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September 26, 2017

National Energy Board
201-517 Tenth Avenue SW
Calgary AB
T2R 0A8

Attention: Sheri Young, Secretary of the Board

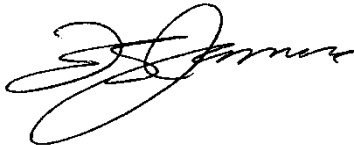
Dear Ms. Young:

**RE: National Energy Board (NEB)
British Columbia Hydro and Power Authority (BC Hydro)
Application to the NEB to Vary Certificate of Public Convenience and
Necessity No. EC-51 (Application)
NEB File OF-Fac-IPL-B215-2017-01 01
BC Hydro Responses to NEB Information Request No. 3**

BC Hydro writes to submit its responses to NEB Information Request No. 3.

For further information, please contact the undersigned.

Yours sincerely,



Fred James
Chief Regulatory Officer

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Enclosure (1)

National Energy Board Information Request No. 3.1.a Dated: October 19, 2017 British Columbia Hydro & Power Authority Response issued October 26, 2017	Page 1 of 3
British Columbia Hydro & Power Authority Application for the Variance of Certificate of Public Convenience and Necessity (CPCN) EC-51 NEB File OF-Fac-IPL-B215-2017-01 01	

Jurisdictional Matters

3.1 Determination of an Appropriate Termination Point of the International Power Line (IPL)

Reference: i) BC Hydro, Application to Vary Certificate No. EC-51 (Application), Section 1.1: Nature of the Application, (PDF page 5 of 26) [A82219-1](#)

ii) BC Hydro, Response to Information Request (IR) No. 1, [A84440-1](#):

- Cover letter, (PDF page 1 of 94);
- Question 1.2, (PDF page 21 of 94); and,
- Question 1.4 c), (PDF page 43 of 94).

In reference i) BC Hydro seeks the Board's approval to reduce the Board's jurisdiction of the IPL authorized under Certificate EC-51 (the IPL) from 2.4 kilometres to one of the two options listed below (presented in order of BC Hydro's preference):

- 1 36 metres (m), terminating jurisdiction at the first distribution pole on the Canadian side of the Canada-U.S. border (international border) (referred to as Pole 001 in the Application); or,
- 2 106 m, terminating jurisdiction at the second distribution pole (Pole 002) on the Canadian side of the international border, resulting in the switching and metering equipment remaining under the Board's jurisdiction

In reference ii), BC Hydro describes the proposed change in the configuration, stating that the connection point of the Madera Ranch would be at Pole 013, approximately 845 m north of the international border. From the Pole 013, 15 m of underground cable will be laid to the concrete base of the transformer where the three phases of the cable will be terminated to a 25 kV three phase transformer primary side. BC Hydro also states that the three phase configuration of the distribution network will end at Pole 013 and the current IPL infrastructure onwards will remain as single phase.

The Board needs further information in order to determine the appropriate termination point for the IPL and therefore, the Board's jurisdiction.

- a) explanation as to why the Pole 013, where the configuration of the network is changed from three phase to single phase was not presented as an option for the termination point, resulting the Board's jurisdiction to regulate the 845 m section of the IPL;

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RESPONSE:

Note that Pole 013 would not be the termination pole of the 25 kV three-phase system. This would be Pole 014 as shown on Attachment 1 to BC Hydro's response to NEB IR 1.1.a. The length of the 25 kV line would be dependent on actual pole placement during construction, however BC Hydro has reviewed the latest design information and has determined that the distance from the international border to Pole 014 would be approximately 862 m, including 36 m of underground 25 kV three-phase line and 826 m of overhead 25 kV three-phase line. BC Hydro refers to this total length of 25 kV three-phase line in Canada in its responses to NEB IR 3.

BC Hydro has proposed to reduce the length of the IPL designation to the portion of the line in the immediate vicinity of the international border. BC Hydro believes that extending the designation of the IPL to Pole 013 or Pole 014, or to any other point of termination beyond the immediate vicinity of the international border, would not be in the public interest, as summarized below.

