

**Response  
Of  
TELUS Communications Company  
To  
Canada Gazette, Part I**

**Decisions on a Band Plan for Broadband  
Radio Service (BRS) and  
Consultation on a Policy and Technical Framework to  
Licence Spectrum in the Band  
2500-2690 MHz**

**SMSE-005-11**

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## Executive Summary

1. Since the release of DGTP-002-06 — *Policy Provisions for the Band 2500-2690 MHz to Facilitate Future Mobile Service*, it has been the stated policy and intent of the Department to claw back one third of the spectrum held by fixed service MCS and MDS licence holders and to subsequently auction that spectrum for mobile services. Incumbents currently occupy the vast majority of the remaining spectrum and are able to transition to mobile at their convenience.
2. Spectrum at 2500 to 2690 MHz (commonly referred to as the 2500 band) represents some of the last spectrum available for mobile data services, unless and until Industry Canada can find and refarm appropriate spectrum below 3 GHz. That may take many years.
3. The 2500 MHz auction policy is the first chance for the Department to facilitate entry into this band, which has been to date, primarily monopoly controlled. The challenge for the Department will be to balance a reliance on market forces with the intent of the 2006 policy of reducing monopolization of this band by current band incumbents that were granted this spectrum a decade ago for fixed wireless access and wireless cable TV, not mobile.
4. While TELUS is no longer challenging the outcome of the policy to allow band incumbents to keep the majority of the spectrum in this band as it is transitioned from a fixed to mobile designation, it is clear that this transition has resulted in an unprecedented windfall in terms of mobile spectrum for the incumbent fixed service licence holders. It is the size of this windfall that guides the TELUS position below.
5. Under the 2006 policy and subsequent clarifying decisions, fixed service licence holders are now permitted to retain and redeploy more than two thirds<sup>1</sup> of the allocated MCS and MDS spectrum for mobile applications, without any need to await the results of the upcoming auction, currently estimated to be no earlier than late 2012, and the subsequent issue of Broadband Radio Service (BRS) licences to band entrants.
6. To put this into context, upon conversion of the band from fixed to mobile use, the principal incumbent in this band (Inukshuk<sup>2</sup>) will control 130 MHz of spectrum in much of the country including all top markets representing almost twice as much mobile spectrum in this one band as TELUS holds across the 850 MHz, PCS and AWS bands. Inukshuk's 2500

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<sup>1</sup> 130 MHz of 190 MHz wherever both an MCS and MDS incumbent were licensed.

<sup>2</sup> Inukshuk holds 95% of the allocated MDS and MCS spectrum – pre and post clawback. See Appendix 1.

MHz mobile windfall resulting from the conversion policy of 2006 also involves more spectrum than was granted in 1995 in total to Rogers, Clearnet, Microcell and the ILECs combined, previously the largest allocation of mobile spectrum in Canada.

7. The 2500 MHz band has become more important than was ever anticipated in 2006 due to the rapid adoption of mobile broadband service and the alignment of this band to international standards. Unlike 700 MHz, 850 MHz, PCS or AWS spectrum, 2500 MHz is the only band that is harmonized between Canada and Europe (as well as other jurisdictions) and operators in Europe have already deployed LTE over 2500 MHz spectrum<sup>3</sup>.
8. In the context of the importance globally of the 2500 MHz band for LTE, one must reflect if any regulatory body (Industry Canada or the Competition Bureau) with the benefit of foresight, would intentionally have allowed a scenario to develop where one incumbent fixed licence holder holds 130 MHz of the 190 MHz of the mobile BRS spectrum band after clawback across 60% of the population including all top markets and 65 MHz in the balance of the country.
9. This is a dominant position<sup>4</sup> by any standard and one that the Department through this Consultation still has an opportunity to address, at least in part.
10. While TELUS has raised the issue of a head start advantage afforded fixed service licence holders in prior consultations, a head start is now a matter of policy, as a result of SMSE-005-11 — *Decisions on a Band Plan for Broadband Radio Service (BRS) and Consultation on a Policy and Technical Framework to License Spectrum in the Band 2500-2690 MHz*. However it is still within the powers of the Department to accelerate the 2500 MHz auction (and the 700 MHz auction.)
11. Given both the spectrum share of the band incumbents and the head start available to them, the critical issue in limiting market power or band monopolization, is addressing how to ensure that the forthcoming auction of 2500-2690 MHz spectrum - both unassigned spectrum and spectrum that has been clawed back to support band entry – is allocated to band entrants as reasonably and quickly as possible in order to mitigate the market impact of that head start.

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<sup>3</sup> Deployments of LTE2600 include to date Teliasonera and Elisa FI in Finland, CSL Ltd In Hong Kong. Deutsche Telekom announced the launch of LTE2600 in summer 2011.

<sup>4</sup> Inukshuk holds after clawback 54% of the band nationally weighted by population (i.e., in MHz-pops). The Department reported 52% in SMSE-018-10 but this did not include the acquisition of the YourLink MDS spectrum in Saskatchewan which had not been finalized at the time.

12. TELUS notes that one of the key issues raised in the Consultation is whether to set aside spectrum or introduce a spectrum cap to restrict bidding opportunities in the 2500 MHz auction in order to promote competition. TELUS submits that such restrictions already de facto exist in the case of the application of the 2006 policy to band incumbents because the Department has already established a clawback of spectrum from incumbent fixed service licence holders in order to promote competition through band entry.
13. In the case of the 2006 policy, the government determined that incumbent fixed service licence holders had to give back spectrum that they held for fixed service purposes in order to ensure that the band was not monopolized once re-allocated to mobile use. TELUS notes that unlike either the recent AWS auction or the upcoming 700 MHz auction, the 2500 MHz auction is unique in that the clawback to promote entry already represents a spectrum set aside in the sense that these blocks have been taken back from incumbents already and set aside for auction.
14. In SMSE-005-11, the Department determined that 60 MHz of FDD spectrum would be clawed back from the fixed service licence holders for auction. SMSE-005-11 set<sup>5</sup> the claw back at 60 MHz in order to allow entry into the band which has been otherwise almost wholly consolidated<sup>6</sup> by Rogers and Bell via the Inukshuk joint venture they took over.
15. It is TELUS's position that incumbent fixed service licence holders should not be permitted to bid to reacquire clawed back spectrum because to do so would fundamentally render the 2006 policy decision and 2011 band plan decision meaningless. This is not unreasonable given one incumbent, Inukshuk still retains at least 34% of the band nationally and 68% of the band in the densest 60% of the country. Nor is it unprecedented given TELUS itself was subject to a clawback on its PCS holdings and prevented from bidding to reacquire such spectrum.
16. The whole point of a clawback is to ensure that additional entry occurs once the band transitions to mobile. The size of Inukshuk's holdings post-clawback are unprecedented in terms of percentage held by one party in one band. Inukshuk, or its owners or affiliates, will through a mobile conversion windfall continue to hold 130 MHz of the 190 MHz of

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<sup>5</sup> The 2006 policy precisely specified the claw back at 66 MHz of FDD but this was reduced in SMSE-005-11 to 60 MHz. While the translation of the 2006 policy to the ITU band plan resulted in a net gain of 8 MHz of total FDD spectrum in the band, these additional 8 MHz of FDD plus six more (i.e., 14 MHz) were added to the 66 MHz allocated to Inukshuk (Bell and Rogers) while six MHz were taken from the to be returned spectrum for auction for band entrants numbering potentially seven or more.

