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Spectrum Management and Telecommunications

# **Decisions on the Revisions to the Framework for Spectrum Auctions in Canada and Other Related Issues**

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**Canada**

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## **1. Intent**

The intent of this document is to release Industry Canada's decisions with respect to the public consultation initiated in April 2009 through *Canada Gazette* notice DGRB-001-09 – *Consultation on Revisions to the Framework for Spectrum Auctions in Canada*, and to provide context for the decisions that are reflected in the revised *Framework for Spectrum Auctions in Canada* (Issue 3).

## **2. Background**

Issue 2 of the *Framework for Spectrum Auctions in Canada* (the 2001 Auction Framework) was published in October 2001. Since then, Industry Canada has gained valuable experience and knowledge in the conduct of spectrum auctions and has kept abreast of advances in auction theory and best practices on an international level.

In 2007, Industry Canada published a renewed *Spectrum Policy Framework for Canada* (SPFC), which outlines a single policy directive with a clear set of enabling guidelines to provide effective spectrum management that serves the social and economic interests of all Canadians in light of the challenges of a rapidly changing technological environment. In particular, the renewed SPFC recognizes the importance of reliance on market forces to the maximum extent feasible, a reduced administrative burden, and minimally intrusive regulation, keeping in mind the continued need to manage the spectrum resource where required.

As mentioned above, Industry Canada issued *Canada Gazette* notice DGRB-001-09 in April 2009. Although comments were accepted on all aspects of the Auction Framework, input was sought on three particular areas:

- the use of auction types other than simultaneous multiple-round ascending (SMRA);
- the use of auctions as a means of awarding satellite licences; and
- the renewal of long-term spectrum licences.

Industry Canada also took the opportunity to seek comments on two issues relevant to long-term spectrum licences:

- the Research and Development (R&D) condition of licence; and
- the tier areas for competitive spectrum licensing.

Industry Canada's decision on the R&D condition of licence will be the subject of a separate decision paper to be issued in the near future.

In total, Industry Canada received comments and/or reply comments from 16 parties:

- Barrett Xplore Inc. and Barrett Broadband Networks Inc. (Barrett)
- Bell Mobility Inc. (Bell Mobility)
- Bragg Communications Inc. (Bragg)
- Canadian Independent Telephone Company Joint Task Force, on behalf of l'Association des Compagnies de Téléphone du Québec, the Canadian Alliance of Publicly-Owned Telecommunications Systems and the Ontario Telecommunications Association (ITC Task Force)
- Canadian Satellite and Space Industry Forum (CSSIF)
- Canadian Wireless Telecommunications Association (CWTA)
- Ciel Satellite Limited Partnership (Ciel)
- MTS Allstream Inc. (MTS Allstream)
- Quebecor Media Inc. and Videotron Ltd. (QMI)
- Rogers Communications Inc. (Rogers)
- Saskatchewan Telecommunications (SaskTel)
- Satellite Industry Association (SIA)
- SkyTerra (Canada) Inc. (SkyTerra Canada)
- Telesat Canada (Telesat)
- TELUS Communications Company (TELUS)
- TerreStar Networks (Canada) Inc. (Terrestar Canada)

### **3. Discussion and Decisions**

#### **3.1 Auction Types and Attributes**

Auctions are an efficient market-based means of assigning spectrum licences, through a fair and transparent process, to those who value them the most. To date, the SMRA auction has been the design most often used in Canada to authorize the use of available spectrum by means of an auction. Although the 2001 Auction Framework stated that Industry Canada had selected the SMRA as its general auction design, it also stated that Industry Canada would continue to examine new auction designs and adopt them as appropriate. Since the consultation was initiated in April 2009, Industry Canada has held two sealed-bid auctions: one for air-ground services in the bands 849-851 MHz and 894-896 MHz; and the other for the residual spectrum licences in the 2300 MHz and 3500 MHz bands. New developments in auction design continue to evolve and are being implemented in other countries. Industry Canada continues to monitor advancements in both the theoretical and practical aspects of auction design, and anticipates circumstances wherein it would be advantageous to use other types of auctions, including but not limited to, sealed-bid, clock and combinatorial auctions.