1. By reducing the length of the IPL, BC Hydro could more efficiently and effectively provide service to its customers in the Province of British Columbia through its distribution system in British Columbia. For example, BC Hydro would have the flexibility to connect relatively small (distribution load level) customers quickly, with connection time service levels that are typical for all other BC Hydro customers, and to maintain and operate the line in a manner that meets BC Hydro's requirements.
2. The portion that is no longer designated as an IPL would be regulated, together with other BC Hydro distribution assets, by the British Columbia Utilities Commission. Any BC Hydro customer connected to this portion of the line would then be treated like any other customer of BC Hydro in similar circumstances.
3. There would be regulatory efficiency if the configuration of the three-phase power line is required to change in the future, such as relocation of some portions of the line due to sub-division or other change to property usage. Any change to the IPL would require application and approval of a variation of the IPL certification. If most of the three-phase power line is operated as a part of BC Hydro's distribution system, a change to this line usually would not require a specific regulatory approval as the size and scope of the change would likely be considered small (both in cost and scope).
4. As explained in BC Hydro's response to NEB IR 1.2(c), BC Hydro owns and operates the system serving the Newgate area from the international boundary to approximately 9.5 km north of the international border. Only a portion (2.4 km) is currently designated as

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the IPL. By shortening the distance from 2.4 km to 862 m where the 25 kV system would terminate may not allow future developments within the 862 m distance and beyond the 862 m that require 25 kV three-phase service to connect without approval from NEB. This would be different from other BC Hydro customers.

5. There will be no difference to the amount of electricity that will be imported across the IPL under the jurisdiction of the NEB based on how the IPL is designated.

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In reference ii), BC Hydro describes the proposed change in the configuration, stating that the connection point of the Madera Ranch would be at Pole 013, approximately 845 m north of the international border. From the Pole 013, 15 m of underground cable will be laid to the concrete base of the transformer where the three phases of the cable will be terminated to a 25 kV three phase transformer primary side. BC Hydro also states that the three phase configuration of the distribution network will end at Pole 013 and the current IPL infrastructure onwards will remain as single phase.

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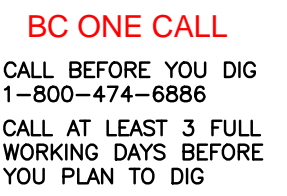
- b) a 3D drawing illustrating the configuration of the Pole 013; and,

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RESPONSE:

A 3D drawing illustrating the configuration of Pole 013 is included as Attachment 1.

As discussed in BC Hydro's response to NEB IR 3.1.a Pole 014 would be the termination pole of the 25 kV three-phase system. Pole 014 would have the configuration shown on the 3D standard drawing ES43 G4-05.03 included as Attachment 2.



