Canadian Electricity Association | Association canadienne de l'électricité

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Mr. Claude Doucet, Secretary General
Canadian Radio-television and Telecommunications Commission
Les Terrasses de la Chaudière
1 Promenade du Portage
Gatineau, Québec J8X 4B1

13 October, 2020

RE: Telecom Notice of Consultation CRTC 2019-406, Barriers to Rural and Remote Broadband – Response to Request for Information

Dear Mr. Doucet,

1. Founded in 1891, the Canadian Electricity Association (CEA) is the voice of more than 40 Canadian electrical utilities. CEA members include electrical Generation, Transmission, and Distribution companies from all provinces and territories.

2. Please find below CEA's responses to the Commission's request for information dated August 31, 2020.

Response to Question B. Access to Dark Fibre

a) Terms under which your dark fibre is currently available to third-parties for the purpose of providing USO level fixed high-speed Internet services (50 megabits per second (Mbps) download and 10 Mbps upload);

3. CEA surveyed its membership and has synthesized feedback received from members on a regional basis. Most CEA members have dark fibre in their fibre networks and those networks are almost always part of the electrical transmission system that connect generation stations and substations to the utility control centers. Electrical utility fibre networks enable resilient and reliable communication of mission critical control information. Because dark fibre is usually associated with transmission lines, as opposed to much lower voltage distribution lines, access to electrical dark fibre is very limited throughout Canada because transmission lines are often far away from communities. A report on dark fibre and telecommunications services from Hydro Quebec[1] found that:

> *"81% of households in sectors targeted by Quebec as being poorly served [for telecommunications] were more than 10 km from these optical fibers; 62% were even more than 25 km away."*

4. This is also true for the rest of Canada. While the transmission grid is where most utility dark fibre is located, it is also generally not located within proximity to remote communities. Please see *Figure 1*

[1] https://www.lapresse.ca/affaires/2020-01-30/internet-en-region-hydro-quebec-prete-a-ceder-de-la-fibre-optique

below which maps remote communities and the Canadian transmission grid. The image is taken from a 2011 NRCan study.[2]

5. It is also noteworthy that while fibre networks are common amongst CEA members with transmission assets, dark fibre (that is not needed to operate the electrical grid) is rarer. The same report from Hydro Quebec noted above found that only 6.7% of its optical fibre network could be classified as *surplus*.