<sup>6</sup> Inukshuk held the licences to over 95% of the allocated MCS and MDS spectrum representing over 78% of the total spectrum in the massive band. MDS spectrum was unassigned in Alberta, Atlantic Canada and a patchwork of smaller markets in BC, Ontario and Quebec. MCS spectrum is largely unassigned in Manitoba. As of the March 31, 2011 date certain transition to mobile, Inukshuk holds, post clawback, 95% of the allocated BRS representing 54% of the total band.

BRS spectrum after clawback wherever they had acquired both the MCS and MDS licensees. So this is clearly not a case where incumbents are put at any disadvantage. In fact, if Inukshuk can reacquire the remaining 60 MHz of FDD spectrum that was clawed back, preventing the intended entry into the band, then this band would simply be re-monopolized.

17. Clearly that scenario makes no sense given the intent of the policy<sup>7</sup> since 2006 and in successive policy statements which is to allow further entry through auction.
18. TELUS further submits that in order to meet the intent of the 2006 policy and 2011 band plan decisions, a restriction on incumbent fixed service licence holders' ability to bid to reacquire clawed back spectrum while a necessary pre-condition, is not sufficient. In our view the following conditions must also apply to achieve the Department's intent.
19. Recognizing what has already been grandfathered by policy, the Department must clarify how much, if any, additional BRS spectrum an individual operator can otherwise hold either as a single entity or in association with others with respect to the auction, in markets outside of Region B<sup>8</sup> where Inukshuk does *not* hold dual incumbency with respect to MCS and MDS spectrum.
20. In Region B, the decision is simple. Band incumbents will already hold all of the spectrum except for the 60 MHz of FDD spectrum clawed back for auction to band entrants. Band incumbents therefore should not be able to bid, since nothing remains but the clawback.
21. In Regions A and C, covering 37% of the population primarily in Alberta and Atlantic Canada, there is an additional 40 MHz of FDD and 25 MHz of TDD up for auction beyond the clawback band. Yet even across the entirety of Regions A and C Inukshuk already holds 40 MHz of FDD and 25 MHz of TDD, while no other party yet holds any 2500 MHz spectrum in these Regions. Even this level of holding on the part of Inukshuk leaves two issues that need to be addressed.
22. First, assuming Industry Canada considers or implements a cap, the question is should Inukshuk be able to bid for up to 130 MHz total (80 MHz FDD and 50 MHz TDD) in Regions

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<sup>7</sup> The 2006 policy decision was reached in an environment where there were only 3 national and two regional mobile operators and where Bell and Rogers had just taken over the entire MCS band covering 93% of Canada. The 2006 policy objective of new entry into this band becomes even more important in today's environment where there are 5+ operators per market and Inukshuk has acquired virtually all of the allocated MDS spectrum to pair with its near national MCS footprint.

<sup>8</sup> The Department has defined in the Consultation three regions, Regions A, B and C with respect to 2500 MHz spectrum, Refer to SMSE-0005-11, Appendix A, pg 44. Region A is where Inukshuk is the MCS incumbent and the MDS is unassigned. Region B is where both MCS and MDS bands are assigned. Inukshuk holds over 95% of the allocated spectrum in Region B. Region C is where Inukshuk is the MDS incumbent and the MCS is unassigned.

A and C simply because they hold 130 MHz grandfathered in major markets in Central Canada and BC? Or, in Regions A and C, should Inukshuk be limited like band entrants will effectively be?

23. The issue of how to treat Inukshuk in terms of acquiring more spectrum beyond what has been grandfathered, is not a theoretical question, assuming there will be a cap. In Region B<sup>9</sup> representing 63% of the country by population, band entrants collectively at auction can only acquire a maximum<sup>10</sup> of 60 MHz FDD spectrum, i.e., at best less than half of what Inukshuk has been granted. In Regions A and C covering the remaining 37% of the country, Inukshuk held only one of the MCS or MDS licences and hence was granted 65 MHz (40 MHz of FDD and 25 MHz of TDD) post clawback and prior to auction.
24. However, even in Regions A and C, Inukshuk's 65 MHz will still be more than all band entrants combined are able to acquire in Region B.
25. The answer to the question is not simple, particularly given TELUS's position that open auctions are generally the most appropriate course to follow. However, in this case, as noted, the key difference is that the 2006 clawback policy has already established a set aside to prevent monopolization of the band and at this point in time the band still remains monopoly controlled.
26. One must start by determining if any of the band entrants should be subject to a cap. In this respect TELUS submits that if band entrants such as TELUS can only buy, at a theoretical maximum, 60 MHz of FDD spectrum in Region B, then should Inukshuk be allowed to buy spectrum at auction in Regions A and C that would increase its holdings in these Regions beyond 60 MHz FDD in total, irrespective of the spectrum depth Inukshuk was granted via grandfathering in Region B?
27. Moreover, the Department has to also answer another question. If Inukshuk already has a TDD spectrum monopoly in Region B, which persists post clawback, is Inukshuk therefore also entitled to bid to buy all the TDD spectrum in Regions A and C as well? It is certainly unclear to TELUS based on either need or policy why such a TDD monopoly should be permitted.
28. It seems fair and reasonable that the size of a spectrum cap on band entrants (or the equivalent limit that band entrants face by virtue of the 2006 policy) should equally apply to incumbent fixed service licence holders wherever they seek to bolster their already extensive holdings. Otherwise any opportunity for incumbents to bid above the effective

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<sup>9</sup> Inukshuk holds 130 MHz grandfathered in over 95% of Region B by population. In the remaining 4.7% of Region B, Inukshuk holds 65 MHz and the balance is predominantly held by SaskTel.

<sup>10</sup> This assumes that there is no type of cap on band entrants.

cap on band entrants has the result of even further advantaging Inukshuk which is already permitted by policy to hold before auction 130 MHz grandfathered in Region B and 65 MHz grandfathered in Regions A and C.

29. TELUS reminds the Department as discussed above that the 2500 MHz band is unique in the sense that it is the only mobile band in Canada that aligns to a global standard and is therefore compatible with devices being deployed in that band in Europe and Asia.
30. Second, even if the Department were to decide not to impose a cap and Inukshuk were to bid in Regions A and C, Inukshuk should not be permitted to bid in the clawback band (2540 – 2570 and 2660 – 2690 MHz) in Regions A and C<sup>11</sup>. Since Inukshuk has already been allocated specific BRS paired frequencies based on the national re-banding exercise, there is no valid reason for Inukshuk, in Regions A and C, to bid on frequencies that align with clawed back spectrum in Region B. The only reason for Inukshuk (or its partners individually) to bid on these frequencies would be to increase the price paid by band entrants or achieve foreclosure in the band in Regions A and C.
31. TELUS holds no spectrum in the 2500 MHz band. In fact one of the reasons<sup>12</sup> that TELUS has not acquired spectrum in this band has been the promise of an “imminent” auction since 2006, both in terms of the wording of the 2006 policy itself and statements of intent in Ministerial correspondence<sup>13</sup> to TELUS.
32. Based on this direction of future intent, TELUS participated in private MDS spectrum auctions<sup>14</sup> (that Inukshuk was successful in) with the knowledge that an option to buy at auction rather than acquire<sup>15</sup> from fixed service licence holders would be forthcoming.