The consultation presented an opportunity to receive and consider stakeholder comments on the various types of spectrum auction formats that could be used, as well as the circumstances under which a particular format or attribute could or could not be applied.

Comments on this issue were received from Bell Mobility, the ITC Task Force, MTS Allstream, Rogers, SaskTel and TELUS. With the exception of Rogers, respondents generally supported the continued use of SMRA auctions unless a different auction design was considered to be more appropriate in specific situations. For example, the ITC Task Force and MTS Allstream submitted that first-price, sealed-bid auctions might be appropriate for spectrum that is not highly contested, such as in remote areas. SaskTel also recognized that an alternative format might be preferable in cases where a small number of licences are being awarded; however, SaskTel supported the use of the sealed-bid, second-price (Vickrey) auction format, a format to which the ITC Task Force and MTS Allstream were opposed.

Rogers, on the other hand, maintained that the SMRA auction format is inherently flawed in that it engenders two types of aggregation risk: geographic and capacity risks. As an alternative, Rogers advocated using the combinatorial clock auction format, a format which Bell Mobility maintained would increase the administrative burden for both Industry Canada and bidders. Bell Mobility also cited the burden of having to learn a new auction process.

TELUS recommended that any move away from use of the SMRA format be the subject of a separate consultation, not one associated with any particular band, but one which would be focussed solely on alternative auction formats. Both Bell Mobility and MTS Allstream supported the TELUS proposal, and Rogers responded that a more detailed consultation outlining the strengths and weaknesses of different auction format would be beneficial.

The previous Auction Framework (October 2001) also provided extensive details on attributes and rules that are specific to the SMRA design. The details with regard to auction attributes and rules will henceforth be included as part of the public consultation preceding a specific auction. Industry Canada has revised the Auction Framework to delete the text that is specific to the SMRA auction design, as this may not apply to other auction types, and to emphasize that Industry Canada will continue to explore auction formats and attributes in order to be better equipped to respond to future licensing needs. Auction design, theory and technology are constantly evolving. The selection of an optimal auction design and related attributes for a particular auction must be based on several factors, including the type and quantity of spectrum being offered. Given the unique nature of each auction, Industry Canada does not consider that it would be useful to initiate a separate consultation which would focus solely on alternative auction formats. Instead, comments will continue to be invited on Industry Canada's proposed auction format preceding each specific auction.

**The Auction Framework indicates that Industry Canada will consider alternative auction design and consult on the proposed formats for each specific auction based on the particular characteristics of that auction.**

### 3.2 Use of Auctions for Certain Satellite Authorizations

The 2001 Auction Framework noted that the global nature of satellite systems and the significant international coordination requirements to secure access to satellite spectrum are impediments to the use of auctions; however, certain types of “planned” satellite bands where countries have predefined spectrum and orbital resources could lend themselves to an auction process.

The consultation sought comments on whether Industry Canada should use auctions to award satellite authorizations where there is sufficient interest and competition in Canada for the assignment of the satellite spectrum. Seven respondents representing the satellite industry voiced their opposition to the use of auctions, stating the inherent international nature of satellite communications and regulations as a key reason. Terrestrial services respondents supported the use of auctions for satellite licensing, arguing that economic principles should be applied equitably to all commercial spectrum users.

Industry Canada recognizes the particular challenges of using auctions for satellite licences where access to the spectrum is sometimes uncertain. Nevertheless, auctions still represent a fair, transparent and efficient licensing mechanism. For these reasons, Industry Canada does not want to rule out auctions as a licensing mechanism for satellite spectrum and believes that there are circumstances where the use of auctions would be appropriate. However, we anticipate the circumstances that would give rise to the use of auctions to be limited; for example, when the spectrum is pre-assigned to Canada as part of an International Telecommunication Union (ITU) Plan or when Canada has priority access to the spectrum internationally.

In addition to the comments on the use of auctions for satellite authorizations, some respondents expressed concern about the Canadian satellite licensing policy framework. The current framework was developed more than 10 years ago to address the liberalization of the markets for the provision of satellite services and to facilitate the orderly transition from a monopoly regime to one of competition. Industry Canada recognizes that the measures taken at that time may no longer be appropriate and will undertake a comprehensive review of the satellite licensing policy framework to ensure that the framework is adapted to today’s environment. This review will involve an analysis of licensing framework options to determine best practices in other administrations and to ensure that Canadian satellite operators are not disadvantaged when competing domestically and internationally. In particular, Industry Canada is considering other possible licensing processes to deal with competitive applications, such as the first-come, first-served process. Industry Canada will issue a public consultation regarding these issues.