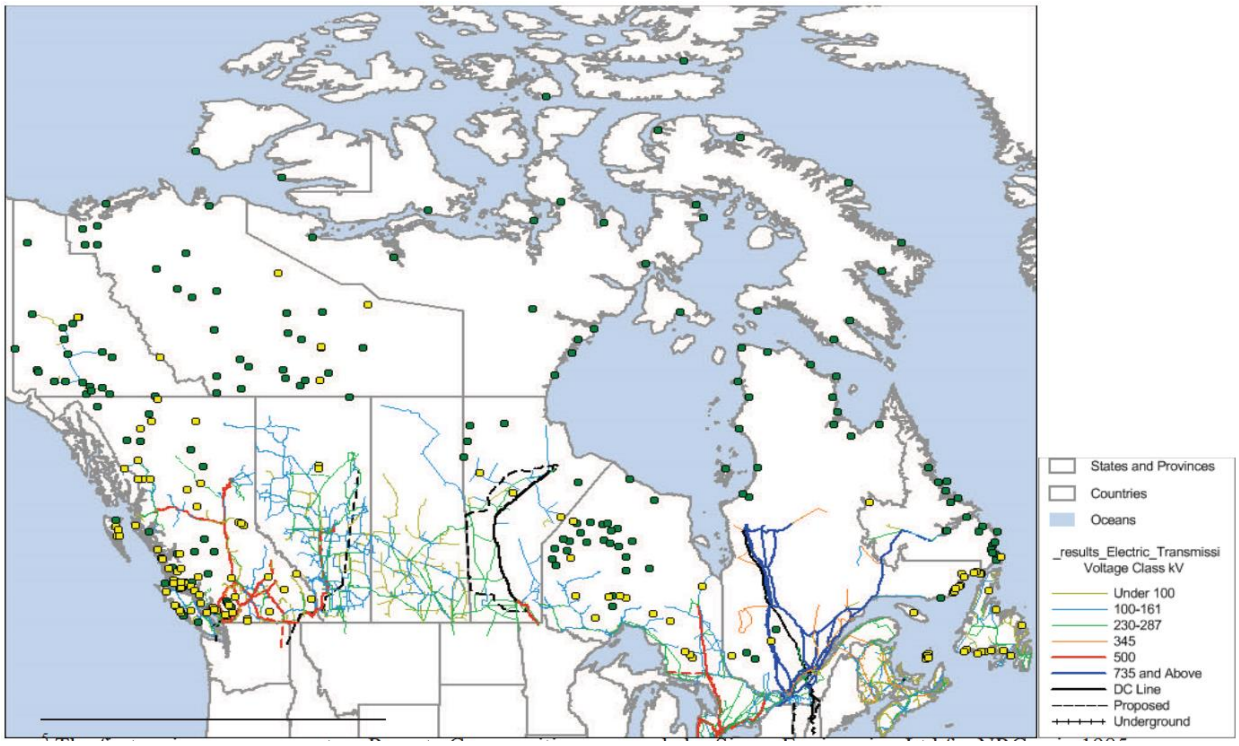

Figure 1. A map of Canada showing transmission lines and the location of aboriginal(green dots) and non-aboriginal (yellow dots) off grid communities. The image comes from a 2011 Government of Canada report entitled "Status of Remote/Off-Grid Communities in Canada"

6. For communities that are close to electrical utility's fibre networks with dark fibre, an additional barrier is the costs of both equipment and engineering (the make ready costs) to alter a long haul fibre system to accommodate a mid-system fibre splice for a commercial connection. This work is non-trivial and CEA members report that such work often takes more than two (2) years to plan and execute, in addition to requiring significant capital expenditures. These kinds of projects can be done and have benefited some communities, but these are the exceptions, not the norm.

7. The reason such work is so difficult is that utility dark fibre is usually in the form of Optical Ground Wire (OPGW). OPGW is a fibre optic cable integrated into the transmission wire itself. Please see

[2] https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/canmetenergy/files/pubs/2013-118_en.pdf

Figure 2 below for a representative diagram of OPGW and where it is placed in the transmission system.[3]

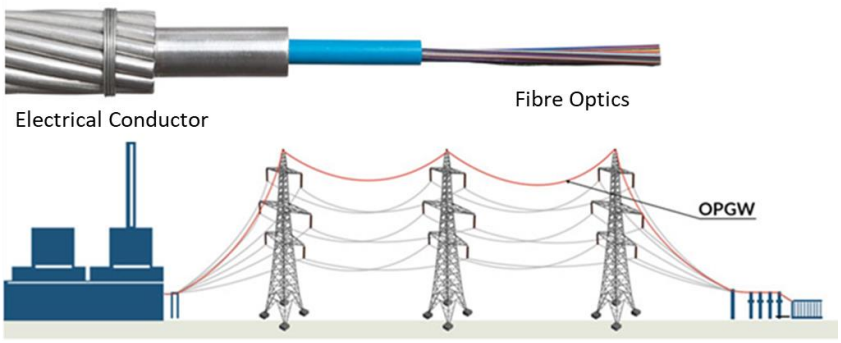

Figure 2: Diagram of Optical Ground Wire (OPGW) and its placement at the top of transmission towers as well as its termination in generating facilities and substations.

8. With OPGW, a fibre splice requires the utmost care, safety training, and specialized equipment because it is part of a high voltage system where only workers with significant training can operate and the electrical supply to whole communities can be put at risk if errors are made. OPGW is importantly different from typical telecom fibre networks which are both external to the electrical conductors and placed below the electrical space of utility support structures. As a result, OPGW's integration in the transmission wire creates greater difficulties and cost if modifications (such as splicing) are needed after it is put into service.