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<sup>11</sup> This results effectively in a national set aside, the “national clawback” band – made up of both clawed back and unassigned spectrum in the 2540 – 2570 and 2560 – 2590 MHz paired sub-bands nationally. As such (in the absence of a suitable band cap) the national clawback band should be set aside for band entrants and to avoid gaming the Department should consider running separately a clawback auction and an auction of unassigned spectrum outside of the clawback band.

<sup>12</sup> The other key reason is that by its very nature, the 2006 policy made MDS incumbents the target of the MCS licence holder (or vice versa) as this was at the time the only way to unite paired spectrum outside of the clawback. See Appendix 1.

<sup>13</sup> TELUS received written correspondence from the Industry Minister as early as Oct 16, 2006, suggesting an auction of 2500 MHz would proceed as soon as possible and setting an expectation of releasing in February 2007 a consultation in support of such.

<sup>14</sup> Private auctions held by and leading to the sale of MDS spectrum to Inukshuk of Look Communications and Craig Wireless. As we describe in Appendix 1, these MDS incumbents had unique synergy with Inukshuk’s MCS spectrum as a direct result of the precisely specified clawback in the 2006 policy.

<sup>15</sup> And have to subsequently negotiate a spectrum swap to achieve paired spectrum (as was the case prior to the Feb 2011 SMSE-005-11 for all parties except the near national MCS incumbent.)

33. To therefore limit TELUS' options now that the government auction is finally imminent would be unreasonable and unfair, particularly when the Department has already granted Inukshuk 130 MHz in all top markets.
34. As for packaging the available BRS spectrum at auction, TELUS submits that the paired spectrum blocks should be of uniform size and that the size should be 5 MHz + 5 MHz. As the Department notes in the Consultation document the recently developed technologies for the 2500 MHz band are based on bandwidths that are multiples of 5 MHz. By choosing a basic block of 5 MHz + 5 MHz the Department is maximizing the number of blocks on offer and allowing buyers the maximum flexibility in bidding. Those parties seeking larger blocks can aggregate blocks as required by their respective business plans.
35. TELUS submits that the unpaired spectrum blocks should also be of uniform size and that the size should be 10 MHz (or 15 MHz in the case where the block includes a 5 MHz piece of the "restricted bands".)
36. TELUS submits that half of the spectrum that could be auctioned on a Tier 2 basis (i.e., three of six 5+5 MHz blocks in Region B and five of ten 5+5 MHz blocks in parts of Regions A and C) should be auctioned at the Tier 2 level. This represents a fair compromise between band entrants seeking more focused regional coverage and band entrants seeking provincial and/or national coverage.
37. TELUS believes that because over half the 2500 MHz band has been allocated and already transitioned to mobile, and given that TELUS has been awaiting the 2500 MHz auction since 2006, the 2500 MHz auction must either come prior to or be run at the same time as the 700 MHz auction and both should be as soon as possible. In this regard, however, the intent in accelerating the 2500 MHz auction is not to delay the 700 MHz auction by holding the 2500 MHz auction first but simply to reduce the head start in this band that would occur if no auction takes place for another 18 months, or until late 2012.

## Conclusion

38. TELUS submits that:

- a. Incumbent fixed service licence holders should not be permitted to bid to reacquire clawed back spectrum because to do so would fundamentally render the 2006 policy decision and 2011 band plan decision meaningless.
- b. No incumbent fixed service licence holder should be allowed to bid on spectrum in the 2540 – 2579 and 2660 – 2690 MHz range (the national clawback band). The national clawback band is a de facto set aside for band entrants.
- c. If the Department sets a band cap, it must apply to all participants. In particular if entrants were to be capped at 60 MHz or less<sup>16</sup>, incumbents could not further exceed such a cap, recognizing some band incumbents will already be grandfathered at a higher level as a result of the 2006 policy. In this respect, for clarity, TELUS is not proposing that what by policy has been grandfathered already be clawed back further.
- d. FDD spectrum at auction should be uniformly licensed in blocks of 5+5 to maximize bidder flexibility.
- e. TDD spectrum should be auctioned in blocks of 10 MHz (and hence in a 15 MHz block whenever the block is adjacent to a 5MHz guardband (i.e., restricted spectrum) which should be included with the adjacent 10 MHz).
- f. Three of the six 5+5 MHz blocks in the national clawback band should be auctioned at Tier 2.
- g. The TDD spectrum and two additional 5+5 MHz FDD blocks in Alberta, Atlantic Canada and Manitoba outside of the national clawback band should be auctioned at Tier 2<sup>17</sup>.
- h. The balance of spectrum to be auctioned beyond that specified in (f) and (g) above (roughly half the spectrum at auction) should be auctioned at Tier 3.
- i. The auction of BRS spectrum should take place either before or concurrently with the 700 MHz auction and both auctions should take place as soon as the Department is able to hold them.

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<sup>16</sup> TELUS submits that band entrants should not be capped at less than 40 MHz FDD per paragraph 67 following.

<sup>17</sup> This can not be done in all of Regions A and C because in some areas such as parts of BC, Ontario and Quebec, an entire Tier 2 service area is not available at auction outside the clawback band.

### 3. Spectrum Packaging for Licensing

#### 3.2 Block Sizes

***1-1 Should the block sizes be uniform in size?***

***a. If uniform size is preferred, what size should be considered?***

***b. If a mix of block sizes is preferred, what combinations and arrangements should be considered?***

39. TELUS believes that the paired spectrum blocks should be of uniform size and that the size should be 5 MHz + 5 MHz. As the Department notes in the Consultation document the recently developed technologies for the 2500 MHz band are based on bandwidths that are multiples of 5 MHz. By choosing a basic block of 5 MHz + 5 MHz the Department is maximizing the number of blocks on offer and allowing buyers the maximum flexibility. Those parties seeking larger blocks can aggregate blocks as required by their respective business plans.
40. In this regard TELUS notes that Ofcom has chosen to use 5 MHz + 5 MHz in their spectrum auction for this band and has stated that in the case of aggregated blocks that they will ensure that these blocks are spectrally contiguous. TELUS recommends that Industry Canada do likewise in its 2500 MHz spectrum auction. Further TELUS recommends that following the spectrum auction, the Department permit voluntary spectrum swapping to facilitate contiguous spectrum aggregation.
41. TELUS believes that the unpaired spectrum blocks should also be of uniform size and that the size should be 10 MHz (or 15 MHz in the case where the block includes a 5 MHz piece of the “restricted bands”.)
42. TELUS believes that given the Department’s Decision 1-5 in section 1.9 of SMSE-005-11, the “restricted bands” at 2570-2575 MHz and 2615-2620 MHz, wherever currently unlicensed (i.e., in Regions A and C), should be auctioned as part of the adjacent TDD blocks above 2575 MHz and below 2615 MHz respectively.
43. TELUS agrees with the Department’s decision that operation in these 5 MHz “restricted bands” be subject to the constraints described in Decision 1-5 of section 1.9 and that these “restricted band” (i.e., guard band) portions of the band plan should be assigned to TDD operators. As long as TDD operation does not inhibit FDD applications within the FDD portion of the band, then TDD systems should be permitted to operate within the

restricted (guard) band. Evolution of technology may allow improved radio isolation or commercial deployment of low power indoor solutions to maximize utilization of the TDD spectrum in these restricted bands.