**The Auction Framework has been modified to indicate that, for domestic or regional satellite systems that cover Canada, the Minister of Industry may, under certain circumstances, consult on the use of an auction for the assignment of satellite authorization(s).**

### **3.3 Auctioned Licences**

The 2001 Auction Framework provided that “A spectrum licence issued via an auction will generally be valid for ten years from the date of issuance, with a high expectation of renewal for a further ten-year term, unless a breach of licence condition has occurred, a fundamental reallocation of spectrum to a new service is required, or an overriding policy need arises. A public consultation regarding the renewal of the licence will commence no later than two years prior to the end of the licence term if Industry Canada foresees the possibility that it will not renew this licence or if renewal fees are contemplated.”

Industry Canada sought comments on all issues relating to the renewal process for long-term licences, including the proposals that:

- licences continue to be issued for a 10-year term;
- licences continue to have a high expectation of renewal;
- the conditions of licence applied to the renewed licences may differ from those on the existing licences, with such changes being made following a consultation; and
- fees be imposed for renewed licences and be based on an estimation of the market value of the spectrum.

#### **3.3.1 Auctioned Licence Term**

The consultation sought comments in relation to the renewal of long-term auctioned licences. However, the considerations are equally relevant to both the initial licence term and the renewed licence term.

In the consultation, Industry Canada proposed that renewed licence terms remain at 10 years in order to provide ample opportunity for public consultation on any pertinent issues, including the implementation of changes to the terms and conditions of the licence if warranted. Comments were received from Bell Mobility, Bragg, the ITC Task Force, the CWTA, MTS Allstream, Rogers, SaskTel and TELUS. All respondents were in agreement that a 10-year licence term is insufficient. Bragg, the ITC Task Force, the CWTA, MTS Allstream, Rogers, SaskTel and TELUS were all of the view that licence terms should be 15 years, at a minimum, and preferably 20 years in duration. Bell argued that licence terms should be indefinite or, at a minimum, be 20 years. Although it proposed licence terms of 10 to 15 years, Bragg also supported the notion of indefinite licence terms.

A number of countries, such as Australia, the United Kingdom and the United States have undertaken extensive reviews of their spectrum management programs, and have been implementing changes. A common finding in these reviews is that traditional methods of spectrum management have often impeded access to spectrum and are slow to adapt to changes in technology and markets. As a result of the reviews, these countries are taking steps to evolve from a prescriptive style of spectrum management to an approach that embraces more flexibility and less regulatory intervention in the market, while retaining necessary regulatory powers to manage the spectrum effectively when required. Consequently, some countries are adopting longer licence terms, ranging from 10-year to indefinite.

At the time that Canada adopted the 10-year licence term, it was deemed that this would provide enough certainty in the marketplace to secure the investments necessary to acquire spectrum and to build related networks. However, in light of the comments received and upon further review of licence terms on an international level, Industry Canada recognizes that licence terms in excess of 10 years would create greater incentive for financial institutions to invest in the telecommunications industry and for the industry itself to further invest in the development of network infrastructures, technologies and innovation. Longer licence terms would also be consistent with a modernized approach to spectrum management as stated in the 2007 *Spectrum Policy Framework for Canada*, including the reduction in administrative burden.

Industry Canada also recognizes the need for ministerial latitude to manage the spectrum effectively and must ensure its ability to implement changes that may be required during a licence term. The likelihood that a change would be required would depend on both the length of the term and the stability of the market associated with the spectrum in question. Consequently, Industry Canada considers that terms may be set for up to 20 years, depending on the particular situation. Industry Canada will explore and consider changes to legislation, regulations, policies and frameworks that would confer the necessary powers to permit Industry Canada to move to longer or indefinite licence terms while maintaining the flexibility to deal with policy requirements and potential reallocation of spectrum.

