

**INDUSTRY CANADA GAZETTE  
NO. DGTP-006-06**

***PROPOSED SPECTRUM UTILIZATION POLICY,  
TECHNICAL AND LICENSING REQUIREMENTS  
FOR WIRELESS BROADBAND SERVICES (WBS)  
IN THE BAND 3650-3700 MHZ***

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**COMMENTS**

**OF**

**UTC CANADA**

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**Filed: October 27, 2006**

## **INTRODUCTION**

1. The United Telecom Council of Canada (“UTC Canada”) is an industry association focused on addressing telecommunications issues for utilities and energy companies in Canada and the providers of telecommunications infrastructure or information technology services which are affiliated with these companies. The association was formed to address common regulatory issues facing its members and to provide a forum for cooperation on technical and market issues. UTC Canada is affiliated with the United Telecom Council, a 50 year old Washington based global trade association for electric, gas and water utility telecommunications providers.
  
2. This submission is filed by UTC Canada on behalf of its membership. However, it has been spearheaded by five of Canada’s largest electrical utilities: Hydro Québec, Hydro One Networks Inc, Manitoba Hydro, Alta Link and BC Hydro. Each of these utilities provides vital energy services to vast regions of Canada. Over the past few decades telecommunications has become increasingly important to their operations in terms of network operations and monitoring, power system security, integrity of national and international power grids and worker’s safety.
  
3. As the Department is aware, electrical utilities in Canada have operated their own telecommunications networks for purposes of monitoring electricity distribution networks and providing communications services to remote locations on their transmission networks for many years. These facilities were originally built to provide service in areas where carrier-provided services were either not available or where the costs of obtaining carrier-provided facilities were prohibitive. In most cases, electrical utilities used a mix of self-provided and carrier-provided facilities, based on a cost/benefit analysis. With the advent of fibre optic technology, many of these utilities upgraded their old microwave facilities to take advantage of more sophisticated communications and monitoring equipment that run on digital networks. Some of these utilities also began

leasing excess capacity on their networks to telephone companies and other telecommunications common carriers that could make use of it. Those utilities or their affiliates that engaged in the provision of telecommunications services, have registered with the CRTC as “non-dominant carriers”.

4. In June of 2004, the Ontario Government announced a “smart metering” initiative to enable consumers and businesses to track their electricity consumption in real time, thereby opening the door to peak/off-peak pricing of consumers’ energy and enabling them to better order their affairs to minimize peak period usage. As part of this initiative, electricity utilities have to either extend their own telecommunications infrastructure or make arrangements with third party carriers to lease the capacity required. The Government established targets for the installation of 800,000 smart meters by the end of 2007 and for all customers in Ontario to be served by the end of 2010.

5. In Manitoba and British Columbia trials are also underway to test smart metering services and equipment.

6. The latest proposals to introduce smart metering simply provide more recent evidence of a growing role for telecommunications in support of the provision of energy services to the public. With heightened security concerns since 9/11, as well as concerns for rapid response to network outages and the heightened concerns about the integrity of regional and international electricity grids, the role of telecommunications in the provision of utility services continues to increase in importance. New Supervisory Control and Data Acquisition (SCADA) applications are also becoming an essential feature of modern utility infrastructure. All of these developments require increased bandwidth to operate effectively.

7. Industry Canada recognized the importance of telecommunications to utility companies at an early stage. This was evidenced by the Department’s microwave licensing policies in the 1980’s prior to the advent of competition in

the provision of facilities-based telecommunications services. The Department permitted utilities to apply for their own microwave licences at a time that few other non-carrier entities were eligible for licensing. That decision served the utility sector well and enhanced the ability of the utilities to deliver secure energy services to the Canadian public in a cost-effective and safe manner. Since that time, other licensing regimes have accorded priority status to utility use of spectrum (see for example *Technical Requirements for Fixed Line-of-Sight Radio Systems Operating in the Band 7125 – 7725 MHz*, s. 4.1.2).

8. In UTC Canada's respectful submission, it is now time to update the policy of ensuring access to high quality telecommunications facilities by Canadian utilities. As mentioned above, Canada's major electrical utilities have already begun the process of replacing old microwave facilities with fibre optic facilities on major routes where the cost of such facilities are justified. This investment has enabled these utilities to take advantage of modern monitoring and communications systems that are better capable of serving their needs.

9. While this transition to broadband networks using fibre optic systems did not require Departmental licences, the next phase of this evolution does. In order to extend broadband monitoring and metering services to their customers' premises, and in order to push network monitoring systems further out into the electricity transmission and distribution networks, lower-cost broadband technologies are required. One such technology that has a lot of promise is wireless broadband.