44. TELUS notes that our recommendations are supported by the submission of the Radio Advisory Board of Canada in their response to SMSE-005-11. TELUS participated in the preparation of that submission along with wide ranging representation from Canada's wireless industry.

***1-2 In the specific geographic regions discussed above and shown in Appendix A, which block size option(s) should be adopted and why is this option(s) preferred over the other options? Should the combinations and arrangements of block sizes be the same or different in different areas? Provide supporting rationale.***

***Provide comments separately for paired and unpaired spectrum blocks.***

45. TELUS recommends that for paired spectrum the Department adopt the basic building block outlined above, i.e., 5 MHz + 5 MHz. Not only are the technologies developed for this band built on 5 MHz increments but given the differing amounts of spectrum available in the respective areas this size allows both the Department as auctioneer and buyers the maximum flexibility in the auction.
46. TELUS recommends that for unpaired spectrum the Department adopt the block sizes outlined above, i.e., 10 MHz blocks in all regions. Since there is only 25 MHz of TDD available for auction in regions A and C, then this results in one "central" 10 MHz block of TDD spectrum and one "outer" block of 10 MHz plus 5 MHz of restricted spectrum (i.e., 15 MHz) in each of Regions A and C.
47. Specifically in Region A, there would be one block covering 2595 – 2605 MHz (the central block of 10 MHz) and 2605 – 2620 MHz (the outer block which includes 5 MHz of restricted spectrum)
48. Specifically in Region C, there would be one block covering 2570 – 2585 MHz (the outer block which includes 5 MHz of restricted spectrum) and 2585 – 2595 MHz (the central block of 10 MHz)

### 3.3 Tier Sizes for BRS Spectrum

*2-1 The Department seeks comments on whether the licensing of 2500 MHz spectrum should be based on uniform tier sizes across all spectrum blocks, or on a mixture of tier sizes.*

49. TELUS recommends that the Department use Tier 3 service areas for much of the paired and the unpaired spectrum and Tier 2 for several blocks in the national clawback band and unassigned spectrum. While TELUS generally recommends a mixture of Tier 1 / 2 and some Tier 3 service areas for a brand new band, the 2500 MHz auction is an auction of returned and unassigned spectrum and there are several reasons why a Tier 3 approach is required in several instances.
- a. The Department in DGSO-001-10 announced its decision to convert eligible licence holders and in some cases licence applicants, at a Tier 3 level<sup>18</sup>. Thus
    - i. The Department has de facto rejected Tier 4 as an appropriate tier for the 2500 MHz band. Unassigned spectrum must necessarily be packaged at the Tier 3 level within any Tier 2 service area with less than all the Tier 3 licences allocated. This is the case in BC, Ontario and Quebec.
  - b. Using a uniform size of Tier 3 licence areas for much of the auction will allow greater flexibility for some auction participants. Smaller companies or regional companies may find the Tier 3 blocks more affordable and may not want the geographic coverage of a Tier 2 licence area. The Tier 3 licences still allow national service providers to aggregate and assemble national coverage despite this being an inefficient way for national operators to do so.
50. The “national clawback” band – made up of both clawed back and unassigned spectrum in the 2540 – 2570 and 2660 – 2690 MHz paired sub-bands nationally – should be partially auctioned at the Tier 2 level. TELUS recommends that three of the six 5+5 MHz blocks be auctioned at the Tier 2 level and three blocks be auctioned at the Tier 3 level. TELUS believes that auctioning half the national clawback band at the Tier 2 level would be a good compromise. Tier 2 licences are desirable for the following reasons:
- a. They recognize that many bidders (TELUS, Shaw, Videotron, Bragg, Wind, Public Mobile, etc.) may be looking to build on their existing Tier 2 licences while minimizing licence aggregation risk.

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<sup>18</sup> There were one or more minor exceptions where a Tier 4 licence was needed to support multiple incumbent fixed licence holders within a Tier 3 licence.

- b. They ensure that bidders interested in an entire Tier 2 area get contiguous spectrum versus piecemeal frequency blocks.
- c. MCS spectrum, the asset that has given Inukshuk near national mobile spectrum coverage in the 2500 MHz band, is licensed on a Tier 2 basis.

51. For the same reasoning, TELUS submits that part of the unassigned spectrum outside of the national clawback band, the TDD spectrum and two additional paired blocks (5 + 5 MHz blocks) at auction in the applicable parts of Regions A and C (i.e., Alberta, Manitoba and Atlantic Canada but not BC, Ontario or Quebec) should also be auctioned at Tier 2.

***2-2 Based on your answer above, if a uniform tier size is preferred, what tier size should be adopted? If a mixture of tiers is preferred, please indicate the proposed tier(s) for each spectrum block.***

***Provide supporting arguments for your responses to the above questions.***

52. As outlined above TELUS proposes using Tier 3 blocks for:
- a. Part of the paired spectrum outside of the national clawback band
  - b. Three of the six paired blocks (5 + 5 MHz blocks) in the national clawback band
  - c. Part of the unpaired spectrum.
53. As outlined above TELUS proposes using Tier 2 blocks for:
- a. Three of the six paired blocks (5 + 5 MHz blocks) in the national clawback band in Region B.
  - b. The TDD spectrum and two additional paired blocks (5 + 5 MHz blocks) at auction in the applicable parts of Regions A and C (i.e., Alberta, Manitoba and Atlantic Canada but not BC, Ontario or Quebec).
54. TELUS' general reasoning for these recommendations is provided in the paragraphs above.
55. In terms of the placement of the Tier 2 blocks, they should be placed in the middle of the available spectrum so as to maximize flexibility for aggregation with Tier 3 licences on either side of a group of Tier 2 blocks. TELUS recommends that:

- a. In the applicable<sup>19</sup> parts of Regions A, the five paired blocks to be auctioned at the Tier 2 level should be placed at A7 / A7', A8 / A8', A9 / A9', A10 / A10', A11 / A11' per Figure 12 in this consultation SMSE-005-11 (i.e., 2530 – 2555 and 2650 – 2675 MHz).
- b. In Region B, the three blocks to be auctioned at the Tier 2 level should be placed at A9 / A9', A10 / A10', A11 / A11' per Figure 12 in this consultation SMSE-005-11 (i.e., 2540 – 2555 and 2660 – 2675 MHz).
- c. In Region C, the five blocks to be auctioned at the Tier 2 level should be placed at A3 / A3', A4 / A4', A9 / A9', A10 / A10', A11 / A11' per Figure 12 in this consultation SMSE-005-11 (i.e., 2530 – 2555 and 2650 – 2675 MHz).
- d. TDD spectrum in Alberta, Manitoba and Atlantic Canada should be auctioned at the Tier 2 level.

