

January 12, 2015

Ms. G. Cheryl Blundon
Board of Commissioners of Public Utilities
120 Torbay Road, P.O. Box 12040
St. John's, NL A1A 5B2

Dear Ms. Blundon:

Re: Phase I – Outage Inquiry

Re: Request for Information from the Consumer Advocate to Board (Liberty), Newfoundland and Labrador Hydro and Newfoundland Power Inc.

In relation to the above-captioned, the Consumer Advocate provides one (1) original and twelve (12) copies of the following Requests for Information for filing:

CA-PUB-01 to CA-PUB-33;
CA-NLH-84 to CA-NLH-85; and
CA-NP-25 to CA-NP-33.

The Requests for Information to Newfoundland Power include questions posed at the request of a commercial customer of Newfoundland Power Inc.

Yours very truly,

O'DEA, EARLE


THOMAS JOHNSON, Q.C.

TJ/cel

encl.

cc: Newfoundland and Labrador Hydro
Attention: Geoffrey P. Young

Newfoundland Power
Attention: Gerard Hayes

Island Industrial Customers Group
Attention: Mr. Paul Coxworthy (Stewart McKelvey)

Mr. Danny Dumaresque

Grand Riverkeeper Labrador Inc.
Attention: Ms. Roberta Frampton

IN THE MATTER OF

the *Electrical Power Control Act*, 1994,
SNL 1994, Chapter E-5.1 (the "*EPCA*")
and the *Public Utilities Act*, RSNL 1990,
Chapter P-47 (the "*Act*"), as amended;

AND

IN THE MATTER OF

the Board's Investigation and Hearing
into Supply Issues and Power Outages
on the Island Interconnected System.

**CONSUMER ADVOCATE
REQUESTS FOR INFORMATION
CA-PUB-1 to CA-PUB-33
Issued: January 12, 2015**

CA-PUB-1

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) It is stated (page 1): “*Newfoundland Power reported outages to three-quarters of its retail customers during the two series of events that took place between January 2 and 8 of 2014. Some of them were for extended periods of time. Newfoundland Power attributed 15 percent of its customer outages to the capacity-induced rotating outages of January 2nd and 3rd, and 80 percent to the equipment related outages that followed and finally ended on January 8th. Winter storm conditions coinciding with these events independently produced the remaining 5 percent of outages for Newfoundland Power’s retail customers*”. Does Liberty’s analysis support these percentages? Please provide Liberty’s analyses showing the amounts and percentages attributable to each cause, and explain how Liberty factored into its recommendations the contribution of each to the outage events of January 2014.

CA-PUB-2

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) It is stated (page 1): “*Newfoundland Power reported outages to three-quarters of its retail customers during the two series of events that took place between January 2 and 8 of 2014. Some of them were for extended periods of time. Newfoundland Power attributed 15 percent of its customer outages to the capacity-induced rotating outages of January 2nd and 3rd, and 80 percent to the equipment related outages that followed and finally ended on January 8th. Winter storm conditions coinciding with these events independently produced the remaining 5 percent of outages for Newfoundland Power’s retail customers*”. In Liberty’s opinion, were equipment

problems and winter storm conditions the primary cause of the January 2014 outage events? More specifically, would there have been major outages even if there had been enough generation capacity to supply the load?

CA-PUB-3

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) It is stated (page 4): “*It has generally been the case that North American utility customer expectations have risen*”. Please provide support for this statement including research indicating that customers have generally expressed a desire to pay higher rates for higher levels of reliability.

CA-PUB-4

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) It is stated (page 4): “*Hydro correctly seeks to make its generation available by December 1 of each year. The goal is to complete required maintenance and repairs by the time that each winter season begins*”. Have there been occasions in the Province when the system annual peak was established during the month of November? Is there a case to be made for moving winter readiness forward from December 1 to November 1, or perhaps, November 15? Why should Hydro not be aiming for an earlier winter readiness date than December 1?

