Electricity Canada Électricité Canada

Mr. Éric Dagenais
Senior Assistant Deputy Minister
Spectrum and Telecommunications Sector
Innovation, Science and Economic Development Canada
Government of Canada
235 Queen Street
Ottawa, ON
K1A 0H5

September 8, 2023

Re: Technical Requirements for Non-Competitive Local Licensed Services, including Fixed and/or Mobile Systems, and Flexible Use Broadband Systems, in the Band 3900 - 3980 MHz.

Dear Mr. Dagenais,

We at Electricity Canada are writing to raise our significant concerns with the draft SRSP-521. Electricity Canada is the national voice of Canada's evolving and innovative electricity business. Our members generate, transmit, and distribute electrical energy to industrial, commercial, residential, and institutional customers across Canada. Members include integrated electric utilities, independent power producers, transmission and distribution companies, power marketers, and system operators, who deliver electricity to Canadians in every province and territory.

Our members are specifically concerned about the impact of the proposed rules regarding power levels and antenna height. As formulated, the draft rules for SRSP-521 will severely restrict Canadian electrical utilities' (CEUs) ability to use the 3.9 GHz spectrum. This is especially concerning since this is the only 5G capable spectrum available to electrical utilities, and because CEUs are being displaced from the 3.65 GHz spectrum, which did offer good coverage. For CEUs to use the 3.9 GHz spectrum effectively, we propose SRSP-521 replicates the maximum permissible power levels previously set for SRSP 303.65, which covers devices operating up to 3.9 GHz. This will allow better coverage and align Canada with the international device ecosystem. If we act otherwise, we will create a device set for 3.9 GHz which will be limited to Canada, and this failure to harmonize with the global device ecosystem will severely restrict the amount and types of devices available for use by Canadian operators.

We also recommend that much greater antenna tower heights be allowed, as CEUs plan to place 3.9 GHz equipment on existing buildings, transmission towers, and dedicated telecommunications towers which are significantly taller than the proposed limits. If the tower height limits are not amended in the final publication of SRSP-521, then CEUs will have little incentive to use 3.9 GHz, and they will not be able to deploy systems to effectively provide coverage to urban, rural, or remote areas.

We make these recommendations acknowledging that there are concerns from incumbent aviation and satellite stakeholders. However, these concerns were already resolved in SRSP 303.65, with the use of exclusion zones and other protection measures. Near identical protection measures can be employed for SRSP-521 which will protect incumbents, and still allow CEUs, and others, broad deployment options that will entice usage of the spectrum. We detail our recommendations below.

Proposed changes to power level limits will reduce the availability of qualified equipment.

Our fear is that by imposing these proposed power limits, the availability of qualified equipment will diminish, and result in a supply chain failure for Canadian operators.

Our proposed solution is that we follow the standards which have been previously set out by ISED.

Table 1: Maximum permissible e.i.r.p requirements for fixed and base stations using non-AAS or AAS, and applicable area type, Outdoor Use. Draft SRSP 521 published values and Electricity Canada's proposed values.

Type of License	Draft published maximum permissible e.i.r.p. (dBm/MHz)	Proposed Maximum permissible e.i.r.p. (dBm/MHz)	Applicable area type
Low power	14	**30**	Metro, urban, rural, remote
Medium power	37	**48**	Rural, remote

For medium power, the current SRSP-303.65 standard permits e.i.r.p. levels up to 48 dBm/MHz (60 W/MHz), therefore we propose an e.i.r.p. limit of 48 dBm/MHz for SRSP-521. Harmonizing the equipment power levels will ensure utilities can continue to use existing licensed equipment.

The current SRSP-303.65 standard also permits e.i.r.p. levels up to 30 dBm/MHz (1 W/MHz) for low power devices, and again, we propose that the power limits for SRSP 521 match that of the current standard. What may be of interest to the broader market, however, is that the CBRS standard in the US permits power levels of 40 dBm/MHz; ISED could use this SRSP 521 as an opportunity to harmonize equipment to match the US market, and potentially broaden the equipment options available to Canadian operators.

