

1 **Q. Further to the responses to PUB-NP-002, footnotes 18 and 19, and PUB-NP-036,**  
 2 **how does the fact that Newfoundland Power does not have information on the**  
 3 **Island Interconnected system electrical demand on a real time basis or the reserve**  
 4 **margins available affect Newfoundland Power’s ability to manage its system and**  
 5 **delivery of power to its customers?**

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 7 A. In circumstances where there is sufficient generation available to serve total customer  
 8 demand, the fact that Newfoundland Power does not have real-time information on the  
 9 Island Interconnected System is typically of little consequence.<sup>1</sup> This is the case for the  
 10 vast majority of hours in any given year.

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 12 In circumstances where there is insufficient generation or transmission capacity available  
 13 to serve total customer demand, the fact that Newfoundland Power does not have real-  
 14 time electrical demand and real-time reserve margin information on the Island  
 15 Interconnected System has more significant consequences.

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 17 It is an essential requirement of electrical system operation that the generation available  
 18 in all points in time is sufficient to meet the total customer demand.<sup>2</sup> Whenever there is  
 19 insufficient generation available to serve total customer demand, some customers will not  
 20 be served. In cases where transmission capacity is constrained, some customers may be  
 21 at increased risk of not being served.<sup>3</sup> The ability for a utility to understand, in real-time  
 22 terms, both available generation and customer demand is essential to understanding  
 23 (i) when future customer outages might reasonably be expected to occur and (ii) when  
 24 existing customer outages might reasonably be expected to end.

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 26 Newfoundland Power has real-time information on the total demand of its customers but  
 27 not the total demand of all customers on the Island Interconnected System.<sup>4</sup>

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<sup>1</sup> Currently, Newfoundland Power’s under frequency load shedding system automatically responds to sudden losses of supply on the Island Interconnected System. When such a response occurs, Newfoundland Power will not be aware of the specific incident on the Island Interconnected System which gave rise to the loss of supply (ie., which Hydro generator went offline). However, the disruption in customer service from such responses typically affects relatively few customers for a relatively short period of time. Newfoundland Power will typically learn the details of the specific incident from Hydro as part of the restoration of service after the automatic load shed. See the response to Request for Information PUB-NP-022, page 1, lines 27-33 for further information on under frequency load shedding.

<sup>2</sup> See the response to Request for Information PUB-NP-022, page 1, line 19 *et. seq.* for further information on this requirement and the consequences when it is not met.

<sup>3</sup> Transmission capacity constraints effectively limit the amount of generation that is available on a locational basis to serve customers. For this reason, transmission constraints can have similar customer impacts to system wide insufficiency of generation.

<sup>4</sup> Newfoundland Power’s customers’ demand accounts for approximately 85% of the demand on the Island Interconnected System.

*Requests for Information*

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1 Newfoundland Power has no real-time information on reserve margins or transmission  
2 capacity on the Island Interconnected System.<sup>5</sup>

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4 The primary consequence of these information limitations is the restrictions it places on  
5 Newfoundland Power's ability to confidently inform its customers of the status of their  
6 electricity supply.<sup>6</sup> This includes the provision of timely advice regarding the necessity  
7 for customer energy conservation initiatives.

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<sup>5</sup> Understanding both real-time system reserve margins and transmission capacity are essential to assessing the degree of risk, if any, of Newfoundland Power's customers not being served at any point in time. This information will not be *all* that is required to assess these matters. As indicated in the response to Request for Information PUB-NP-047, footnote 4, the load forecast and generation availability for the Island Interconnected System are also essential.

<sup>6</sup> These information limitations also have operational consequences. For example, diminished reserve margins provide an indication that active voltage management on the electrical system may be warranted or that curtailable customers should be taken offline.