9. As *Figure 2* shows, OPGW does terminate at generation stations and utility substations but access to these sites by third parties is restricted because both are security controlled sites per North American Electrical Reliability Corporation (NERC) standards, which demand that significant physical and cybersecurity barriers be in place to ensure the integrity of the North American electrical grid against attack. The critical security of these sites is not something CEA members can compromise.

10. While access to substations is restricted, at significant expense safe demarcation points outside of the substation can be created. The initial setup costs incurred for these points is very expensive, along with ongoing operational costs to execute the processes needed to ensure that there is no interconnection between the fibre offered to third parties, and the fibre used for electrical utility internal operations. The creation of safe demarcation points do not solve the distance challenge noted above that most rural and remote electrical infrastructure, including substations, are not close enough to communities to make the considerable expense required to build the safe demarcation points economical.

11. Electrical utility dark fibre access is not a panacea for rural and remote community universal service objectives (USO). Dark fibre access is instead a unique case that has served some communities, but cannot and should not be part of a general strategy to meet USO throughout Canada because of the immense make ready costs as compared to other options, such as improvements to wireless services.

[3] https://www.starmi.co/pro_cables_images/large/OPGW-03.jpg

12. In certain cases CEA members have collaborated with third parties in provinces/territories to find access solutions to utility-owned dark fiber. In many of these instances the provinces and electric utilities made the decision to allow third party access based on assessments that there would be no net negative impact to the electrical system. Such arrangements were enabled through collaboration between: electric utilities; provincial and territorial governments; and, subnational electricity regulators that are mandated to ensure the safe, reliable and affordable delivery of electricity. In regard to this latter consideration, subnational entities are best able to balance the different needs of the electrical system as it relates to telecommunications. This has been one of CEA's consistent feedback items during this consultation.

13. Please see the table below with the summary of CEA's collected information on where dark fibre access is permitted and the general terms under which such agreements are provided.

Jurisdiction	Dark Fibre Access Allowed to third parties (Yes/No/ No Data/Other)	Terms & Important Information
BC	Yes	Third party access may be granted if the agreement is beneficial to electrical customers, there is no detriment to the grid and neither the physical nor cyber security of electrical utilities is compromised
AB	Other	Access is granted through fibre swaps with adjacent transmission facility operators if such swaps are beneficial to electrical customers, there is no detriment to the grid and neither physical nor cyber security of the electrical utility is compromised
SK	Other	Access is granted through fibre swaps with existing telecom companies if such swaps are beneficial to electrical customers, there is no detriment to the grid and neither physical nor cyber security of the electrical utility is compromised
MB	Other	No comment due to ongoing RFP related to dark fibre.
ON	Other	The *Ontario Energy Board Act* prohibits electrical utilities, except through an affiliate, from carrying on any business activity other than transmitting or distributing electricity. Fibre swaps with existing telecom companies have been done if acceptable terms could be reached.
QC	Other	Fibre access is done via partnerships with telecoms and municipalities for building out new networks
NB	Yes	Very limited to date but terms included general fairness in the agreement, benefit to community, and no risk to the electrical system.
NS	Other	All spare capacity fibre has already been sold to telecom provider.
NFL	Yes	Site specific contracts ensuring that access is of net benefit to electrical customers, there is no detriment to the grid, and neither physical nor cyber security is compromised.
PEI	Other	Access is not granted at this time because acceptable terms for third party access have not been reached but negotiations have been attempted.
YT	No data	
NWT	No data	
NU	No data	

b) If your dark fibre is not currently available to third-parties for the purpose of providing USO level fixed high-speed Internet services, indicate the terms under which you may consider making your dark fibre available for third-party access for that purpose.

14. CEA's position is that third party access to electrical utility dark fibre is a regulatory decision at the

subnational level. The provincial/territorial utility regulators are responsible for the safety, reliability and affordability of their respective electrical systems and are the entities best able to determine if dark fibre access will (or will not) put the grid at risk.