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<sup>19</sup> Applicable areas are Alberta and Atlantic Canada.

## 4. Promoting Competition

**3-1** *If the Department determines that there is a need for measures to promote competition in the wireless services market, which of the above mechanisms would be most appropriate in the 2500 MHz band and why should this mechanism be considered over the other? Comments should also indicate if further restrictions should apply.*

56. TELUS has described at length the state of competition in the wireless industry in Canada and hence the need (or lack thereof) for intervention in its initial response and reply comments to the 700 MHz consultation (SMSE-018-10) and does not repeat them here. TELUS reiterates two key messages from these submissions:
- a. Mobile data usage continues to grow explosively and strain TELUS' network.
  - b. Based on an impartial analysis of spectrum need in Canada through 2015 based on forecasted customers per MHz-pop of spectrum through 2015, TELUS has the greatest need<sup>20</sup> of any operator in Canada as depicted in Table 1 following.
57. Table 1 below indicates how much additional spectrum each operator would need (both in terms of total MHz-pops and in terms of average spectrum depth across their existing spectrum footprints in MHz) in order to achieve at year end 2015 the same spectrum utilization ratio as Canadian spectrum leader Rogers (i.e, 24 customers per 10,000 MHz-pops)<sup>21</sup>. This table does not suggest that Rogers does not need additional spectrum, but simply how much each other operator would need to catch up to Rogers on a subscriber per MHz-pop basis.

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<sup>20</sup> The analysis shows that TELUS needs 3.7x the additional spectrum of the operator with the next highest need. That is, TELUS has a need for 1830 million MHz-pops vs Bell at 452 million MHz-pops.

<sup>21</sup> The full analysis that builds up to the data in Table 1 can be found in TELUS' reply comments to SMSE-018-10 paragraphs 75 – 101 found at: [http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/smse-018-10-telus-reply.pdf/\\$FILE/smse-018-10-telus-reply.pdf](http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/smse-018-10-telus-reply.pdf/$FILE/smse-018-10-telus-reply.pdf)

**Table 1 – Year End 2015 Spectrum Need, quantity and average depth across spectrum footprint**

Operator	Year End 2015 Spectrum Need to achieve Rogers' Utilization	
	Quantity Needed (millions of MHz-pops)	Average Depth Needed across spectrum footprint (MHz)
TELUS	1830	61
Bell	492	18
Wind	227	10
Mobilicity	169	10
MTS	133	119
Shaw	113	12
SaskTel	94	97
Videotron	82	6
EastLink	49	10
Rogers	0	0
Public Mobile	-27	-2

58. Operators in Canada have far less spectrum than Rogers with 150 MHz nationally and more than 4.5 billion MHz-pops. TELUS determined what additional spectrum each operator in Canada would need to reach the same amount of spectrum per customer as Rogers. We looked at this at year end 2010, year end 2012 and year end 2015 based on TD Newcrest operator subscriber forecasts (only year end 2015 shown in Table 1 above). Table 1 shows that based on a policy appropriate needs analysis basis<sup>22</sup>, on the basis that Rogers has enough spectrum through 2015<sup>23</sup>, then no 2008 entrant needs more than about 10 MHz more spectrum from both the 700 and 2500 MHz auctions to see them through the next five years while TELUS needs 60 MHz.
59. The 2008 AWS set aside has resulted in the competitive entry the government sought. 700 and 2500 MHz auction policy would only have the effect of enhancing the competitive dynamic vis a vis the 2008 entrants *if* any of the 2008 entrants are spectrum

<sup>22</sup> Ibid. Refer to paragraphs 75 – 101 (and particularly paragraphs 79 – 80)

<sup>23</sup> This is a relative needs analysis. If in fact Rogers truly needed more spectrum before 2016, then the relative need of every other operator in this analysis would also rise on a pro rata basis. It is interesting to note that the sum of the spectrum need of Canadian operators as at year end 2015 per Table 1 is only 3.2 billion MHz-pops of the 4.8 billion MHz-pops of 700 MHz and 2500 MHz earmarked for auction.

constrained. Conversely, 700 and 2500 MHz auction policy has little or no effect on the competitive dynamic in the industry if the 2008 entrants are not spectrum constrained.

60. While TELUS notes that 700 MHz spectrum will facilitate the expansion of entrant footprints, 2500 MHz spectrum will only provide capacity above and beyond the 2008 entrants' AWS / PCS builds and as such TELUS submits that the Department's 2500 MHz policy will have no effect on the competitive dynamic in the industry vis a vis the 2008 entrants for at least five years by which time the entire industry will be hoping that the Department has identified additional spectrum for transition to mobile use. As such, and given TELUS' demonstrable need, TELUS submits that the Department need not take any specific measures to over ride market forces in the allocation of spectrum amongst band entrants – that is, all mobile operators in Canada other than Rogers, Bell and SaskTel.
61. That TELUS is the most undersupplied operator relative to both other incumbents and entrants can be expressed in its simplest form:
- a. TELUS has a similar customer count to Bell but only half the spectrum.
  - b. TELUS has 22% less customers than Rogers but 63% less spectrum.
  - c. TELUS currently has almost twenty times (and at the time of the auction(s) in 2012 is forecasted to have more than four times) the customers of the AWS entrants combined, but TELUS only has roughly the same amount of spectrum as the AWS entrants combined.

When you look at 2008 entrant utilization to 2015, in aggregate and individually, the story stays the same: (i) TELUS' spectrum would still be supporting more customers per unit of spectrum and as such be under higher stress; and (ii) entrants would need a fraction of the spectrum TELUS does to address capacity shortfalls. As a result, from the perspective of relative ability to serve demand, current or projected, TELUS requires access to bid on both 700 MHz and 2500 MHz spectrum more than any other operator in Canada to meet the demand of its customer base and to continue to be a strong competitive alternative to both Rogers and Bell nationally and to the regional incumbents.

62. TELUS, despite being an entrant in three quarters of the country and having paid more for spectrum on average than any operator in Canada<sup>24</sup>, is not asking the Department for advantaging relative to entrants and notes that no matter how much spectrum it and

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<sup>24</sup> Refer to Page 62, Table 5 in TELUS' initial response to the 700 MHz consultation SMSE-018-010 found at: [http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/smse-018-10-telus-submission.pdf/\\$FILE/smse-018-10-telus-submission.pdf](http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/smse-018-10-telus-submission.pdf/$FILE/smse-018-10-telus-submission.pdf)

other band entrants acquire through auction it will still be much less than Inukshuk already holds.