CA-PUB-5

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) It is stated (page 4): “*Concern about the ability to add further generation in the immediate future also made demand reduction efforts an important*

area of inquiry". Is demand reduction a viable alternative given the time it takes to achieve meaningful quantities? According to Conclusion No. 2.21, a Hydro/Newfoundland Power joint report on short-term demand reduction program alternatives will not be submitted to the Board until September 15, 2015. Therefore, new demand reduction initiatives will provide assistance only during the winter of 2016/17 since Muskrat Falls is scheduled for service in 2017. Does experience elsewhere suggest that meaningful amounts of demand reduction can be brought on line in a year (other than interruptible/capacity assistance contracts which now appear to have reached maximum levels on the IIS)?

CA-PUB-6

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) It is stated (page 5): "*The program leading to the Interim Report led us to conclude that Hydro's execution program gives more visibility to cost effectiveness than to preventing the kinds of equipment failures that have caused widespread outages*". How much visibility should an electric utility give to cost effectiveness in light of the importance customers place on rates?

CA-PUB-7

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) With regard to Mr. Antonuk's background, it is stated (page 8): "*His work in the past several years includes: ... (c) multiple reviews of generation planning by electric utilities*". In Mr. Antonuk's experience, are utilities always at risk of outages no matter how much generation capacity there is in reserve, and if so, how do utilities balance the risk of outages against cost and the impact on customer rates, or are rate impacts

not generally a consideration?

CA-PUB-8

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) It is stated (page 10) in reference to Mr. Weber: "... where he produced major improvements in SAIFI and SAIDI performance." In Mr. Weber's experience, how do utilities balance improvements in transmission and distribution reliability with the impact on rates and customer willingness to pay? Further, how do utilities incorporate the "value" of transmission reliability improvements with impacts on power system/market costs? For example, should a utility forego reliability improvement programs on a poorly performing transmission line if outages on the line have limited impact on power production costs or market prices, and instead focus on the reliability of better performing lines when outages have a major impact on power production costs/market prices?

CA-PUB-9

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) Discussion on page 16 relates to use of a P50 versus a P90 load forecast for planning purposes. Do other utilities incorporate a load profile in their modeling programs that incorporate load forecast uncertainty according to a probability distribution function? Would this not produce more meaningful results, and satisfy both Hydro and Liberty points of view on this issue?

CA-PUB-10

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) Discussion on page 43 relates

Hydro performance to CEA and Canadian comparators. Is this appropriate given the profile of Hydro's distribution function; i.e., mostly rural, remote, low customer density and highly susceptible to weather?

CA-PUB-11 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) Discussion on page 45 relates to the consistency of Hydro's reliability metrics with CEA Bulk Electricity System guidelines. Is it also important to consider the impact of outages on production/market costs? For example, a transmission outage may lead to dispatch of high-cost Holyrood TGS production when low-cost hydropower would have been dispatched in the absence of the outage. Does Liberty recommend that such impacts on production costs be taken into consideration when assessing transmission reliability performance?

CA-PUB-12 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) The report states (Section 4.6, page 71): "*Many utilities conduct programs focused just on worst performing feeders, in order to mitigate future customer interruption numbers and durations. Such programs do not make cost a material factor in capital planning for such feeders*". Does Liberty believe that the value customers place on reliability (i.e., rate impact and customer willingness to pay) is an important factor in such programs? Is Liberty aware of any utilities that consider customer value? If so, please provide examples.

CA-PUB-13 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing

Newfoundland and Labrador Hydro) Chapter VII discusses the various control/service centres operated by the two utilities on the IIS. Is the number of control/service centres on the IIS typical of jurisdictions elsewhere in Canada and the United States? Could efficiencies, cost savings and performance improvements (i.e., reduce the probability that one control/service centre will produce results that contradict those from another control/service centre) be gained by reducing the number of control/service centres?

CA-PUB-14 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) The report states (page 125) that Hydro does not have mutual aid agreements with any utilities outside the Province. Should it?