15. Electrical utility dark fibre access does have similar principle elements across all the provinces. Any third party access cannot negatively impact the safety, reliability, affordability, or security (both physical and cyber) of the grid. In this way, the discussion of dark fibre is similar to CEA's comments throughout this consultation regarding pole infrastructure attachments and make ready work, but with the significant added layer of security concerns.

16. For the practical and technical reasons cited above, obstacles to dark fibre access for third parties can prove difficult and in most instances insurmountable. CEA is not in a position to give the Commission dark fibre access terms beyond these principles that can be applied uniformly across Canada, as each province/territory has a unique situation that needs to be considered in relation to that jurisdiction's electrical and telecommunications services.

17. Irrespective of dark fibre availability each province has different levels of USO underserved communities which is why we would like to draw attention again to our first submission to this consultation that encouraged the Commission to explore improved wireless connectivity. The CRTC broadband database map tool[4] shows a strong negative correlation between fixed wireless service and underserved communities such that the presence of fixed wireless can account for major differences in service level. Other service options such as fibre and LTE do not have the same footprint as fixed wireless and do not appear to have the same relation between serviced areas and underserved populations. This relationship is especially noticeable in a comparison of Alberta vs. Saskatchewan as well as New Brunswick vs. Nova Scotia where the absence of fixed wireless service and the presence of underserved populations is readily noticeable. Please see *Figure 3* and *Figure 4* below, where green is the presence of fixed wireless and red hexagons are underserved populations.

[4] https://crtc.gc.ca/cartovista/internetcanada-en/

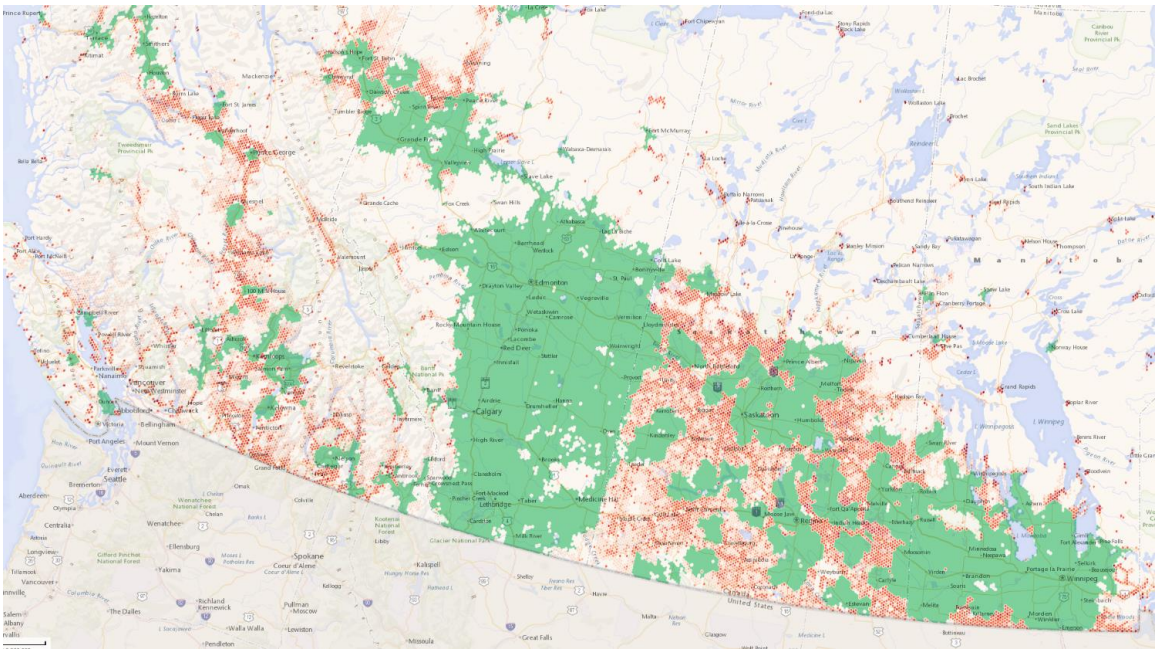

Figure 3: Map of BC, AB, SK & MB showing areas of fixed wireless service in green, and underserved populations are in red. Image taken from the CRTC broadband mapping tool.

