

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

**Consultation on a Policy and Technical Framework  
for the 700 MHz Band  
and Aspects Related to Commercial Mobile Spectrum**

**SMSE-018-10**

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**Table of Contents**

Executive Summary..... 2

Introduction ..... 6

    Sea change has occurred since AWS auction rules set in November 2007 ..... 6

    Entrants, cablecos and regional incumbents do not need special treatment ..... 7

    Innovation and competition in Canada has been driven by rivalry between incumbents ..... 9

    Set asides and similar intervention undermine productivity and our national broadband strategy . 10

    Determining how to incent more 4G and LTE investment in all parts of Canada ..... 11

    Preferences for some incumbents at the expense of others will undermine the competition that  
    TELUS has helped contribute to through its national growth and investment strategy ..... 13

    2007 new entrant definition flawed and should be abandoned ..... 15

    Conclusion..... 17

TELUS Reponses to Questions Posed by the Department in SMSE-018-10..... 19

    Commercial Mobile Services (Section 4)..... 19

    700 MHz Band Plan Issues and Considerations (Section 5) ..... 21

    Changes to Canadian Table of Frequency Allocations (Section 6)..... 27

    Promoting Competition (Section 7) ..... 28

    Promoting Service Deployment in Rural Areas (Section 8)..... 57

    Open Access (Section 9)..... 59

    Auction Timing (Section 10) ..... 61

APPENDIX 1 – Key Canadian Spectrum Facts..... 62

    Rogers Profile ..... 63

    Bell Profile ..... 63

    TELUS Profile ..... 63

    Sasktel Profile..... 64

    MTS Profile ..... 64

    Industry Profile..... 65

## Executive Summary

1. In the time since the AWS auction rules were set in November 2007, the wireless industry in Canada and throughout the world has gone through a massive sea change in terms of investment and innovation in order to respond to a shift in the demand for mobile broadband services.
2. Due to billions of dollars of investments over the last two years in next generation mobile Internet, primarily by carriers like TELUS, Canada has gone from a position where its infrastructure was viewed by some as second class to a position of world leadership in terms of the deployment of advanced networks. Providing the correct incentives to encourage such investments is a prerequisite for achieving productivity growth, not only in urban but in rural markets as well.
3. When the AWS auction rules were being formulated in mid 2007, the smartphone revolution had not yet hit Canada. The predominant wireless service was voice and the concern of government was focused first and foremost on voice pricing and then on innovation and investment. Today the predominant wireless service is the mobile Internet and with this shift, simple feature phones that offer voice and basic data functionality are rapidly being replaced by smartphones, Internet sticks and tablets that have contributed to a step change increase in spectrum consumption.
4. Based on Industry Canada's own information TELUS is undersupplied with spectrum in relation to our subscriber base when compared to other operators in Canada. It is critical therefore for TELUS to at least have the opportunity to bid freely on 700 MHz spectrum nationally if it is to continue to upgrade and extend mobile Internet services in urban and, even more critically, rural Canada.
5. In order to maximize the amount of useable spectrum and best leverage U.S. handset and equipment economies of scale, TELUS recommends that Option 1, the U.S. band plan, be adopted with the Upper C Block subdivided into two blocks in order to increase available blocks for all competitors.
6. TELUS fundamentally believes that open auctions are the best way to ensure the fair and efficient allocation of spectrum. Unfettered auctions will deliver the best value and most extensive advanced LTE network footprint for Canadian consumers. TELUS considers that spectrum caps and set asides for the 700 MHz auction are unnecessary and counterproductive. However if intervention in the auction is again contemplated by the

Minister, then TELUS submits that a spectrum cap is generally a more benign and appropriate form of intervention than a set aside<sup>1</sup>.

7. If there ever was another set aside in Canada, TELUS is adamant that to eliminate gaming, bidders be forced to enter only one auction – either the set aside auction or the unrestricted auction – or, failing this, that the two auctions not be run concurrently. In the AWS auction, distortions caused by ‘game bidding’ in the open auction due to running the two auction segments concurrently resulted to hundreds of millions of dollars of bid inflation for national incumbent carriers. This bid inflation simply reduced expenditures that could otherwise have flowed into network construction.
8. Moreover if there is to be a set aside TELUS submits that there is no justification for rewarding special new entrant opportunities to either dominant cable companies that continue to increase consumers’ prices in their core markets, or regional ILECs like MTS that dominate wireless in their home regions. These companies are simply not “new entrants” in any valid sense of the term insofar as the Canadian communications market is concerned. Such interventions are counterproductive when the beneficiaries are regionally dominant cable or wireless carriers that have both the financial power and incentive to bid and to acquire spectrum without government support and assistance.
9. TELUS has commissioned a study on the state of competition in the Canadian wireless industry that shows a vigorously competitive wireless industry with prices in some baskets below U.S. pricing<sup>2</sup> since the government’s November 2007 AWS and Condition of Licence (COL)<sup>3</sup> decisions.
10. While there is no debate that new entrants have added to competitive intensity in the voice market, the principal driver for investment in advanced wireless broadband in Canada has been the need for CDMA technology based incumbent carriers like TELUS to break up the GSM technology monopoly operated by Rogers. Today, TELUS is not only delivering urban advanced services but it is also pushing these voice and data rich mobile services even deeper into rural Canada. The fact that TELUS’ new network service extends well beyond the urban footprints of entrants, to cover 97 percent of the Canadian population is proof positive of this point.

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<sup>1</sup> By this we mean that if a certain set aside and a certain cap produce generally the same limiting effect on the aggregate purchasing eligibility of unprivileged bidders, we would choose the cap.

<sup>2</sup> Refer to the Nordicity study: Competition and New Entry, An Analysis of Canada’s Communications Services Market, February 2011. Refer also to the Telecommunication Services Industry Comment of RBC Capital Markets on February 3<sup>rd</sup>, 2011, and in particular the section entitled, “New Entrants/Chatr Pushed Pricing Down to Unsustainable Levels – Below U.S. Prices”.

<sup>3</sup> Mandated tower sharing and roaming conditions of licence (COL) were retroactively applied to all existing PCS and 850 spectrum licences in Canada in November 2007.

11. TELUS believes that set asides or caps would hamper the rollout of mobile broadband services in rural Canada by limiting access to spectrum to those most likely to build out rural Canada. Unlike new entrants, TELUS has invested in the mobile Internet in both urban and rural locations. TELUS believes that the rural broadband gap is best addressed by ensuring all carriers have access to bid on spectrum in rural areas, particularly those carriers that have demonstrated a willingness to build in the rural areas of Canada.
12. TELUS believes that 700 MHz spectrum should be auctioned at a national Tier 1 basis to ensure greater scale or, at a minimum, at a regional Tier 2 basis in order to maximize the benefits of an extended LTE footprint as early as possible. We note the Department may also wish to consider less efficient options by licensing smaller blocks but would submit that option should be limited to a maximum of one block at Tier 3 to support both small rural providers and urban focused providers that may be pursuing more targeted business plans.
13. In order to ensure the expansion of rural mobile broadband services, TELUS proposes that all 700 MHz spectrum be subject, not only to open bidding, but also to a build out requirement stipulating that service be provided to 50% of the population in each Tier 3 service area within three years of licence issue. Should the build out requirement not be fulfilled, the licence would be automatically forfeited by its owner. This stringent build condition would apply irrespective of whether the licence is a Tier 1, 2 or 3 licence and the test would be applied<sup>4</sup> at the level of the underlying Tier 3 service areas (in each Tier 1 or 2 licence as well) in order to avoid carriers meeting the 50% requirement simply by building out large urban centres where most of Canada's population resides.
14. At the time it was established in one block of spectrum in 2007, the U.S. open access condition assumed the mobile Internet would be limited by carrier walled gardens<sup>5</sup>. An open access requirement on any commercial mobile spectrum in Canada is redundant today, given the paradigm shift in the mobile industry driven predominantly by Apple and Google. All wireless carriers and devices in Canada and the U.S. already provide open access to the Internet based on voluntary collaboration between handset vendors and carriers. In addition, the CRTC has put in place safeguards to deal with any undue preference on wireless Internet services.

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<sup>4</sup> In other words, as an example, a licensee would lose their entire Tier 2 service area licence if they did not serve within 3 years, 50% of the population in each of the Tier 3 service areas that make up their Tier 2 licence.

<sup>5</sup> Leading up to the U.S. 700 MHz Auction 73 rulemaking, carriers were compelled to carefully manage the customer experience due to the poor usability of early stage mobile browsers, mobile content and mobile applications. U.S. carriers were also selectively disabling over the top applications at the time.

15. TELUS supports an expanded 700 MHz spectrum allocation for Public Safety. TELUS recommends that the Department grant the 5+5 block (763-768 and 793-798 MHz) called the PSBB block in the U.S. to Public Safety in Canada (i.e., increase by 2 MHz the spectrum allocated to Public Safety in Canada via SP-768). TELUS recommends that the Department leave the allocation of the upper D Block on hold until such time as (i) its allocation is resolved in the U.S. and (ii) a further brief consultation has been held to confirm the details of tracking the U.S. allocation in Canada. (It currently looks likely to be granted to Public Safety in the U.S. but this requires new legislation to be passed<sup>6</sup>).
16. TELUS supports the Departments proposals for LPTV, licence exempt devices and the proposed changes to the Canadian Table of Allocations. TELUS also supports the proposed spectrum utilization policy and the MBS designations for commercial systems in this band.
17. Finally, since the Department in SMSE-005-11 has reconfirmed March 31, 2011 as the date that the 2500 MHz band transitions to mobile, and a vast quantity of 2500 MHz spectrum is currently in the hands of Bell and Rogers, it is recommended that the Department auction the 2500 MHz band first in order to level the playing field. To auction 700 MHz spectrum ahead of the returned and unassigned 2500 MHz would not only grant Rogers and Bell a head start in launching mobile in the 2500 MHz band, but given their significant capacity advantage, would prevent TELUS, with much less spectrum capacity, from addressing capacity shortages in a timely fashion. The 2500 MHz auction should proceed first and the 700 MHz auction should follow shortly thereafter. A joint auction would be reasonable but not if doing so would significantly delay the 2500 auction.

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<sup>6</sup> It is TELUS' understanding that the 1997 Analog to Digital Television Conversion legislation in the U.S. requires that the FCC auction the D Block and new legislation would be required for the FCC to grant this block to Public Safety.

## Introduction

### Sea change has occurred since AWS auction rules set in November 2007

18. The anticipated auctions of spectrum at 700 MHz and 2500 MHz in 2012 will take place in a market that will be materially different in terms of consumer usage patterns, industry structure and competitive intensity from the marketplace in 2007-2008, the time of the AWS auction.
19. In 2007-2008 the predominant wireless service was voice and the concern of government was first and foremost on voice pricing and then on innovation and investment. Today the predominant wireless service is the mobile Internet.
20. With the mobile Internet, simple feature phones are rapidly being replaced by smartphones, Internet sticks and tablets that require a step change increase in spectrum to support the data consumption levels. Already spectrum utilization is well in excess of any predictions at the time when the AWS band was carved up and set aside to promote competition.
21. In the time since the AWS auction rules were set in November 2007, the wireless industry in Canada and throughout the world has gone through a massive sea change in terms of investment and innovation. Canada has gone from a position where its infrastructure was viewed by some as second class to a position of world leadership in the deployment of advanced networks.
22. Whereas Canada only had one GSM network in 2008, today it has multiple HSPA and HSPA+ networks and we as a country can lay claim to ownership one of the largest and most extensive HSPA+ network infrastructures in the world due primarily to the investments made by incumbents like TELUS and not new entrants.
23. In less than 18 months, TELUS has first made investments in a complete upgrade of its network to HSPA+ and has now begun to roll out even more advanced dual carrier HSPA+ in order to offer customers a 4G network experience generally more extensive and faster than carrier services available to customers in the U.S.
24. These new networks not only provide access to basic cell phone services but increasingly make available real wireless broadband services to 97% of Canadians. This extensive reach is due almost in its entirety to investments made by incumbent carriers.

25. With the end of the Rogers monopoly in GSM and a shift to standardized HSPA network architecture, Canada became the first country to offer consumers the iconic iPhone on a competitive basis; and by at least three carriers.
26. The competition and innovation resulting from the adoption of smartphones, including not only the iPhone but also open standard devices running on the Google Android platform, has resulted in a major shift to an open Internet on wireless that is as open today as the wired Internet. This open access model, resulting totally from choices made in the market to address consumer behaviour by vendors like Apple and Google collaborating on open network standards with carriers like TELUS, stands in stark contrast to dire predictions being made in 2008 about data being managed through walled gardens.

### **Entrants, cablecos and regional incumbents do not need special treatment**

27. Even as the government moves to increase the absolute number of competitors, the market itself is moving to scale through consolidation. Consolidation and market concentration is not merely a Canadian phenomenon but is a trend across the world. There is a general trend to such super-sized consolidation in order to achieve the scale required to support the exponential demand the mobile Internet will create. Consolidation amongst new entrants has been discussed on numerous occasions and Egyptian controlled wireless giant Orascom, the principal shareholder of Globalive, is working to consummate an agreement with Russia's VimpelCom to create the world's fifth largest wireless carrier with over 170 million subscribers.
28. Not only has the wireless industry gone through major change in the last few years, the broader Canadian communications industry structure has also changed considerably due to convergence and consolidation. Canada's four largest broadcast distribution undertakings, two of which (Shaw and Videotron) are classified as new entrants by government for wireless purposes, now control virtually all private broadcasters in Canada - with the culmination of \$2 billion takeovers of Canwest Global by Shaw that has closed and CTV Globemedia by BCE that is awaiting final approval. This level of vertical integration and market power is unprecedented amongst our major trading partners and raises very valid questions as to whether entities that exercise such market power through vertical integration should receive special treatment in spectrum auctions to gain more competitive advantage across communications. Again the point is not that such vertically integrated carriers should not be allowed to bid but simply that they will bid strongly regardless, and should do so without any assistance from government.

29. Regardless of where the government stands on promoting new entrants in the Canadian communications market, it seems counterproductive to support dominant carriers in other industries like cable TV and broadband, or dominant regional wireless carriers to achieve that end; particularly since such carriers are in superior positions to bid in any event.
30. The key point to recognize in terms of consolidation is that the Department cannot assume that either the market structure or the share of spectrum held by market participants will remain stable. The reverse is true. That in turn means that allocating spectrum based on the current holdings of entrants will not reflect the realities about to arise in the market as a result of restructuring and consolidation amongst entrants.
31. Canada is already a global leader in terms of the number of strong competitors in the communications market as measured by the distribution of market share. In fact, even with one of the most competitive market structures in the world, the U.S. market is still primarily dominated by only two providers, Verizon and AT&T. By contrast, in Canada, the three national carriers have a more distributed share of the market and the regional carriers in Saskatchewan and Manitoba dominate in their home geographic markets. Moreover, in Canada, regional cable companies that dominate broadcast distribution and wireline broadband Internet services are considered to be the most viable of the new entrants in wireless because of bundling power and strong free cash flow positions arising from their strong market positions and vertical integration. Neither dominant regional carriers nor vertically integrated communications companies need protection and in fact such protection significantly distorts the emerging wireless broadband market.
32. Ironically, even as some carriers are pursuing consolidation strategies in other segments and wireless carriers are pursuing global scale, Canadian policy intended to increase competition in the wireless voice market is driving the Canadian wireless industry towards fragmentation and sub-optimal scale.
33. Given Industry Canada's own information showing TELUS undersupplied with spectrum relative to its subscriber base when compared to other operators in Canada, government intervention aimed at preferring some competitors over others must not have the unintended consequence of cementing the spectrum gap between TELUS and the more spectrum rich national and regional incumbents. It is critical that TELUS receives a fair opportunity to at least bid for adequate spectrum in order to maintain the advanced level of competition in Canada. If the government truly believes in promoting competition, it is essential to allow those with the greatest track record and interest in buying and deploying spectrum to have the opportunity to do so in 2012.