**Industry Canada is adopting a flexible approach in determining licence terms (up to 20 years) based on the specific spectrum being offered and subject to a public consultation preceding the specific auction or renewal process.**

### 3.3.2 Expectation of Licence Renewal and Related Conditions

Currently, the *Framework for Spectrum Auctions in Canada* provides that a spectrum licence issued via an auction will have a high expectation of renewal at the end of the licence term unless a breach of licence condition has occurred, a fundamental reallocation of spectrum to a new service is required, or an overriding policy need arises. A “high expectation of renewal” means that licensees will generally be eligible to continue operating and serving their customers, under the terms of a new licence, after the expiration of their current licence term, and subject to the related conditions stated above.

Generally, at least two years prior to renewal, Industry Canada will review whether there is a need for a fundamental reallocation or whether an overriding policy need has arisen. Industry Canada will then launch a public consultation to discuss whether, in light of the above-noted issues, new licences should or should not be issued for a subsequent term. The consultation paper will also propose, and invite comments on, licence conditions and fees that would apply during the subsequent licence term.<sup>1</sup>

The consultation paper proposed that licences continue to have a high expectation of renewal, as per the existing Auction Framework, with such renewal being subject to any changes to the terms and conditions of licensing developed through consultation as described above. The Minister sets conditions of licence that are to be met and maintained during the licence term. If these conditions are not met

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<sup>1</sup> The timing and need for such a renewal consultation may vary for satellite licences.



and/or maintained, in addition to any other enforcement action under the *Radiocommunication Act*, the licensee should not expect to continue to have a high expectation of renewal.

Comments were received from Bell Mobility, Bragg, the ITC Task Force, the CWTA, MTS Allstream, Rogers, SaskTel and TELUS on this issue.<sup>2</sup> All supported the continued high expectation of renewal for all licences in order to create certainty for investment in the marketplace. The CWTA, Rogers and SaskTel requested that the statement “high expectation of renewal” be included in both the text of policy documents and conditions placed on spectrum licences. Bell Mobility and Rogers further argued that licensees should anticipate a high expectation of renewal at the end of the initial term and should also reasonably anticipate a high expectation of renewal at the end of each and every subsequent term. Bell Mobility added that the high expectation of renewal should become a specific attribute of the licence as opposed to a policy statement.

The issue of whether to continue using the term “high expectation of renewal” has been an ongoing source of discussion over the years. Industry Canada recognizes that efforts to address the concerns of various stakeholders, ranging from investment uncertainty to the need for ministerial authority to take action where and when deemed necessary, have resulted in the use of inconsistent wording to define and describe the expectation of renewal of long-term licences in various policy documents. For example, some auctioned licences currently contain a “high expectation of renewal” statement, whereas others state that licences “will likely be renewed,” or provide no reference to the renewal expectation. Moving forward, Industry Canada believes that the inclusion of qualifying statements that define the conditions under which a licence would have a high expectation of renewal and that define possible reasons for non-renewal will help to increase certainty for marketplace investment. Industry Canada also agrees that where a “high expectation of renewal” exists, it should be included directly on licences and in related policy documents in order to ensure clear and consistent messaging.

Industry Canada also sought comments on issues related to the renewal process for long-term licences, including: that the conditions of licence applied to the new licences may differ from those on the existing licences, with such changes being made following a consultation process. The consultation paper noted that spectrum licences are subject to conditions of licence and relevant provisions in the *Radiocommunication Act* and the *Radiocommunication Regulations*. For example, the Minister continues to have the power to amend the terms and conditions of spectrum licences at any time during the licence term (paragraph 5(1)(b) of the *Radiocommunication Act*).

Comments received from Bell Mobility, SaskTel and TELUS indicated no opposition to licence conditions differing at the time of renewal, as long as such changes were the exception and were made following a full public consultation process.

Where the majority of licences in a specific band are coming up for renewal, the terms of conditions would normally be the subject of consultation approximately two years prior to the end of the licence term. Industry Canada will review the existing conditions of licence and assess whether any changes should be proposed for the new licences.

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<sup>2</sup> Ciel stated that it would provide its comments concerning licence renewals within the context of a separate upcoming proceeding applicable to satellite operations.