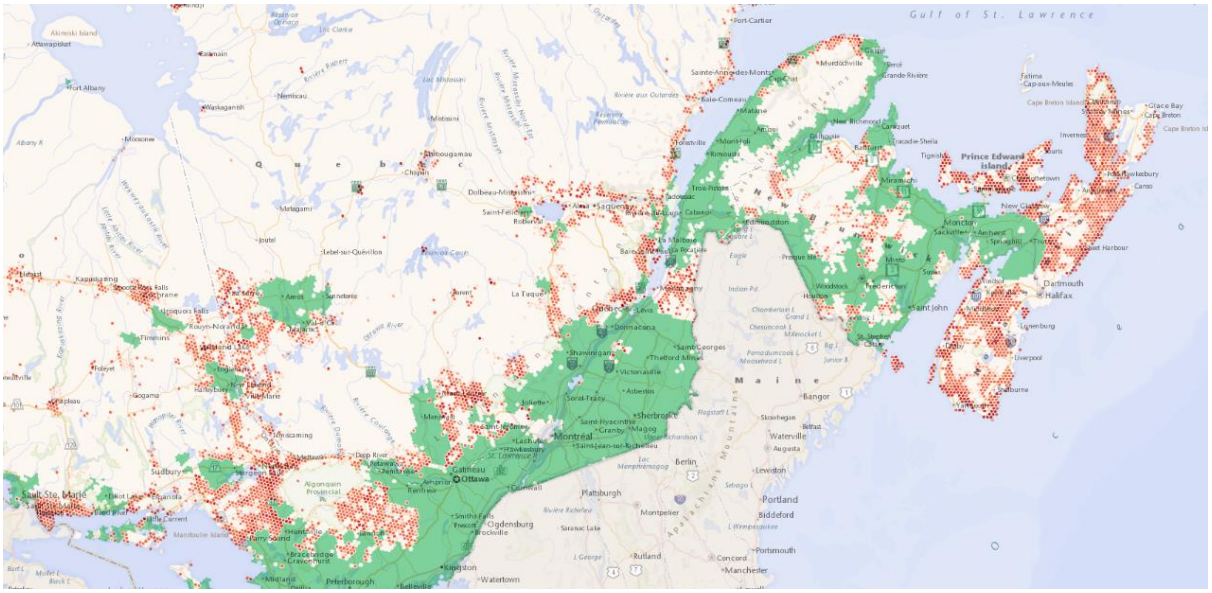

Figure 4: Map of ON, QC, NB, NS, & PEI showing areas of fixed wireless service in green, and underserved populations are in red. Image taken from the CRTC broadband mapping tool.

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Response to Question C. Rights of Way:

a) Describe situations where you have experienced delays and costs associated with negotiating rights of way to install infrastructure to provision fixed high-speed Internet access services of at least USO level (50 megabits per second (Mbps) download and 10 Mbps upload) in areas where such services were not available.

18. There are two components to this issue:

    a) access to pre-existing electric (and telecom) utility infrastructure on rights-of-way, and;
    b) access to existing municipal rights-of-way or to private properties for the establishment of utility corridors or easements.

19. CEA notes that negotiations for property rights by telecoms to access electrical rights of way are handled as quickly as is reasonably possible by member utilities. CEA is not aware of any instance where an electrical utility has been unable to come to a reasonable arrangement with a telecom for access to the electrical rights of way that the utility controls. The exceptions are where private landowners who host electrical infrastructure via negotiated easements will not grant telecom companies property rights to access their private land. Electrical utilities have no control over these cases.

b) Provide views, with rationale, on the role you would like the Commission to play in order to prevent situations where access to rights of way becomes the reason for USO level fixed high-speed Internet access services projects being delayed or not built.

20. In general, the provincial legislation that empowers electrical utilities gives them the right to construct, operate, and maintain infrastructure on public land. Access to private land, however, is a different matter. While expropriation of private property is possible, it is rarely done as gaining access to private lands for rights of way through negotiation is the strongly preferred solution. Negotiation is preferred not only because it leads to better community relations but also because expropriation imposes significant delays on the acquisition of property rights due to the necessary legal proceedings.