34. It is not only Bell and Rogers that currently benefit from a spectrum advantage relative to TELUS. The AWS auction policy advantages carriers like Shaw in terms of permitting them to consolidate AWS spectrum while limiting TELUS' ability to participate in the secondary market. Yet, cable companies and regional carriers, unlike other entrants remain dominant in their core businesses and have financial positions that do not require public assistance to compete.
35. Even though major cable companies and dominant regional carriers are classified as new entrants, there is no risk these players lack the financial wherewithal to participate without special incentives. In point of fact, what the rules do is further entrench the market power of the vertically integrated cable companies and regional carriers by making them the most viable buyers of AWS spectrum until 2014 as long as restrictions on foreign ownership apply. This provides them a very real opportunity to materially increase spectrum holdings prior to the next auctions without any further intervention and suggests that by the time auctions are held in 2012 both the market and relative spectrum positions of the carriers may be very different from the current environment.

### **Innovation and competition in Canada has been driven by rivalry between incumbents**

36. TELUS does not intend to debate past policy but notes that while debate around the need for increased competition to lower voice prices and increased innovation was core to the AWS intervention, this is no longer the central debate for 700 MHz policy.
37. While there is no doubt that new entry has added to competitive intensity in the voice market, the principal driver for investment in advanced wireless broadband in Canada has been the competitive need for CDMA technology-based incumbent carriers like TELUS to break up the GSM technology monopoly operated by Rogers. That investment would have occurred irrespective of the AWS auction policy because the GSM advantage in terms of significantly lower hardware costs and first to market handset advantages had contributed to a growing gap between Rogers and TELUS in terms of market share.
38. It was this negative gap that drove TELUS to investment decisions that contributed to elevating Canada to elite world status in terms of the advanced state of our network infrastructure and not, as some entrants suggest, to simply respond to new entry in a few larger cities.
39. It has been this imperative to remove the GSM monopoly that has been the primary driver of more innovative networks, not new entry. In fact the largest and most innovative networks today are not the networks promised to be superior by new entrants

in the run up to last auction, but rather the networks deployed by TELUS and other incumbent carriers.

### **Set asides and similar intervention undermine productivity and our national broadband strategy**

40. Canada has become a world leader in smartphone adoption as a result of investment in HSPA+ networks. As an example, the HSPA+ network operated by TELUS is recognized by Huawei as the busiest network in the world, due to approximately 90 percent smart phone penetration on the network. As a result of this unprecedented and unique situation in Canada where new HSPA+ networks are accessed almost entirely by customers with smartphones and data devices, Huawei has set up an R&D centre in Canada to work with TELUS and other carriers to develop products for global markets that solve challenges associated with exponential capacity consumption driven by the shift to the mobile Internet. This is a major plus for increased R&D and innovation in Canada.
41. This is not meant to suggest that price competition in the voice market by entrants has not had positive effects but rather that the principal contribution to sustainable national advantage in terms of productivity and innovation is due to advanced network investments made by incumbents like TELUS.
42. For policy makers there is an unsustainable conflict between protecting new entrants including large regional carriers and maximizing continued investment in national advanced wireless broadband infrastructure. This conflict is made worse by the unwillingness to make hard decisions on foreign ownership and the continuation of policies that protect and favour financially strong cable companies and dominant regional carriers.
43. For a company like TELUS that has been investing billions of dollars<sup>7</sup>, all without subsidy, to compete against the more dominant provider in the cable TV and broadband, policies that favour incumbent cable companies or regional carriers we must compete with in markets they dominate are simply unfair. Moreover, because TELUS' investments include devoting substantial capital in cutting edge platforms to support an unsubsidized IPTV alternative to the cable monopoly, government policies that protect cable companies have anti-competitive effects that impact both wireline and wireless networks. We fail to

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<sup>7</sup> As reference, as to the size of its IPTV investment, TELUS is estimating that it will have invested nearly \$1.3B in the development and the launch of its IPTV service by 2012. This compares to approximately \$465M that Shaw has stated it will invest in wireless by the end of 2011 (including a 2008 AWS auction spend of \$190M). In January 2010, RBC estimated that Shaw would invest another \$110M in 2012, presumably bringing its total investment to \$575M through 2012.

see how the record of annual price increases in the cable market, and related consumer complaints about broadband policies, has led government to decide direct support of the cable industry is required to protect consumers.

44. At a minimum, the government must tighten up its definition of new entrants to exclude carriers already dominant in other markets, or ironically even in some regional wireless markets.

### **Determining how to incent more 4G and LTE investment in all parts of Canada**

45. No one denies that Canada now has some of the most advanced urban and more remarkably rural 3G+ networks in the world, due to investments by carriers like TELUS. These networks are amongst the most heavily used in the world, are fully open to the Internet and now provide an opportunity for Canada to be a world leader in terms of access by business and consumers to advanced wireless services (LTE) whether in urban or, more critically in terms of national policy, in rural communities.
46. Where the primary issue in 2007 was how to lower price by increasing the number of suppliers, that issue has been addressed by new entry and virtually all carriers competing over the same technical platforms. Today the issue is not about adding entrants. In fact they are widely expected to consolidate. The primary issue today is how to add massive amounts of capacity to support mobile broadband not only in urban locations, where new entrant competition has exclusively focused, but in non urban locations as well.
47. In order to ensure that the next stage of 4G and LTE investment occurs in both urban and rural locations, those most likely to make investments must have at least the opportunity to bid unimpeded for the spectrum such broadband networks require. The introduction of a set aside or overly restrictive cap would almost certainly result in a barrier to the deployment of LTE on a national basis.
48. Any government intervention must not prove a barrier both to optimizing spectrum holdings for LTE and for the deployment of LTE in rural Canada where only some incumbent carriers have made a commitment to major builds. To the latter point, TELUS submits that new entrant shareholders, including cable shareholders, do not have any intention to build as deep into rural Canada as TELUS has done, certainly in the short term, and perhaps in the longer term as well. A set aside would prove a barrier both to optimizing spectrum holdings for LTE and for the deployment of LTE in rural Canada.
49. TELUS has proved it will invest in rural Canada without special deals or subsidies. We have proved we will invest in the TV distribution business without government assistance. The current reach of TELUS' HSPA+ network and TELUS' investments in IPTV to break the cable

monopoly, prove that. TELUS made these investments during the worst of the global recession by actually increasing total capital spending by \$240 million or 13% in 2009, at a time when other carriers in North America were contracting spending. No other incumbent and no cable company or other new entrants can make that claim. But that investment in rural broadband is only a first step.

50. Government cannot intervene as it did in the AWS auction when it reserved 40MHz of spectrum primarily to the benefit of cable companies and regionally dominant carriers, if it wants to ensure both sustainable and fair competition and if it wants to ensure carriers like TELUS that are willing to invest, are to help move rural Canada to next generation LTE in step with urban Canada. TELUS will require at least an opportunity to bid on the 700 MHz spectrum that will support the economics of such rural investments.
51. If a company like Shaw can defer its wireless build and spend \$2 billion to acquire broadcasting assets to further entrench its dominance, does Industry Canada really think it owes Shaw assistance in the wireless market? Is there any doubt that Shaw can still be an aggressive bidder in spectrum auctions without government assistance?
52. The point is simple. If government blocks the ability of TELUS, through set asides or caps at 700 MHz, to access the low band spectrum that will be required to launch LTE in general and extend LTE to the rural communities, then it is almost certain that less LTE coverage will be rolled out, in particular in rural communities.
53. Anticipating that new entrants seeking from government a protective umbrella may dispute this proposition to justify a set aside, TELUS suggests that Industry Canada impose a condition that requires all carriers, both incumbent and entrant, to deliver rural service at 700 MHz wherever they purchase spectrum. TELUS proposes that all 700 MHz spectrum whether set aside or open, be subject to a build out requirement stipulating that service be provided to 50% of the population in each Tier 3 service area within three years of licence issue. Should the build out requirement not be fulfilled, the licence would be automatically forfeited by its owner. This stringent build condition would apply irrespective of whether the licence is a Tier 1, 2 or 3 licence and the test would be applied<sup>8</sup> at the level of the underlying Tier 3 service areas (in each Tier 1 or 2 licence as well) in order to avoid carriers meeting the 50% requirement simply by building out large urban centres where most of Canada's population resides.

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<sup>8</sup> In other words, as an example, a licensee would lose their entire Tier 2 service area licence if they did not serve within 3 years, 50% of the population in each of the Tier 3 service areas that make up their Tier 2 licence.

**Preferences for some incumbents at the expense of others will undermine the competition that TELUS has helped contribute to through its national growth and investment strategy**

54. While a spectrum set aside was seen by the Department as a necessary tool to induce competitive entry in 2007, the issue today is how to ensure Canada is a world leader in mobile broadband. This leadership will be a contributing factor and input into our global competitiveness and relative productivity. The challenge for government is to encourage investment throughout Canada without distorting the incentives for continued investment by directly or inadvertently picking winners and losers in the market.
55. For TELUS it is difficult to understand why it must compete in markets dominated by vertically integrated cable incumbents without any protection or subsidy while vertically integrated cable companies earn new entrant privileges in the wireless business. This seems hard to rationalize from a consumer perspective given that cable rates have risen against CPI because of a lack of competition, while wireless rates have declined<sup>9</sup> over the same time period.
56. Similarly it is hard to understand the justification for classifying dominant regional carriers like government controlled SaskTel and or MTS Allstream, as new entrants and providing them with asymmetric opportunities relative to TELUS. In the case of these two “new entrant” carriers, each holds a dominant share of the market in their home territory and the current rules have only buttressed their dominant position by allowing them to acquire additional spectrum in the set aside.
57. In Manitoba where logically TELUS (and not MTS) should have “new entrant” status, our customers are still restricted from enjoying data roaming rights, meaning that MTS continues to reap the benefits of one of the least competitive markets in the world due to its control of all provincial 850 MHz spectrum directly or in partnership with Rogers.
58. Moreover, because the government has also restricted the opportunity to consolidate set aside AWS spectrum, TELUS is disadvantaged relative to both larger incumbents with more spectrum and regional carriers and cable companies that can consolidate as “new entrants”, even though there is nothing new about these incumbent’s businesses.
59. Ironically, Industry Canada’s information on spectrum ownership suggests that most types of cap on spectrum may only limit TELUS’ ability to compete with incumbents more than they help entrants. Caps that significantly limit TELUS bid levels play both to the

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<sup>9</sup> Refer to the Nordicity study: Competition and New Entry, An Analysis of Canada’s Communications Services Market, February 2011.

benefit of incumbents Bell and Rogers and the regional carriers that hold up to two or three times the spectrum TELUS controls. The evidence<sup>10</sup> is simple – the government needs to take care to ensure that TELUS’ ability to close the spectrum gap with and compete effectively with Bell and Rogers is considered in tandem with the government’s broader industry consideration around intervention.

**Table 1 – Summary Commercial Mobile Spectrum Holdings**

<b>Operator</b>	<b>% Share of All Spectrum Allocated<sup>11</sup></b>	<b>Average Spectrum Depth in MHz<sup>12</sup></b>
Rogers	41%	149
Bell	29%	112
TELUS	15%	56
SaskTel	1.4%	160
MTS	0.8%	80
Videotron	3.4%	26
Shaw	1.7%	20
Bragg	1.0%	23
Wind	3.0%	14
Mobilicity	1.6%	11
Public	1.6%	10
Novus	0.6%	10
Other	1.6%	n.m.

60. While TELUS may no longer be considered a new entrant in most of Canada, TELUS’ evolution over the last ten years from a regional phone company to become a viable third national player cannot be ignored or, more troublingly, undermined by strategies intended to prefer so-called new entrants.
61. It may well be that rather than aid new entrants, another set aside or a cap will merely entrench the market power of the four largest vertically integrated carriers in the country (Bell, Rogers, Shaw and Videotron) as well as the two dominant regional wireless carriers in their home territories. That seems a bad result and high price for consumers to pay given the distortions caused by this type of intervention.

<sup>10</sup> The table includes 850, PCS, AWS and 2500 MHz bands as detailed in the consultation (SMSE-018-10). 2500 spectrum quantity included is that retained by band incumbents after the Department’s 2500 spectrum liberation process.

<sup>11</sup> These figures are quoted in the consultation (SMSE-018-10) and shown here with slightly more granularity.

<sup>12</sup> Average Spectrum Depth is an indicator measure of the average spectrum capacity within an operator’s spectrum licence coverage area. It is calculated by dividing an operator’s total spectrum quantity in MHz-pops by the number of unique pops that its spectrum covers.

62. Market intervention by government to create or bolster entrants makes no sense if the effect is to diminish the inroads TELUS has made in its national growth strategy in order to promote smaller and weaker competitors and more dominant players like Bell and the cable monopolies.
63. Government must take care in its efforts to establish new entry not to distort the market or undermine the new level of incumbent competition facilitated by the launch of competing GSM/HSPA networks. Ten years ago TELUS was primarily a regionally based telephone company operating out of western Canada. By investing billions of dollars over the last decade TELUS has become a new and viable national competitor not only in the wireless business but also, as a result of its successes in that market, a national enterprise telecom business and subsequently a national e-Health provider.
64. TELUS is not sitting on spectrum but is showing leadership in terms of investment and consumer responsiveness. In fact, TELUS' investment in HSPA+ technology has established a network more advanced to date than what new entrants have so far delivered and this network is amongst the largest and most advanced networks anywhere in the world. TELUS' network reaches 97% of Canadians nationally, including 98% of the population of Alberta and BC.
65. TELUS' network operates on open standards that allow customers to access the Internet with the same ease as wireline networks. TELUS' customers are free to unlock their handsets and move to other carriers, and vice versa. TELUS' prices continue to decline and to offer a level of transparency unrivalled amongst major carriers including no hidden fees and charges, roaming notification and transparent upgrade options.
66. TELUS has earned the right to be able to bid for spectrum in as open a fashion as other carriers deemed to be new entrants, but TELUS is not seeking advantages like some vertically integrated cable companies. TELUS just seeks the right to bid in the next auction in order to continue to deploy urban and rural networks across Canada at a scale and an expedience we submit virtually all other bidders will never seek to duplicate. And unlike most carriers TELUS is ready to support removal of foreign ownership restrictions for all telecom and cable carriers if that is perceived as the best way to ensure an optimal bidding process.

### **2007 new entrant definition flawed and should be abandoned**

67. In TELUS' view the AWS rules definition of a new entrant is seriously flawed and should be abandoned because it favours carriers that need no government support to compete.

68. Cable companies in general are well financed and generate substantial free cash flow. It makes no economic or rational policy sense to create advantages for cable in the first place and no fairness to promote cable entry in wireless, while leaving carriers like TELUS to rely solely on the market without subsidy or preferential treatment to create a viable consumer alternative to the cable monopolies in television distribution and Internet.
69. The vertically integrated cable monopolies like Shaw and Videotron in particular, are not new entrants in any real sense of the word and do not require government support in order to bid in the upcoming auction anymore than TELUS requires government support to continue to invest in an IPTV platform to compete with cable. The concept that cable has earned the right to preferential treatment is absurd.
70. The cable market is actually much less competitive than the wireless business in terms of market share. While cable rates have risen by 2x CPI or more in the last decade, wireless pricing continues to decline. Cable also has more market share in wireline broadband. Moreover Rogers, Shaw and Quebecor along with Bell now control the broadcasting industry in Canada. If Shaw was able to pay \$2 billion for Canwest, it can afford to bid in an open spectrum auction.
71. The two western regional telephone companies also cannot be seriously considered to be new entrants. Both have market shares in excess of 50% in their regions. MTS made strong arguments that it needed the opportunity of a set aside to compete nationally and then stayed within its borders. Ironically, MTS still refuses to provide TELUS with commercially reasonable roaming within Manitoba even though it argues for analogous treatment in wireless and telecom nationally.
72. The three newest entrants (pure play / CLEC based AWS entrants Globalive / Wind, Mobilicity and Public Mobile) arguably do not need support. All three have openly signalled a need to consolidate or flip licences<sup>13</sup>. Wind the largest is essentially operating on a foreign ownership “waiver” and its principal shareholder is in the process of going

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<sup>13</sup> See, for example: “We believe that Wind should be the consolidator of all the smaller players here. We are going to be open to that. We are not interested in smaller players that are only coming with cash or the licences they paid cash for. We want them to succeed and have some subscribers, because we can’t do the job alone. And we’d be very happy to be a consolidator.” Orascom CEO Naguib Sawiris, <http://www.theglobeandmail.com/report-on-business/rob-magazine/globalive-financier-we-will-make-pain-and-they-will-suffer/article1778266/singlepage/>. 29 October 2010; republished 4 February 2011.

