**</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-020</td>
<td>Kingston</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>177,314</td>
<td>50%</td>
</tr>
<tr>
<td>3-027</td>
<td>Guelph Kitchener</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>737,544</td>
<td>50%</td>
</tr>
<tr>
<td>3-029</td>
<td>Niagara-St. Catharines</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>380,354</td>
<td>50%</td>
</tr>
<tr>
<td>3-030</td>
<td>London/Woodstock/St. Thomas</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>854,082</td>
<td>50%</td>
</tr>
<tr>
<td>3-050</td>
<td>Kootenays</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>139,312</td>
<td>15%</td>
</tr>
<tr>
<td>3-051</td>
<td>Okanagan/Columbia</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>436,342</td>
<td>40%</td>
</tr>
<tr>
<td>3-053</td>
<td>Victoria</td>
<td>2560-2570 MHz 2680-2690 MHz</td>
<td>458,861</td>
<td>50%</td>
</tr>
<tr>
<td>3-054</td>
<td>Nanaimo</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>194,922</td>
<td>40%</td>
</tr>
<tr>
<td>Tier #</td>
<td>Service area name</td>
<td>Frequency</td>
<td>Population*</td>
<td>Minimum population coverage**</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------</td>
<td>--------------------------------</td>
<td>-------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>3-055</td>
<td>Courtenay</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>118,732</td>
<td>50%</td>
</tr>
<tr>
<td>3-056</td>
<td>Thompson/Cariboo</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>184,040</td>
<td>40%</td>
</tr>
<tr>
<td>3-057</td>
<td>Prince George</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>188,487</td>
<td>40%</td>
</tr>
<tr>
<td>3-058</td>
<td>Dawson Creek</td>
<td>2500-2510 MHz 2620-2630 MHz</td>
<td>68,387</td>
<td>30%</td>
</tr>
<tr>
<td>3-039</td>
<td>Winnipeg</td>
<td>2605-2620 MHz</td>
<td>1,098,765</td>
<td>50%</td>
</tr>
<tr>
<td>3-040</td>
<td>Brandon</td>
<td>2605-2620 MHz</td>
<td>179,251</td>
<td>20%</td>
</tr>
<tr>
<td>3-041</td>
<td>Regina</td>
<td>2605-2620 MHz</td>
<td>392,289</td>
<td>40%</td>
</tr>
<tr>
<td>3-042</td>
<td>Moose Jaw</td>
<td>2605-2620 MHz</td>
<td>101,361</td>
<td>25%</td>
</tr>
<tr>
<td>3-043</td>
<td>Saskatoon</td>
<td>2605-2620 MHz</td>
<td>601,055</td>
<td>40%</td>
</tr>
<tr>
<td>3-044</td>
<td>Edmonton</td>
<td>2595-2620 MHz</td>
<td>1,642,295</td>
<td>50%</td>