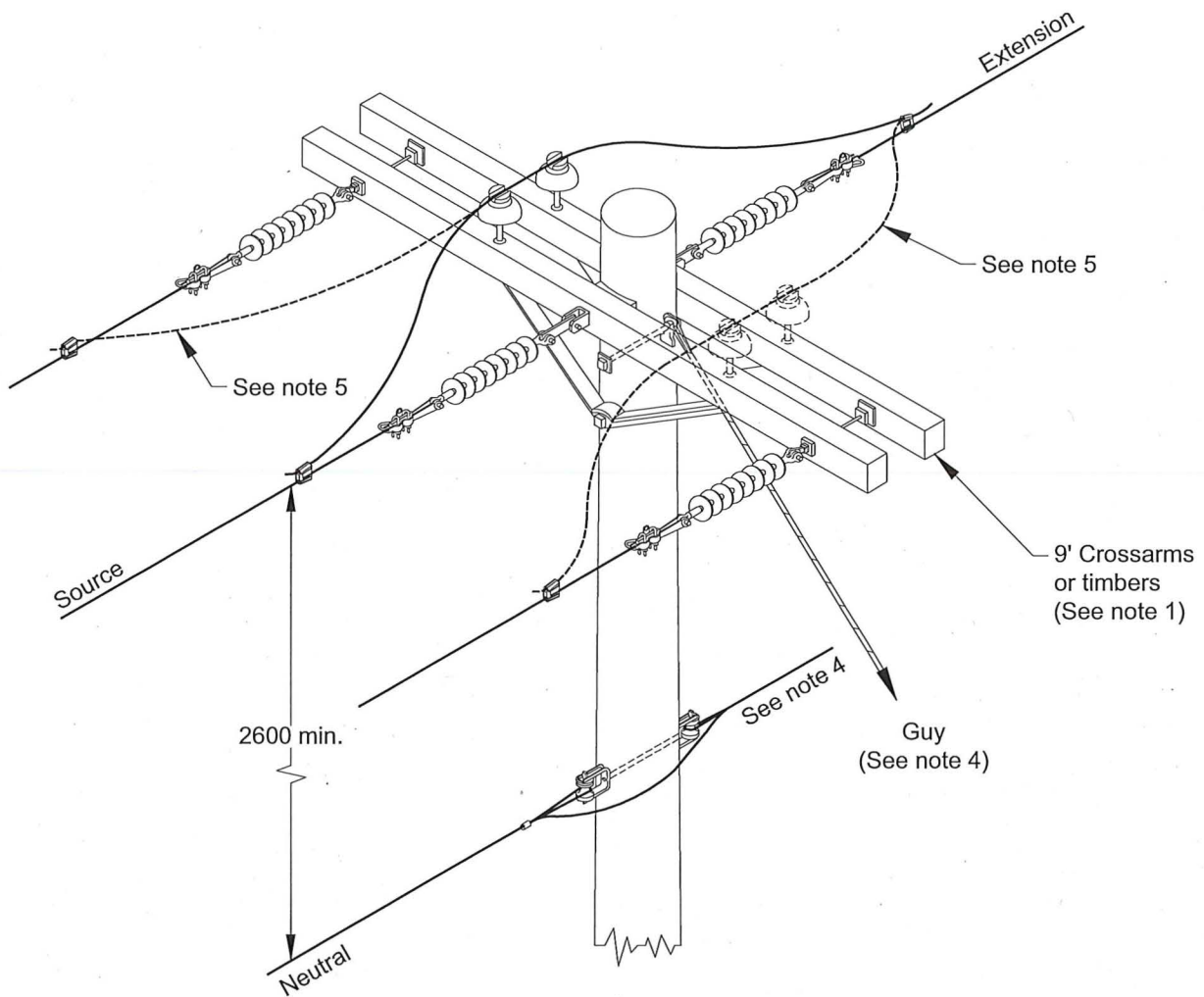
1. ALTHOUGH THIS OVERALL DRAWING IS N.T.S., THE PROPORTIONS ARE REASONABLY ACCURATE.
2. METRES EXPRESSED IN DECIMALS, MILLIMETRES IN WHOLE NUMBERS.
3. ALL DIMENSIONS SHOWN ARE STANDARD FOR THIS BC HYDRO STRUCTURE ES43 M6-01.01.

NOT FOR CONSTRUCTION

ISSUED FOR INFORMATION

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Notes

1. 5" x 7" timbers are required when conductors are larger than 2/0 unless crossarm guys are used. See ES43 E2-12.
2. For 35 kV insulate accordingly.
3. Maximum allowable line angle is 5°.
4. Provide neutral/secondary to guy separation of 150 mm minimum. If necessary, offset guy or neutral/secondary.
5. Source may be supplied from either A, B or C phase, as indicated by dashed overhead lines.

Reference Standards

ES43 N2-01.01	Neutral Dead End
ES43 G2-04.01	Primary Dead End
ES43 G2-01.03	Crossarm Assembly
ES43 G1-01.04	Neutral Location
ES43 E2-10	Guy Assembly

DESIGNED <i>H. Giesbrecht</i> H. GIESBRECHT	RECOMMENDED <i>C. Picassi</i> C. PICASSI	ACCEPTED <i>F. Dennert</i> F. DENNERT	ENGINEER OF RECORD <i>H. J. Giesbrecht</i> H. J. GIESBRECHT # 39420 BRITISH COLUMBIA ENGINEER	THREE-PHASE DEAD-END EXTENSION, SINGLE-PHASE	
REVISIONS: DISTRIBUTION STANDARDS BC Hydro		ISSUED: MAY 2017 REPLACES: N/A ORIGINALLY ISSUED: MAY 2017		PAGE 3 OF 3	ES43 G4-05.03 R 0

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- c) the cost information for the Project, by component, for the segment of the Project regulated by the Board, if the Board were to vary the

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Certificate to the 854 m scenario described in a).

RESPONSE:

The cost of the portion of the 25 kV three-phase line from the international boundary to the 25 kV termination point at Pole 014 approximately 862 m north of the international border is estimated as follows:

Cost Item	Cost (\$)
Conductor	28,400
Grounding	5,900
Metering	19,900
Poles	125,500
Recloser	87,300
UG Civil Border	6,800
UG Elec Border	9,900
Miscellaneous	10,900
Total Cost	294,600