See also: “I don’t think there is any question in my mind that it would be good for all parties concerned that the new entrants consolidate. If you brought these three together, you’d have a really strong national footprint, distribution, call-centre efficiencies [and] stable pricing.” Public Mobile CEO Alex Krystajic, <http://www.financialpost.com/Public+Mobile+fighters+hold/4010412/story.html>. 21 December 2010.

from the 100M+<sup>14</sup> subscriber Orascom to VimpleCom, a Russian controlled company with 173M<sup>15</sup> subscribers, which would make it the fifth largest mobile operator in the world.

## Conclusion

73. TELUS has clearly supported the opening up of FDI restrictions and the potential for larger economies of scale benefits. However, we submit that when Canadian companies are handicapped and then required to compete against companies with nearly 10x the scale of the Canadian market, Canadian public policy has lost its focus. The idea behind increased liberalization should not be to advantage foreign shareholders but rather to allow all carriers to operate under the same set of rules. The same principle should apply when Industry Canada sets rules for business.
74. The problem facing the Canadian market is it is not large enough to sustain the number of wireless competitors it already has and this argument is supported by industry analysts and new entrant statements. In fact few markets can support the number of competitors currently operating or holding spectrum in Canada. That means the market will inevitably consolidate to scale and due to the current AWS policy, cable incumbents and regional carriers are in an optimal position to acquire distressed competitor assets, or simply consolidate, without worries about counter bids from foreign controlled companies or national incumbents. This is another regulated advantage entrants currently enjoy that provides a real opportunity to acquire more spectrum holdings pre-auction and another reason set asides and caps are not required in the next auction.
75. It is the position of TELUS that asymmetrical treatment may undermine investment by either limiting synergies in the case of consolidation or spectrum aggregation or by increasing auction rents unduly by favouring some carriers over others. In the latter case the AWS auction represents a process that resulted in relative overpayments that ultimately reduced the opportunity to otherwise invest in infrastructure.
76. According to the respected U.S. econometric firm NERA the AWS auction design caused overpayment of \$1.5 billion, primarily the consequence of the set aside. Even if one debates the size of the overpayment it is an empirical fact that incumbents paid a 41% higher unit price than new entrants.

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<sup>14</sup> At the end of Q3 2010, Orascom reported 103M subscribers.  
[http://www.orascomtelecom.com/Investor\\_Relations/EASCompany.aspx](http://www.orascomtelecom.com/Investor_Relations/EASCompany.aspx)

As of 18 Feb 2011, its homepage boasts 120M subscribers.

<http://www.orascomtelecom.com/about/Contents/default.aspx?ID=765>

<sup>15</sup> <http://www.vimpelcom.com/pr/pr.wbp?id=aa13f2da-1729-425d-8afc-cb1bc8978c65>

77. That premium for TELUS amounted to nearly \$250 million in order to privilege so called new entrants like the cable monopolists. The real cost of that was a loss of capital to compete against a cable monopoly in order to subsidize cable entry into a market that was and remains more competitive than cable. Arguably in order to reduce price in one market, wireless, the government introduced a non-market-based auction process that reduced the required investment by cablecos, whose primary market, TV, has extracted over the last ten years the biggest price increase of any commodity including gas, water and cigarettes.
78. It is the view of TELUS that there is no pressing need to intervene against the market again. Surely if a cable company like Shaw can afford to spend \$2 billion on broadcasting assets it can afford to invest in the wireless business on the same open basis we invest in the wireless business. And given the so-called regional entrants showed no interest in pursuing a national strategy when given the opportunity in 2008, there is no need to further artificially buttress their strong regional position in terms of share and spectrum holdings.

## TELUS Responses to Questions Posed by the Department in SMSE-018-10

### Commercial Mobile Services (Section 4)

***4-1. What is the general need for additional commercial mobile spectrum at this time and what do you anticipate the future needs to be?***

79. Mobile data usage has grown in Canada over the last several years at a phenomenal rate. Between 2008 and 2010, total mobile data usage by TELUS customers grew by 449% driven by the increase in data usage by Internet stick customers and the increase in data usage by smartphone customers<sup>16</sup>.
80. This rapid growth in mobile broadband data traffic will continue to escalate over time as the mix of smart devices (phones, tablets, sticks and hubs) to legacy devices rises, as average customer data usage rises with richer applications and as Canada's wireless penetration continues to rise.
81. In an April 21, 2010 letter to the FCC, the CTIA, the U.S. wireless industry association, explained that based on a study by Rysavy Research entitled *Spectrum Shortfall Consequences*<sup>17</sup>,
- “not being able to augment capacity through additional spectrum will have multiple adverse consequences: networks will perform at lower levels and be less reliable; service plans will change; and the vibrant cycle of innovation in the wireless ecosystem will stall. This outcome could impact not only wireless innovation but could also impact investment, job growth, and improvement in health care, education, and energy sectors.”
82. Based on its April 2010 National Broadband Plan<sup>18</sup> and its October 2010 Mobile Broadband Study<sup>19</sup>, the FCC believes that, conservatively, it needs to release 270 more MHz of commercial mobile spectrum beyond 700 MHz and 2500 MHz which are already allocated in the U.S. by 2014 to meet the needs of the U.S. market. And the FCC intends to reallocate and release the balance of the total of 500MHz needed by 2020. The Mobile Broadband Study provides full detail on how its model is built. The model that calculates the national spectrum release needs for the U.S. has little that does not directly translate

<sup>16</sup> TELUS internal mobile network statistics.

<sup>17</sup> Rysavy Research LLC – Spectrum Shortfall Consequences, April 2010.

<sup>18</sup> FCC – Connecting America: The National Broadband Plan, April 2010.

<sup>19</sup> FCC – Mobile Broadband: The Benefits of Additional Spectrum, October 2010. (OBI Technical Paper No. 6).

to the Canadian market – same general spectrum released to date<sup>20</sup>, same forecasted technology efficiency gains, same general usage per customer trends, similar customers per cell site, etc. In other words, based on the FCC’s study, Canada needs to generally keep step, albeit lagging, with the pace and form of U.S. commercial mobile spectrum release.

83. There are numerous studies available to the Department demonstrating the looming spectrum shortage based on the impact that new technologies and new devices are currently having and will continue to have on spectrum inventories. The RABC in its response to the current consultation has highlighted two such U.S. studies whose logic and conclusions apply equally to Canada. The FCC’s National Broadband Plan and Mobile Broadband Study earlier referenced point to several more studies of mobile broadband data growth whose logic and conclusions also apply equally to Canada.
84. For TELUS, access to additional spectrum to keep up with increased demand is of particular significance. As clearly borne out by Industry Canada’s own information published in its consultation document, TELUS is undersupplied with spectrum relative to its customer base when compared to other operators in Canada. We say this on the simple basis of how much spectrum TELUS has, the number of TELUS’ wireless subscribers and the comparisons with other wireless companies, both incumbents and entrants, in Canada<sup>21</sup>.
85. As requested by the Department, TELUS’ has filed separately a confidential, proprietary report of TELUS’ current and planned spectrum utilization detail that responds to the Department’s questions 4-2 to 4-5.

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<sup>20</sup> Industry Canada has released to date generally the same spectrum as the FCC has (but not yet the 700 MHz band and not the full 2500 MHz band).

<sup>21</sup> Refer to the Nordicity study: Competition and New Entry, An Analysis of Canada’s Communications Services Market, February 2011.

## 700 MHz Band Plan Issues and Considerations (Section 5)

***5-1. Based on the criteria listed above, which of the four band plan options should be adopted in Canada? Why is this option preferred over the other options? If Option 3 (APT band plan) is selected, what should the block sizes be?***

***Include supporting arguments, including potential benefits to wireless subscribers.***

***5-2. The band plans presented in the options above include guardbands. Should the Department auction the guardbands, or should these frequencies be held in reserve for future use such that they are technically compatible with services in the adjacent bands?***

***Also comment on any related aspects not addressed above or other possible options, including combinations of options.***

86. TELUS has been involved in the Radio Advisory Board of Canada's (RABC) submission and TELUS supports the detailed response to the Department's questions on the band plan in the RABC submission.
87. TELUS does not support the APT band plan at this time based on the lack of development to date of the associated equipment and device ecosystem. The U.S. 700 MHz equipment and device ecosystem is rolling out at this time. For the overwhelming value to Canadian consumers provided by directly leveraging U.S. economies of scale, TELUS strongly recommends that the Department follow the unaltered U.S. band plan (i.e. Option 1) for commercial spectrum with the possible exception of splitting the 11+11 MHz upper C block into two parts so as to make spectrum available to more operators in Canada. TELUS also recommends that the Department track any changes made to the U.S. band plan before the Canadian commercial 700 MHz spectrum is auctioned and incorporate those changes in its band plan and spectrum auction. Dynamically adjusting the band plan if required will optimize the cross border frequency arrangements and coordination procedures and enable cross border roaming as the Department itself has identified.
88. Splitting the upper C block as recommended above would provide five FDD blocks for auction: three 6+6 MHz blocks (likely to be used as 5+5s) in the lower 700 MHz band, plus the upper C block broken into a 6+6 MHz block and a 5+5 MHz block.
89. The Department should hold the guard bands in reserve as detailed in the RABC submission. These guard bands should not be authorized for licence exempt or any other uses.
90. Although initially appealing, Options 2a and 2b turn out to be less spectrally efficient than Option 1 as detailed by the RABC. So for this reason and the reasons outlined above

TELUS recommends that the Department adopt Option 1, the U.S. band plan and TELUS recommends that the Department follow it as it evolves.

***5-3. Do public safety agencies need spectrum for broadband applications? If so:***

***(a) How much and for which type of applications?***

***(b) What are the anticipated deployment plans and the possible constraints, if any, in implementing these plans?***

***(c) Is there suitable alternate spectrum to the 700 MHz to meet these broadband requirements?***

91. TELUS supports the allocation by the Department of the 758-768 MHz paired with 788-793 MHz block to Public Safety in Canada. The status of the D block is currently uncertain in the U.S. although the administration has signalled that they may pass legislation allocating this block to Public Safety. As outlined above TELUS supports harmonization with the U.S. band plan for the 700 MHz band. If the status of the “upper” D block has not been clarified at the time of the Canadian 700 MHz spectrum auction TELUS recommends that this block be held out of the spectrum auction and when the status is clarified the Canadian allocation become the subject of a subsequent consultation. With respect to Public Safety’s need for spectrum for broadband applications TELUS believes that in keeping with mobile data trends in commercial markets, public safety agencies will adopt broadband mobile application capabilities as the service they provide becomes more sophisticated. At the highest level, TELUS sees three general alternatives for the Public Safety mobile broadband business model: (i) a system owned and operated by Public Safety; (ii) a system run by commercial operator(s) in partnership with Public Safety; or (iii) a composite system capability provided by all commercial operators by government mandate.
92. A system owned and operated by Public Safety would provide agencies with complete control and no contention but at great expense for a country the size of Canada. TELUS supports the Department and the agencies if they believe that this is a viable alternative and can be funded by the Government in a timely manner.
93. A system run by commercial operator(s) in partnership with Public Safety could be a good solution if an agreement can be reached on the terms of this partnership. An approach was taken in the U.S. 700 MHz Auction 73 in 2008 to sell 5+5 MHz (the upper D Block) to commercial operators with a requirement to build a network with priority and pre-emption for public safety agencies in emergency circumstances. The D block did not sell in Auction 73 and the debate over the fate of the D Block continues to this day. Recently, more clarity on the D Block has begun to emerge in the U.S., but the proposal by the U.S. administration to grant the D Block to Public Safety requires a new law to be passed and

this, we are told, will likely get wrapped up in the planned new incentive auction law and take several years to get resolved. If Industry Canada were to mandate a commercial / public safety partnership in the D Block (and potentially what the FCC calls the PSBB Block), TELUS is of the view that rather than auctioning spectrum to commercial operators with a public safety encumbrance, granting the spectrum to Public Safety agencies and letting them seek, spectrum in hand, an arrangement with commercial operators is a much better approach. TELUS would be happy to sit down and discuss a potential commercial partnership arrangement with Public Safety agencies.

94. TELUS has no line of sight to a composite system capability for data priority and pre-emption provided by all commercial operators by government mandate based on global or pan-regional specifications built into mobile broadband technology standards. If such a vision were to be realized in the near term, more 700 MHz spectrum could, without Public Safety opposition, be allocated as purely commercial by the Department. TELUS does not discount what may come forward in years to come but TELUS does not believe that in the foreseeable future, commercial mobile networks industry wide will be designed to support the priority and pre-emption needs of Public Safety agencies.

***5-4. Comments are sought on the need for public safety broadband radio systems to be interoperable:***

- (a) between various Canadian public safety agencies;***  
***(b) between Canadian and U.S. public safety agencies.***

95. In principle, TELUS supports an approach that maximizes interoperability between agencies within Canada and within North America. Interoperability generally also means that Canadian public safety agencies can leverage U.S. economies of scale. Both interoperability and economies of scale are important and support an approach in Canada that involves following the lead of the U.S., even if this requires a delay in the decision on the D Block.

***5-5. What are the challenges faced today by public safety agencies to have cross-border radio interoperability in other frequency bands?***

***Supporting rationale for your responses to the above questions should be provided.***

96. TELUS has no comment.

***5-6. Notwithstanding your responses to questions 5-3 to 5-5, the Department seeks comments on whether public safety broadband needs can be met by using commercial systems with priority access rights for public safety, at commercial rates.***

- (a) Your views and comments are invited on priority access rights, including pre-emption, and on the feasibility of such a system.***

97. TELUS has no comment.

***(b) What public safety technical and operational requirements cannot be met by commercial systems, from either a public safety or commercial operator point of view?***

98. TELUS has no comment.

***(c) What specific rules, if any, should be mandated by the Department to make such a system viable?***

99. TELUS has no comment.

***5-7. Comments are sought on the need for regional (local, provincial, etc.) dedicated broadband networks to provide access to all public safety agencies, and the institutional feasibility of implementing such a system.***

100. TELUS has no comment other than to support, in principle, Public Safety agencies if they feel they need regional dedicated broadband networks within the block allocated to Public Safety.

***5-8. Is there a need for a dedicated national interoperable broadband network to provide access to all public safety agencies? The Department seeks comments on the institutional feasibility of implementing such a system.***

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

101. TELUS has no comment other than to support, in principle, Public Safety agencies if they feel they need dedicated national broadband network within the block allocated to Public Safety.

***5-9. If band plan Option 1, 2a, or 2b in Section 5.1 is chosen, which one of the three options described above should be adopted and why is this option preferred over the other options? Provide supporting rationale.***

102. In principle, TELUS recommends that the Department allocate mobile spectrum in Canada as either fully unencumbered commercial spectrum or fully "Public Safety Spectrum"<sup>22</sup> but not some combination. Selling spectrum to commercial operators with a requirement to work with Public Safety is problematic because control and ownership are not aligned.

<sup>22</sup> By Public Safety Spectrum, TELUS refers to a spectrum grant to Public Safety agencies as opposed to the spectrum being offered at commercial auction. This does not preclude a commercial partnership or offering that the Public Safety Agencies may arrange for economic reasons, nor does it presume any transferability restrictions, but it does not start with the spectrum licence in commercial hands as would be the case with a commercial auction.