21. Because rights of way on private land are normally obtained via negotiations between utilities and land owners, any third party (in this case telecoms) would have to negotiate their own rights to access to private properties. Importantly, electrical utilities cannot legally expropriate on behalf of third parties should those groups be unable to negotiate their own property access agreements. Negotiations between telecoms and private land owners may be assisted by municipality/utility coordinating bodies. This is discussed further below in response to the next set of questions. But ultimately, it is between the private landowner and the telecom company to come to an agreement.

22. CEA members do sometimes obtain joint easements for their distribution systems with telecom companies that were also part of the easement negotiations. In those situations, any future telecoms would have to negotiate their own property rights from the landowner.

23. CEA does not think that the Commission should take on the role of negotiating property rights on behalf of telecom companies because the expertise and resourcing requirements would be demanding. Nor should the CRTC be the body responsible for expropriation of lands to facilitate telecom development as that would only lead to acrimony with local landowners and the companies looking to improve broadband services in underserved parts of Canada.

Response to Question D. Infrastructures Database:

c) Provide views, with rationale, on whether the Commission should create, with the information it already collects on fibre and support structures, a database and/or maps, as suggested by some parties to the proceeding;

24. CEA holds that the CRTC may be a suitable entity to manage the described services but cautions about duplication of services that already exist. The CRTC should perform a gap analysis of current services and determine the best way to back fill any missing elements in regions as needed.

25. To understand how the Commission could best offer services either directly or by assisting existing utility coordinating councils/committee (UCC) groups to expand, we propose that the Commission examine distinct models for basic data sharing between utilities, telecom companies, and government agencies. Such sharing is currently done through existing UCC that supply basic information to eligible groups. There are multiple data sharing models throughout Canada and the Commission will likely also have to analyze several of them. The first example we would like to draw the Commission's attention to is the Comité de partage sur l'échange de données géospatiales in Quebec which acts as a convenor of all parties to discuss proposed construction plans. The second example is the ICI society[5] in BC where ICI is a non-profit private group that securely collects data from municipalities and utilities and then provides access to that information (i.e. cadastral information, civic addresses, road geometry, utility location, and asset ownership) for a fee. CEA understands that the Commission is already familiar with ICI Society.

26. Other groups of note for potential CRTC investigation are the Ontario Public Works Association (OPWA), and the Atlantic Provinces Utility Distribution Conference. Several municipalities currently utilize cloud based services (e.g. Envista[6]) that also facilitates a map based permitting process for proposed projects as well as providing timely collaboration and coordination between all parties. All these groups have successfully brought together different stakeholders for the purpose of sharing information efficiently and facilitating utility and telecom developments.

27. For data collection the asset management systems employed by telecoms should collectively have the majority of the information the Commission requires to develop these described services. It is recommended that the work that these groups have done should not be duplicated by any future services offered by the Commission.

28. After assessing data from CRTC regulated entities and existing services offered, should the Commission require additional information from electrical utilities, data sharing agreements should be developed to establish clarity on liability, cost recovery, and resources standard.

d) The appropriate level of information from the database/maps that should be made publicly available

29. We do not think any information should be made public, because of security risk and concerns. Information should only be available to qualified persons and groups.

e) The level of information that should only be provided, by the Commission, to service providers that submit to the Commission a valid broadband-capable network expansion plan.

[5] https://www.icisociety.ca/
[6] https://cardinalus.com/blog/tag/spatial/

30. As per the terms of a possible data sharing agreement, information on pole location, height, class and anonymized details concerning attachers on the pole is information that could be shared. CEA members note that rudimentary desktop design using a database is only a first step in assessing the feasibility of a new telecom network build out. No database can ever replace in-field analysis for developing designs and permit plans. For example, using only mapping information without current field verification for underground utilities could prove disastrous for anyone excavating in the vicinity of energized utilities without the necessary information.

Yours sincerely,

[transmitted electronically]

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