

- 1 **Q:** **Reference:** *Review of Newfoundland and Labrador Hydro Power Supply*
2 *Adequacy and Reliability Prior to and Post Muskrat Falls Final Report, August*
3 *19, 2016, Page 74, Paragraph 3*
4
5 *“It is not possible to forecast the number of outages (bipolar or monopolar) with*
6 *substantial accuracy. The number of equipment failures depends on the quality of*
7 *the design, manufacture, and maintenance of the equipment, and on the stresses to*
8 *which it is exposed. The general tendency is for a higher number of failures in the*
9 *first couple of years of operation, with the number then settling down to a lower*
10 *level for many years, until aging causes the number of failures to increase again.”*
11 **Please indicate whether or not the Cigre figures include bipole outages that are**
12 **due to early failures that decline with ongoing operation.**
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15 **A.** Cigre has not undertaken a formal analysis concerning bipole outages declining with
16 operation. The statement is Dr. Andersen’s personal opinion, which is based on
17 observing performance of HVdc schemes during 40 years.