

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

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2017-01-27

Ms. Tracey Pennell
Senior Counsel
Newfoundland and Labrador Hydro
P.O. Box 12400
St. John's, NL A1B 4K7

Dear Ms. Pennell:

Re: Investigation and Hearing into Supply Issues and Power Outages on the Island Interconnected System - Phase Two - Requests for Information PUB-NLH-640 to PUB-NLH-656 (Gas Turbine Failure Analysis - Final Report, January 11, 2017)

Enclosed are Requests for Information (RFIs) PUB-NLH-640 to PUB-NLH-656 in relation to the Gas Turbine Failure Analysis - Final Report, January 11, 2017.

If you have any questions, please do not hesitate to contact the Board's Legal Counsel, Ms. Jacqui Glynn, by email, jglynn@pub.nl.ca or telephone (709) 726-6781.

Yours truly,

Cheryl Blundon
Board Secretary

cpj
Enclosure

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1 **IN THE MATTER OF**
2 the *Electrical Power Control Act, 1994*,
3 SNL 1994, Chapter E-5.1 (the “*EPCA*”)
4 and the *Public Utilities Act, RSNL 1990*,
5 Chapter P-47 (the “*Act*”), as amended; and

6
7 **IN THE MATTER OF** the Board’s Investigation
8 and Hearing into Supply Issues and Power Outages
9 on the Island Interconnected System.

**PUBLIC UTILITIES BOARD
REQUESTS FOR INFORMATION**

PUB-NLH-640 to PUB-NLH-656

Issued: January 27, 2017

- 1 relating to running time, calendar time, oil quality, or other
2 considerations.
3
- 4 **PUB-NLH-647** Reference: Gas Turbine Failure Analysis - Final Report, January 11,
5 2017, Performance Improvements (PI) Limited Report, page 8 of 21. PI
6 indicates that the Stephenville scavenge/return oil filter relief bypass
7 valve lifted due to filter blockage. How long did the system operate with
8 this bypass valve open and what steps, if any, are in place to inform
9 operators that the filter has been bypassed?
10
- 11 **PUB-NLH-648** Reference: Gas Turbine Failure Analysis - Final Report, January 11,
12 2017. Describe the steps being taken to determine why the vibration
13 detection system failed to activate early enough to prevent damage of the
14 Stephenville gas turbine and describe any steps being taken to prevent
15 such failures in the future.
16
- 17 **PUB-NLH-649** Reference: Gas Turbine Failure Analysis - Final Report, January 11,
18 2017, page 5, line 5. Explain why the overhaul facility did not receive the
19 Hardwoods engine until August 3, 2016, approximately 6 months after
20 the failure.
21
- 22 **PUB-NLH-650** Reference: Gas Turbine Failure Analysis - Final Report, January 11,
23 2017, Alba Power Ltd. Report, page 10. Alba Power indicates that a step
24 change in temperature spreads, such as the 20°C experienced at
25 Hardwoods, "is considered significant," but that Hydro ran the engine for
26 another 2-3 days before failure. This seems to contradict Hydro's
27 explanation on page 2, lines 23-26 of its report, which suggests that the
28 unit was removed from service with the burners cleaned and replaced
29 before the unit was made available for service. Please clarify Hydro's
30 description of events prior to the Hardwoods failure.
31
- 32 **PUB-NLH-651** Reference: Gas Turbine Failure Analysis - Final Report, January 11,
33 2017, Alba Power Ltd. Report, page 10. Please provide the current alarm
34 levels and Hydro's opinion on setting those levels consistent with Alba
35 Power's observation that the observed step change in temperature spreads
36 (20°C) "is considered significant".
37
- 38 **PUB-NLH-652** Reference: Gas Turbine Failure Analysis - Final Report, January 11,
39 2017. Please provide a timeline for Hydro's actions, and the operating
40 status of Hardwoods, from the time that temperature spreads were first
41 noticed until the unit failed. Please include the timing of the decision to
42 shut down on February 8, 2016 and the time of the failure.
43
- 44 **PUB-NLH-653** Reference: Gas Turbine Failure Analysis - Final Report, January 11,
45 2017, Alba Power Ltd. Report, page 10-12. Alba Power's root cause
46 analysis for Hardwoods arrived at only one cause that was categorized as

1 “likely” - controls. Alba Power further observed that “the gas turbine ran
 2 on for a period of time when the controls system should have shut down
 3 the gas turbine”. This suggests that the controls system may have been
 4 doubly at fault; first by allowing higher than expected temperatures and
 5 second by not tripping the unit soon enough. Notwithstanding Alba
 6 Power’s “likely” determination, it does not appear that Hydro agrees, as
 7 Hydro dismissed this potential factor with the observation on page 7 of
 8 the report that settings were consistent with OEM recommendations.
 9 Please explain Hydro’s position in this regard and Hydro’s reasons for
 10 not pursuing a more aggressive analysis of the Hardwoods controls.

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 12 **PUB-NLH-654**

Reference: Gas Turbine Failure Analysis - Final Report, January 11,
 13 2017, page 8. Hydro states that “some of the [Hardwoods]
 14 recommendations provided will require detailed review of historical data
 15 and a full engineering review of the recommended changes to identify
 16 how these changes could be implemented into the existing systems.”
 17 Which of the Alba Power recommendations fall into this category and
 18 what is the timetable for addressing them?

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 21 **PUB-NLH-655**

In Order No. P.U. 22(2016) the Board stated:

22
 23 *WHEREAS the Board notes that the long-term strategy for Hardwoods*
 24 *and Stephenville will be addressed as a part of the ongoing Phase II*
 25 *review process and the Board is satisfied that Hydro should, following*
 26 *the completion of the proposed refurbishment at Hardwoods and*
 27 *Stephenville, file a report addressing the cause of the failures and how*
 28 *the causes and any other relevant findings may impact unit reliability in*
 29 *the short term as well longer term considerations.*

30
 31 Reference: Gas Turbine Failure Analysis - Final Report, January 11,
 32 2017, page 18. Hydro states that “*As a result of the implementation of the*
 33 *actions identified thus far, along with improved operational controls,*
 34 *increased maintenance and inspection, staffing of plants during*
 35 *operation to allow for increased attention while operating, and*
 36 *aggressive investigation of issues, Hydro expects the short term and long*
 37 *term reliability of these units to improve.” Please explain how the*
 38 *implementations provided in this report will improve reliability in both*
 39 *the short and long term as required by the Board in Order P.U. 22(2016).*

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 41 **PUB-NLH-656**

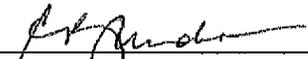
42 Reference: Gas Turbine Failure Analysis - Final Report, January 11,
 43 2017, page 18. Hydro states that “*Hydro is currently evaluating the long*
 44 *term need and role for gas turbines on the Island Interconnected System,*
 45 *both on the Avalon and at other locations across the island. This*
 46 *evaluation will inform if heavy investment into the Hardwoods and*
Stephenville current gas turbine engines is appropriate or if other

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options such as repowering or replacing is more appropriate.” When is this evaluation expected to be completed and will Hydro be filing a report to the Board on its findings?

DATED at St. John’s, Newfoundland this 27th day of January 2017.

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

Per 
Cheryl Blundon
Board Secretary