

1 Q. **Reference: Evidence – Application for Deferral and Recovery of 2014 Capacity-**  
2 **Related Supply Costs, Page 1, Lines 2-4.**

3 Please describe the causes of the capacity constraints in January, February, and  
4 March of 2014 and indicate whether or not Hydro believes the capacity constraints  
5 could have been prevented.  
6  
7

8 A. The capacity constraints experienced were very unusual and not predictable. Most  
9 of the capacity shortfalls which occurred in and among themselves are not unusual  
10 problems to be experienced in the course of a year.  
11

12 However, the combination of forced outages or forced deratings occurring on  
13 several generating units at one time is very unusual and led to the generation  
14 capacity shortfalls. The high peak load experienced over the Christmas period,  
15 together with the coincident generation issues, led to the requirement for Hydro to  
16 take action to obtain capacity assistance from Corner Brook Pulp and Paper and to  
17 incur an unusual amount of diesel fuel consumption through the operation of its  
18 diesel and gas turbine plants and Newfoundland Power's gas turbine and diesel  
19 plants.  
20

21 Hydro undertook a review of the issues with all the generating facilities to  
22 determine action that could be taken in the future to reduce the likelihood of the  
23 recurrence of these events. At this point, in hindsight, it is possible to identify  
24 mitigation actions. However, based on past experience and the knowledge of the  
25 equipment entering into the winter of 2013/2014 Hydro could not have been  
26 reasonably expected to have all the mitigating measures in place to prevent the  
27 generation shortfalls.

1 With respect to the capacity constraints, as noted in the first paragraph of this  
2 response, the capacity constraints were caused by an accumulation of generation  
3 issues together with extended severe weather driving high load. Details with  
4 respect to generation unavailability are set out in NP-NLH-002 Attachment 1.<sup>1</sup>

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<sup>1</sup> Filed as PUB-NLH-287 in the *Island Interconnected System Supply Issues and Power Outages* proceeding.

PUB-NLH-287

**Island Interconnected System Supply Issues and Power Outages**

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Page 1 of 1

1 Q. Update the response to PUB-NLH-148 to include data for 2014 year to date (July  
2 31). Include in the response an explanation for each forced outage in 2014.  
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4

5 A. Please refer to PUB-NLH-287 Attachment 1 which provides an update of PUB-NLH-  
6 148 with 2014 data year to date data (August 31, 2014). It is important to note that  
7 comparison of the 2014 year to date data to other years is not meaningful due to  
8 the impact of the operating pattern and annual maintenance outage schedules on a  
9 number of the performance measures. In particular, any measure which utilizes  
10 operating hours and planned outage hours in its calculation will be skewed because  
11 there is significant operating time on the generating units in the fall and some  
12 planned outage work has not yet been completed.  
13

14 PUB-NLH-287 Attachment 2 provides the details for all forced outages to the  
15 generation contained in this update, up to August 31, 2014. This list includes all  
16 outages that resulted in a forced outage to the generating unit.  
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18 Please note that the Bay d'Espoir Generating Station figures are impacted by the  
19 removal of Unit 6 of the Bay d'Espoir Generating Station from service for an  
20 extended period (as shown in PUB-NLH-287 Attachment 2) due to failure and  
21 replacement of a rectifying transformer. Hydro has reported separately to the  
22 Board on this matter.