10. UTC Canada's members are not at all confident that existing carriers will serve their critical needs. The majority of provincial electrical utilities operate in predominantly rural Canada where the availability of terrestrial and RF digital facilities are meager at best, as it is difficult for the incumbent carriers to provide an economic solution and/or upgrade facilities to meet the utilities' needs. It has become apparent that the facilities leased from incumbent carriers, which presently serve this critical public infrastructure, are in rapid decay with no new

solutions being offered. We are concerned that the incumbent carriers have no incentive or will to deploy wireless or terrestrial broadband facilities in rural Tier 4 areas to meet the utilities' requirements. It is our opinion that due to the capital investment in cellular wireless infrastructure, there is no desire on the part of the incumbent telephone companies to "cannibalize" present product revenues by deploying next generation technologies. Any present day deployments are primarily targeted towards medium-sized urban communities, and presently, there are no services available from the ILECs that meet utility requirements for use within the rural Tier 4 areas. Furthermore, there are no clear schedules or timetables for service rollout.

11. For these reasons, we believe that Canadian electrical utilities will have to continue to look to their own resources to satisfy at least part of their telecommunications requirements – particularly in rural and remote areas. Due to the importance of reliable energy distribution systems to the Canadian economy, public safety and the security of the nation, we believe it is time once again for Industry Canada to update its utility segment policies and to provide ready, inexpensive access to radio spectrum required to meet electricity utilities' requirements.

12. UTC Canada notes that such a policy would be fully consistent with the telecommunications policy objectives for Canada enshrined in section 7 of the *Telecommunications Act* and referenced to in section 5(1.1) of the *Radiocommunication Act*. These objectives include "the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada." We submit that this properly includes a telecom system that serves the requirements of critical infrastructure required to serve the needs of Canadians.

13. We applaud Industry Canada's concern to extend rural broadband services to rural and remote areas of Canada – but urge the Department to look beyond consumer requirements. Canada's major electrical utilities cannot wait

for private sector carriers to extend their services to all areas where network monitoring and meter-reading applications are required – many of which are not in close proximity to population centres. Our industry must move forward to satisfy the responsibilities that we bear to provide secure energy services to the country.

14. We need broadband licensing policies that recognize this imperative, as did previous Department policies, and enable electricity utilities to gain access to broadband wireless spectrum at affordable rates.

15. Whether this requires a special policy for utilities, or whether a common licensing scheme might work, is not clear to us. We believe that the Department's consideration of different rules for urban and rural areas is a step in the right direction. However, UTC Canada still views the possibility of spectrum hoarding, exclusive licences for large geographic areas and high spectrum licence fees, as major obstacles to meeting the utility segment's telecommunications requirements.

16. Even though many Canadian electrical utilities collectively acknowledge that the spectrum 3650 – 3700 MHz is not optimum for rural areas due to propagation and physical limitations (lower frequencies such in the 700 MHz in rural Canada would be more appropriate) it would be remiss of us not to acknowledge Industry Canada's invitation to comment. By leveraging existing utility infrastructure (towers, fibre, rights of way) the electrical utilities predict that as their own anchor tenant, the business case for deploying such a network in rural areas becomes significantly more feasible. A positive utility business case based on cost deferrals of leased antiquated facilities in combination with efficiencies in public safety, security, workforce communications and grid monitoring is achievable. What is needed to give effect to this hypothesis is the availability of a block of spectrum at the appropriate frequency.

17. In addition, this is not simply a rural issue. The utilities' smart metering initiatives clearly require a cost-effective broadband distribution system to reach consumers and businesses. The 3650 – 3700 band is well-suited to support these applications where short-range communications and repeaters on distribution poles would be useful.

18. Although this proposed network would be deployed primarily for utility purposes, as described above, we also acknowledge the opportunity exists to use any excess bandwidth to assist to provide broadband services to Canadians in unserved and underserved areas, thereby helping to bridge the rural digital divide that exists in Canada.

19. Many Canadian utilities are encouraged that further spectrum allocation discussions (especially in the proposed WiMax working area) are being promoted as a means of addressing the rural digital divide. We applaud Industry Canada's efforts in this area and are prepared to assist wherever possible.

20. The utilities represented in this submission sincerely hope that the Department will address their concerns in the context of this consultation process and in future spectrum policies. We would welcome the opportunity to discuss these matters in greater depth with Industry Canada at the Department's earliest convenience.

21. The remainder of our comments address the specific issues raised by the Department in its consultation paper.

## 5.0 INCUMBENT LICENCES

### 5.1 Point to point systems

**The Department proposes to either grandfather or displace existing point-to-point systems in the band 3650-3700 MHz. Further, extensions and/or expansions of grandfathered systems on a case-by-case basis, outside of urban areas, may be permitted. Comments are invited on whether point-to-point systems in the band 3650-3700 MHz should be grandfathered or displaced and what conditions should apply in either case.**

22. UTC Canada believes that displacement of existing point-to-point systems in accordance with the transition policy principles outlined in Appendix 3 of the *Policy and Licensing Procedures for the Auction of Spectrum Licences in the 2300 MHz and 3500 MHz Bands* would be appropriate. These principles have worked well in the past and provide existing users a reasonable opportunity to migrate to other spectrum.