The operator pays for the spectrum in a competitive auction and thus owns the licence but risks being unable to control the use of it if it can't come to terms with public safety agencies. Public safety agencies can negotiate arrangements knowing that they have the leverage of the licence encumbrance. A presumably far more workable situation is where the public safety agencies hold the spectrum licence and seek a partnership arrangement with one or more commercial operators on a competitive basis. Control and licence ownership are aligned in this case.

103. In order to leverage U.S. economies of scale and achieve cross border interoperability, TELUS recommends that despite the inevitable delay involved, Public Safety in Canada should plan to leverage the U.S. Public Safety ecosystem. The Department should grant the 5 MHz+5 MHz block (763-768 MHz and 793-798 MHz) called the PSBB block in the U.S. to Public Safety in Canada (i.e., increase by 2MHz the spectrum allocated to Public Safety in Canada via SP-768) and leave the D Block on hold at this time. (It currently appears that the D Block is likely to be granted to Public Safety in the U.S. but this requires new legislation to be passed<sup>23</sup>). Once the D Block situation has been settled in the U.S., the Department should hold a brief consultation in Canada. In the absence of a U.S. resolution in advance of the Canadian 700 MHz commercial auction, the Department should leave the D Block out of the auction.

***5-10. If commercial operators are mandated to support public safety services, what tier size should be applied in order to ensure adequate public safety coverage?***

104. No comment. (TELUS does not believe that commercial spectrum should be encumbered with Public Safety obligations nor Public Safety Spectrum sold to commercial operators versus being granted to Public Safety Agencies. In the now unlikely event that the D Block (and potentially the PSBB Block) is auctioned as unencumbered commercial spectrum, then TELUS refers the Department to TELUS' response to Question 5-12 for our input on tier sizes for commercial mobile spectrum.)

***5-11. If the APT band plan (See Option 3 in Section 5.1) is adopted:  
(a) Given that the APT band plan requires a 55 MHz duplexing separation, can Canadian public safety services operate their current narrowband systems in this band plan configuration? If not, what are possible alternatives to address public safety needs?  
(b) Should spectrum be designated for dedicated public safety broadband systems, and how much?***

105. No comment. (TELUS does not support the APT band plan at this time.)

<sup>23</sup> It is TELUS' understanding that the 1997 Analog to Digital Television Conversion legislation in the U.S. requires that the FCC auction the D Block and new legislation would be required in order for the FCC to grant this block to Public Safety.

*You are also invited to comment on any related aspects that are not addressed above, including whether the decision should be delayed until the U.S. situation is known.*

*5-12. The Department seeks comments on whether the auction of 700 MHz commercial spectrum should be based on uniform tier sizes across all spectrum blocks, or a mixture of tier sizes.*

*5-13. Based on your answer above, what tier size(s) should be adopted?*

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

106. TELUS recommends that all 700 MHz commercial spectrum be auctioned in Tier 1 and/or Tier 2 service areas except for one block<sup>24</sup> which could be auctioned in Tier 3 service areas to facilitate potential entry by smaller regional / rural operators or as a means of enhancing an existing footprint at a more granular level.
107. As the Department points out, Tier 1 and Tier 2 licences have typically been used for mobile services while Tier 3 and Tier 4 have been used for licensing fixed services. The sole exception has been the AWS auction which introduced the first Tier 3 mobile spectrum licences.
108. Tier 1 licences are optimal for carriers seeking national economies of scale and offering national rate plans. National licences are in the best interest of Canadians who move and wish to keep their existing plans and phones. The Department has in the past licensed Cantel (i.e., Rogers), Clearnet and Microcell all on a national basis. Most European jurisdictions focus solely on national licences including large countries such as Germany.
109. It is interesting to note that while most of the set aside spectrum in the AWS auction was auctioned in Tier 2 service areas, all the unrestricted AWS spectrum at auction – the only AWS spectrum that the national incumbents could bid on and did buy almost all of – was auctioned in Tier 3 service areas, despite consultation feedback from national incumbents preferring Tier 1 and/or Tier 2 licences. Looking at the winners of unrestricted AWS spectrum, it is clear that Tier 1 and/or Tier 2 service areas would have been more appropriate. We urge the Department to focus on Tier 1 and/or Tier 2 service areas for future commercial mobile spectrum allocations in order to maximize scale efficiency, reach and convenience for consumers.
110. In the AWS auction all successful bidders were attempting to assemble either a national (Tier 1) or regional (Tier 2) footprint or, in the case of the national incumbents, add

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<sup>24</sup> TELUS recommends that one frequency block be auctioned in Tier 3 service areas and believes strongly that this block should be at the edge of the band plan and not in the middle of the band plan so as to minimize the impact on bidders attempting to aggregate contiguous blocks at auction.

capacity to an existing national network. It is safe to assume that almost all participants in the 700 MHz auction will be attempting to assemble national or regional footprints or to add spectrum capacity to existing footprints. This argues for most of the spectrum to be offered as Tier 2 blocks. However TELUS does support auctioning one block at Tier 3 to allow more granularity if required. TELUS believes that our proposal provides the most efficient spectrum auction for the great majority of participants while still providing some flexibility for those requiring it.

111. While TELUS seeks and therefore supports Tier 1 and 2 service areas, except for one block at Tier 3 as noted above, TELUS would not oppose the Department if it decided to auction two or at most three blocks at Tier 3 to support the potential desire of other operators for smaller service areas because a Tier 2 licence can potentially be obtained by aggregating the associated Tier 3 licences. However it is more likely under said scenario that coverage gaps for all suppliers would become more prevalent.

### **Changes to Canadian Table of Frequency Allocations (Section 6)**

***Effective immediately, no new broadcasting certificates will be issued for LPTV stations in TV channels 52-59 (698-746 MHz).***

***The Department proposes that the displacement of the incumbent LPTV stations be subject to a notification period of one year for LPTV stations located in urban areas<sup>26</sup> or in specific geographic areas, such as along highway corridors; and a period of two years for LPTV stations in all other areas. A displacement notification can be issued only after technical determination is made concluding that continued operation of the incumbent LPTV station would impede the deployment of new licensed systems in the 700 MHz band.***

***5-14. The Department seeks comments on the transition policy proposed above.***

***5-15. The Department seeks comments regarding its proposal to permit low-power licensed devices, including wireless microphones, to operate in the band 698-764 MHz and 776-794 MHz only until March 31, 2012.***

***6-1. The Department seeks comments on its proposed changes to the Canadian Table of Frequency Allocations for the band 698-806 MHz.***

***6-2. The Department seeks comments on the spectrum utilization policy proposed above.***

112. TELUS supports the Department's proposed transition plans for low power TV and wireless microphones and does not support any extensions that interfere with commercial mobile rollouts. TELUS supports the proposed Mobile Broadband Services (MBS) definition and the proposed changes to the Canadian Table of Frequency Allocations.

## Promoting Competition (Section 7)

***7-1. The Department seeks comments on the current state of competition and its anticipated evolution, including the impact on consumers in the Canadian wireless services market: (a) in general;***

113. The number of mobile networks, including the HSPA+ networks recently launched by incumbents, and brands in each market in Canada has risen materially from 2007 before the AWS auction rules to year end 2010 providing consumers more choice, particularly at the low end of the market. There are 10% more brands on average in each market. There are two more networks (facilities based players) per market on average.
114. The high degree of competition on mobile broadband platforms now extending throughout Canada owes much of its development to the decision by TELUS and Bell (unlike, for example, CDMA carrier Verizon Wireless which has chosen to wait for LTE) to build through 2008 and launch in 2009, the largest HSPA+ networks in Canada, thereby eradicating Rogers' monopoly on GSM / HSPA family smartphones and European roaming.
115. To better serve its customers, TELUS launched its HSPA+ network in 2009 and is currently upgrading and expanding its network to achieve manufacturer rated download speeds of up to 42 Mbps using dual cell technology. This has enabled TELUS to be strongly positioned with respect to Rogers and meet the high bandwidth demands of its customer base. This has in turn resulted in Canada having the highest penetration of smartphones in the world on HSPA+ networks. It is anticipated that the incumbents will continue to make significant investments to meet the increased data requirements of their respective customer bases.
116. Average pricing in the Canadian mobile market (blended voice and data ARPU) has come down 3.3% since 2007, in large part driven by the new pricing plans of flanker brands introduced by the three national incumbents and despite voice minutes of use and data usage climbing significantly. Voice ARPU has continued to decrease, showing a decline from \$52.94 in 2007 to \$42.98 in 2010. In addition, the System Access Fee (SAF) has been eliminated from service offerings by most<sup>25</sup> carriers in Canada including TELUS.
117. The introduction of new entrants as a result of the AWS wireless auction has continued to have the overall effect of increasing competition, as they all have deployed discount strategies in order to gain market share. It is estimated that in 2010, the new entrants were able to capture 23% of the net additions and this is prior to launch of services by

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<sup>25</sup> Rogers has a "Government Regulatory Recovery Fee" of between \$1.96 and \$3.45 depending on the device.

Bragg or Shaw. These cablecos are anticipated to leverage bundling strategies in order to drive market share gains and it is currently forecast that 2010 will be the last year that any of the incumbents will be able to capture more net additions than the new entrants combined.

118. The market share gaps between the first and the third largest wireless operators in each of the provinces provides another indicator of the extent of competition at the regional level. Between 2004 and 2009 market share gaps in BC/Alberta, Quebec and the Maritime provinces decreased by 18%, 18% and 27% respectively. Competition has remained relatively stagnant in Saskatchewan, Manitoba and Newfoundland as the gap between the first and third operator only decreased between 8% and 10%. Ontario was the only province to experience an increase in market share between the first and third operators, but this increase is believed to be primarily due to the exclusive arrangement that Rogers had with Apple for the iPhone and their earlier access to the newest BlackBerry models on GSM, which is no longer the case.

***(b) in terms of its contributions and interaction to the broader Canadian telecommunications service market;***

119. In terms of contributions to the broader market TELUS' HSPA+ mobile broadband investments are helping to close the digital divide as a cost effective DSL replacement technology. This trend will only accelerate with the release of rural / remote 700 MHz spectrum and the launch of LTE in Canada. In communities such as Gaspesie in the province of Quebec, TELUS has been effective in leveraging HSPA+ Smart Hubs to drive the uptake of DSL replacement services. This, in turn, enhances the attractiveness of deploying and upgrading rural networks to support broadband usage in these locations. 700MHz is a cornerstone in TELUS' strategy to expand rural broadband services.
120. Mobile data networks allow for the extension of traditional home communication and particularly online entertainment services beyond the boundaries of the home. Along with providing the ability to set PVRs, alarms, lights, appliances and other narrowband activities, mobile data networks allow customers to access both TV subscriptions and services like You Tube, as well as video monitor their premises which are all very data intensive applications.
121. From a voice perspective, flat rate plans are continuing to drive mobile substitution, allowing Canadians to cut the cord and consolidate their services and, in turn, reduce their telecom spend. While Canada remains behind the U.S. with respect to the percentage of users who have abandoned their home phone for cellular, cord cutting has continued to grow with over 11% of households on average nationally using cellular

phones only as of the end of 2010. This growth is in part due to the improved voice service quality offered by the three national incumbents.

*(c) in comparison with the wireless markets of other jurisdictions.*

122. In relation to wireless markets in other jurisdictions around the world, Canada remains highly competitive. The intensity of competition is highlighted in the attached study on the state of competition developed by Nordicity. The extent or level of competition in Canada is illustrated on several fronts.
123. Canada has more facilities based players than most jurisdictions, in particular in key metropolitan areas. Virtually every Canadian has at least three wireless voice and data options and this reaches as high as six in the Greater Toronto Area (and there is the potential for a seventh). Globally, wireless markets have been challenged to support more than three or four wireless carriers as many of the smaller wireless players looked to consolidate in order to gain sufficient economies. Many markets recognize how challenging it is to support over four players and even Australia, a country with a similar geography to Canada, has consolidated from four operators down to three.
124. Most markets globally have either one or two dominant players, with no strong third carriers to disrupt the market leaders, as is the case in Canada. A useful figure in terms of measuring the extent of competition in a market is measure the market share difference between the first and third largest players. Benchmarked against other western countries, Canada compares favourably with a gap of only 8.3% versus 46.9% in Norway. The only country identified as having a lower market share gap between its leading and third largest player was the UK.
125. In terms of pricing, Canada compares favourably to other developed countries and on average Canadian customers use their wireless phones 40% more than the global average. Only in the U.S. do customers use more minutes than in Canada. In terms of Average Wireless Revenue per Minute (ARPM), Canada ranked 7th lowest out of the nineteen countries identified in the study. Recent pricing plans in the market suggest that Canada's pricing and average wireless revenue per minute are now even lower and more competitive, in part driven by the aggressive pricing of new entrants to gain market share.
126. In terms of technology, Canada has the highest number of advanced networks of any jurisdiction globally – two HSPA networks built by Wind and Mobilicity and HSPA+ networks built by TELUS, Bell, Rogers, SaskTel and Videotron. Canada has the highest percentage of advanced network coverage of any jurisdiction. In terms of innovation we

would note that although the AWS entrants launched after TELUS launched HSPA+, none of them except Videotron have launched HSPA+.

127. Population density has a major impact on the ability to generate revenue from a given segment of a wireless network. Based on Nordicity<sup>26</sup> analysis it is estimated that Canada has a average-revenue-per-kilometre-squared (ARPKm2) of \$674.70 in total wireless revenue and \$509.40 in voice revenue and only ranks ahead of Australia in revenue per square kilometre. The US market generates nearly three times as much revenue per square kilometre as Canada, and the UK market nearly 14 times as much. In fact, ARPKm2 in Canada is more than eight times less than the average of the developed wireless market, and nearly 25 times less than the leading country (Netherlands). Although the market in the Netherlands generates more than \$16,000 more per square kilometre than Canada's, the Netherlands is only served by five carriers.

***7-2. Provide views, and any supporting evidence, on the impacts of government measures adopted in the AWS auctions, including the impacts on consumers and on the state of competition. In particular, what has been the impact, if any, of such measures on industry concentration, barriers to entry or expansion of services, and the availability of new or improved service offerings and pricing plans?***

128. On November 28, 2007, Industry Canada announced measures to intervene in the Canadian AWS spectrum auction that were globally unprecedented. The Department announced it would set aside 44% of the strategic new AWS band for interested cablecos, regional ILECs, CLECs and aspiring new pure play mobile operators to enter the mobile industry in Canada. The Department also announced it would mandate roaming within an AWS entrant's licensed territory (as well as the more standard out of territory roaming). Further the Department mandated tower/site access to ensure the viability of entrants, effectively devaluing the network investments the incumbents had made over decades.
129. There have been many positive developments for consumers of wireless services in Canada. Canadian consumers have enjoyed a voice ARPU decline of almost 15% from 2007 (pre-AWS rules) through 2009 versus a CPI increase of 2.5% over the same period. The decrease in costs to the customer is also illustrated by the lower unit costs per subscriber at TELUS. For example, between December 2008 and December 2010 voice revenue per subscriber declined 16.7% and data revenue per subscriber increased 43.3%.

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<sup>26</sup> Refer to the Nordicity study: Competition and New Entry, An Analysis of Canada's Communications Services Market, February 2011.

Over the same period, voice minutes per user declined 14.6%<sup>27</sup>, while data consumption increased over 341%.

