

1 Q. Please provide the critical path schedule, from the time Hydro was advised by Brush
2 of the need for repairs through to the start of the outage, for the 2013 Hardwood
3 CT repair effort. Please cover all activities or events that influenced the start date
4 for the outage required for the repair of the Hardwoods CT including, if applicable,
5 operating restraints due to a Holyrood outage or lead times associated with
6 material procurement.

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9 A. The project timeline from the time Hydro was advised by Brush of the need for
10 repairs through to the start of the outage, for the repair of the Hardwoods
11 Combustion Turbine (CT) is provided in PUB-NLH-150 Attachment 1.

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13 When notification was received from Brush on January 4, 2013, Hydro's first
14 response was to meet with Brush to understand the issue, the implications for
15 operation of the unit, and the urgency of any action to repair the unit. Discussions
16 resulted in Brush issuing a letter to Hydro advising operation of the unit in
17 emergency only. Hydro immediately began discussions with Brush related to
18 options for the return of Hardwoods CT to normal service. The process of working
19 to determine the cost and schedule of the options available, and working to
20 improve the schedule for completion with a goal of returning the unit to service
21 prior to the 2013/2014 peak winter season, took some time. The initial schedule
22 provided by the vendor had the unit being returned to service in April 2014. This
23 schedule was not acceptable because the unit would not have been reliably
24 available in the winter of 2013/2014. The discussions with the vendor identified the
25 primary constraint for the project schedule was the manufacture and delivery of a
26 new alternator. Further discussions with the vendor were primarily focussed on
27 shortening this time as much as possible. The result of those discussions led to a

1 delivery commitment by the vendor, which would provide for the unit being able to
2 be returned to service in mid-December 2013. A Letter of Intent was entered into
3 with the vendor to confirm the ability to meet the delivery commitment.

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5 Drafting of the application report for submission to the Board began very soon after
6 the realization that a major repair project was required, and it progressed in parallel
7 with the work to define the scope of work, cost and schedule for each option,
8 complete the analysis and decide on the appropriate option. The lessons learned
9 from the related work completed at Stephenville, particularly the disassembly of
10 the unit, allowed for a shortened timeline for determining the scope, schedule and
11 cost of the work.

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13 Once the project was approved by the Board, the contract for the supply and
14 installation of the rotor and stator was finalized and signed with the vendor. The
15 final project schedule was then set and the work required to be completed prior to
16 the outage was planned and initiated.

Activity	Date	Comment
Brush advised Hydro of the retaining ring issue	January 4, 2013	
Initial options identification received from Brush	January 22, 2013	High level costs, approximate delivery timelines only
Preliminary estimate for alternator project completed	January 31, 2013	
Letter received from Brush re: retaining rings issue	February 4, 2013	Advised emergency use of unit – with cautions
Hydro requested more detail on option cost, schedule from Brush	February 7, 2013	Schedule for rotor/stator delivery – 32 weeks – spring 2014
Negotiating with Brush for improved delivery of stator/rotor option	February 8 – March 6, 2013	
First draft of document completed for project application	March 18, 2013	Preliminary draft only – awaiting cost, schedule, etc.
Revised quote received from Brush	March 19, 2013	Schedule for rotor/stator delivery – 22 weeks
Estimate completed for replace stator/rotor option	March 20 – April 2, 2013	
Review and finalization of application report	April 5 - 10, 2013	
Formal quote for rewind option received from Brush	April 13, 2013	Required for final analysis of options
Final draft of application report circulated for review	April 17, 2013	
Project application filed	April 24, 2013	
Letter of Intent provided to Brush to maintain project schedule		
Project approved by PUB	May 16, 2013	
Contract negotiation and finalization with Brush	May 17 – July 4	This time period did not impact the project schedule as the Letter of Intent had already confirmed the delivery commitment with Brush
Letter of award issued to Brush	July 4, 2013	Advised of pending award, requested documentation
Project kick off meeting held	July 8, 2013	
Brush given Notice to Proceed	July 24, 2013	Documentation received
Outage at Hardwoods to allow Brush to take measurements	August 21, 2013	
Factory acceptance testing of stator/rotor	Sept 15 – 18, 2013	
Outage start	October 3, 2013	