

1 Q. Regarding the Hardwoods turbine, please provide (1) the periods in which the unit
2 was partially or fully unavailable between January 1, 2010 and the present and (2)
3 each occurrence when the unit failed to start when called upon, including tests.
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7 A. Please see PR-PUB-NLH-194 Attachments 1 through 6 for the annual periods in
8 which the Hardwoods gas turbine was partially or fully unavailable between January
9 1, 2010 and the present and the occurrences when the unit failed to start when
10 called upon, including tests. The data provided includes forced and scheduled
11 outages and deratings. Forced outages and deratings are those that are sudden
12 and unplanned. Scheduled outages and deratings include those required to
13 perform corrective and preventative maintenance as well as those required to
14 complete major refurbishment and upgrade projects. These outages are requested
15 as required and are approved by the Energy Control Centre (ECC) with
16 consideration of power system conditions.

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18 Please note that the Hardwoods and Stephenville gas turbine plants were
19 undergoing multi-year capital refurbishment programs during this period to address
20 items related to reliable performance and asset condition. The impact of this work
is reflected in the duration and frequency of scheduled outages during this period.

Hardwoods Gas Turbine Unavailability and Starting Failures 2010

Fully Unavailable

Date	Duration	Outage Type
January 8, 2010	5 hours 54 minutes	Forced
January 29, 2010	7 hours 23 minutes	Scheduled
February 1, 2010	7 hours 6 minutes	Forced
February 24, 2010	5 hours 49 minutes	Forced
March 8 - 16, 2010	188 hours 39 minutes	Forced
April 13 - 14, 2010	24 hours 23 minutes	Scheduled
April 15, 2010	4 hours 38 minutes	Forced
April 28, 2010	5 hours 1 minute	Scheduled
May 11, 2010	10 hours 28 minutes	Scheduled
May 13, 2010	5 hours 0 minutes	Forced
May 26, 2010	8 hours 4 minutes	Scheduled
June 11, 2010	2 hours 32 minutes	Forced
June 17, 2010	10 hours 27 minutes	Scheduled
June 18, 2010	10 hours 57 minutes	Scheduled
June 23, 2010	6 hours 50 minutes	Scheduled
July 21 - 24, 2010	83 hours 49 minutes	Scheduled
August 7, 2010	3 hours 42 minutes	Forced
September 14, 2010	14 hours 7 minutes	Scheduled
September 16, 2010	11 hours 1 minute	Scheduled
October 13, 2010	2 hours 47 minutes	Scheduled
October 14, 2010	7 hours 22 minutes	Scheduled
October 15, 2010	6 hours 18 minutes	Scheduled
October 25 - December 2, 2010	38 days	Scheduled
December 7, 2010	7 hours 55 minutes	Scheduled

Partially Unavailable - Derated

Date	Duration	Derating
June 17 - 18, 2010	21 hours 37 minutes	Forced - Derated to 25 MW
June 23 - 25, 2010	41 hours 3 minutes	Forced - Derated to 25 MW
September 14 -15, 2010	23 hours 38 minutes	Forced - Derated to 25 MW

Starting Failures

There were no starting failures recorded in 2010

Hardwoods Gas Turbine Unavailability and Starting Failures 2011

Fully Unavailable

Date	Duration	Outage Type
January 2, 2011	0 hours 10 minutes	Forced
February 22, 2011	8 hours 16 minutes	Scheduled
February 23, 2011	9 hours 1 minute	Scheduled
February 25, 2011	4 hours 8 minutes	Scheduled
March 1, 2011	0 hours 42 minutes	Scheduled
March 7, 2011	6 hours 16 minutes	Scheduled
March 23, 2011	3 hours 28 minutes	Scheduled
June 22, 2011	1 hour 19 minutes	Forced
October 6, 2011	0 hours 9 minutes	Forced
November 7, 2011	9 hours 38 minutes	Scheduled
November 14 - December 8, 2011	24 days	Scheduled
December 9, 2011	0 hours 16 minutes	Forced