### 5.2 Fixed Satellite Service

**The Department proposes that FSS receive earth stations located at Weir, Quebec be grandfathered. Operators wishing to establish wireless access systems within a 150 km radius of these earth stations would be required to coordinate with the earth station operators. The Department further proposes that any future FSS receive earth stations in the band 3650-3700 MHz operate on a secondary basis. Comments are invited on this proposal.**

23. UTC Canada agrees with this proposal.

## 6. APPLICATIONS IN CANADA

**The Department seeks comments on types of wireless broadband applications which may be deployed in Canada in the near future.**

24. UTCC believes that future wireless broadband applications based on IEEE 802.16e standards in rural Canada would best serve the public interest. As this standard enables pricing competition amongst various hardware vendors, it would allow for cost-effective deployment to underserved areas. In addition, the availability of relatively inexpensive CPE devices based on this standard would assist in speeding up the adoption of rural broadband. As mentioned previously

in this document, because of the rural nature of provincial electrical utilities a lower frequency supported by WiMax forum in the upper UHF band would be preferred.

## **7. LICENSING APPROACH**

**The Department is of the view that the issuance of spectrum licenses, as described above, would be the appropriate licensing mechanism for this service. Comments are invited on this proposal.**

25. UTC Canada agrees with this approach. Spectrum licences would require considerably less administrative expense for both the licensee and the Department and would enable more flexible and cost-effective use of the spectrum.

26. UTC Canada believes that it is more appropriate to licence the available spectrum in two 25 MHz blocks, rather than in one 50 MHz block – particularly in rural areas. This will increase the chances of extending service in underserved areas and it will avoid placing rollout decisions in the hands of a single entity.

### **7.1 Service Areas**

**Comments are sought on the proposal to use Tier 4 service areas for the licensing of the bands 3650-3700 MHz. The Department invites alternative proposals on service areas, including rationale, where a Tier 4 service area is not suitable.**

27. It is difficult to isolate the issue of the appropriate geographic licensing area from the question of whether to use an exclusive or non-exclusive licensing process (discussed in 7.2 below).

28. Tier 4 areas in Canada are among the least densely populated in North America – especially outside of Canada’s major urban centres. Given the propagation issues that are inherent in the 3650 – 3700 MHz band, such as line of sight, distance limitations and potential interference issues with existing licence holders, and given that devices utilizing this frequency would have a shorter range as compared with many devices utilizing lower frequencies, it may

be unreasonable to assume that a licensee could ever properly serve a Tier 4 area – or could do so on a cost-effective basis. The coupling of a Tier 4 geographic area with an exclusive licence might therefore lead to either spectrum hoarding – or underutilization of this valuable spectrum resource.

29. For these reasons, the Department might be advised to consider either using smaller geographic regions in conjunction with exclusive licensing, or the larger Tier 4 regions in conjunction with multiple licences.

30. Again, this may be an issue where it is appropriate to distinguish between urban and rural applications. A ubiquitous urban network is more likely to be developed than a ubiquitous rural network. The danger of granting an exclusive licence in large rural areas is that the licensee is unlikely to make full use of the spectrum, thereby denying others an opportunity to use it and also perpetuating the digital divide.

31. For their part, the electrical utilities represented by UTC Canada have an urgent need for this and other wireless spectrum – particularly in rural and remote areas of Canada. A licensing system that fails to provide utilities with adequate access to this resource will do nothing to address the important need for greater security and greater control of the national power grid.

32. One possible solution to this problem would be to restrict part of the spectrum for utility-only use as was done in SRSP-307.1 – *Technical Requirements for Fixed Line-of-Sight Radio Systems Operating in Band 7125 – 7725 MHz*. This would provide the utilities with the kind of protection from interference they require for operation of critical infrastructure telecom networks.

33. If this type of approach were adopted, UTC Canada's members would not object to use of Tier 4 licensing regions.

## **7.2 Spectrum Structure and Licensing Options**

**Comments are invited on the proposed options for exclusive and/or non-exclusive licensing and any other options not outlined in the table, with supporting rationale. Any option could be applied to all or part of the spectrum. In the case of urban/rural service areas, the Department seeks the rationale and criteria for defining urban and rural. It should be noted that the licensing process and requirement for contention-based protocols will be determined based on the option selected.**

34. As discussed above, the electrical utilities that have joined in this submission favour the use of exclusive licences as the best means to satisfy their requirement for secure telecommunications systems to monitor and protect their critical infrastructure. At the same time, we recognize that use of exclusive spectrum licences in conjunction with very large Tier 4 regions effectively monopolizes the spectrum in that region and in all likelihood would lead to underutilization of the resource.

