

1 Q. On page 11, lines 1 to 10 of his Prefiled Testimony, Mr. Reeves states that a  
2 review of outages showed that on average, a simultaneous outage due to  
3 lightning was occurring once every 2 ½ years. He indicates that this was an  
4 unacceptable outage rate for such a large number of customers.

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6 (a) What criteria are used to determine the acceptable level of outages?

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8 (b) Mr. Reeves goes on to say that the installation of lightning arrestors  
9 would significantly improve the outage return rate of a simultaneous  
10 outage as a result of lightning. How much of an improvement is expected  
11 (i.e., from one outage every 2 ½ years to ?), and what is the estimated  
12 value to customers in terms of reduced generation costs and/or  
13 unsupplied energy?

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15 (c) Have there been any simultaneous outages due to lightning since these  
16 lightning arrestors were installed in March of this year?

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18 A. (a) Canadian utilities typically use statistics produced by the Canadian  
19 Electricity Association (CEA) as a basis for acceptable levels of  
20 performance. Transmission lines TL 202 and TL 206 perform individually  
21 in a satisfactory manner with lightning outage rates of approximately 0.6  
22 per 100 km. yrs compared to the CEA average of 0.8 per 100 km. yrs for  
23 adverse weather in this voltage class. Similar CEA statistics for  
24 simultaneous outages on parallel lines are not available.

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26 Simultaneous outages due to lightning on both TL 202 and TL 206, have  
27 caused an abnormally high number of significant power interruptions on  
28 the bulk electrical system. These outages, primarily to the Avalon and

1           Burin Peninsulas, have occurred at a frequency of approximately 1 in 2.5  
2           years. Outages of a similar nature to parallel lines on the remainder of  
3           Hydro's grid are rare and estimated to occur at a frequency between 1 in  
4           25 to 1 in 40 years.

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6           (b) Theoretically, the application of lightning arrestors should improve the  
7           simultaneous outage rate of TL 202 and TL 206 to 1 in 38 years.

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9           Based on typical numbers from other utilities for the estimate of outage  
10          costs for customers, the value for a 20-minute outage is estimated to be  
11          \$0.25 for residential customers and \$455 for commercial customers. In  
12          the outage area affected by these lines, there are approximately 108,000  
13          residential and 11,000 commercial customers, and one major industrial  
14          customer. The value of a 20-minute outage for only residential and  
15          commercial customers is over \$5,000,000.

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17          (c) There have been no simultaneous outages since the installation of the  
18          lightning arrestors.