Partially Unavailable - Derated

Date	Duration	Derating
January 31 - February 1, 2011	26 hours 19 minutes	Forced - Derated to 25 MW (failed start)
December 8, 2011	21 hours 25 minutes	Forced - Derated to 17 mw

Starting Failures

Date	Duration	
January 31, 2011	26 hours 19 minutes	Resulted in forced derating

Hardwoods Gas Turbine Unavailability and Starting Failures 2012

Fully Unavailable

Date	Duration	Outage Type
January 14, 2012	0 hours 9 minutes	Forced
February 10, 2012	4 hours 15 minutes	Forced (starting failure)
February 15 - 21, 2012	6 days	Forced (starting failure)
February 29 - March 10, 2012	11 days	Forced (starting failure)
April 27, 2012	12 hours 44 minutes	Forced
May 16, 2012	9 hours 51 minutes	Scheduled
May 17, 2012	5 hours 2 minutes	Scheduled
May 19, 2012	7 hours 3 minutes	Scheduled
May 20, 2012	2 hours 54 minutes	Scheduled
June 4, 2012	0 hours 40 minutes	Forced
June 4, 2012	0 hours 44 minutes	Forced
June 4 - 5, 2012	6 hours 1 minute	Forced
June 5, 2012	2 hours 23 minutes	Scheduled
June 30, 2012	5 hours 7 minutes	Forced
August 4 - 6, 2012	44 hours 6 minutes	Forced
September 28, 2012	2 hours 54 minutes	Forced
November 25, 2012	1 hour 8 minutes	Forced
November 26, 2012	1 hour 28 minutes	Forced

Partially Unavailable - Derated

Date	Duration	Derating
April 19 -20, 2012	28 hours 13 minutes	Forced - Derated to 34 MW
April 23 -24, 2012	25 hours 45 minutes	Forced - Derated to 25 MW
April 27 - May 3, 2012	5 days 18 hours 27 minutes	Forced- Derated to 25 MW
May 18 - 20, 2012	1 day 18 hours 30 minutes	Scheduled - Derated to 25 MW

Starting failures

Date	Duration	
February 10, 2012	4 hours 15 minutes	Resulted in forced outage
February 15, 2012	6 days	Resulted in forced outage
February 29, 2012	11 days	Resulted in forced outage

Hardwoods Gas Turbine Unavailability and Starting Failures 2013

Fully Unavailable

Date	Duration	Outage Type
January 18, 2013	0 hours 29 minutes	Forced
January 23, 2013	1 hour 49 minutes	Forced
February 9, 2013	1 hour 15 minutes	Forced outage (starting failure)
July 4 - 5, 2013	25 hours 47 minutes	Scheduled
October 4 - December 17, 2013	74 days	Scheduled
December 17, 2013	0 hours 41 minutes	Scheduled
December 21 - 31, 2013	10 days	Forced

Partially Unavailable - Derated

Date	Duration	Derating
May 18 -25, 2013	7 days	Scheduled - Derated to 25 MW

Starting Failures

Date	Duration	
February 9, 2013	1 hour 15 minutes	Resulted in forced outage

Hardwoods Gas Turbine Unavailability and Starting Failures 2014

Fully Unavailable		
Date	Duration	Outage Type
January 1 - 12, 2014	12 days	Forced
January 22, 2014	0 hours 31 minutes	Forced
January 22, 2014	0 hours 54 minutes	Forced
January 22, 2014	0 hours 32 minutes	Forced
January 22, 2014	0 hours 48 minutes	Forced
January 23, 2014	1 hour 52 minutes	Scheduled
March 19, 2014	0 hours 21 minutes	Forced
May 5, 2014	1 hour 2 minutes	Forced
May 6, 2014	1 hour 40 minutes	Forced
June 6 - 10, 2014	3 days 18 hours 52 minutes	Forced
June 20, 2014	2 hours 53 minutes	Scheduled
June 21, 2014	2 hours 36 minutes	Scheduled
July 2-4, 2014	2 days 15 hours 50 minutes	Forced
July 4, 2014	0 hours 11 minutes	Forced