**Licences will have a high expectation of renewal unless a breach of licence condition has occurred, a fundamental reallocation of spectrum to a new service is required, or an overriding policy need arises.**

**Recognizing that a high expectation of renewal is not a guarantee, but that it does help to create increased certainty for investment in the marketplace, Industry Canada agrees that the high expectation of renewal and the qualifying statements should be included directly on all auctioned and post-auction licences, as well as stated in policy documents, to ensure clear and consistent messaging.**

**The Minister of Industry has the authority to amend the terms and conditions of spectrum licences both during and at the end of the licence term, as stated in paragraph 5(1)(b) of the *Radiocommunication Act*. Industry Canada will review the conditions of licence that will apply to the next licence term during the specific renewal consultation.**

### 3.3.3 Licence Fees

With respect to licences issued through a renewal process, the 2001 Auction Framework stated that comments would be sought prior to the end of the licence term if fees are contemplated. In general, fees established by Industry Canada for spectrum authorizations have as their goal to promote the efficient assignment of resources and earn a fair return for the Canadian public. The consultation paper proposed that licence fees be imposed for licences issued through a renewal process and that these fees be based on an estimation of the market value of the spectrum in question. Accordingly, comments were sought on the application of fees based on market value for subsequent terms.

Twelve respondents commented on this point, directly or through reply comments, generally stating their disagreement with the application of licence fees upon renewal. Comments on this issue were received from Bell Mobility, Bragg, ITC Task Force, CSSIF, CWTA, Ciel, MTS, Rogers, SaskTel, SIA, Telesat and TELUS.

The majority of respondents stated that no fees should apply for the subsequent licence term, but if any fees were imposed, they should be based solely on cost recovery. Bell Mobility, Rogers, SaskTel and TELUS suggested that higher fees would diminish network investments, while Rogers, SaskTel and Telesat further added that these fees would be passed on to consumers in the form of higher prices.

The CWTA provided comments to the effect that the auction purchase price included all the economic rents associated with the licence, and that a fair return to the public would also include the benefits accruing to the public from the availability of the services using the spectrum. Bragg further stated that licensees' significant investments in infrastructure, technologies and services, as well as their contributions to the Canadian economy, represent a significant return in and of themselves. Industry Canada notes that all previous spectrum auctions in Canada clearly stated that licences were for terms of 10 years, and that licence fees may apply after this initial term.

The pace of growth in wireless technologies and services is placing increased pressure on access to spectrum. Each year, there is more demand for radio frequency spectrum and services by an expanding user base. Auctions and fees are some of the tools in place that Industry Canada can use in response to this challenge.

In general, Industry Canada has been using auctions to assign licences for spectrum where the demand is expected to exceed the supply. In an auction, the winning bidder decides on the price to be paid with the price paid acting as an incentive for the winning bidder to put the spectrum to use efficiently. It is a transparent process where licensees pay market prices for the rights and privileges afforded by the licences purchased and a fair return is also provided for the public.

As set out in subsection 5(1.3) of the *Radiocommunication Act*, bids paid for licences obtained under a competitive bidding process, such as an auction, are deemed to be in lieu of fees. Therefore, no annual fees apply during the term of the auctioned licence. For non-auctioned and post-auction licences issued through a renewal process, incentive fees that reflect a measure of the market value of the spectrum could encourage licensees to consider the cost of holding additional spectrum in balance with alternative available inputs (e.g. technical adjustments to networks, additional infrastructure, etc.) and their operating costs to meet their objectives, while dissuading the over-use and anti-competitive behaviour that often accompany free or under-priced goods. As a result, consumers and businesses receive new and better services, competition is promoted and investment is stimulated. Generally, fees will apply consistently, irrespective of the licensing process in which current licences were obtained.

Canada was one of the first countries to hold spectrum auctions and, to date, few jurisdictions have had auctioned licences that have been subject to a renewal process. However, there are indications in some countries as to their proposed approach concerning fees for post-auction licence terms. In New Zealand, incumbents have been given the option to renew their spectrum rights at a calculated market price, determined on a case-by-case basis, with the option that the incumbent can refuse the offer and test the price at auction. So far, New Zealand has issued offers for spectrum rights in the 800 MHz and 900 MHz cellular bands, the UHF TV band, and AM/FM radio broadcasting bands. The offers have been accepted by the vast majority of spectrum rights holders. Regulators in the United Kingdom and Australia have signalled their intent to set renewal fees that reflect the market value of the spectrum. In the United States, current legislation restricts the Federal Communications Commission (FCC) to charging cost recovery only after the initial term of the licence expires; however, proposals have been included in presidential budgets over the last number of years to charge licence fees that reflect market value.

