NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES
120 Torbay Road, P.O. Box 21040, St. John's, Newfoundland and Labrador, Canada, A1A 5B2

E-mail: gyoung@nlh.nl.ca

2015-04-21

Mr. Geoffrey Young
Newfoundland and Labrador Hydro
P.O. Box 12400
St. John's, NL A1B 417

Dear Mr. Young:

Re: March 4, 2015 Power Outage Report (*Power Outage/Incident Advisory 2015-H-062)*

Dear Mr. Young

This is further to your letter of April 10, 2015 enclosing your report titled March 4, 2015 Power Outage Report *(Power Outage/Incident Advisory 2015-H-62)*. In their review of the report Board staff has the following questions:

1. In its March 19, 2015 correspondence the Board requested, upon completion of the investigation into the March 4 outage, a copy of the report of the investigation, including the root cause analysis.

    a. Did Hydro complete a root cause analysis of the incidents causing the power outage? If so, when will a report be filed with the Board? If not, why not?
    b. Is Hydro's investigation into the March 4 outage complete or are there areas of investigation ongoing?
    c. Does Hydro intend to file further reports detailing the events leading up to the outage and Hydro's responses to those events?

2. On the morning of March 4, 2015, despite the Island Interconnected System not being in an N-1 situation, widespread outages resulted from a lack of generation on the Avalon which led to deterioration in system voltage. Given the outcome please provide your comments as to whether or not an N-1 contingency continues to be appropriate for the Island Interconnected System and in particular, for the Avalon Peninsula.

3. If the N-1 contingency remains appropriate, what protections has Hydro put in place to ensure similar events and outages will not occur?

4. At page 2, line 20 Hydro indicates it performed an Avalon Load Flow Analysis in support of the N-1 Contingency. Provide a comparison of how the actual events of March 4, 2015 deviated from the modeled events of the Avalon Load Flow Analysis.

5. At Section 4.1, Primary Cause 1, the primary cause of the outage is identified as being the delayed return to service of Unit 1 due to a longer than normally anticipated gassing up of the unit.

    a. How long does the gassing up process normally take?
    b. When did gassing up of Unit 1 commence?
    c. When was the process completed?
    d. Why did the process take longer than normally anticipated?

6. At Section 4.2, Primary Cause 2, a further cause of the outage is identified as being the incorrect flow rate of fuel from a fuel valve on the Holyrood Combustion Turbine.

    a. Provide pictures of the valve in question prior to any lock out modifications effected.
    b. Provide pictures of the valve in question following lock out modifications effected.
    c. Provide a clear indication either through photographs or diagrams as to the location of the valve on the unit and its accessibility for inadvertent contact.

7. At 00:28 Hydro's Energy Control Centre (ECC) knew that Unit 1 return to service would be delayed. At 05:24 the EEC knew Unit 1 would not be available to meet morning peak demand. At 06:30 Hydro knew the Holyrood Combustion Turbine was not available and likely would not be available to meet morning peak demand. At 07:01 Hydro advised Newfoundland Power of system generation issues and that Holyrood Unit 1 and the Combustion Turbine were unavailable. Why was notification of the system generation issues not provided to Newfoundland Power earlier than 7:01?

8. At page 11 it is indicated that in the future inter-group communication between Holyrood Operations and Hydro's ECC will include the most likely return to service time as a well as a range of return to service time where such risk exists. What changes to inter-utility communications will Hydro implement to provide immediate notification to Newfoundland Power of delays in returning significant assets to service from the original scheduled return to service time and to provide regular updates to Newfoundland Power as to the status of the return to service of those assets such as hourly or every two hours if return is imminent?

9. At page 12, line 23 it is stated "The response of system operator personnel to declining voltages...has been improved"

    a. Provide details of the improvements in system operator response i.e. changes made, training provided, lessons learned.
    b. What specific procedures will Hydro implement to give direction to system operators as to how to respond to a similar voltage deterioration event?

10. During the outage Hydro's website advised that no power outages were being experienced by Hydro customers. While technically accurate Hydro omitted to notify the public of a significant loss of supply to the system. What actions has Hydro taken

to provide public notification on its website in the event of future significant loss of supply affecting other than Hydro Domestic and General Service Customers?

11. Provide a graph(s) showing the relationship between the generation on the Avalon, the load on the Avalon, the load on the in-feed from Bay d'Espoir and the voltages on the Avalon.

12. Provide a description of the tools (e.g. load flow studies) available to system operators to determine system voltages as a result of generation or transmission outages. Include in the response the time required to carry out these studies and if they could have be carried out in the time between 06:12 and 07:04 on March 4, 2015.

13. Were there system studies completed at any time prior to March 4, 2015 that simulated the conditions of or similar conditions of March 4, 2015?

14. Provide load flow study results for March 4, 2015 in diagrammatic form in 15 minute intervals commencing at 06:15 until 07:14 for the Island Interconnected System.

15. Provide a description of training provided to system operators regarding voltage requirements on the Avalon Peninsula for various generation and load configurations.

If you have any questions, please do not hesitate to contact the Board's Director of Regulatory and Advisory Services, Mr. Robert Byrne by email rbyrne@pub.nl.ca or telephone (709) 726-0742.

Yours truly,

Cheryl Blundon
Board Secretary

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