

1 Q. Please confirm that the HVdc overhead line will have a separate shield wire above
2 the electrode line conductors.

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5 A. The Labrador-Island Link HVdc transmission line electrode conductors are protected
6 from lightning strikes using a combination of an overhead shield wire and arcing
7 horns. The designs being applied do not require a separate shield wire to provide
8 the required protection to the electrode lines.

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10 There are two separate electrode line¹ tower designs to connect the Muskrat Falls
11 and Soldiers Pond converter station neutrals to earth for operation in monopolar
12 mode. The majority of the electrode line in Labrador will be built on the ± 350 kV
13 HVdc steel transmission towers above the pole conductors and below the tower's
14 single Optical Ground Wire (OPGW). The HVdc overhead conductors and electrode
15 conductors are shielded from lightning strikes by the tower OPGW designed to give
16 a shielding angle of 30° to the pole conductor.

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18 The final section of the electrode line in Labrador near L'Anse au Diable and the
19 entire length of electrode line from Soldiers Pond to Conception Bay (Dowden's
20 Point) on the Island of Newfoundland will be supported on a single wood pole with
21 cross arm and suspension insulators. The electrode line wood pole design does not
22 use overhead ground wire to shield the electrode conductors from lightning strikes,
23 but rather utilizes arcing horns to protect the line in such an event. In the event of a
24 lightning strike to an electrode line, the energy is quickly dissipated into the earth

¹ The electrode lines are required to connect the converter station neutral to a remote shore-pond electrode in sea water to obtain proper earth return operation of the Labrador - Island HVdc Link in monopolar operation.

- 1 when the steep voltage wave front generated by the lightning arcs across the arcing
- 2 horn air gap to an earthed conductor running down the pole.