



Canadian
Electricity
Association

Association
canadienne
de l'électricité

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Subject: Notice No. SLPB-008-17: Consultation on a Technical, Policy and Licensing Framework for Spectrum in the 600 MHz Band

1. The Canadian Electricity Association (CEA) welcomes the opportunity to comment on the *Consultation on a Technical, Policy and Licensing Framework for Spectrum in the 600 MHz*, published on August 4th, 2017.

The Canadian Electricity Association

2. The Canadian Electricity Association (CEA) is a trade association representing a broad range of companies that generate, transmit, distribute, and market electricity to industrial, commercial, and residential customers across Canada.

Need for Resilient Networks

3. The electrical infrastructure that Canadian utilities operate is critical to the safety, security, and economy of Canada. As reliance on the grid has grown, and the complexity of the generation and distribution systems increase, resilient communications networks are becoming increasingly critical to the safe and reliable operation of the electric grids.
4. Electric utilities need telecommunications networks to: 1) maintain secure and dependable tele-protection systems, 2) monitor and control electric infrastructure, and 3) enable the safe and efficient dispatch of their field workforce for routine and recovery operations.
5. Utilities typically make use of both commercial services and private networks. This combination often provides the best overall cost, performance, resiliency, and coverage.



CEA members operate infrastructure across Canada in the largest cities and, due to remote electrification mandates, in the most remote populated regions. They require a range of telecommunications options overcome that challenges seen in this diverse geography.

Importance of Useful Spectrum

6. Whether building their own networks, subscribing to services from incumbents, or subscribing to services from specialty operators, access to spectrum is a necessary prerequisite to managing the modern electricity grid.
7. The electric utilities market is relatively small, and products well suited to their needs typically overlap with other industries which have similar reliability and security requirements. Most technologies used by electric utilities for workforce dispatch and the protection, automation, and control of the electric supply share a market space with Public Safety, Railway, Mining, Oil and Gas, and Public Works.
8. In recent years the investment in wireless technologies seems to be concentrated on 3GPP technologies. Public safety is making massive investments in LTE optimised for mission critical use cases. Railway is using TETRA and GSM-R but expressing concern with the obsolescence of both in favour of LTE alternatives. Public Safety TETRA users are starting to migrate to LTE **Error! Reference source not found.**[2]. Mining and Oil and Gas are increasingly using specialty LTE operators in remote areas. Smart Cities are emerging with many perusing 3GPP IoT technology variants.
9. Fortunately, the security and resiliency needs of this broader critical infrastructure and public safety sector can be met with appropriately designed and operated 3GPP networks. Electric utilities will increasingly be seeking distribution and control of the core security, profile management, and authentication services (IMSI, HSS, PGW).
10. Qualicum has already released the X16 modem for the 600 MHz band [20].

The Rural and Remote Challenge

11. In remote areas of the country commercial services are often lacking due to the economics of deployment [4][7][11]. There is a considerable electric infrastructure in places with populations less than 1 person per square kilometre. However, while first-come-first-serve narrowband is readily available, access to broadband spectrum for 3GPP technologies remains a challenge even in these underserved lightly populated regions.





12. Electric utilities face a challenge in that wireless networks are needed near their facilities and infrastructure, and the bulk of the technology innovation is for wideband 3GPP technologies which are difficult to deploy without appropriate spectrum.
13. Electric Utilities currently have two options: 1) build private networks using non 3GPP spectrum, or 2) find a willing service provider with access to 3GPP spectrum. When building private networks our members make use of spectrum available on a first come first serve basis within their area of operation. If the spectrum is auctioned it is for the most part out of reach for electric utilities due to their ownership and operating models; however, there is a growing market for specialty mobile network operators that have acquired commercial spectrum and operate specialised services to suite their rural and remote clients.
14. The viability of specialty mobile network operators is also based on their access to spectrum. In SLPB-008-17 the Consultation on a Technical, Policy and Licensing Framework for Spectrum in the 600 MHz Band, many operators noted that by auctioning the 600 MHz spectrum in tier 4 regions their ability to acquire spectrum would improve. Some operators noted that certain tier 4 regions are very large and encompass only one concentrated populated area [9][10][7][14][16]. For these tier 4 regions auctioning even smaller areas may improve their opportunities [6][11][4].
15. These operators also noted that there was little to no secondary spectrum market in Canada and no incentive for a spectrum holder to sub-divide or sublicense their spectrum holdings even if they were not using them [10][15][6][11].
16. Improved access to 3GPP spectrum would allow Electric Utilities or Specialty Mobile Network Operators to operate in unserved areas.

Railway and Critical Infrastructure

17. Interest in 3GPP IoT technology is growing with critical infrastructure operators, with new monitoring and control use cases are rapidly emerging. Similar to Railway, for protection automation and control, Electric Utilities are best served by dedicated networks.
18. CEA fully supports the Railway Association's request for spectrum to enable their critical railway operation mandate. If the Department allocates 5+5 MHz for railway operations CEA believes the same block should be made available to other critical infrastructure operations on a





secondary basis using a categorization approach (RP-25) and fee structure (\$/pop/MHz) similar to that which is used for public safety.

200kHz Channels for Telemetry and IoT

19. CEA suggests that 200kHz channels be allowed permitting GSM-R, EC-GSM, or wideband telemetry radios. If 200 kHz channels are made available on a first-come-first-serve basis with mandatory build requirements, a critical infrastructure supplier could deploy a dedicated efficient service optimized to their critical needs. That operator with a secured channel could also accommodate more use cases by using white space to augment their critical dedicated traffic they could access broadband further improving the utilization of spectrum.

Guard Bands

20. If a 5+5 MHz block is set aside for railway and related critical infrastructure, CEA suggests the A block adjacent to the guard band be used allowing further coordinated narrowband operation within the guard bands.
21. The department should consider allowing 50 and 200 kHz wideband telemetry systems in the guard bands. 200 kHz wideband channels are compatible with 2G data protocols (GSM-R), as well as new 3GPP IoT technology designed to fit into 200 kHz channels [3]. Other wideband SCADA radio suppliers are also releasing critical infrastructure optimized radios in 50+ kHz channel plans [19].

Innovation, Research and Development

22. Innovation is critical to the future of the electric supply. CEA fully supports are requirement for all users of 600 MHz spectrum to be required to re-invest in innovation. For smaller companies, there may be value in reducing the reporting requirements.

All of which is respectfully submitted.

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