35. For these reasons we favour a licensing system that reserves a portion of the spectrum for utility use (25 MHz) and opens the remainder to competing uses. We make reference in this regard to the measures taken in SRSP-307.1 which created restricted channels for “systems supporting telemetering control and protection”, thereby supporting this important function of public utilities. Section 4.1.2 of that radio system plan allocated the GO/RETURN 30 MHz channels for use by the power utilities on a “preferential basis.”

### **7.3 Contention Based Protocols**

**Comments are invited on the proposed definition as well as the Department’s proposal to require the use of contention-based protocols for non-exclusively licensed spectrum in the band 3650-3700 MHz. Alternative proposals are welcome and should include details as to how these proposals address the potential for interference between non-exclusive licensees. The Department invites comments on the requirement to enter station and contact information into a publicly accessible database.**

36. As indicated above, UTC Canada favours the use of exclusive licences for its own critical infrastructure applications.

37. Provided some portion of the available spectrum is made available for utility-only use, UTC Canada could live with non-exclusively licensed spectrum in the remainder of the band with a mechanism such as contention-based protocols to address the potential for interference between non-exclusive licensees.

## **8. LICENSE TERM**

**Comments are invited on the proposed license term.**

38. UTC Canada agrees that exclusive licences should be for a ten year term, with a high expectation for renewal as long as the licence remains in good standing, as is the case with respect to other types of radio licences.

39. However, given the scarcity of spectrum and the breadth of the Tier 4 regions, exclusive licences should be made subject to rollout conditions that ensure proper use of the spectrum in question and prevent spectrum hoarding. Given recent experience in other bands, the Department should make these rollout commitments, conditions of licence that give rise to a material breach of the licence if they are not complied with and which give rise to revocation of licence.

### **8.1 License Fees**

**The Department requests comments on the proposed license fee of \$0.0042 per 50 MHz per population.**

40. UTC Canada does not believe that it is appropriate to apply a commercial licence fee structure to utilities that are utilizing radio spectrum to support their utility obligations. The pricing of spectrum on the basis of population within a Tier 4 region may be appropriate as a measure of its value to a commercial carrier offering services to the public. However, when spectrum is used for network monitoring and security arrangements, or to provide communications capability to employees in the field, it becomes an onerous tax on the utility and its customers, who compromise most Canadian consumers, businesses and governmental

institutions.

41. In addition, Canadian utilities will construct their telecommunications facilities where they have transmission networks and power stations – not necessarily in high population centres (unless they are also providing smart metering).

42. UTC Canada therefore urges the Department to consider a separate fee structure for utilities that is based solely on the Department's licence administration costs and not on the optimal commercial value of the spectrum in question.

## **8.2 Eligibility**

**The Department requests comments on the proposal for open eligibility.**

43. As regards eligibility, UTC Canada is in favour of opening the market to new entrants – particularly in areas where consumers have little or no choice of broadband providers. Provided that a portion of the spectrum is reserved for use by the utility segment, on a utility-only basis, UTC Canada believes that eligibility should be subject only to the Canadian ownership and control restrictions referenced by the Department and set forth in sections 9 and 10 of the *Radiocommunication Regulations*.

## **8.3 Spectrum Aggregation Limit**

**The Department invites comments on whether it should impose in-band or out-of band spectrum aggregation limits on licensees in the event a competitive process is adopted, and the rationale for such limits.**

44. UTC Canada believes that if a competitive process takes place, Industry Canada must ensure that restrictions put upon the licensees to require them to deploy in Tier 4 serving areas first and in a timely manner. The hoarding of spectrum by entities for purposes of thwarting competition is not in the public interest.

#### **8.4 Department Service Standards**

**Please provide comments on whether this service standard is appropriate.**

45. UTC Canada supports use of the four week service standard for issuance of licences from the date of receipt of a complete application.

#### **9.0 TECHNICAL CONSIDERATIONS**

**The Department invites comment on the proposed technical rules. In particular, will the proposed out-of-band emission limits provide sufficient protection to services operating in adjacent spectrum, including FSS earth stations operating in the conventional C-band (3700-4200 MHz)? How would this compare to the potential impact of in-band WBS emissions below 3700 MHz on FSS receivers?**

46. UTC Canada agrees that the Radio Advisory Board of Canada should be requested to develop radio standards based on the provisions that the Department has summarized in DGTP-006-06.

47. On behalf of its utility members, UTC Canada thanks the Department for providing an opportunity to comment on the issues raised in this consultation. We would welcome the opportunity to discuss our concerns further with the Department at its convenience.



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UTC Canada