**For licences issued through a renewal process, including those originally issued through an auction process, Industry Canada will apply the annual licence fees.**

### 3.4 Tier Areas

Industry Canada uses geographic area definitions known as “tiers” when auctioning spectrum licences for terrestrial services. These tiers are based on Statistics Canada census subdivisions and are described in Industry Canada’s document entitled *Service Areas for Competitive Licensing*. Tier 1 represents a single national service area, whereas tiers 2, 3 and 4 represent progressively more granular service areas.

Tier 4 is the most granular and is comprised of 172 localized service areas covering all of Canada. In the consultation released prior to each individual licensing process, comments are sought on the specific tier or combination of tiers which should be used for that particular process based upon the specific characteristics of the type of service to be offered.

Industry Canada sought comments on “the establishment of a new tier level that would differentiate urban and rural areas or whether other mechanisms could achieve the same purpose more effectively.” Comments on this issue were received from Barrett, Bell Mobility, Bragg, the ITC Task Force, the CWTA, MTS Allstream, Rogers, SaskTel and TELUS.

Bragg, the ITC Task Force, the CWTA, Rogers, SaskTel and TELUS argued that Tier 4 should be the smallest subdivision for the country, whereas Bell Mobility argued that the use of Tier 4 service areas should be discontinued and that Industry Canada should instead use Tier 3 areas if an area smaller than Tier 2 is necessary. All contended that tier sizes smaller than Tier 4 would not facilitate a viable and sustainable business case. In addition, they cautioned that smaller tier sizes would also cause frequency coordination issues. Only Barrett was strongly in favour of a potential urban/rural division of tiers. MTS Allstream was of the view that such a division may be necessary in order to incent small bidders to participate in new spectrum licensing processes. Both suggested that changes to the tiers used for auctioning spectrum would reduce or remove one of the barriers to the provision of service in rural areas. They contended that bidding on spectrum in a tier area which includes both rural and urban areas is thus more costly, and includes a larger area than the rural area actually desired.

Modifying the existing tier areas is very problematic without reference to a particular band. The creation of urban versus rural areas could increase coordination complexity, which may reduce the overall social and economic benefits. The optimal division, should such action be warranted, would vary by band in consideration of propagation and other technical considerations. Consequently, Industry Canada will maintain the existing four tiers described in the document *Service Areas for Competitive Licensing* when licensing spectrum via auction. However, should compelling evidence be provided that the introduction of an alternative tier is socially desirable as well as economically and technically feasible for a specific auction/band, Industry Canada would consider establishing another tier. Industry Canada will continue to seek and consider comments from stakeholders on the proposed tier level and on whether alternative approaches are warranted for the specific spectrum being offered prior to an auction.

Industry Canada notes that a several viable options for companies wishing to acquire spectrum in rural or remote areas are already available. Some of these options include:

- transfer, subdivision or subordinate licensing in the secondary market;

- within an auction process, parties wishing to serve rural or remote areas within a tier can form a bidding consortium, with a view to each consortium member providing service to a portion of the licensed tier area;
- an application for spectrum for areas where competitive cellular service is not provided via the process set out in the *Policy for the Provision of Cellular Services by New Parties* (RP-019); and
- use of unlicensed spectrum or an application for spectrum in the 3650 MHz band, which involves relaxed technical rules for the provision of service in rural areas, is available to all service providers.

**The Service Areas section of the Auction Framework will be clarified with the following: Prior to an auction, Industry Canada will seek and consider comments from stakeholders on the proposed tier level and on whether alternative approaches are warranted for the specific spectrum being offered.**

#### **4. Obtaining Copies**

All spectrum-related documents referred to in this paper are available on Industry Canada's Spectrum Management and Telecommunications website at <http://www.ic.gc.ca/spectrum>.