

1 Q. Further to the response to NP-NLH-022, Attachment 1, pages 58-59, which lists  
2 certain maintenance work on the Holyrood gas turbine that was overdue, please  
3 explain why Hydro did not complete this recommended maintenance work and  
4 what impact completion of the recommended work would have had on the  
5 condition of the unit.

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8 A. Regular preventative maintenance has always been performed annually with the  
9 aid of external contractors as required. In late 2008, Hydro initiated a capital budget  
10 proposal to perform a major condition assessment of the entire facility at Holyrood  
11 (HRD), including the gas turbine, to lay out a game plan for executing the proper  
12 work at the right time. While waiting for the funding to be approved, Hydro  
13 executed extensive corrective maintenance on the gas turbine including the  
14 following:

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16 1. Engine removed, cleaned, combustion cans replaced, thermocouples  
17 checked;

18 2. Fuel control unit replaced;

19 3. Fuel pump repaired;

20 4. Power turbine inspected and future repairs planned;

21 5. Fuel control solenoid valve replaced;

22 6. Nitrogen probe repairs;

23 7. Fuel control unit tuning;

24 8. Exhaust transition lagging replaced;

25 9. Gearbox piping flanges re-gasketed;

26 10. Gearbox seals modified;

27 11. Catchment basin installed;

- 1 12. Fuel leaks repaired;
- 2 13. Engine breather leaks repaired; and
- 3 14. Power turbine insulation replaced.

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5 During the condition assessment work of 2010, it became apparent that a more  
6 comprehensive gas turbine condition assessment was required to accurately  
7 determine the condition of the unit and the cost benefit of further refurbishment  
8 versus replacement. Detailed inspections were performed by Original Equipment  
9 Manufacturers (OEMs) in 2010. During the OEM inspections in 2010, it was  
10 identified that a significant capital investment would be required to sustain the unit  
11 and several projects were added to the five-year capital plan including the  
12 following, which is the overdue work referenced in NP-NLH-022, Attachment 1,  
13 pages 58-59.

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**2011**

- 16 HRD - Overhaul Gas Turbine
- 17 HRD - Replace Gas Turbine Exhaust Stack

**2012**

- 19 HRD - Replace Gas Turbine Radiator

**2013**

- 21 HRD - Construct Gas Turbine Equipment Enclosure

**2014**

- 23 HRD - Install Sprinkler System at Gas Turbine
- 24 HRD - Replace GT Air Intake Structure
- 25 HRD - Refurbish Gas Turbine Building Enclosure

**2015**

- 27 HRD - Refurbish Power Turbine Clutch

- 1 Before making a large capital investment to overhaul the jet, turbine and gearbox,
- 2 Hydro had a dedicated condition assessment performed on the gas turbine in 2011
- 3 and the conclusion was to discontinue further investment.