130. It might be tempting to conclude that the pricing declines and usage increases noted above are the product of the beneficial rules granted to entrants in the AWS auction. However, such a conclusion would ignore the fact many of these developments had nothing to do with the government's design of the AWS auction. In fact, many of these developments are far more attributable to the competitive activities in recent years of the existing wireless carriers, and the motivation of some incumbents, including TELUS, to break up Rogers' GSM monopoly. These activities include the launch of HSPA+ networks, giving Canada a world leadership position in the deployment of advanced networks. The availability of such networks gives Canadian consumers access to the best network speeds and the ability to use the latest wireless devices, offered by multiple competing carriers in most cities in Canada. The fierce incumbent competition in the smartphone segment is the biggest reason why entry level and average prices have declined and there has been such a significant increase in wireless data usage by Canadians.
131. In addition, regarding price competition, Canada has seen the introduction of a series of new lower priced offerings for consumers and business. While it is true that some of these offerings are from the four facilities based new entrants<sup>28</sup>, incumbents' flanker brands<sup>29</sup>, all of which have been around since before the AWS auction except Chatr, have led the way on these reductions and new plans. In addition, strong competition has given rise to some carriers including TELUS eliminating system access fees, introducing simple pricing plans and relaxing restrictions on terminating contracts and unlocking wireless handsets. Given that this fierce competition is exhibited both between incumbents and between incumbents and new entrants, it is impossible to say that these benefits were solely the product of the entry that was facilitated by the government's AWS auction rules.
132. On the negative side of the AWS experience for Canada's three largest mobile operators Rogers, Bell and TELUS, \$3.9 billion of market capitalization was destroyed over night when the new rules were announced. These are stock valuations that largely impact investors primarily in Canada including pension funds, mutual funds and savings investment accounts of many Canadians. The mandated roaming and infrastructure sharing requirements and the set aside and other significant auction design changes were

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<sup>27</sup>This drop is due to an increase in lower usage customers being acquired and some shift from voice to text messaging, mobile email and other new mobile communications applications.

<sup>28</sup> Wind Mobile, Public Mobile, Mobilicity, Videotron.

<sup>29</sup> Fido, Solo and Virgin are longstanding flanker brands. Koodo was launched in March, 2008 and Chatr in July 2010.

announced after trading hours on November 28, 2007. For Rogers, the stock closing price on November 28, 2007 was \$45.50. The closing price on November 29, 2007 was \$41.71 after a heavier than normal trading volume, a drop in price of \$3.79 or 8.3%. The loss in market capitalization for Rogers was approximately \$2.4 billion. For TELUS, the closing price on November 28, 2007 was \$48.91. The closing price on November 29, 2007 was \$46.62, also after a heavier than normal trading volume, and a drop in price of \$2.29 or 4.7%. The loss in market capitalization for TELUS was approximately \$700 million. Although, we are unable to directly observe Bell Canada's fall in market capitalization and loss of shareholder value (as the share price was at the time pegged to a privatization offer that later failed), we estimate that Bell Canada's shareholders lost at least \$800 million in shareholder value.

133. On top of the immediate impact in the capital markets, national incumbents paid an estimated premium of \$1.55 billion during the actual AWS auction for their spectrum<sup>30</sup>. This premium is made up of two components – national incumbents paid \$750 million because they had to match the increased spectrum value to the entrants of the mandated roaming and site sharing conditions, and secondly national incumbents paid a \$800 million gaming premium enabled by the set aside.
134. The first component, the matching premium, is driven by the fact that the mandated roaming and infrastructure sharing requirements increased the value of the AWS spectrum to the entrants. The AWS auction design caused national incumbents to have to match the value of these COLs to new entrants despite the fact that these COLs were a burden, not a benefit, to national incumbents. We have estimated this matching premium at \$750 million based on the difference between the auction pricing expected by analysts and the Department prior to the announcement of the new COLs and auction framework (best case \$0.75 per MHz-pop on average) and the pricing that new entrants paid (\$1.26 per MHz-pop on average) which determined what national incumbent bidders had to match at a minimum.
135. On top of this matching burden, national incumbents had to pay a substantial gaming premium as the entrants exploited the asymmetry of the set aside. The set aside provision in the AWS auction resulted in a double tax for national incumbents. The set aside provision artificially raised the demand for spectrum among incumbents and the set aside allowed entrants to place bids on unrestricted spectrum with no intention of buying, but with the objective of raising the prices the national incumbents would have to pay. An analysis of the AWS auction bidding demonstrates that the national incumbents

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<sup>30</sup> In support of this paragraph and several following, refer to the NERA Study: Regulatory Policy Goals and Spectrum Auction Design - Lessons from the Canadian AWS Auction, March, 2009.

"settled" near round 23 of the auction; yet the auction continued on for a total of 331 rounds, primarily because of new entrant gaming.

136. Specifically, by round 23 the auction bidding had pushed the sum of the three national incumbents' bids below the available 50 MHz of unrestricted spectrum. At that point, the three national incumbents had effectively settled on 49MHz for \$1.8 billion (i.e., \$1.22/MHz-pop or more than double the U.S. AWS spectrum auction price level and not coincidentally just about what the entrants paid for set aside spectrum). However, by the end of round 331 (auction completion) the price of the 49 MHz of spectrum held by the three national incumbents had increased to \$2.6 billion.
137. We estimate that the national incumbents paid a gaming premium of \$0.52 cents per-MHz-pop for their spectrum in relation to the new-entrant set-aside spectrum. Set-aside spectrum sold on average for \$1.26 per MHz-pop while unrestricted spectrum was driven by new entrant gaming to an average of \$1.78 per MHz-pop. In other words, national incumbents paid \$800 million more for their spectrum than the new entrants due to the design of the AWS spectrum.
138. In effect, on top of the almost \$4 billion loss in market capitalization suffered at the time of the updated COL and AWS auction framework announcement, and on top of the matching premium of \$750 million that had to be paid at the AWS auction, national incumbents paid a \$800 million gaming premium at the AWS auction. Cumulatively these impacts represent an over \$5.45 billion extraction of rent on national incumbents and roughly one third of it (\$1.55 billion) flowed directly to the Government of Canada.
139. The fact that the prices in Canada's AWS auction were three times higher than those of the U.S. AWS auction on a per-MHz-pop basis reinforces this view that these premiums resulted from Industry Canada's intervention via the new retroactive COLs and AWS auction design, and therefore, were essentially indirect extractions of economic rent from national incumbents.
140. If a carrier's cost increases it has only two immediate choices in how to respond - either increase prices or reduce investment. The \$5.4 billion extraction of rent on national incumbents eventually must result in higher prices to consumers and/or less investment in innovation, network service quality and jobs. Of course, the two effects are closely related. Real costs to an operator have a real effect. If, in the extreme, prices are not higher, then the real effect will be seen entirely on investment levels, service quality and employment. If, in the other extreme case, there is no effect on investment levels and service quality, it would be because consumers bore the burden of the spectrum fee entirely through higher prices. Either way, there is a negative effect on consumers from

less investment, innovation, service quality and employment, or from higher prices, or, as is more likely, some combination of all the above-mentioned negative effects.

141. Clearly, prices have been dropping and so the effect has been felt in investment. While TELUS' HSPA+ network was a competitive necessity, investment in IPTV was necessarily delayed, slowing the important expansion of a competing service deeper into the cable TV footprint.
142. While the AWS entrants have expanded the number of facilities based options in top urban markets and some secondary markets, they have not expanded the geographic availability of mobile service in Canada which is already at 97%.
143. It does not appear that the introduction of new entrants has had any material impact on penetration growth in Canada. Despite the inclination to assume that dropping prices would drive a noticeable uptick, penetration in Canada has steadily grown at around 4% year over year from 2006 through 2010<sup>31</sup>. While incremental penetration is up in 2010 over 2009, much of this is likely due to a rebound in the economy versus new entrants. In addition, over this time period the incumbent network providers drove penetration with a plethora of new devices with superior user interfaces and higher network speeds. While on the surface it appears that Canada lags other developed countries in terms of penetration, this is understandable due to several factors<sup>32</sup> which the new entrants in Canada have no effect on. The data suggests that the entrants are simply taking share from the incumbents.

**Table 2 –Mobile Penetration in Canada**

Year	2006	2007	2008	2009	2010
Penetration	57.7%	61.5%	65.5%	68.8%	73.1%
Incremental Penetration		3.9%	4.0%	3.3%	4.3%

144. The AWS auction succeeded in more than doubling the number of facilities-based competitors in the Canadian mobile industry. From an industry efficiency standpoint, there is an oversupply in urban markets suggesting industry consolidation of some form (and the associated friction costs) is almost a certainty. The new pure play entrants themselves, all presumably unopposed to cashing out any gains garnered to date through

<sup>31</sup> Based CRTC monitoring data for 2006 – 2009 and for 2010, year end 2010 company reports with analyst estimates of the subscriber counts of privately owned operators.

<sup>32</sup> These factors are predominantly the use of multiple SIM cards in Europe (to mitigate roaming costs), higher cord cutting in the U.S. and Europe, and differences in landline services pricing structure in Europe.

their subsidized risk taking, have all publicly alluded<sup>33</sup> to the inability of the industry to support two pure play challengers (Public Mobile and Mobilicity), a CLEC (Globalive / Wind) and the cablecos (Videotron, Shaw and Bragg) on top of the national and regional incumbents. At this point in time, there is undoubtedly a surfeit of facilities-based mobile operators in Canada, except perhaps in Quebec where Videotron used its market power and financial strength to ensure that no other new entrant could buy AWS spectrum. Most analysts agree with the pure play AWS entrants themselves and postulate that future industry consolidation is necessary and inevitable. Given this likelihood of consolidation, TELUS is comfortable in recommending to the Department that there is no justification to take special measures to intervene in upcoming auctions to ensure that additional new entrants are introduced into the Canadian mobile industry.

***7-3. In light of the current conditions in the Canadian wireless service market(s), is there a need for specific measures in the 700 MHz and/or 2500 MHz auction to increase or sustain competition?***

145. The problem with specific measures is that unintended consequences that may actually distort the broader marketplace inevitably occur as discussed below. For instance:
- a. In 2000, when TELUS pursued its ambition to evolve from a regional telco to a national mobile operator via the \$6.6 billion acquisition of Clearnet, Industry Canada, based on the then in place spectrum cap, stripped TELUS in all its ILEC territories of 20 MHz of the 30 MHz spectrum it bought without compensation (147M MHz-pops which based on the third party<sup>34</sup> allocation of purchase price represented c.\$300 million in value). In 2001, Industry Canada auctioned this same spectrum to Bell and speculator W2N (who subsequently sold to Bell) for \$22 million<sup>35</sup> while TELUS was not allowed to bid on it. Thus as a result of the spectrum cap in place at that time, Bell gained a regulated advantage over TELUS in terms of spectrum holdings without any benefit to the market as a whole.
  - b. In April 2005 the Competition Bureau deemed the Canadian mobile market competitive when it approved the acquisition of Microcell including 30MHz of PCS spectrum nationally and a one third stake in the Inukshuk Internet JV and

<sup>33</sup> See quotes at paragraph 71 and see also: "They can't just be sort of a one-trick pony in markets where there are three or four other players that are bundle players," Globalive CEO Tony Lacavera, <http://www.thestar.com/business/companies/mobile/telus/article/852487--the-wireless-battle-for-survival> 25 August 2010.

<sup>34</sup> TELUS acquired Clearnet for C\$6.6 billion in debt and equity in October 2000. TELUS' financial statements attributed a value to spectrum of C\$3,456 million which was subsequently reduced by a \$1,018 million write down.

<sup>35</sup> This auction revenue represents \$0.17/MHz-pop for spectrum in Alberta and BC and is essentially the opening bid / reserve price in an auction where the average price was roughly 6x higher. No one else (including any of the AWS entrants were interested at the time.)

the associated 90MHz of 2500 MHz spectrum near nationally. The approval came just weeks after Industry Canada had removed the spectrum cap. This allowed Rogers to avoid a similar fate to TELUS which would have meant in Rogers' case, because of its extensive national holdings, the return of almost all of the PCS spectrum it acquired through Microcell. This inconsistency has exacerbated the spectrum gap between Rogers and TELUS.

- c. In March 2006, Industry Canada approved the Inukshuk Licence Transfer, allowing 90MHz of 2500 MHz spectrum near nationally to come under the joint control of Bell and Rogers. The next day, the Department issued its 2006 Policy in the 2500 MHz band allowing incumbents to return a third of their fixed services spectrum for auction and keep two thirds as mobile spectrum - a massive windfall gain. Despite a one third return being unquestionably small, especially in today's 4 to 6 player market, on February 10, 2011, the government announced as part of its alignment with the ITU band plan an increase in the amount of FDD spectrum that incumbents, predominantly Rogers and Bell, are to retain by 21% to 80 MHz from 66 MHz, despite TELUS' strong arguments for incumbents to receive 60 MHz of FDD.
  - d. TELUS' answers to Question 7.2 detail the impacts of the AWS interventions including \$5.4 billion in negative financial impact to national wireless incumbents. TELUS notes that much of this impact would have been avoided while still achieving the same desired market entry if the government had implemented an open auction with a 20MHz spectrum cap in the AWS band.
146. In other words, from 2000 on, interventions by the Department on a case by case basis have had the unintended consequence of increasing the concentration of mobile spectrum in the hands of Bell and Rogers and increasing the costs of national incumbents at a time when the monies forgone could have been better spent investing in wireless and wireline broadband infrastructure.
147. TELUS believes the question of whether to intervene in the 700 MHz auction boils down to an Intervention Checklist of six key questions (a) to (f) as follows:

Does the Department need to take specific measures in the 700 MHz auction to

- a. attract, via subsidy or advantage, additional entrants;

- b. subsidize or advantage pure play and/or CLEC based AWS entrants<sup>36</sup>;
- c. subsidize or advantage cableco AWS entrants;
- d. subsidize or advantage near monopoly regional incumbents<sup>37</sup>
- e. ensure that some minimum number of operators per region are able to purchase spectrum; and
- f. constrain operators' auction buys based on their current holdings

TELUS believes the answer to each of these questions in the context of the 700 MHz auction is NO and we elaborate in the following paragraphs building on the above recap of the market structure from a spectrum perspective that the Department has fostered to date and the key findings of our analysis of the state of competition in Canada now and its anticipated evolution.

148. TELUS does not oppose additional entry on a free market basis, because in an open market it has the opportunity to bid. As to the question of whether the Department needs to take specific measures in the 700 MHz auction to attract, via subsidy or advantage, additional entrants, TELUS' clear answer is no.
- a. Canada has three national incumbents, two regional incumbents, several regional cableco AWS entrants, and several pure play and CLEC based AWS entrants. While nothing in the 700 MHz auction rules should or presumably will preclude the entry of first time commercial mobile spectrum buyers, TELUS feels strongly that the Department need not enact special rules to facilitate the entry of even more operators in Canada after successfully attracting via the AWS set aside and updated COLs ten brand new commercial mobile spectrum buyers. There are now five or more operators in every top market. TELUS' view is based on the fact that no market globally supports more than three or four operators achieving sizable market shares. The study by Nordicity on the state of competition in Canada (attached to this filing) suggests that it is very difficult for a market to support more than three players on a regional basis and in most jurisdictions the wireless market is controlled by two major players. While there are select high density markets that have supported more than two players, they have been relatively few and far between. Wireless markets globally have

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<sup>36</sup> That is, AWS entrants with little or no facilities-based assets prior to the AWS auction.

<sup>37</sup> While the regional incumbents MTS and SaskTel qualified in 2008 as new entrants because they had less than 10% national market share, their market shares in Nov 2007 when the rules were established were 60% and 80%. Further, both MTS and SaskTel were granted pro rata regional spectrum in 1985, 1989, and 1995.

continued to consolidate in order to benefit from economies of scale, as operators realize the market is often challenged to support a large number of players. In Australia, a country with a similar geographic profile to Canada, the third and fourth operators merged in 2009.

- b. Entrants themselves have all publicly declared that consolidation is necessary. Analysts are commenting that the market cannot support the current number of players, let alone more new entrants. Analysts are also professing that new entrants are pricing their service at below sustainable levels presumably to “buy” market share before exiting their position<sup>38</sup>. This is further evidence that there is no need to artificially attract brand new commercial mobile spectrum buyers, nor is there likely to be heavy demand at auction from additional operators.

149. As to the question of whether the Department needs to take specific measures in the 700 MHz auction to subsidize or advantage pure play and/or CLEC based AWS entrants, TELUS sees evidence that points to a clear no.