</tr>
<tr>
<td>4-170</td>
<td>Yukon</td>
<td>2595-2620 MHz</td>
<td>35,928</td>
<td>20%</td>
</tr>
<tr>
<td>4-171</td>
<td>Nunavut</td>
<td>2595-2620 MHz</td>
<td>35,975</td>
<td>20%</td>
</tr>
<tr>
<td>4-172</td>
<td>Northwest Territories</td>
<td>2595-2620 MHz</td>
<td>41,668</td>
<td>20%</td>
</tr>
<tr>
<td>3-001</td>
<td>Newfoundland and Labrador</td>
<td>2585-2595 MHz</td>
<td>520,176</td>
<td>30%</td>
</tr>
<tr>
<td>3-002</td>
<td>Prince Edward Island</td>
<td>2585-2595 MHz</td>
<td>142,907</td>
<td>30%</td>
</tr>
<tr>
<td>3-003</td>
<td>Mainland Nova Scotia</td>
<td>2585-2595 MHz</td>
<td>792,184</td>
<td>40%</td>
</tr>
<tr>
<td>3-004</td>
<td>Cape Breton</td>
<td>2585-2595 MHz</td>
<td>131,379</td>
<td>30%</td>
</tr>
<tr>
<td>3-005</td>
<td>Southern New Brunswick</td>
<td>2585-2595 MHz</td>
<td>167,985</td>
<td>50%</td>
</tr>
<tr>
<td>3-006</td>
<td>Western New Brunswick</td>
<td>2585-2595 MHz</td>
<td>216,311</td>
<td>30%</td>
</tr>
<tr>
<td>3-007</td>
<td>Eastern New Brunswick</td>
<td>2585-2595 MHz</td>
<td>361,300</td>
<td>30%</td>
</tr>
<tr>
<td>3-010</td>
<td>Chicoutimi-Jonquière</td>
<td>2585-2595 MHz</td>
<td>367,474</td>
<td>40%</td>
</tr>
<tr>
<td>3-011</td>
<td>Eastern Townships</td>
<td>2585-2595 MHz</td>
<td>555,933</td>
<td>30%</td>
</tr>
<tr>
<td>3-014</td>
<td>Upper Outaouais</td>
<td>2585-2595 MHz</td>
<td>125,576</td>
<td>10%</td>
</tr>
<tr>
<td>3-016</td>
<td>Pembroke</td>
<td>2585-2595 MHz</td>
<td>113,567</td>
<td>15%</td>
</tr>
<tr>
<td>3-017</td>
<td>Abitibi</td>
<td>2585-2595 MHz</td>
<td>193,926</td>
<td>30%</td>
</tr>
<tr>
<td>3-018</td>
<td>Cornwall</td>
<td>2585-2595 MHz</td>
<td>69,729</td>
<td>50%</td>
</tr>
<tr>
<td>3-019</td>
<td>Brockville</td>
<td>2585-2595 MHz</td>
<td>83,713</td>
<td>40%</td>
</tr>
<tr>
<td>3-020</td>
<td>Kingston</td>
<td>2585-2595 MHz</td>
<td>177,314</td>
<td>50%</td>
</tr>
<tr>
<td>3-021</td>
<td>Belleville</td>
<td>2585-2595 MHz</td>
<td>197,975</td>
<td>40%</td>
</tr>
<tr>
<td>3-022</td>
<td>Cobourg</td>
<td>2585-2595 MHz</td>
<td>65,180</td>
<td>30%</td>
</tr>
<tr>
<td>Tier #</td>
<td>Service area name</td>
<td>Frequency</td>
<td>Population*</td>
<td>Minimum population coverage**</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------</td>
<td>-----------------</td>
<td>-------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>3-023</td>
<td>Peterborough</td>
<td>2585-2595 MHz</td>