Proposed changes to maximum antenna height would exclude many sites already in operation across Canada.

SRSP-521 proposes a maximum outdoor antenna height above ground level of 10m for low power (all areas) and 30m for medium power (limited to rural and remote areas only). We believe that this proposed limit will impact the electricity sector's operation of critical infrastructure.

This section will illustrate some of the structures, already in place and owned by utilities, which could be used as potential installation sites for these antennas.

Projected installation in power utility telecommunication towers.

Telecommunication towers are present in urban, suburban, rural, and remote areas all over the country.

Figure 1 : Telecommunication tower in a 735 kV substation, the antenna are placed above 38m. Source Hydro-Québec

Multiple high voltage substations are currently in use in urban areas, and these substations often have utility-owned telecommunication towers. CEUs need cellular private-Radio Access Network dedicated to cover the substation yard and immediate surroundings between 0.5 km and 5km from the tower.

This infrastructure is critical and subjected to both North American Electric Reliability Corporation regulations and strict cybersecurity rules requiring private networks. For safety, operational, and cost reasons, towers can be located within the high voltage areas. Base station antennas need to be installed high enough to get effective coverage around major obstacles like power transformers.

Primary broadband applications are video surveillance and robotic inspections, asset monitoring and worker communications in the substation yard.

Figure 2 : Utility owned telecommunication tower in a utility owned urban area
Source : Google street-view https://www.google.com/maps/@45.5337228,-73.6348843,221m/data=!3m1!1e3?entry=ttu

Projected installations in high voltage towers.

High voltage power lines towers are omnipresent in urban, suburban, rural and remote areas.

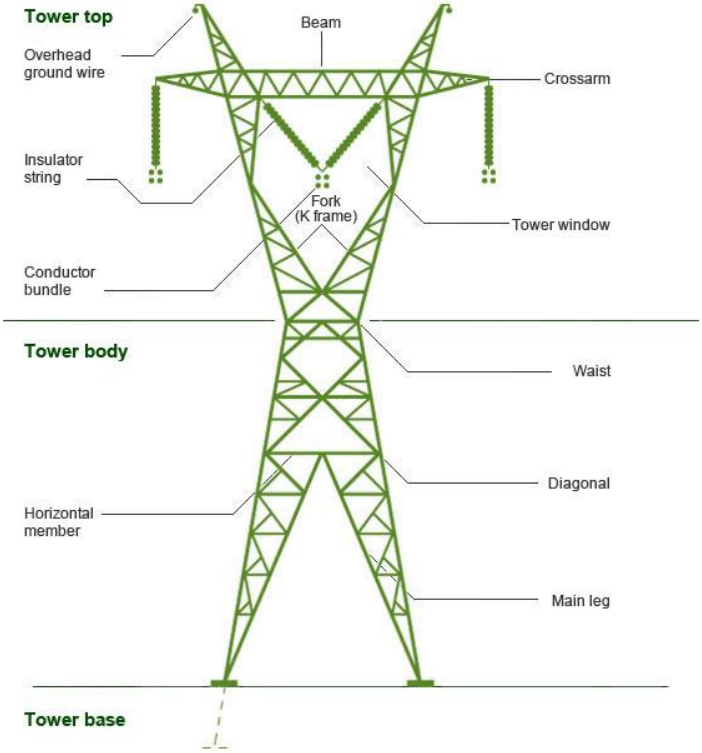

Figure 3 : Typical 735 kV high voltage tower
Source: Hydro-Québec http://www.hydroquebec.com/learning/transport/types-pylones.html

The height of these high voltage towers increases correspondingly with the voltage carried. At 735 kV, the height varies from 42m to 175m depending on the configuration, obstacles, and spans, such as highways or rivers. Base station antennas will usually be found above the conductor bundle in the crossarm area of the tower. Commercial carriers have some installations in high-voltage towers in the crossarm section in urban areas.