63. All TELUS is asking the Department to do is not to deliberately disadvantage TELUS at auction through a poorly designed cap or set aside, or block TELUS from seeking the spectrum it demonstrably needs. TELUS' record of investment has earned it the right to have the same opportunity to bid as other operators.
64. In the recently concluded Consultation on the 700 MHz band, SMSE-018-10, TELUS notes that MTS has continued its practice of dubbing TELUS, Bell and Rogers the "Big 3". The 2008 entrants have begun parroting it to also refer to the three national wireless operators. TELUS suspects that it is likely that these parties will continue the practice in this proceeding. TELUS regards this designation as a compliment to our efforts in the past decade. TELUS started out as a regional operator confined to Alberta and BC but through its own acceptance of risk, competence, execution and an ability to compete and offer value to Canadians grew to become one of the "Big 3" in terms of national market share. TELUS did this without government favours, without government handouts and in the face of market uncertainties and government policies stripping it of spectrum with no compensation. TELUS to this day has a fraction of the spectrum of Bell and Rogers. The TELUS experience can serve as proof to the Department that the 2008 entrants need no favours or handouts. Reliance on market forces and allowing firms to freely compete are the only things required.
65. However, regardless of one's perspective on the issue, TELUS notes that the 2500 MHz band is unique in that it is the only band that is aligned to international standards and as such, band entry is imperative. TELUS has no spectrum in this band. There is no "Big 3" when it comes to spectrum in the 2500 MHz band, only Inukshuk, the JV between the "Big 2", Bell and Rogers.

#### **4.1 Spectrum Aggregation Limits and Spectrum Set-Asides**

*In light of your response above, and recognizing that pending decisions on block sizes and tier sizes could influence your response:*

**3-2 (a) If the Department were to implement spectrum aggregation limits (caps), should a cap apply to the 2500 MHz band?**

66. In the opinion of TELUS, the 2006 clawback policy imposed an upper limit or cap on how much spectrum in the 2500 MHz band Inukshuk and SaskTel could hold in order to allow band entry. Issues such as whether a lower limit at auction needs to apply in regions A

and C needs to be addressed both with respect to maximum FDD spectrum a single entity may hold and whether allowing a complete monopolization of all TDD spectrum to materialize is appropriate. TELUS does not support any cap that disadvantages TELUS relative to other band entrants or that would provide additional advantage to Inukshuk given its current holdings.

**3-2 (b) If a cap is necessary:  
What should be the size of the cap and should this be specific to either the paired and/or unpaired spectrum bands?**

67. From TELUS' perspective, any spectrum cap needs to be applied separately to paired (FDD) and/or unpaired (TDD) spectrum. There could just be an FDD cap, or there could be an FDD cap and a TDD cap. TELUS would not support a band cap that applied to both FDD and TDD interchangeably.
68. TELUS would oppose any cap that applied to TELUS that was less than 40 MHz FDD. It would provide an unjustified advantage to incumbent fixed service licence holders who all have been granted a mobile spectrum windfall and now hold at least 40 MHz of FDD spectrum. SaskTel has 40 MHz of FDD BRS spectrum. Inukshuk has 40 MHz minimum of BRS FDD spectrum nationally and 80 MHz of FDD BRS spectrum in 60% of the country. Even if the Inukshuk JV were to be dissolved, Bell and Rogers would each have 40 MHz of FDD BRS spectrum in 60% of the country including Toronto, Montreal, Vancouver and Ottawa and 20 MHz each in the rest of the country.

**Should bidders and their affiliates or associates share the cap?**

69. If there were a cap imposed in the 2500 MHz band spectrum auction then bidders and their affiliates or associates should share the cap in terms of the cumulative amount of 2500 MHz spectrum they will own. This is consistent with Industry Canada's spectrum auction practice in all other past spectrum auctions conducted by the Department.
70. Specifically, TELUS thinks it is reasonable to ensure any cap applies to all companies under the same corporate umbrella and all companies that identify themselves as "associated entities" for the purposes of bidding in the 2500 MHz auction. The issue is whether the cumulative amount of spectrum held by associated entities would exceed the bidding cap.
71. In those instances where a prospective bidder may have a roaming agreement or other network access arrangement with another prospective bidder, we submit that this in and of itself should not be considered an "association" for the purposes of the 2500 MHz

auction. Indeed, Industry Canada has mandated roaming arrangements among cellular, PCS and AWS licensees and that was certainly not required with a view to disqualifying separate participation by those licensees in future spectrum auctions. Simply because roaming or other network access arrangements may currently exist between prospective bidders in connection with networks operating on spectrum that has already been licensed does not mean that those arrangements extend to 2500 MHz spectrum. In the past, Industry Canada has defined “associated entities” clearly in the context of spectrum to be auctioned; relating to the acquisition of the licences being auctioned or relating to the post-auction market structure for the licences being auctioned. Industry Canada should assume that each prospective bidder can participate separately in the 2500 MHz auction unless any such bidder declares associated entity status pursuant to the auction rules. The operation of the cap and the definition of “associated entities” should not seek to prohibit roaming or other network access arrangements that reduce costs and speed up deployment of services to consumers. Rather the cap and the definition of “associated entities” should operate to prohibit evasion and avoidance of the policy rationale that is the foundation for imposing the cap in the first place.

***How long should the cap remain in effect?***

72. TELUS believes that for grandfathered incumbent fixed service licence holders, any cap should remain in effect for some significant amount of time, and at a minimum two years. Further the Department must review any subsequent acquisition in order to prevent any re-monopolization of the band after the auction of returned and unassigned spectrum.
73. Given the limited amount of spectrum available to band entrants in the 2500 MHz spectrum auction, band entrants should be able to consolidate at any time after the end of the spectrum auction. In other words, since no entrant will hold as much as has been grandfathered to band incumbents, any cap on band entrants at auction should be dissolved after the auction ends.

***If the Department were to implement a set-aside in the 2500 MHz auction:  
Who should be entitled to bid in the set-aside block(s), and should the entitled bidders be restricted to bidding on the set-aside only?***

74. A clawback is a set aside by definition since the intent of the clawback is to facilitate band entry. In Region B the only spectrum at auction is claw back spectrum. All other spectrum is already held by the band incumbents.

75. In Regions A and C a portion of the clawback band (2540 – 2570 and 2660 – 2690 MHz) has been clawed back from Inukshuk and a portion is unassigned spectrum. However TELUS submits that there is no rational public policy that would permit grandfathered incumbent fixed service licence holders that have already been assigned specific FDD spectrum should not be permitted to bid<sup>25</sup> on the 60 MHz clawback band nationally because the only reason for bidding on that versus spectrum that aligns with incumbent assigned bands would be to push up the price of entry, or to block entry.
76. As to the question of whether the entitled bidders should be restricted to bidding on the set-aside only (if a set aside were implemented), TELUS points out that restricting band entrants in this way would entail in effect handing over all the unassigned spectrum outside of the clawback band to Inukshuk. That would be counter-productive. Band entrants need to be able to bid on the little spectrum available at auction outside of the clawback band.
77. To avoid a set aside (and the gaming potential that a set aside enables), the Department has to implement an effective band cap that eliminates the need for a band entrant set aside. That is, a band cap on incumbent fixed service licence holders which effectively constrains or eliminates their ability to bid at auction given their starting positions.
78. To mitigate the gaming risks that a set aside enables, the Department, if it is compelled to implement a set aside, should run in quick succession, a clawback auction and an auction of unassigned spectrum outside of the clawback.