- a. TELUS believes that these firms have already received significant benefits and have already been given the tools they need to compete on an ongoing basis. After enjoying protected and privileged access to commercial mobile spectrum for entry into a large growth business that incumbents took 20 years to make profitable, AWS entrants have ongoing access to mandated site and tower sharing and mandated roaming. By the time the Department conducts the 700 MHz spectrum auction these firms will have had four years to establish themselves and some of them may have gone through some form of consolidation.
- b. Each of Wind Mobile, Mobilicity and Public Mobile appears well-backed financially, receiving some level of financing from at least one foreign firm. Public Mobile and Mobilicity are backed by private equity firms that follow mandates based on clear return and exit strategies, including entering markets with favourable conditions for investment and exiting via sale, merger or IPO. Globalive’s Wind Mobile is part owned by Orascom of Egypt, which holds roughly 99% of Wind’s debt and 65.4 % of the outstanding equity of Globalive. Orascom is an international wireless giant, with operations in the Middle East, Africa and Asia, and 103 million subscribers worldwide. Confident in its deep pockets, Wind has led the speculation about consolidation among the new entrants. In August

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<sup>38</sup> Refer to the Telecommunication Services Industry Comment of RBC Capital Markets on February 3<sup>rd</sup>, 2011, and in particular the section entitled, “New Entrants/Chatr Pushed Pricing Down to Unsustainable Levels – Below U.S. Prices”.

2010, Orascom chairman Naguib Sawiris noted: “They [the other new entrants] will be dead on arrival. Wind should be the consolidator of all the smaller players here,”<sup>39</sup> – further demonstrating the financial ability of the new entrants to openly compete in Canada’s communication services industry.

- c. Finally, given the expiration date on the resale restrictions associated with originally set aside AWS spectrum, all of the AWS entrants have protected access to consolidate as a means of spectrum acquisition for more than a year after the end of the 700 MHz and 2500 MHz auctions. Consolidation is thus a fall back strategy for AWS entrants that they are at liberty to exploit after they have determined their success in the 700 MHz and 2500 MHz auctions in 2012. This is further evidence that the government need not intervene to advantage AWS entrants in the 700 MHz auction.

150. As to the question of whether the Department needs to take specific measures in the 700 MHz auction to subsidize or advantage cableco AWS entrants, TELUS says definitely not.

- a. There is absolutely no rationale for subsidizing or advantaging large, established monopoly cable companies a second time via the upcoming 700 MHz and 2500 MHz auctions. All have spectrum and only one has rolled out after two and a half years. All purchased significant spectrum depth in their territories. All are very well capitalized. All except Eastlink are vertically integrated from broadcast to carriage and have the financial depth to operate in the content space. All are longstanding incumbents in the communications industry. All are operating as near monopolies in their territories achieving years of rate increases well above CPI. All are market share leaders in wireline HSIA given their physical plant advantage. There is absolutely no rationale for subsidizing or advantaging large, established monopoly cable companies a second time via the upcoming 700 MHz and 2500 MHz auctions.
- b. Further, there is a risk to advantaging such financially strong parties as clearly shown in the AWS auction where Videotron successfully purchased all set aside AWS spectrum in Quebec and Bragg almost succeeded in doing the same in the Maritimes. This suggests that irrespective of decisions on other entrants, cablecos do not require nor should they be allowed to participate in another set aside.

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<sup>39</sup> Source: <http://www.theglobeandmail.com/report-on-business/canada-is-a-telecom-backwater-says-bold-backer-of-wind-mobile/article1690690/page2/> 30 August 2010.

151. As to the question of whether the Department needs to take specific measures in the 700 MHz auction to subsidize or advantage near monopoly regional incumbents, TELUS again says definitely not.

- a. The Department defined a new entrant for the purposes of the AWS auction and the updated COLs in November 2007 as any operator with less than 10% national market share, sweeping up government controlled SaskTel and MTS into the category – incumbent wireless operators with, at the time, market shares of over 80% and 60% respectively in their home operating territories that have both been part of every mobile spectrum grant since 1985. The Department’s rationale was clear at the time. MTS was calling for rules to allow it to become or be part of a consortium that would become the new national challenger to Rogers, Bell and TELUS. Now that the AWS auction has passed, and neither MTS nor SaskTel purchased spectrum outside their provincial territories while several new national challengers have emerged (i.e., Globalive / Orascom and Mobilicity) it is clearly time to revise the definition of a new entrant to exclude regional incumbent wireless operators.

152. As to the question of whether the Department needs to take specific measures in the 700 MHz auction to ensure that some minimum number of operators per region are able to purchase spectrum, (or put another way, to limit the spectrum all or certain bidders can purchase) TELUS advises no.

- a. TELUS fundamentally believes in open markets and despite having a similar subscriber base to Bell and Rogers, but only 15% of the allocated spectrum in Canada to Bell’s 29% and Rogers’ 41%, TELUS believes the best choice for the Canadian industry is to have the 700 MHz auction be completely free and open. Nonetheless, the Government intervened to unprecedented levels in the AWS spectrum auction and might be tempted to intervene again. TELUS reiterates its position that it is willing to face the spectrum leaders Rogers and Bell and all other participants in an open auction and pay what it takes to get the spectrum TELUS needs. However, TELUS is understandably concerned that the government has signalled its intention to intervene even prior to receiving the responses to this consultation on the matter.
- b. TELUS maintains that spectrum is already shared amongst a reasonable number of operators who each have more spectrum per customer than TELUS, now as

well as in 2012 according to analyst forecasts of 2012 subscriber shares<sup>40</sup>. Further, all evidence suggests that the next stage in the market will be some amount of consolidation among the AWS entrants any intervention at 700 MHz would be seeking to protect or advantage. Under such circumstances, it is simply distortive to allocate via set aside some type of share to carriers that may already be contemplating selling or acquiring other entrants.

- c. Should the Department consider using a set aside in the same fashion as it did in the AWS auction, it would do nothing to ensure that more than one bidder is able to buy spectrum in any region. Even if the Department implemented a set aside where a bidder qualified to bid in the set aside had to choose between participating in the set aside auction or the auction for unrestricted spectrum, this would merely ensure that a minimum of two<sup>41</sup> parties per region were able to buy spectrum. And unless the Department did operate the open and restricted auctions as separate, mutually exclusive<sup>42</sup> processes unlike 2008, TELUS assuredly contends that gaming opportunities would be exploited and the industry would see the kind of anomalies seen in the 2008 AWS auction as exemplified by unrestricted spectrum in the Maritimes costing 7x the cost of restricted spectrum and the globally unprecedented auction duration.
- d. Should the Department intervene, a cap could be used (versus a set aside) to achieve some minimum number of purchasers per region, while also leaving the auction otherwise undistorted. A cap can be individually determined for each bidder per region on any suitable basis and still result in a regular functioning auction. A cap is essentially an enforced dropping of eligibility points.<sup>43</sup>
- e. If the Department were compelled to again intervene, it should implement only a short licence transfer lockout period post auction (for example, two years maximum) as the market needs to function freely through an active secondary market, a market it has stifled with the AWS resale restrictions. While still discouraging speculation, a short lockout period would enable market based

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<sup>40</sup> Refer to the Nordicity study: Competition and New Entry, An Analysis of Canada's Communications Services Market, February 2011, pp 10 - 11, 45 – 47.

<sup>41</sup> For instance, in the AWS auction in Quebec, the set aside produced only one buyer, and while the open auction produced three buyers, there was nothing in the rules stopping one of those three buyers from paying to buy all the open spectrum in Quebec. If this had happened, the set aside would have produced two buyers in Quebec.

<sup>42</sup> By mutually exclusive, we mean that no bidder can participate in both the open and restricted auctions.

<sup>43</sup> An auction ends when the bid units of all bidders equals the bid units associated with the spectrum on auction. In 2008, at the start of the AWS auction, there were 5x the bid units in play as bid units for sale, meaning, on average, bidders had to relinquish 80% of their fullest aspirations for the auction to end. It is also noteworthy that in 2008 Rogers applied for enough bid units to buy every single unrestricted lot at auction.

corrective actions to any unintended distortive effects of any intervention that moves the market away from an open spectrum auction.

153. As to the question of whether the Department needs to take specific measures in the 700 MHz auction to constrain operators' 700 MHz auction buys based on their current holdings, TELUS again says no.

- a. Because TELUS is undersupplied with spectrum, TELUS has little to lose if the Department constrain operators' 700 MHz auction buys based on their current holdings, other than in our ILEC territory if a low band cap at 25 MHz was implemented. Any other cap would serve TELUS well. Nonetheless, TELUS believes that no cap is necessary.
- b. Due to the history of past allocations and interventions, all incumbents are not equally supplied with spectrum. Despite similar size customer bases, TELUS has 15% of commercial spectrum allocated in Canada relative to Bell at 29% and Rogers at 41%. This means that TELUS would be arbitrarily disadvantaged, relative to the other incumbents who currently hold a deeper pool of spectrum to meet smartphone demand, by either a set aside or a one-size-fits-all 700 MHz band cap. This spectrum gap is exacerbated by the delays to date in holding the long promised 2500 MHz auction.
- c. A cap could theoretically take into account the pre-auction holdings of operators. For instance in 2001 in the Department's PCS auction, bidders could only purchase spectrum such that the sum of their existing commercial mobile spectrum holdings and 2001 auction purchases in any given region was under a certain limit (55 MHz). In TELUS's opinion this sort of bid cap is the only one that addresses the spectrum disparity between the operators in a fashion that respects the market and has the potential to be the least disruptive.
- d. Any restriction on incumbents limiting the amount of 700 MHz spectrum they can acquire at auction should be constructed to still permit them to extend local or national footprints in that band, including in rural areas.

154. In summary, TELUS does not believe that the Department needs to take special measures in the 700 MHz auction to attract additional entrants, to advantage or protect any operators, to ensure some minimum number of bidders can buy spectrum in each region or to constrain bidders based on their current spectrum holdings.

- a. The key point is that there are now a number of market players in market and the goal of promoting more entry by the AWS set aside has been met. Trying to

advantage some carriers on an ongoing basis, particularly cable and regional carriers, will only distort the evolution of the market at this time.

- b. The Canadian wireless market is very competitive as we have detailed in response to Question 7.1. Customers have more choice in providers, more choice in state of the art devices, voice ARPU is declining rapidly, and market share is spreading to entrants. Pricing is on par with best in class international jurisdictions.
- c. In 2012 when the Department auctions 700 and 2500 MHz spectrum, based on the Department's own information, TELUS will be undersupplied with spectrum relative to its customer base when compared to other operators in Canada. As such, setting aside spectrum for AWS entrants again in the 700 MHz auction will not increase competition in any way because it will be unlikely to expand the spectrum footprints of AWS entrants versus deepening their existing footprints. The Department must be careful not to take measures to intervene that do not recognize this dynamic while ignoring the need for spectrum by TELUS.
- d. The market is additionally more competitive if TELUS remains a strong competitor to Canada's largest and most spectrum rich national incumbents Bell and Rogers. This can only remain the case going forward if TELUS has at least a fair opportunity to catch up to some extent to Bell and Rogers in terms of spectrum holdings. If TELUS (the only self-made national non-incumbent and long term surviving challenger brand) is deliberately restricted by government, then the Canadian market loses a level of real competition, particularly in the high end segments that has resulted from our investments in a national growth strategy.
- e. Lastly, the AWS entrants have already been given privileged access to AWS spectrum at a 29%<sup>44</sup> discount to incumbents. They are now in-market. Further, the Department has devalued the national incumbents' cell site investments despite the 25 years on the incumbents' part to develop their national cell site inventory. The purchase of additional spectrum via consolidation by AWS entrants is an economic choice at this point. Wind Mobile, the regional ILECs and the cablecos are very strong financially and/or well backed. The AWS entrants should bid for spectrum on an open market basis without government intervention.

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<sup>44</sup> A 29% discount is the inverse of the 41% premium that national incumbents paid in the AWS auction.

***7-4. The Government of Canada has undertaken a consultation on potential changes to the foreign investment restrictions<sup>32</sup> that apply to the telecommunications sector. How would the adoption of any of these proposed changes impact your responses to the questions above?***

***Provide supporting evidence and rationale for all responses.***

155. TELUS believes in open markets and fully supports the symmetrical opening up of the Canadian telecom market to unlimited foreign direct investment. If this were to pass it would not change any arguments in TELUS' response. FDI restriction relaxation does not increase Canadian operators' access to capital per se. Nor does it allow carriers 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>45</sup> to any capital injection.
156. An asymmetrical relaxation of limits on FDI would advantage entrants and disadvantage incumbents, would benefit foreign shareholders at the expense of Canadian shareholders, 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.

***7-5. If the Department determines that there is a need for measures to promote competition, which of the above mechanisms would be most appropriate and why should this mechanism be considered over the other? Comments should also indicate if further restrictions should apply so that policy objectives are met, for example, over a given time period?***

157. If Industry Canada determines that it needs to intervene in the 700 MHz auction, TELUS provides the following advice in terms of various approaches to spectrum caps and set asides, including a classification of options, a general assessment and specific recommendations for the 700MHz auction.

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<sup>45</sup> Such as those found to be illegal by the CRTC in the case of Globalive and which the Industry Minister decided to overturn in the name of increasing foreign investment and innovation, although the Federal Court subsequently quashed the Minister's decision finding his reasons to be extraneous to the objectives of the Telecommunications Act.

**Table 3 – Classification of Auction Interventions**

<b>Intervention</b>	<b>Type</b>	<b>Description</b>	<b>Notes</b>
Set Aside	Type I	Only certain bidders can bid on restricted spectrum. All bidders can bid on unrestricted spectrum	<ul style="list-style-type: none"> <li>• Used in 2008 AWS auction with 40 of 90 MHz (44%) restricted</li> <li>• Used in the past in Europe but never with such a large percentage of the spectrum restricted</li> </ul>
	Type II	Only certain bidders can bid on restricted spectrum. Only the balance of bidders can bid on unrestricted spectrum	<ul style="list-style-type: none"> <li>• Essentially two separate auctions where participation in one precludes participation in the other</li> </ul>
Cap	Type I – Band Cap (e.g., 2.3/3.5 GHz Cap)	No bidder is permitted to purchase more than a specified number of MHz per region in a specific band (e.g., band such as 700 MHz or 2500 MHz)	<ul style="list-style-type: none"> <li>• Used in 2004 &amp; 2005 FWA/WCS auctions</li> <li>• Band cap need not be the same for every bidder, nor the same in every region for a specific bidder</li> </ul>
	Type II – Low Band Cap	No bidder is permitted to purchase at auction, spectrum that would result in it exceeding a specified number of MHz in any region when considered across all of its 700 and 850 MHz spectrum holdings	<ul style="list-style-type: none"> <li>• New concept that seeks to recognize superior propagation of sub 1 GHz spectrum</li> </ul>
	Type III – All Band Cap	No bidder is permitted to purchase at auction, spectrum that would result in it exceeding a specified number of MHz in any region when considered across all of its spectrum holdings	<ul style="list-style-type: none"> <li>• Used in 2001 PCS auction</li> </ul>
Discount	Type I – Designated Entity Discount	Certain qualifying bidders, after the auction, are only required to pay some predetermined percentage of their bid total (based on some set of criteria such as being a small business, etc.)	<ul style="list-style-type: none"> <li>• Used consistently in the U.S. by the FCC at auction</li> <li>• Often two different levels of discount are provided (e.g. 15% and 25%) depending on eligibility criteria</li> </ul>

158. A set aside requires that the Department define two classes of bidders – a privileged class of bidders who can bid on restricted spectrum and a standard class of bidders who can only bid on unrestricted spectrum. The basic purpose is to ensure that those bidders designated by the government as standard bidders do not collectively or individually purchase all spectrum at auction and block at least one of the bidders designated by the government as privileged bidders (encouraged and advantaged by the government) from acquiring spectrum.
159. A Type I Set Aside (such as that used in the 2008 AWS auction) simply ensures that at least one bidder from the privileged class of bidders acquires restricted spectrum in each region. This one bidder from the privileged class of bidders could theoretically buy the restricted spectrum in every region and in fact could theoretically buy up all of the restricted and unrestricted spectrum in every region.
160. A Type II Set Aside ensures that at least one bidder from the privileged class acquires restricted spectrum in each region and that at least one bidder from the standard class acquires unrestricted spectrum in each region. A Type II Set Aside could theoretically result in two bidders (one from each class) acquiring all of the spectrum at auction.
161. While TELUS considers a Type II set aside as a lesser evil than a Type I set aside, for the following reasons, TELUS strongly recommends against the Department using any set aside in the 700 MHz auction:
- a. **Measures to induce additional entry are not required**  
The primary objective driving the use of a set aside is to attract brand new entry. TELUS has argued in preceding paragraphs that evidence suggests that there are too many operators in market at present and consolidation is inevitable. While the 700 MHz spectrum may appeal to small fixed wireless providers in rural areas, the Department has in place RP-019 to support this type of operator.
  - b. **Recent entrants do not warrant further privileging via another set aside**  
A set aside requires the Department to define eligibility criteria for new entrants and this is not an easy task at this stage. TELUS has argued in preceding paragraphs that near monopoly cablecos, near monopoly regional wireless incumbents and pure play entrants backed by large global cellular operators in no way deserve to be advantaged at auction. Given the likelihood of consolidation of pure play entrants, there is no rationale for bolstering smaller, weaker AWS entrants at this stage either. Every single one of these classes of bidder has been given privileged access to ample spectrum for entry in 2008, but

now their need for spectrum to expand territory or capacity is no different from all other carriers.

c. **A set aside is a blunt instrument**

A set aside does nothing to ensure that a dominant operator that meets the eligibility criteria of the privileged class of bidders will not dominate the bidding in the set aside (just as Videotron and Eastlink did in Quebec and the Maritimes in 2008). We note here that in this respect a cap performs the function of forestalling any attempts at hoarding spectrum on the part of individual bidders and is therefore a sharper instrument, while also allowing for the maintenance of the workings of an open auction.

d. **Set asides are proven to cause drastic market distortion**

As the 2008 AWS auction proved, a Type I set aside can result in significant market distortion as there is an opportunity for competitors to game the auction due to the auction-activity-rule-defeating ability for privileged bidders (cablecos, regional ILECs, CLECs and pure play entrants in Canada in 2008) to cross bid between the open and restricted spectrum blocks. NERA<sup>46</sup> estimates such gaming contributed to a \$300 million bid inflation in TELUS' purchase price alone.

