

1     Q.     Has Hydro considered less expensive options to the proposed refurbishment of the  
2           Hardwoods Gas Turbine, such as leasing additional gas turbine capacity, performing  
3           a more limited refurbishment, or replacing only the known deficiencies in the rotor  
4           retaining rings? If so, why were such options rejected?

5  
6  
7     A.     Hydro has considered other, non-viable, options to the proposed replacement of  
8           the Hardwoods Gas Turbine alternator.

9  
10           Leasing additional gas turbine capacity was considered and deemed to be one of  
11           the more expensive options based upon budgetary quotes received from GE Power  
12           and Water. The options for leasing a gas turbine are limited but GE was able to  
13           provide budgetary rental pricing of \$13.4 million for 2- 25 MW units for 12 months.  
14           Since the capacity is required until the interconnection of the Labrador transmission  
15           link, the total cost would be significantly higher than that proposed in the current  
16           Application.

17  
18           Alternate options for refurbishment were evaluated in the Hardwoods Gas Turbine  
19           Plant Life Extension Upgrades report (the 2007 Stantec report) filed in 2009. That  
20           analysis did not identify any more limited refurbishment options.

21  
22           The option to replace only the rotor retaining rings is not viable, as it is known,  
23           based upon the above mentioned report, that a full alternator refurbishment is  
24           required. Furthermore, in order to replace the rotor retaining rings the alternator  
25           would have to be disassembled, rotor extracted and rings removed and replaced,  
26           and total unit reassembled at a total cost of over \$3.7 million. The  
27           recommendation in the 2007 Stantec report on Hardwoods was that the alternator

1       should be refurbished, confirmed by the conditions found during the site visit at  
2       Hardwoods by Brush in 2013 and the failure of the sister unit of the same vintage in  
3       Stephenville. The most cost effective and prudent option, as identified in the  
4       Application, is to replace the alternator, stator and rotor - since the unit must be  
5       disassembled and reassembled to return it to a safe working condition.