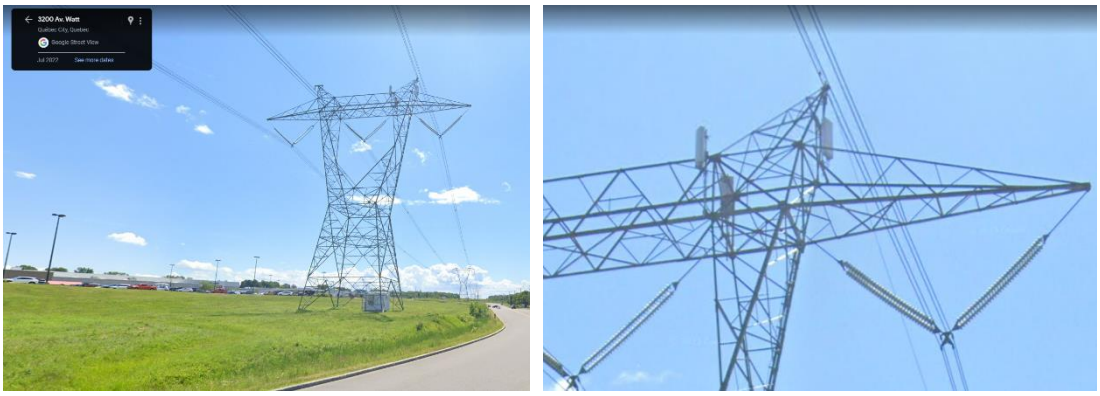

Figure 4 : Existing MNO cellular installation in an Hydro-Québec 735 kV tower (3200 av. Watt, Quebec-City, Québec)
Source : Google street-view https://www.google.com/maps/@46.7821583,-71.3296461,216m/data=!3m1!1e3?entry=ttu

Figure 5 : Potential site in a high voltage tower in a substation located in urban area
Source: Google street view https://www.google.com/maps/search/poste+%C3%A9lectrique/@45.5390033,-73.6622933,312m/data=!3m1!1e3!4m2!2m1!6e2?entry=ttu

Rooftop installations on utility-owned buildings.

Utilities also have tall buildings located mostly in urban areas (corporate offices, fleet operation buildings, repair centers, warehouses, test labs, etc.).

Figure 6 : Potential installation on utility owned building in downtown area, Montreal Hydro-Québec head quarter building. Source : Google street-view https://www.google.com/maps/@45.5082388,-73.5631428,312m/data=!3m1!1e3?entry=ttu

Many of these buildings have a height greater than 10m above ground. Utilities find these sites to be a perfect fit for base station installation to serve urban areas, but that is now in jeopardy with the proposed height limits.

CEUs have good reason to use their existing structures for 3.9 GHz system deployment, and so we recommend the following change to maximum allowable antenna heights from those published in draft SRSP-521 – 60m for low power licenses, and 175m for medium power licenses (table 2). We also believe it is a good policy to encourage the use of existing infrastructure where possible.

Table 2: Maximum permissible antenna height for fixed and base stations using non-AAS or AAS, and applicable area type, Outdoor Use. Draft SRSP 521 published values and Electricity Canada's proposed values.

Type of License	Draft published maximum antenna height (m)	Proposed Maximum antenna height (m)	Applicable area type
Low power	10	**60**	Metro, urban, rural, remote
Medium power	30	**175**	Rural, remote

In Conclusion:

We hope that we have laid out clearly some of the conflicts and potential resolutions that will assist you in drafting your new document, and we appreciate this opportunity to collaborate with the department as we find ways to better serve Canada.

All of which is respectfully submitted.

Channa Perera
Vice President, Regulatory & Indigenous Affairs
Electricity Canada

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