<td>211,418</td>
<td>50%</td>
</tr>
<tr>
<td>3-024</td>
<td>Huntsville</td>
<td>2585-2595 MHz</td>
<td>82,705</td>
<td>30%</td>
</tr>
<tr>
<td>3-028</td>
<td>Listowel/Goderich / Stratford</td>
<td>2585-2595 MHz</td>
<td>135,596</td>
<td>15%</td>
</tr>
<tr>
<td>3-031</td>
<td>Chatham</td>
<td>2585-2595 MHz</td>
<td>99,868</td>
<td>50%</td>
</tr>
<tr>
<td>3-032</td>
<td>Windsor/Leamington</td>
<td>2585-2595 MHz</td>
<td>401,719</td>
<td>50%</td>
</tr>
<tr>
<td>3-033</td>
<td>Strathroy</td>
<td>2585-2595 MHz</td>
<td>170,680</td>
<td>50%</td>
</tr>
<tr>
<td>3-034</td>
<td>North Bay</td>
<td>2585-2595 MHz</td>
<td>125,647</td>
<td>40%</td>
</tr>
<tr>
<td>3-035</td>
<td>Sault Ste, Marie</td>
<td>2585-2595 MHz</td>
<td>130,515</td>
<td>50%</td>
</tr>
<tr>
<td>3-036</td>
<td>Sudbury</td>
<td>2585-2595 MHz</td>
<td>178,872</td>
<td>50%</td>
</tr>
<tr>
<td>3-037</td>
<td>Kirkland Lake</td>
<td>2585-2595 MHz</td>
<td>112,511</td>
<td>30%</td>
</tr>
<tr>
<td>3-038</td>
<td>Thunder Bay</td>
<td>2585-2595 MHz</td>
<td>230,904</td>
<td>40%</td>
</tr>
<tr>
<td>3-044</td>
<td>Edmonton-Makao, AB (3-044-007)***</td>
<td>2585-2595 MHz</td>
<td>1,642,088</td>
<td>50%</td>
</tr>
<tr>
<td>3-045</td>
<td>Medicine Hat/Brooks</td>
<td>2585-2595 MHz</td>
<td>198,798</td>
<td>30%</td>
</tr>
<tr>
<td>3-046</td>
<td>Lethbridge</td>
<td>2585-2595 MHz</td>
<td>189,709</td>
<td>40%</td>
</tr>
<tr>
<td>3-047</td>
<td>Calgary</td>
<td>2585-2595 MHz</td>
<td>1,582,542</td>
<td>50%</td>
</tr>
<tr>
<td>3-048</td>
<td>Red Deer</td>
<td>2585-2595 MHz</td>
<td>260,727</td>
<td>25%</td>
</tr>
<tr>
<td>3-049</td>
<td>Grande Prairie</td>
<td>2585-2595 MHz</td>
<td>196,772</td>
<td>25%</td>
</tr>
<tr>
<td>3-050</td>
<td>Kootenays</td>
<td>2585-2595 MHz</td>
<td>139,312</td>
<td>15%</td>
</tr>
<tr>
<td>3-054</td>
<td>Nanaimo</td>
<td>2585-2595 MHz</td>
<td>194,922</td>
<td>40%</td>
</tr>
<tr>
<td>3-055</td>
<td>Courtenay</td>
<td>2585-2595 MHz</td>
<td>118,732</td>
<td>50%</td>
</tr>
<tr>
<td>3-056</td>
<td>Thompson/Cariboo</td>
<td>2585-2595 MHz</td>
<td>184,040</td>
<td>40%</td>
</tr>
<tr>
<td>3-057</td>
<td>Prince George</td>
<td>2585-2595 MHz</td>
<td>188,487</td>
<td>40%</td>
</tr>
<tr>
<td>3-058</td>
<td>Dawson Creek</td>
<td>2585-2595 MHz</td>
<td>68,387</td>
<td>30%</td>
</tr>
<tr>
<td>4-170</td>
<td>Yukon</td>
<td>2585-2595 MHz</td>
<td>35,928</td>
<td>20%</td>
</tr>
</tbody>
</table>