***How much spectrum should be set-aside and which block(s) should be set-aside?***

79. As discussed above, TELUS submits that grandfathered incumbent fixed service licence holders should not be permitted to bid on the 60 MHz clawback band nationally which for all intents and purposes would make it a set aside for band entrants.
80. Also discussed above are the puts and takes of such a set aside. At any rate, if a set aside were implemented it would be the 60 MHz clawback band nationally.
81. If further restrictions are imposed, TELUS prefers a band cap over a set aside due to the gaming risks associated with set-asides.

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<sup>25</sup> TELUS submits that this is the case in all regions. TELUS notes that this is especially important in Saskatchewan where Inukshuk holds 65 MHz and SaskTel holds 65 MHz. If Inukshuk was allowed to buy the spectrum clawed back from SaskTel and SaskTel could buy the spectrum clawed back from Inukshuk in Saskatchewan, then the band could simply be re-monopolized by the same two grandfathered incumbent fixed service licence holders.

82. Given TELUS' new entrant status in the 2500 MHz band, TELUS feels that no matter what the set aside (if the Department establishes one) TELUS should be eligible to bid in it given the amount of spectrum already grandfathered for band incumbents.

***If the set-aside were to include multiple blocks of spectrum, should these blocks be contiguous?***

83. Yes.

84. It is TELUS' view that the national clawback band is de facto a band entrant set aside. The national clawback band is already 60 MHz of contiguous FDD spectrum.

85. Discussed above are the puts and takes of a set aside. TELUS prefers a band cap over a set aside due to the gaming risks associated with set-asides.

***What restrictions should be put in place to ensure that policy objectives are met (for example, should trading of the set-aside be restricted for a given time period?)***

86. Given the intent of the 2006 policy for this band and recognizing the massive windfall involved the only restriction should be that the incumbent fixed licence holders are ineligible to acquire any of the spectrum in the national clawback band for at least two years from the time spectrum licences are issued to band entrants post auction.

***3-3 Are there other mechanisms that should be considered in the 2500 MHz band to promote competition? If so, how should such mechanisms be applied in this band?***

87. TELUS has no other mechanisms to suggest at this time.

***3-4 The Government of Canada has undertaken a consultation on potential changes to the foreign investment restrictions that apply to the telecommunications sector. How would the adoption of any of the proposed changes affect your responses to the questions above? Please provide supporting evidence and rational for all responses.***

88. TELUS believes in open markets and fully supports the symmetrical opening up of the Canadian telecom market to unlimited foreign direct investment (FDI). If this were to happen it would not change any arguments in TELUS's response. FDI restriction relaxation

does not increase Canadian operator's access to capital per se. Nor does it allow operators to borrow at a lower cost of capital. The cost of capital is set by the risk inherent in a business plan. Liberalization merely allows a change of control that decreases the cost of that capital for small high risk ventures as the risk premium is reduced by the ability to attach control provisions<sup>26</sup> to any capital injection.

89. An asymmetrical relaxation of limits on FDI would advantage entrants and disadvantage incumbents, would benefit foreign shareholders at the expense of Canadian shareholders, and would incent spectrum licence trafficking without actually delivering most of the suggested benefits of scale etc. associated with truly opening up our market fully. An asymmetrical approach ignores the digital divide and the great need for capital investment in rural broadband as entrants are fully supported by the current regulatory regime to simply "cream skim" in urban markets. It would also cost jobs and R&D funding by Canadian owned incumbents due to the likelihood that larger foreign entrants could erode their market in a preferential fashion. TELUS supports real FDI reform intended to deliver benefits of liberalization to all Canadians, not measures to enrich one small class of foreign shareholder.

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<sup>26</sup> Such as those found to be non-compliant by the CRTC in the case of Globalive.

## 4.2 Promoting Service Deployment in Rural Areas

**4-1** *Comments are sought on specific measures that could be adopted within the 2500 MHz spectrum auction process to ensure further deployment of BRS in rural and remote areas (e.g. roll-out conditions, tier structures, etc.).*

90. Canada's broadband footprint continues to grow but the economics of providing broadband service in unserved and underserved rural and remote areas are still very poor given the limited scale achievable due to the very limited number of potential subscribers in any given area.
91. While there will be applications for BRS spectrum in rural and remote areas, they will be somewhat limited and secondary to the application of, for instance, 700 MHz spectrum, a band for which TELUS recommends aggressive build out conditions.
92. BRS spectrum is similar in propagation characteristics to other "high band" mobile spectrum such as PCS and AWS spectrum. As compared to BRS, 700 MHz spectrum can be used to much more cost effectively<sup>27</sup> provide both mobile service and wireline broadband replacement, given the low density of subscribers. 700 MHz spectrum, due to its superior propagation characteristics is critical to the deployment of LTE for mobile broadband and wireline HSIA replacement in low density rural and remote areas.
93. The build out of BRS spectrum in rural and remote areas will not keep pace with the build out of the 700 MHz band in rural and remote areas. However, given that there is so little 700 MHz spectrum available, BRS spectrum will necessarily be used for capacity in significant portions of rural and remote areas, where viable, based on population density and other factors. BRS spectrum should not, however, be expected to be the primary driver of rural and remote coverage, because of its inferior propagation characteristics. TELUS notes as well that other technologies as well will be deployed in the near to medium terms that will expand and improve service and provide choice in these areas.
94. As such, roll-out conditions for BRS spectrum should be the same standard conditions as those used by the Department for PCS and AWS spectrum – coverage of 50% of the pops in a given licence area within 5 years of licence issue.
95. TELUS has recommended a mix of Tier 2 and 3 licences for the auction of 2500 MHz spectrum. It is important that the Department not chop up rural service areas too finely

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<sup>27</sup> More cost effectively as in potentially at a third or fourth the cost depending on the situation, but still not necessarily profitably.

as this creates a risk of national or provincial providers not having full coverage. It is also spectrally inefficient as the requirements for guard bands, or special coordination procedures, along coverage borders between operators would increase exponentially if the Department used Tier 4 service areas. TELUS notes that the Department chose not to transition MDS site licences to BRS licences at the Tier 4 level for similar reasons.