162. A cap requires that the Department define a set of criteria for the setting of limits on the amount of spectrum bidders can purchase at auction. There are a variety of approaches to setting the criteria. The basic purpose is to ensure that no one bidder (particularly financially strong bidders and/or bidders with a large spectrum inventory) can monopolize the bidding. Theoretically, and contingent on there being enough blocks on auction, a properly designed cap can be used to more finely set (versus a set aside) the desired minimum number of purchasers per region, making it more versatile while also leaving the auction otherwise undistorted. A cap can be individually determined for each bidder per region on any suitable basis and still result in a regular functioning auction. A cap acts essentially like an enforced dropping of eligibility points. TELUS is opposed to any form of cap on bidders in the 700 MHz auction but sees a cap as the lesser of two evils in comparison to a set aside. For the following reasons, TELUS recommends against the Department using a cap in the 700 MHz auction.

- a. While a cap does not provide the same opportunity for gaming such as that witnessed in the 2008 AWS auction, it can still distort the market in other ways,

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<sup>46</sup> Refer to the NERA Study: Regulatory Policy Goals and Spectrum Auction Design - Lessons from the Canadian AWS Auction, March, 2009.

such as delivering an inefficient allocation of spectrum in low-density rural and remote areas.

- b. A better way to ensure an efficient allocation of spectrum in low-density rural and remote areas is stringent and enforceable build conditions that require those that bid to actually deliver rural service. TELUS proposes that all 700 MHz spectrum be subject to both open bidding and a build out requirement stipulating that regardless of the tiering of each block that service be provided to 50% of the population in each Tier 3 service area within 3 years of licence issue and if not, the licence would be automatically forfeited. This stringent build condition would apply irrespective of whether the licence is a Tier 1, 2 or 3 licence - the test would be applied<sup>47</sup> at the level of the underlying Tier 3 service areas.

163. In summary, TELUS opposes any intervention in the operation of a free and open 700 MHz auction, and if the government is compelled to intervene, TELUS feels strongly that an auction outcome that is in the best interest of Canadians can be achieved via the implementation of stringent build conditions, discounts for qualifying small bidders and blind bidding to encourage honest versus strategic bidding as we explain in subsequent paragraphs. TELUS strongly recommends against the government using a set aside or a cap to intervene in the 700 MHz auction, but if compelled to do so, a reasonably designed cap is preferable to a set aside.

***In light of your response above, and recognizing that pending decisions on the specific band plan, spectrum for public safety system, tier sizes and open access requirements could influence your response:***

***7-6. (a) If the Department were to implement spectrum aggregation limits (caps):***

***(i) Should the cap apply to the 700 MHz band only or be broader?***

164. As to whether any cap, if the Department elected to implement one, should apply to the 700 MHz band only or be broader, TELUS suggests that there are generally three choices. A cap could be applied to the 700 MHz band only, to sub 1 GHz spectrum only or to all

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<sup>47</sup> In other words, as an example, a licensee would lose their entire Tier 2 service area licence if they did not serve within 3 years, 50% of the population in each of the Tier 3 service areas that make up their Tier 2 licence.

commercial mobile spectrum. In order to understand the ramifications of the various types of spectrum caps, we refer to the following table<sup>48</sup> showing decision support data.

**Table 4 –Commercial Mobile Spectrum Depth**

<b>Operator</b>	<b>% National 850 Spectrum Coverage<sup>49</sup></b>	<b>Average Spectrum Depth MHz<sup>50</sup></b>	<b>Peak Spectrum Depth (MHz)<sup>51</sup></b>
Rogers	100%	149	170
Bell	67%	112	140
TELUS	25%	56	65
Sasktel	3%	160	160
MTS	4%	80	80
Videotron	-	26	50
Shaw	-	20	30
Bragg	-	23	30
Wind	-	14	40
Mobilicity	-	11	20
Public	-	10	10
Novus	-	10	10
Other	<2%	n.m.	n.m.

165. A cap if applied to all commercial mobile spectrum would presumably have to be set at a level no lower than the amount of spectrum held by the most spectrum rich operator in any region in Canada, or there would be presumably have to be a spectrum return. Since Rogers holds 170 MHz<sup>52</sup> in most top markets, that would result in a cap across all commercial spectrum holdings of no less than 170 MHz. To be clear, TELUS is not advocating a cap but merely highlighting the complications inherent in such a measure.

166. A cap if applied only to sub 1 GHz spectrum would presumably have to be set at a level no lower than the amount of sub 1 GHz spectrum held by the operator with the most sub 1

<sup>48</sup>The table includes 850, PCS, AWS and 2500 MHz bands as detailed in the consultation (SMSE-018-10). 2500 MHz-pops represent spectrum quantity retained by band incumbents after the Department's 2500 MHz spectrum return process.

<sup>49</sup>Represents % of population covered by spectrum (and not % population covered by network.) All issued at 25 MHz depth.

<sup>50</sup>Average Spectrum Depth is an indicator measure of the average spectrum capacity within an operator's spectrum licence coverage area. It is calculated by dividing an operator's total spectrum quantity in MHz-pops by the number of unique pops that its spectrum covers.

<sup>51</sup>Peak Spectrum Depth is a relevant measure to consider in the context of analyzing potential spectrum caps. It is calculated by adding up an operator's spectrum quantity in MHz in the service area where the operator has the most total spectrum. TELUS assumes that 2500 MHz incumbents retain 65 MHz of spectrum post spectrum return.

<sup>52</sup>Rogers has 170 MHz in almost all top markets in Canada, but taking Vancouver for example, Rogers has 25 MHz of cellular 850, 60 MHz of PCS, 20 MHz of AWS and 65 MHz of 2500 MHz spectrum.

GHz spectrum in any region in Canada. Since all sub 1 GHz commercial mobile spectrum to date has been granted at a depth of 25 MHz, a sub 1 GHz cap would have to be set at no lower than 25MHz. A sub 1 GHz cap set at 25 MHz would mean that Rogers could not purchase 700 MHz spectrum anywhere in Canada. It would also mean that ILECs could not purchase 700 MHz spectrum in territory, which would significantly retard the rollout of rural broadband.

167. If a sub 1 GHz cap was bumped up to 37 MHz (i.e., 25 + 12) to allow an operator with a 25 MHz cellular 850 allocation in a region to bid on one 6+6 block, this would still limit the rollout of rural broadband using LTE by those that have demonstrated a willingness to build. The reason we say this is that where mobile broadband serves to replace wireline HSIA, then a single 5MHz channel for the downlink will not provide an adequate 4G broadband experience, nor the capacity to sustain reliable service.
168. If a sub 1 GHz cap was bumped up to 49 MHz (i.e., 25 + 24) to allow an operator with a 25 MHz cellular 850 allocation in a region to bid on two 6+6 blocks, this would likely accelerate the rollout of rural broadband using LTE by those that have demonstrated a willingness to build.
169. A cap if applied to the 700 MHz band only and if set at the same level for all operators, would presumably have to be set at a level to allow some reasonable minimum number of bidders to win spectrum in any given region, such as 24 MHz for example. A 700 MHz cap set at 12 MHz and applied to TELUS would limit the rollout of rural broadband.
170. A cap if applied to the 700 MHz band only would also have the effect of protecting the spectrum lead of Bell and Rogers over TELUS as TELUS would be constrained from addressing the sizable disparity between TELUS and both Bell and Rogers.
171. TELUS believes that upon detailed analysis, the Department will find that
  - a. A Type III “all band” cap would only have the effect of limiting Rogers and to a certain extent SaskTel in a 700 MHz auction.
  - b. A Type II “low band” cap depending on the where the cap is set could be used to limit the purchases of Rogers nationally and ILECs in territory, but could have the negative effect of limiting the rollout of rural broadband. TELUS would support a 700 MHz band cap only if it was designed such that TELUS was allowed to bid nationally and was allowed to bid on up to 24 MHz in ILEC territory.
  - c. A Type I “band” cap applied to the 700 MHz band only if implemented should not be set at the same level for TELUS as incumbents Rogers, Bell and SaskTel

with much greater overall holdings. TELUS would support a 700 MHz band cap only if it was designed such that TELUS was allowed to bid nationally and was allowed to bid on up to 24 MHz in ILEC territory.

***(ii) What should the size of the cap be?***

172. As detailed above, TELUS does not support intervention in the 700 MHz auction. If the government was compelled to introduce a cap, TELUS proposes that:
- a. A cap if applied to all commercial mobile spectrum would presumably need to be set at 170 MHz or higher given that some incumbents hold that much spectrum.
  - b. A cap if applied to all sub 1 GHz commercial mobile spectrum should be 49 MHz such that an ILEC can purchase two 6+6 blocks in territory.
  - c. A cap if applied to the 700 MHz band only should be 24 MHz.

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

173. As detailed above, TELUS does not support intervention in the 700 MHz auction. If the government was compelled to introduce a cap, bidders and their legal affiliates should share any cap.
174. 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 the 700 MHz auction.
175. 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 700 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 700 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 700 MHz

auction unless any such bidder declares associated entity status pursuant to the auction rules.

***(iv) How long should the cap remain in effect?***

176. The cap should remain in effect only for some short period after the licences are issued post auction in order to discourage speculation at auction while not causing an unnecessary delay in allowing the secondary spectrum market to operate effectively. TELUS suggests that a 700 MHz auction cap should remain in place for two years post auction just as was the case in the 2004 /5 FWA / WCS auctions.

***(b) If the Department were to implement a set-aside in the 700 MHz auction:***

***(i) 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?***

177. TELUS does not support a set aside for the 700 MHz auction as detailed above and submits that if intervention is required, then a spectrum cap is generally a more benign and appropriate form of intervention than a set aside<sup>53</sup>.

178. TELUS has provided detailed reasoning as to why near monopoly cablecos, dominant regional carriers and foreign backed pure plays in no way deserve further privileging via protected bidding in a set aside. And given the vigorous state of competition in the market and presumably near to medium term consolidation looming, there is little rationale for attempting to attract additional new entrants. This reinforces the view that the Department should move on from the set aside as a tool and if any intervention is required, a cap be pursued. If there ever was another set aside in Canada, and TELUS cannot see the logic as to why another set aside would ever be necessary, TELUS is adamant that, to eliminate gaming, bidders be forced to enter only one auction – either the set aside auction or the unrestricted auction – or failing this, that the two auctions not be run concurrently. Any bidder bidding in the set aside should not be allowed to also bid on the unrestricted spectrum in order to avoid the egregious gaming that occurred in the 2008 AWS auction.

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

179. TELUS does not support a set aside for the 700 MHz auction as detailed above. If the government is compelled to implement a set aside, it should set aside only one block,

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<sup>53</sup> By this we mean that if a certain set aside and a certain cap produce generally the same limiting effect on the aggregate purchasing eligibility of unprivileged bidders, we would always choose the cap.

ideally a TDD block, the Lower D or Lower E Block. It would be auctioned at Tier 3 in order to support smaller operators, especially rural operators.

180. If an FDD block is set aside instead of a TDD block it should either be the Lower 700 A Block or in one half of the Upper C Block (i.e., at the edge of the band) so as not to unnecessarily limit the opportunity to attempt to aggregate contiguous blocks to support the wider channels of the newer RF technologies. In TELUS' eyes the configuration of the 2008 AWS set aside was flawed in that it limited the opportunity for non-entrants to attempt to aggregate contiguous blocks to support the wider channels of the newer RF technologies. The set aside blocks were dropped in the middle of the AWS band (in the frequency domain) with one unrestricted block below the set aside blocks and two unrestricted blocks above the set aside blocks creating two islands of unrestricted spectrum.

***(iii) If the set-aside were to include multiple blocks of spectrum, should they be contiguous?***

181. TELUS does not support a set aside for the 700 MHz auction as detailed above. If the government is compelled to implement a set aside, it should not include multiple blocks of spectrum given how little commercial 700 MHz spectrum is available at auction – after the Public Safety allocation and guardbands, there only 70 MHz of commercial mobile spectrum available in a band of 108 MHz. And of that 70 MHz presumably only 60 MHz is usable when factoring in the use of 5 MHz channels - five 5 + 5 FDD blocks and two 5 MHz TDD blocks.
182. If a set aside did include two blocks instead of one, all things equal, contiguous blocks would provide more options to bidders. The key will be not to repeat the AWS mistake by putting these blocks in the middle of the band. They must be at the edge of the band, such as the two halves of the Upper C Block.

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

183. TELUS does not support a set aside for the 700 MHz auction as detailed above. If the government is compelled to implement a set aside, set aside spectrum should only remain restricted for some short period after the licences are issued post auction (such as two years) in order to discourage speculation at auction while not causing an unnecessary delay in allowing the secondary spectrum market to operate effectively.

***7-7. Are there other mechanisms that should be considered and, if so, how should these be applied?***

184. If the Department is compelled to intervene in the 700 MHz auction, the Department could consider the intervention measure that has been repeatedly and consistently used by the FCC for the last decade in place of set asides to attract and advantage small entrants while maintaining the workings of a free and open auction. “Designated Entity” (DE) discounts” were revamped in 2006 by the FCC to address shortcomings in advance of the 2006 AWS and subsequent auctions.
185. Designated Entity status is provided to companies in the U.S. earning less than \$40M in annual revenues. Discount levels are provided at 15%, 25% and 35% as annual revenue decreases. The FCC has developed sophisticated rules to recoup discounts provided if Designated Entities do not comply with use of spectrum restrictions for ten years beyond licence issue. The restrictions include<sup>54</sup>:
- a. The 25% Attribution Rule, which provides that a bidder’s DE status depends not only on its own revenues, but also on those of any other single entity which happens to lease or resell 25% or more of the bidder’s spectrum capacity.
  - b. The 50% Impermissible Relationship Rule, which renders licensees ineligible for DE status if they lease or resell (including at wholesale) more than 50% of their spectrum capacity.
  - c. The 10-Year Repayment Schedule, which kicks in if a successful bidder, having used DE-based bidding credits, happens to lose its DE eligibility at some point after the auction. As the name implies, this provision calls for repayment of the bidding credit amount if DE eligibility is lost.
186. It would seem that another fear of the Department is that financially strong incumbents will outbid smaller entrants for all of the available spectrum. This argument certainly does not apply to the cablecos and the regional carriers as plainly evidenced by their bid records in the AWS auction and their known financial strength. But on top of providing Designated Entity discounts, the Department might consider borrowing another trick from the FCC tool kit – that of blind bidding. A strong bidder cannot block a weak bidder if they can’t see where the weaker bidder is. Blind bidding was used successfully in the 2008 700 MHz auction in the U.S. to address strategic bidding and particularly bidding by stronger bidders targeting weaker bidders.