CA-PUB-15 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) The report states (page 140): “Hydro does not routinely conduct transactional customer satisfaction surveys of specific interactions with the utility, a common practice within the utility industry”. Does Liberty recommend Hydro start conducting such surveys? If not, why not?

CA-PUB-16 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) Conclusion 2.10 states (Appendix A, page A-1): “Additional new generation does not present a good option, unless new load materializes or availability declines”. Does it present a good option even under these circumstances given: 1) that it will take some time before such situations materialize and are recognized, 2) the time it takes to

install new generation, and 3) the scheduled Muskrat Falls in-service date of 2017?

CA-PUB-17

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) Conclusion 4.3 states (Appendix A, page A-4): “*Distribution outage frequencies and durations have increased, but remain consistent with Canadian averages after adjustment for major events*”. Conclusion 4.15 states (Appendix A, page A-5): “*Some of Hydro’s 138 kV transmission circuits and nearly all of its 66/69 kV transmission circuits on the Island Interconnected system are radial, causing customer outages for forced and planned circuit outages*”. The cost to remedy this situation (i.e., through looped circuits) is very high because much of Hydro’s distribution system and part of its transmission system is rural with low customer density. Would it be more appropriate to use a percentage of the Canadian average as a metric?

CA-PUB-18

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) Recommendation 2.13 states (Appendix A, page A-3) that given the vulnerabilities likely to be present on December 1, 2014, Hydro must prepare an emergency contingency plan to identify all generation resources for a potential supply emergency while the new CT remains unavailable. Hydro’s *Supply and Demand Status Report* filed with the Board on Friday, January 9, 2015 indicates that the new CT is not yet in service, and 25 MW of the Stephenville Gas Turbine remains unavailable (since December 15, 2014). Has Liberty: 1) reviewed Hydro’s emergency contingency plan, and 2) identified other available

- generation resources that are not already accounted for in the *Demand and Supply Status Report*?
- CA-PUB-19 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland and Labrador Hydro) Recommendation 2.13 (e) states (Appendix A, page A-3): “*Report to the Board immediately whenever forecast reserves fall under 10 percent during any day*”. It appears that reporting a percentage reserve margin has many of the same issues as using an LOLH criterion. Would use of a reporting system similar to that outlined on pages 90 and 91 of Liberty’s report relating to Newfoundland Power not be a more consistent and functional means for presenting information to the Board?
- CA-PUB-20 In Liberty’s opinion, does the June 2009 report undertaken by Ernest Orlando Lawrence Berkeley National Laboratory entitled “*Estimated Value of Service Reliability for Electric Utility Customers in the United States*” prepared for the U.S. Department of Energy (see website: <http://certs.lbl.gov/pdf/lbnl-2132e.pdf>) provide a reasonable basis for Hydro to conduct a similar study specific to electricity consumers of this Province? Would this provide useful information in addressing your statement (Liberty’s Interim Report, page ES-2): “*Liberty believes it is time to reassess the service reliability and cost balances that underlie the decisions on what level of supply resources to make available*”?
- CA-PUB-21 What is the probability that one of the three units at Holyrood will be forced out of service at any given time assuming a 10% forced outage rate for each of the three units? Please provide the calculation.

- CA-PUB-22 What is the probability of two of the three units at Holyrood will be forced out of service at any given time assuming a 10% forced outage rate for each of the three units? Please provide the calculation.
- CA-PUB-23 Given the size of the load on the Avalon Peninsula and its susceptibility to supply disruptions, is Hydro placing enough emphasis on the reliability and security of supply to this region?
- CA-PUB-24 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland Power Inc.) The report states (page 22): “*The large contribution that the distribution system makes to outages and the number of equipment-caused failures indicate room for further improvement in reliability (Recommendation #2.1)*”. How do Newfoundland Power figures compare to figures typical of the industry; i.e., what percentage of outages are typically attributable to the distribution, transmission and generation functions of a power system, and what contribution do equipment-caused failures typically make?
- CA-PUB-25 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland Power Inc.) The report states (page 23): “*The current gap between worst performing and all feeders is 5.15 versus 1.9. Newfoundland Power does not consider this gap sufficient to continue including worst performing feeders in its Distribution Reliability Initiative. Liberty views the remaining gap as substantial enough to warrant the common utility practice of a targeted funding program to address that 10 to 15 percent of feeders exhibiting worst SAIDI and SAIFI performance during the*