## 5. Auction Timing

***5-1. The Department is considering three options to proceed with the 700 MHz and 2500 MHz bands auction processes:***

***Option 1: to conduct an auction for licences in the 700 MHz band first, followed by an auction for licences in the 2500 MHz band approximately one year later;***

***Option 2: to conduct an auction for licences in the 2500 MHz band first, followed by an auction for licences in the 700 MHz band approximately one year later;***

***Option 3: to conduct one combined auction for licences in both the 700 MHz and 2500 MHz bands, which would be six months later than the first auction in the case of separate auctions.***

***Industry Canada is seeking views on the merits or disadvantages of proceeding with each of the various options stated above. The Department seeks to understand the magnitude of interdependencies between the two bands from a business/operational perspective.***

***Specifically, comments are sought as to the extent spectrum in these bands is interchangeable or complementary from both a technological and a strategic perspective. In addition, views on the business and financial capabilities of participating in a joint auction for both bands are sought. Comments should include the rationale for selecting one option rather than another.***

96. TELUS takes the opportunity to further comment on the input with respect to auction timing that the Department received via the response and reply phases of the 700 MHz consultation SMSE-018-10 where the question of timing of the 2500 MHz auction was posed.
97. Nothing in the 700 MHz responses and replies causes TELUS to change its position on the recommended timing for the 700 MHz and 2500 MHz auctions. TELUS believes that because over half the 2500 MHz band has been allocated to date and has already been transitioned to mobile, that the 2500 MHz auction must either come first or be run at the same time as the 700 MHz auction and *both auctions* should be as soon as possible. However for clarity, TELUS is not proposing a delay of the 700 MHz auction but rather a faster process at 2500 MHz.
98. In 2009, the Department proposed March, 31st, 2011 as the date certain for conversion to mobile services in the 2500 MHz band. TELUS supported this proposed date at the time under the logical presumption that the returned and unassigned spectrum would be

auctioned and licences issued by now. While the Department has moved slowly they confirm in SMSE-005-11 in February, 2011 that the March 31, 2011 transition date is to remain in place.

99. TELUS has been responding to Industry Canada consultations on the mobile transition of the MCS and MDS bands since April, 2004. On the other hand, Industry Canada posted its first consultation on the transition of over the air TV channels 52 – 59 to commercial mobile 700 MHz spectrum in November 2010.
100. While the 2500 MHz band has some minor clearing issues and a defined process for such, for the most part, incumbents are refarming their spectrum. On the other hand, the 700 MHz band still currently has over the air TV operators in operation through August 2011 and all is not finalized for the Digital TV transition in Canada.
101. So TELUS submits there are strong reasons to hold the 2500 MHz spectrum auction soon – i.e., first or concurrently with the 700 MHz auction.
  - a. Inukshuk has vast holdings in the 2500 MHz band and licence to roll out a mobile network over it at any time. This represents an opportunity for an invaluable head start for Inukshuk in delivering wideband mobile data services.
  - b. 2500 MHz was designated as mobile in the U.S. in 2001, ten years ahead of Canada.
  - c. The 2500 MHz consultation process in Canada started more than 6 years before the commercial 700 MHz consultation process in Canada did.
  - d. Canada is only 3 years behind the U.S. so far in auctioning the bulk of its 700 MHz spectrum.
102. TELUS wants the Department to accelerate the timing of the 700 MHz auction which all parties but Rogers and Public Mobile also appear to support. Nothing TELUS says above contradicts this near unanimous industry consensus on 700 MHz timing.

## Appendix 1 – Key 2500 MHz Spectrum Facts

In appendix 1, TELUS provides a summary of commercial mobile spectrum bands in Canada, a 2500 MHz band profile, an Inukshuk spectrum profile and a recent history of the 2500 MHz band.

**Table 2 – Commercial Mobile Spectrum Bands in Canada**

Band	MHz	MHz-pops <sup>28</sup> (millions)	%
700	70	2,100	13%
850	50	1,500	9%
PCS	130	3,901	25%
AWS	90	2,701	17%
2500	190	5,701	36%
Total	530	15,904	100%

### 2500 MHz Band Profile

- Largest commercial mobile spectrum band in Canada
- 5,701 million MHz-pops – 36% of all currently identified<sup>29</sup> commercial mobile spectrum in Canada
- 4,638 million MHz-pops (81% of band) allocated to fixed service licence holders
- 3,173 million MHz-pops (56% of band) grandfathered and granted to incumbent fixed service licence holders for mobile use
- 2,528 million MHz-pops (44% of band) available at auction for band entry
- Transitioned to mobile as Broadband Radio Service (BRS) spectrum
- BRS spectrum based on ITU band plan for 2500 – 2690 MHz (190 MHz)
- 190 MHz = 140 MHz FDD + 50 MHz TDD
- Harmonized with Europe. (Referred to in Europe as the 2600 MHz band)

<sup>28</sup> All analysis based on Industry Canada Spectrum Management baseline national pops – 2001 census – 30,007,094

<sup>29</sup> Currently identified commercial mobile spectrum includes 700 MHz (assuming 70 MHz is allocated to commercial), 850 MHz, PCS, AWS, and BRS.

## Inukshuk Profile

- BRS Spectrum Depth (Post Clawback / Pre-Auction)
  - 130 MHz over 60% of Canada incl. Toronto, Montreal, Vancouver and Ottawa
  - 65 MHz across balance of Canada<sup>30</sup>,
  - Average BRS Spectrum Depth – 103 MHz nationally
- MCS and MDS MHz pops – 4560 million / 95% of all MCS and MDS allocated
- Post-Clawback BRS MHz-pops – 3104 million / 95% of all allocated, 54% of total band
- BRS MHz-pops Acquired Before and After 2006 Policy – 58% Pre and 42% Post 2006 Policy<sup>31</sup>

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<sup>30</sup> Except, as TELUS understands, one Tier 4 licence in the North where SSI operates.

<sup>31</sup> TELUS submits that the 2006 policy was a decent decision at the time but had the unintended consequence due to the pairing specifications of making the MDS licence holders most attractive to the complementary MCS licence holder which was Inukshuk in 93% of the country. Further the decision was made in a market with 3 national incumbents and two regional incumbents, not the 10+ operator market in Canada currently.

## Average Unit Cost of Spectrum in Canada

With respect to industry 2500 MHz spectrum costs, Bell Mobility noted in their 700 MHz consultation reply comments:

*“Bell Mobility also considers that TELUS is misleading when it includes 2500 MHz spectrum in its analysis, such as in Appendix 1 of its comments, to obfuscate TELUS’ cost of spectrum compared to Bell Mobility’s cost. Bell Mobility notes that, in any event, TELUS will have an opportunity to acquire additional spectrum in the upcoming 2500 MHz auction.”*

With respect to Bell’s suggestion that TELUS’ analysis obfuscated TELUS’ cost of spectrum compared to Bell’s, we happily present the data without 2500 MHz costs included. When we exclude 2500 MHz, not much changes as shown in the table below.

**Table 3 – Average Unit Cost of Mobile Spectrum by Operator with and without 2500 MHz**

Operator	Average Cost of 850, PCS, AWS (\$/MHz/pop)	Average Cost of 850, PCS, AWS & 2500 (\$/MHz/pop) <sup>32</sup>
TELUS	\$1.88	\$1.88
Videotron	1.46	1.46
Mobilicity	1.39	1.39
Wind	1.32	1.32
Shaw	1.01	1.01
Bell	<b>0.84</b>	0.50
MTS	0.47	0.47
SaskTel	<b>0.76</b>	0.44
Rogers	<b>0.58</b>	0.42
Public	0.30	0.30
Novus	0.26	0.26
Bragg	0.23	0.23

<sup>32</sup> Average Cost is based on TELUS calculations based on publicly available information on the upfront cost of spectrum in Canada. It is calculated by dividing an operator’s total spectrum spend by an operator’s total quantity of spectrum in MHz-pops. Annual licence fee payments (of c.\$132M or \$0.035/MHz/pop per annum across the industry) are not included.