* Population figures based on Statistics Canada 2016 Census information.
** Based on most recent census information available at the time of assessment.
***3-044-007 is a combination of Tier 3-044 and the Alberta portion of Tier 3-043.
Table E3: Ten-year deployment requirements for 2300 MHz licences

<table>
<thead>
<tr>
<th>Tier</th>
<th>Service area name</th>
<th>Frequency</th>
<th>Population*</th>
<th>Minimum population coverage**</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-065</td>
<td>Port-Cartier/Sept-Îles</td>
<td>2305-2320 MHz</td>
<td>46,983</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2345-2360 MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-092</td>
<td>Sarnia*** (4-092-002)</td>
<td>2305-2320 MHz</td>
<td>103,643</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2345-2360 MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-119</td>
<td>Estevan</td>
<td>2305-2320 MHz</td>
<td>46,006</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2345-2360 MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-171</td>
<td>Nunavut</td>
<td>2305-2320 MHz</td>
<td>35,975</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2345-2360 MHz</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Population figures based on Statistics Canada 2016 Census information.  
** Based on most recent census information available at the time of assessment.  
***4-092-002 is a subdivision of Tier 4-092 and includes Sarnia, Forest and the immediate vicinity.

Table E4: Ten-year deployment requirements for PCS-G Block licences

<table>
<thead>
<tr>
<th>Tier</th>
<th>Service area name</th>
<th>Frequency</th>
<th>Population*</th>
<th>Minimum population coverage**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-003</td>
<td>New Brunswick</td>
<td>1910-1915 MHz 1990-1995 MHz</td>
<td>745,596</td>
<td>50%</td>
</tr>
<tr>
<td>2-009</td>
<td>Northern Ontario</td>
<td>1910-1915 MHz 1990-1995 MHz</td>
<td>778,449</td>
<td>50%</td>
</tr>
</tbody>
</table>

* Population figures based on Statistics Canada 2016 Census information.  
** Based on most recent census information available at the time of assessment.
Annex F — Bidding examples

The following examples illustrate different bidding scenarios, the provisional winning bid(s), as well as the price calculations for each.

Example 1:

<table>
<thead>
<tr>
<th>Tier</th>
<th>Block (size)</th>
<th>Opening bid ($)</th>
<th>Bidder 1’s bid ($)</th>
<th>Bidder 2’s bid ($)</th>
<th>Bidder 3’s bid ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-170</td>
<td>C1 (10 MHz)</td>
<td>48,000</td>
<td>50,000</td>
<td>48,600</td>
<td>52,500</td>
</tr>
</tbody>
</table>

Let us assume that there are three bidders interested in the 700 MHz block (10 MHz) in Tier 4-170. Bidder 1 places a bid of $50,000, Bidder 2 places a bid of $48,600 and Bidder 3 places a bid of $52,500. Bidder 3 would be declared the provisional winner and would be required to pay the second highest bid value of $50,000.

Example 2:

<table>
<thead>
<tr>
<th>Tier</th>
<th>Block (size)</th>
<th>Opening bid ($)</th>
<th>Bidder 1’s bid ($)</th>
<th>Bidder 2’s bid ($)</th>
<th>Bidder 3’s bid ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-171</td>
<td>C1 (10 MHz)</td>
<td>48,000</td>
<td>48,500</td>
<td>51,000</td>
<td>51,000</td>
</tr>
</tbody>
</table>

Let us assume that there are three bidders interested in the 700 MHz block (10 MHz) in Tier 4-171. Bidder 1 places a bid of $48,500, Bidder 2 places a bid of $51,000 and Bidder 3 places a bid of $51,000. Bidders 2 and 3 have tied with a bid of $51,000 and are asked to re-bid.

Example 3:

<table>
<thead>
<tr>
<th>Tier</th>
<th>Block (size)</th>
<th>Opening bid ($)</th>
<th>Bidder 1’s bid ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-172</td>
<td>C1 (10 MHz)</td>
<td>55,000</td>
<td>60,700</td>
</tr>
</tbody>
</table>

Let us assume that there is only one bidder interested in the 700 MHz block (10 MHz) in Tier 4-172. Bidder 1 places a bid of $60,700. Bidder 1 would be declared the provisional winner. Since there are no other bids on the licence, Bidder 1 would pay the opening bid price of $55,000.
Example 4:

<table>
<thead>
<tr>
<th>2500 MHz Block H licence(s)</th>
<th>Opening bid ($)</th>
<th>Bidder 1’s bid ($)</th>
<th>Bidder 2’s bid ($)</th>
<th>Bidder 3’s bid ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-018 Cornwall</td>
<td>36,000</td>
<td></td>
<td>37,000</td>
<td></td>
</tr>
<tr>
<td>3-019 Brockville</td>
<td>43,000</td>
<td></td>
<td>44,000</td>
<td></td>
</tr>
<tr>
<td>3-020 Kingston</td>
<td>115,000</td>
<td>116,000</td>
<td>129,000</td>
<td></td>
</tr>
<tr>
<td>3-018 Cornwall</td>
<td>79,000</td>
<td></td>
<td>84,000</td>
<td></td>
</tr>
<tr>
<td>3-019 Brockville</td>
<td>158,000</td>
<td>164,000</td>
<td>173,000</td>
<td></td>
</tr>
<tr>
<td>3-018 Cornwall 3-019 Brockville</td>
<td>194,000</td>
<td>203,000</td>
<td>202,000</td>
<td>210,000</td>
</tr>
</tbody>
</table>

Suppose that there are three bidders interested in three 2500 MHz H Block licences covering Cornwall, Brockville and Kingston Tier 3 service Areas in Group G. Let us assume that these bidders did not place bids on any other licences in Group G and that no other bidders placed bids on these three licences.

Bidder 1 submits one bid of $203,000 for a package of all three licences. Bidder 2 submits six bids: $37,000 for Cornwall, $44,000 for Brockville, $116,000 for Kingston, $84,000 for a package that includes Cornwall and Brockville, $164,000 for Brockville and Kingston and $202,000 for a package of all three licences. Bidder 3 submits three bids: $129,000 for Kingston, $173,000 for Brockville and Kingston, and $210,000 for a package of all three licences.

Bidder 2 would be declared the provisional winner for a package that includes Cornwall and Brockville and Bidder 3 would be declared the provisional winner for Kingston, as the combination of their bids in these areas is higher than any other feasible combination of submitted bids.

To calculate the Vickrey price for Bidder 2, its winning bid ($84,000) is subtracted from the value of the winning combination ($213,000) resulting in $129,000. Next, the winning combination is recalculated for the hypothetical situation in which Bidder 2’s bids are excluded. The best assignment, excluding Bidder 2, assigns all three licences to Bidder 3 at $210,000. The Vickrey price for Bidder 2 is the value of the winning combination with all of Bidder 2’s bids excluded ($210,000) less the sum of the winning bids for all bidders other than Bidder 2 ($129,000); that is, its Vickrey price is $81,000 ($210,000 − $129,000).
To calculate the Vickrey price for Bidder 3, its winning bid ($129,000) is subtracted from the value of the winning combination ($213,000) resulting in $84,000. Next, the winning combination is recalculated for the hypothetical situation in which Bidder 3’s bids are excluded. The best assignment, excluding Bidder 3, assigns all three licences to Bidder 1 at $203,000. The Vickrey price for Bidder 3 is the value of the winning combination with all of Bidder 3’s bids excluded ($203,000) less the sum of the winning bids for all bidders other than Bidder 3 ($84,000); that is, its Vickrey price is $119,000 ($203,000 – $84,000).

In some cases, the second price (Vickrey price) may not be high enough to ensure that there is no alternative bidder or group of bidders prepared to pay more for the licences in question, and so an additional payment above Vickrey prices is required. In the event that such a payment is required, the Department proposed to weight the portion of the additional payment to be paid on the winning package sizes evaluated at the opening bid prices.

In this example, the total amount of Vickrey prices calculated for Bidder 2 and Bidder 3 is $200,000 ($119,000 + $81,000), which is less than Bidder 1’s bid of $203,000 for all three licences. Therefore, Bidder 2 and Bidder 3 must split an additional payment of $3,000 ($203,000 - $200,000) to satisfy the condition that no other bidder or group of bidders were prepared to pay more for the licences in question. Since the sum of opening bid prices for the three licences is $194,000 the additional payment of Bidder 2 evaluated at the opening bid prices is $1,222 ($3,000 × $79,000 / $194,000) for a final payment of $82,222. Similarly, the additional payment of Bidder 3 evaluated at the opening bid prices is $1,778 ($3,000 × $115,000 / $194,000) for a final payment of $120,778 ($119,000 + $1,778).