previous year, absent a showing that other expenditures on reliability improvement are more cost effective". Please confirm that: 1) all distribution companies have "worst performing feeders" that contribute to the overall average; 2) the best performing feeders tend to be in urban areas where it is less costly to improve reliability; and 3) the worst performing feeders tend to be in rural areas where it is more costly to improve reliability. Further, was Newfoundland Power asked if it has other expenditures on reliability improvement that are more cost effective? If so, please provide the response.

CA-PUB-26

(Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland Power Inc.) The report states (page 23): "*The current gap between worst performing and all feeders is 5.15 versus 1.9. Newfoundland Power does not consider this gap sufficient to continue including worst performing feeders in its distribution Reliability Initiative. Liberty views the remaining gap as substantial enough to warrant the common utility practice of a targeted funding program to address that 10 to 15 percent of feeders exhibiting worst SAIDI and SAIFI performance during the previous year, absent a showing that other expenditures on reliability improvement are more cost effective*". Please provide support for the statement that it is common utility practice to have a targeted funding program to address the worst performing 10 to 15 percent of feeders and that a gap of 5.15 versus 1.9 is considered unacceptable. Further, when compiling the support, please show if the distribution companies consider in the conduct of such studies aspects relating to customer willingness to pay and customer satisfaction with current levels of reliability.

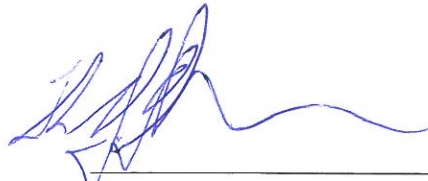
- CA-PUB-27 Do Liberty’s analyses indicate that Hydro has adequate control over the IIS to operate the system in a secure and reliable manner?
- CA-PUB-28 Do Liberty’s analyses indicate that there is duplication of functions undertaken by Newfoundland Power and Hydro as it relates to the operation of the IIS?
- CA-PUB-29 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland Power Inc.) The report states with regard to SCADA and OMS (page 62): “*The Company is going in the right direction with the exception of ceding the short-term forecasting function to Hydro’s Nostradamus system*”. Is Liberty recommending that both Hydro and Newfoundland Power have short-term load forecasting capability, and if so, why?
- CA-PUB-30 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland Power Inc.) The report states with regard to the increased risk of spilling (page 65): “*A solution may lie in increasing the number of dams or increasing the height of existing dams*”. What is the basis for this statement? Has this potential solution taken into consideration costs, environmental impacts and impacts on other users of the water?
- CA-PUB-31 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland Power Inc.) The report states (page 91): “*Newfoundland Power and Hydro are not technically able to measure the actual amount of electricity that consumers conserve after a conservation request*”. Why not? Are they able to provide a

reasonable estimate? How do other utilities make such measurements/estimates?

CA-PUB-32 (Liberty December 17, 2014 Report to Board on *Supply Issues and Power Outages Review Island Interconnected System* addressing Newfoundland Power Inc.) Conclusion 4.1 states (page A-3): “*The System Control Center is appropriately equipped and backed up by two other locations*”. Is it typical in the industry for a distribution company to maintain two backup locations for its System Control Centre?

CA-PUB-33 In its analyses, did Liberty consider use of small distributed generation alternatives as a means for improving reliability?

Dated at St. John’s in the Province of Newfoundland and Labrador, this 12th day of January, 2015.



Thomas Johnson, Q.C.
Consumer Advocate
323 Duckworth Street
St. John’s, NL A1C 5X4
Telephone: (709) 726-3524
Facsimile: (709) 726-9600
Email: tjohnson@odeaearle.ca