Fully Unavailable

Date	Duration	Outage Type
July 25 to September 25, 2014	2 months	Forced
September 26, 2014	8 hours 55 minutes	Scheduled
September 27, 2014	0 hours 19 minutes	Forced
November 27 - December 7, 2014	10 days 3 hours 35 minutes	Forced
December 12 - 22, 2014	9 days 22 hours 20 minutes	Forced

Partially Unavailable - Derated

Date	Duration	Derating
February 28 - March 5, 2014	4 days 21 hours 46 minutes	Forced - Derated to 25 MW
March 6 - 7, 2014	14 hours 28 minutes	Forced - Derated to 25 MW
March 10, 2014	5 hours 26 minutes	Forced - Derated to 25 MW
March 11, 2014	8 hours 38 minutes	Forced - Derated to 25 MW
March 18 - 21, 2014	2 days 14 hours 20 minutes	Forced - Derated to 25 MW
March 19 - 25, 2014	6 days 5 hours 7 minutes	Forced - Derated to 25 MW
May 6 - 8, 2014	1 day 21 hours 51 minutes	Forced - Derated to 25 MW
May 30 - June 1, 2014	27 hours 14 minutes	Scheduled - Derated to 25 MW
June 10 - 13, 2014	3 days 3 hours 16 minutes	Forced - Derated to 25 MW

Partially Unavailable - Derated

Date	Duration	Derating
July 4 - 9, 2014	4 days 20 hours	Forced - Derated to 25 MW
July 9 - 17, 2014	7 day 23 hours	Forced - Derated to 25 MW
December 22 -29, 2014	6 days 23 hours 43 minutes	Forced - Derated to 25 MW
December 31, 2014	5 hours 10 minutes	Forced - Derated to 25 MW

Starting Failures

Date	Duration	
March 18, 2014	2 days 14 hours 20 minutes	Resulted in forced outage
March 18, 2014	2 days 14 hours 20 minutes	Resulted in forced outage
June 6, 2014	3 days 18 hours 52 minutes	Resulted in forced outage
October 17, 2014	11 hours 52 minutes	Resulted in forced outage
November 27, 2014	10 days 3 hours 35 minutes	Resulted in forced outage
December 31, 2014	0 hours 51 minutes	Resulted in forced outage

Hardwoods Gas Turbine Unavailability and Starting Failures 2015

Fully Unavailable

Date	Duration	Outage Type
January 8, 2015	0 hours 50 minutes	Forced (starting failure)
January 29, 2015	5 hours 7 minutes	Scheduled
February 24, 2015	0 hours 55 minutes	Forced
February 26 - 27, 2015	1 hour 19 minutes	Forced
February 27, 2015	14 hours 5 minutes	Forced
March 1 - 3, 2015	44 hours 8 minutes	Forced
March 4, 2015	1 hour 35 minutes	Forced
March 5, 2015	1 hour 4 minutes	Forced
March 17, 2015	2 hours 38 minutes	Scheduled
March 25, 2015	0 hours 46 minutes	Forced
April 28, 2015	6 hours 50 minutes	Forced outage
May 29 - July 28, 2015	30 days	Scheduled
July 29 - 30, 2015	25 hours 47 minutes	Scheduled
August 11, 2015	7 hours 34 minutes	Forced

Partially Unavailable - Derated

Date	Duration	Derating
January 1, 2015	1 hour 51 minutes	Forced - Derated to 25 MW
January 8, 2015	5 hours 5 minutes	Scheduled - Derated to 25 MW
March 3 - May 29, 2015	87 days	Forced - Derated to 25 MW
July 28 - 29, 2015	25 hours 47 minutes	Scheduled - Derated to 25 MW
July 30 - 31	24 hours 52 minutes	Derated to 17 MW
July 31 - Present, 2015	Ongoing	Derated to 35 MW

Starting Failures

Date	Duration	
January 8, 2015	0 hours 50 minutes	Resulted in forced outage