***7-8 . 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?***

<sup>54</sup> Per Fletcher, Heald & Hildreth article September 2, 2010 by R. J. Quianzon.

*Provide supporting evidence and rationale for all responses.*

*Note: The possible implementation of a set-aside regarding the 2500 MHz spectrum to be auctioned will be dealt with in a separate consultation.*

187. TELUS supports the symmetrical opening up of the Canadian telecom market to unlimited foreign direct investment. If this were to pass it would not change any arguments in our response. The relaxation of FDI restrictions does not increase Canadian operators access to capital, it merely decreases the cost of that capital as the risk premium is reduced by the ability to attach control provisions to any capital injection.

## Promoting Service Deployment in Rural Areas (Section 8)

***8-1. In the above context, the Department seeks comments on challenges and specific problems affecting the deployment of broadband mobile services to low-density rural and remote areas.***

188. The key challenge is that the economics of providing broadband service are still very poor given the limited scale achievable due to the very limited number of potential subscribers in any given area.
189. LTE over 700 MHz spectrum can be used to cost effectively 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 HSPA replacement in low density rural and remote areas.
190. ILECs have the obligation to provide wireline voice services in low-density rural and remote areas using either wireless or wireline and as such are best suited to put 700 MHz spectrum to use in these low-density rural and remote communities to provide broadband. As an example TELUS is in the process of building broadband capability over the next two years (using a Deferral Account funding contribution approved by the CRTC) in low-density rural and remote communities in Alberta, BC and Quebec – 50 communities in Alberta, 98 communities in BC and 11 communities in Quebec. In contrast, the AWS entrants are very unlikely to elect to build facilities to provide broadband service in low-density rural and remote areas, given the greater complexity, cost and lack of scale compared to urban build outs, and potential lower returns associated with these investments.
191. TELUS notes that while ILECs do have 850 spectrum in-territory, this spectrum is already at capacity serving these low density rural and remote areas with 2G and 3G voice and data. ILECs need 700 MHz spectrum in territory to enhance the services provided to existing customers using LTE. It is imperative that any Department rules do not block ILECs from acquiring 700 MHz spectrum in rural territories where they already hold (fully utilized) 850 MHz spectrum licences.

***8-2. Is there a need for further regulatory measures or changes to existing regulatory rules (e.g. RP-19) to facilitate service deployments in rural and remote areas that remain unserved and/or underserved?***

192. Given the existence of RP-019 no additional policy is required.

***8-3. Should the Department decide that measures are necessary, comments are sought on specific measures that could be adopted within the 700 MHz spectrum auction process to ensure further deployment of advanced mobile services in rural and remote areas (e.g. roll-out conditions, tier structure, etc.).***

***Rationale and supporting evidence that substantiate your responses should be provided.***

193. The best measure that the Department could adopt to ensure further deployment of advanced mobile services in rural and remote areas is to ensure that the wireless affiliates of the ILECs are fully eligible to bid for and obtain spectrum in these areas. TELUS has demonstrated that when it possesses suitable spectrum with suitable propagation characteristics (i.e. 850 MHz) it brings advanced mobile services to rural and remote areas. The second best measure is to apply stringent build out requirements to ensure build out in these areas using the numbers of pops covered by a certain time metric. It is important that the Department not chop up rural service areas too finely as this creates a risk of national or even Tier 2 regional providers not having full coverage. It is also spectrally inefficient as the requirements for guard bands, or special coordination procedures, multiplies exponentially as different carriers get crowded into small geographic serving areas.

## Open Access (Section 9)

***9-1 The Department seeks comments on whether there is a need for government intervention to promote open access, by increasing access by users to handsets and/or applications.***

194. The Department's consultation paper is right - the market is already delivering open platforms (alongside Apple's closed platform, which a significant number of people will line up overnight to buy into). The reality is that mobile wireless device and application platforms will be as open as the market demands. TELUS has an open platform model because that's what customers want today. There is no need for government intervention to achieve it. TELUS cannot predict or control how open standards will evolve - we are dependent on the technology decisions of vendors in that respect.
195. However, trying to engineer a given theoretical result by way of licence conditions presents a serious risk of unintended consequences. This is illustrated by what some say is a predicament facing Verizon in the U.S. Even though events have completely overtaken the need for the "open access" condition on the C block spectrum there, Verizon may be prevented from offering a 4G Apple iPhone on that spectrum because doing so may violate those conditions.<sup>55</sup> This despite the fact that consumers already have enormous choice among "open" devices (many based on the Android operating system) in addition to Apple's "closed" platform. This non-sensical result demonstrates that there is a much greater risk of stifling demand for and use of spectrum encumbered by "open access" conditions, in the near term, and fossilizing or degrading the broadband data user experience in that space in the long term. The CRTC has world-leading net neutrality / open Internet rules that apply to wireless data - unlike the FCC - and it can intervene if there are any problems. Carrier platforms in Canada are "open" already. While a device platform like Apple's is proprietary, access to the device is by way of open carrier platforms and Canada has sufficient rules in place to ensure that they stay as open as users want them to be.

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<sup>55</sup> See "Did Google Pre-Emptively Block a 4G iPhone on Verizon?" Wired Epicenter blog, <http://www.wired.com/epicenter/2011/02/verizon-4g-iphone-block/> 25 February 2011.

***9-2. If government intervention is needed, which of the following options should be implemented?***

***Option 1: Mandated open access requirements across all future commercial mobile bands***

***Option 2: Mandated open access requirements for the entire commercial mobile spectrum in the 700 MHz band.***

***Option 3: Mandated open access requirements for the “C Block” (746-757/776-787 MHz) as in the United States.***

***Please provide supporting arguments for your responses, and any additional comments related to provisions of open platforms for devices and applications.***

196. As outlined above TELUS believes that there is no problem for the Department to solve with respect to open access and therefore no intervention is required. The government's long-standing policy with respect to the telecommunications space is that regulatory bodies ought to rely on market forces to the greatest extent possible. Open access requirements are not necessary because carrier platforms are already open and the CRTC is fully empowered to deal with any concerns that might arise. The experience with the open access conditions on the U.S. C block demonstrates that no matter how well-intentioned originally, speculative intervention based on hypothetical problems can have negative consequences for consumers down the road. Unless the issue facing Verizon can be resolved, those open access conditions may result in *less* consumer choice, rather than more.

## Auction Timing (Section 10)

**10-1. 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.**

197. TELUS' strongly recommends that the 2500 MHz auction proceed first and expeditiously, it has been on the table for years and the Inukshuk partners have a head start advantage right now with the Department confirming in SMSE-005-11 the mobile transition date of March 31, 2011. There are also merits in a joint 700 / 2500 MHz auction. Note: From outside Canada, there are examples of "2600 MHz" and digital dividend (low band) being auctioned or planned to be auctioned together<sup>56</sup>. On balance however, given the advantage of a head start to 2500 MHz incumbents in addressing spectrum capacity issues by those that need it least and given the completely different band ownership structure between the two bands TELUS reiterates that the Department move to quickly auction the spectrum in the 2500 MHz band and then deal with the 700 MHz spectrum auction.

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<sup>56</sup> Low band and high band has been auctioned together in Germany and Brazil and other jurisdictions and the UK plans to do the same.

## APPENDIX 1 – Key Canadian Spectrum Facts

Industry Canada has released 11.6 billion MHz-pops of commercial mobile spectrum in the 850, PCS, AWS and 2500 bands in Canada as described in the following summary table<sup>57</sup>.

**Table 5 – Detailed Commercial Mobile Spectrum Holdings**

Operator	% Share of All Spectrum Allocated <sup>58</sup>	% Share of All Spectrum Granted <sup>59</sup>	% National Spectrum Coverage <sup>60</sup>	Average Spectrum Depth in MHz <sup>61</sup>	Peak Spectrum Depth (MHz) <sup>62</sup>	Average Cost in \$/MHz/pop <sup>63</sup>
Rogers	41%	49%	100%	149	170	\$0.42
Bell	29%	33%	92%	112	140	0.50
TELUS	15%	12%	100%	56	65	1.88
SaskTel	1.4%	5%	3%	160	160	0.44
MTS	0.8%	2%	4%	80	80	0.47
Videotron	3.4%	0	49%	26	50	1.46
Shaw	1.7%	0	31%	20	30	1.01
Bragg	1.0%	0	16%	23	30	0.23
Wind	3.0%	0	77%	14	40	1.32
Mobilicity	1.6%	0	54%	11	20	1.39
Public	1.6%	0	59%	10	10	0.30
Novus	0.6%	0	23%	10	10	0.26
Other	1.6%	<1%	n.m.	n.m.	n.m.	n.m.

<sup>57</sup> The table includes 850, PCS, AWS and 2500 MHz bands as detailed in the consultation (SMSE-018-10).

<sup>58</sup> These figures are quoted in the consultation (SMSE-018-10) and shown here with slightly more granularity.

<sup>59</sup> Granted spectrum refers to allocations by the Department in 1985, 1989, 1995, 1998, and 1999. Note: granted spectrum figures do not include spectrum originally granted to operators who subsequently sold these licences at fair market value on the secondary market.

<sup>60</sup> Represents the percentage of Canada's population covered by spectrum (and not the percentage of Canada's population covered by network.)

<sup>61</sup> Average Spectrum Depth is an indicator measure of the average spectrum capacity within an operator's spectrum licence coverage area. It is calculated by dividing an operator's total spectrum quantity in MHz-pops by the number of unique pops that its spectrum covers.

<sup>62</sup> Peak Spectrum Depth is a relevant measure to consider in the context of analyzing potential spectrum caps. It is calculated by adding up an operator's spectrum quantity in MHz in the service area where the operator has the most total spectrum.

<sup>63</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.

## Rogers Profile

- Over 4.5 Billion MHz-pops
- 41% of all commercial mobile spectrum allocated in Canada
- 23% of all Rogers' spectrum was granted to Rogers by Industry Canada, 35 MHz nationally
- Granted 49% of all the granted spectrum in Canada<sup>64</sup>
- 25 MHz of sub 1 GHz spectrum nationally
- Average spectrum depth of 149 MHz
- Average cost of \$0.42/MHz/pop<sup>65</sup>
- Lowest commercial mobile spectrum average cost base in Canada except for AWS entrants Public Mobile, Bragg and Novus - PCS G Block spectrum purchasers and a predominantly maritimes-based cableco.

## Bell Profile

- Over 3 Billion MHz-pops
- 29% of all commercial mobile spectrum allocated in Canada
- 22% of all Bell's spectrum was granted to Bell by Industry Canada
- Granted 33% of all the granted spectrum in Canada<sup>66</sup>
- 25 MHz of sub 1GHz spectrum covering ~2/3rds of Canada
- Average spectrum depth of 112 MHz
- Average cost of \$0.50/MHz/pop<sup>67</sup>
- Very lower average cost base
- Bell is essentially a new entrant in Alberta and BC but was able to buy significant spectrum in these territories in the \$0.17/MHz/pop range based on the anomalies introduced by the spectrum cap during the 2001 PCS auction<sup>68</sup>

## TELUS Profile

- Over 1.6 Billion MHz-pops
- 15% of all commercial mobile spectrum allocated in Canada
- 13% of all TELUS' spectrum was granted to TELUS by Industry Canada

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<sup>64</sup> The denominator for this calculation does not include spectrum granted to operators who subsequently sold these licences at market rates on the secondary market. It does include 65 MHz of BRS post return granted to SaskTel.

<sup>65</sup> Per TELUS calculation based on publicly available information.

<sup>66</sup> The denominator for this calculation does not include spectrum granted to Microcell and Clearnet which these parties subsequently sold at market rates to incumbent operators.

<sup>67</sup> Per TELUS calculation based on publicly available information.

<sup>68</sup> In 2001, Industry Canada, based on the then in place spectrum cap, stripped TELUS in all its ILEC territories of 20 MHz of the 30 MHz spectrum it bought (147M MHz-pops which based on the third party allocation of purchase price represented c.\$300M in value). In 2001, Industry Canada auctioned this same spectrum to Bell and W2N for c.\$22M while TELUS was not allowed to bid on it.

- Granted 12% of all the granted spectrum in Canada<sup>69</sup>
- 25 MHz of sub 1GHz spectrum in Alberta, Southern BC and 7% of the pops in Quebec
- Average spectrum depth of 56 MHz
  - 69% of the average depth of MTS
  - 49% of the average depth of Bell
  - 37% of the average depth of Rogers
  - 36% of the average depth of Sasktel
- Average cost of \$1.88/MHz/pop<sup>70</sup>
- Highest average cost base in the entire Canadian Industry (TELUS is essentially a non-incumbent that bought its way out of its home geographic territories containing less than 25% of the population – Alberta, Southern BC and a small pocket in Quebec)

### Sasktel Profile

- Over 150 Million MHz-pops
- 63% of all SaskTel's spectrum was granted to SaskTel by Industry Canada, 100 MHz in Saskatchewan<sup>71</sup>
- 25 MHz of sub 1GHz spectrum in Saskatchewan
- Average spectrum depth of 160 MHz
- Average cost of \$0.44/MHz/pop<sup>72</sup>
- Very lower average cost base
- Near monopoly government owned operator in Saskatchewan
- Did not expand outside Saskatchewan in 2008 AWS auction despite rules that were supportive

### MTS Profile

- Almost 90 Million MHz-pops
- 38% of all MTS' spectrum was granted to MTS by Industry Canada, 35 MHz in Manitoba
- 25 MHz of sub 1GHz spectrum in Manitoba
- Average spectrum depth of 80 MHz
- Average cost of \$0.47/MHz/pop<sup>73</sup>
- Very lower average cost base
- Near monopoly operator in Manitoba
- Did not expand outside Manitoba in 2008 AWS auction despite rules that were supportive

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<sup>69</sup> The denominator for this calculation does not include spectrum granted to Microcell and Clearnet which these parties subsequently sold at market rates to incumbent operators.

<sup>70</sup> Per TELUS calculation based on publicly available information.

<sup>71</sup> 25 MHz of 850, 10 MHz of PCS and c.65MHz of 2500.

<sup>72</sup> Per TELUS calculation based on publicly available information.

<sup>73</sup> Per TELUS calculation based on publicly available information.

## Industry Profile

- Five established operators (profiled above) – 3 national, 2 regional. All grantees from 1985
- No new entrant PCS grantees from 1995 have survived
- No new entrants were introduced via the 2001 PCS auction despite large amounts of spectrum selling at or near the reserve price or remaining unsold
- No new entrants were introduced via 2500 MHz corporate transactions. No 2500 MHz (MCS / MDS) commercial grantees surviving, other than Sasktel and a few very small rural operators. The entire balance of the 2500 MHz band has been consolidated by the Bell and Rogers Inukshuk JV
- 10 potential new entrants were successful in the AWS auction, incented by the globally unprecedentedly large set aside, and the retroactive conditions of licence (COLs) mandating tower and site sharing plus in and out of territory roaming. Two and half years after the AWS auction, only 4 of these 10 potential new entrants (Wind, Mobilicity, Public and Videotron) are in-market. These 4 AWS entrants hold 74% of all AWS entrant spectrum purchased