| Holyrood Thermal Generating Station               | 2008    | 2009    | 2010    | 2011    | 2012    | 2013    | 2014 YTD |
|---------------------------------------------------|---------|---------|---------|---------|---------|---------|----------|
| <b>Unit 1</b>                                     |         |         |         |         |         |         |          |
| Gross Unit Rating (MW)                            | 170     | 170     | 170     | 170     | 170     | 170     | 170      |
| Gross Capacity Factor (%)                         | 19.6%   | 24.2%   | 22.9%   | 26.4%   | 26.0%   | 11.7%   | 34.3%    |
| Gross Generation (MWh)                            | 292,915 | 360,410 | 340,820 | 392,490 | 388,490 | 173,740 | 510,470  |
| Gross Unit Efficiency (%)                         | 34.4%   | 34.8%   | 34.3%   | 34.1%   | 34.4%   | 34.0%   | 34.4%    |
| Gross Unit Heat Rate (BTUs/kWh)                   | 9,919   | 9,805   | 9,948   | 10,006  | 9,919   | 10,026  | 9,910    |
| Unit Operating Time (hours)                       | 3,486   | 4,520   | 4,420   | 4,952   | 4,555   | 1,985   | 4,045    |
| Unit Planned Outage Time (hours)                  | 2,622   | 1,925   | 1,760   | 1,808   | 2,350   | 1,366   | 639      |
| Unit Maintenance Outage Time (hours)              | 77      | 60      | 103     | 10      | 7       | 60      | 177      |
| Unit Forced Outage Time (hours)                   | 1,476   | 1,670   | 128     | 218     | 221     | 5,186   | 231      |
| Number of Planned Outages                         | 3       | 1       | 2       | 4       | 3       | 2       | 2        |
| Number of Maintenance Outages                     | 2       | 1       | 2       | 3       | 3       | 1       | 3        |
| Number of Forced Outages                          | 8       | 10      | 3       | 4       | 6       | 5       | 4        |
| Failure Rate (Forced Outages/Oper. Hours x 8760)  | 17.64   | 15.30   | -       | 3.54    | 7.71    | 13.24   | 5.85     |
| Incapability factor (% of time)                   | 49.38   | 44.23   | 23.47   | 23.52   | 29.85   | 78.35   | 22.80    |
| DAFOR (% of time)                                 | 32.35   | 32.52   | 4.22    | 4.21    | 4.73    | 75.70   | 12.34    |
| Utilization Forced Outage Probability (% of time) | n/a     | n/a     | n/a     | n/a     | n/a     | n/a     | n/a      |
| <b>Unit 2</b>                                     |         |         |         |         |         |         |          |
| Gross Unit Rating (MW)                            | 170     | 170     | 170     | 170     | 170     | 170     | 170      |
| Capacity factor (%)                               | 36.7%   | 26.5%   | 20.6%   | 24.2%   | 22.9%   | 33.2%   | 30.6%    |
| Gross Generation (MWh)                            | 548,220 | 394,200 | 306,590 | 360,310 | 342,210 | 494,710 | 455,910  |
| Gross Unit Efficiency (%)                         | 35.0%   | 33.5%   | 33.6%   | 33.8%   | 33.4%   | 33.2%   | 33.9%    |
| Gross Unit Heat Rate (BTUs/kWh)                   | 9,749   | 10,185  | 10,155  | 10,095  | 10,216  | 10,280  | 10,080   |
| Unit Operating Time (hours)                       | 4,994   | 4,922   | 3,954   | 4,470   | 3,906   | 5,280   | 3,187    |
| Unit Planned Outage Time (hours)                  | 1,581   | 2,258   | 1,079   | 1,805   | 1,369   | 1,140   | 2,416    |
| Unit Maintenance Outage Time (hours)              | 238     | -       | 295     | 23      | 48      | 945     | 11       |
| Unit Forced Outage Time (hours)                   | 175     | 34      | 137     | 119     | 15      | 237     | 6        |
| Number of Planned Outages                         | 2       | 2       | 3       | 4       | 3       | 4       | 4        |
| Number of Maintenance Outages                     | 5       | -       | 5       | 4       | 2       | 6       | 4        |
| Number of Forced Outages                          | 3       | 3       | 5       | 1       | 4       | 8       | 4        |
| Failure Rate (Forced Outages/Oper. Hours x 8760)  | 1.76    | 3.56    | 11.08   | -       | 9.00    | 8.34    | 1.86     |
| Incapability factor (% of time)                   | 23.10   | 29.04   | 18.15   | 24.85   | 17.03   | 27.84   | 41.46    |
| DAFOR (% of time)                                 | 3.54    | 5.50    | 5.28    | 3.64    | 0.77    | 6.44    | 0.84     |
| Utilization Forced Outage Probability (% of time) | n/a     | n/a     | n/a     | n/a     | n/a     | n/a     | n/a      |

Note: 1. The outage information excludes impacts from outside sources that result in the generating unit being restricted or a unit outage. This includes outages caused by transmission equipment or any condition Outside of Plant Management Control.

2. It is important to note that comparison of the 2014 year to date data to other years is not meaningful due to the impact of the operating pattern and annual maintenance outage schedules on a number of the performance measures. In particular, any measure which utilizes operating hours and planned outage hours in its calculation will be skewed because there is significant operating time on the generating units in the fall and some planned outage work has not yet been completed.

| Holyrood Thermal Generating Station (cont'd)      | 2008      | 2009      | 2010      | 2011      | 2012      | 2013      | 2014 YTD  |
|---------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Unit 3</b>                                     |           |           |           |           |           |           |           |
| Gross Unit Rating (MW)                            | 150       | 150       | 150       | 150       | 150       | 150       | 150       |
| Capacity factor (%)                               | 23.6%     | 19.1%     | 16.3%     | 14.9%     | 14.1%     | 27.1%     | 25.4%     |
| Gross Generation (MWh)                            | 310,380   | 251,130   | 214,450   | 196,100   | 186,180   | 355,930   | 333,380   |
| Gross Unit Efficiency (%)                         | 35.3%     | 34.3%     | 33.6%     | 33.6%     | 32.7%     | 33.5%     | 33.4%     |
| Gross Unit Heat Rate (BTUs/kWh)                   | 9,666     | 9,948     | 10,155    | 10,155    | 10,434    | 10,179    | 10,228    |
| Unit Operating Time (hours)                       | 3,082     | 2,946     | 2,811     | 2,443     | 2,221     | 3,664     | 3,484     |
| Synchronous Condensor Time (hours)(1)             | 4,403     | 4,117     | 3,181     | 4,889     | 4,361     | 3         | -         |
| Unit Planned Outage Time (hours)                  | 1,899     | 3,524     | 3,264     | 3,847     | 1,655     | 4,320     | 2,015     |
| Unit Maintenance Outage Time (hours)              | 27        | 292       | 2         | 13        | 54        | 36        | -         |
| Unit Forced Outage Time (hours)                   | 213       | 236       | 20        | 584       | 299       | 13        | 91        |
| Number of Planned Outages                         | 6         | 22        | 5         | 14        | 6         | 6         | 5         |
| Number of Maintenance Outages                     | 1         | 1         | 2         | 3         | 3         | 2         | -         |
| Number of Forced Outages                          | 3         | 3         | 4         | 3         | 4         | 3         | 4         |
| Failure Rate (Forced Outages/Oper. Hours x 8760)  | 5.70      | 5.95      | 9.35      | 7.17      | 7.91      | 7.17      | 3.40      |
| Incapability factor (% of time)                   | 25.61     | 46.35     | 39.31     | 51.60     | 24.87     | 55.68     | 42.66     |
| DAFOR (% of time)                                 | 8.80      | 7.69      | 6.20      | 21.80     | 16.87     | 12.77     | 12.47     |
| Utilization Forced Outage Probability (% of time) | n/a       | n/a       | n/a       | n/a       | n/a       | n/a       | n/a       |
| <b>Overall Plant</b>                              |           |           |           |           |           |           |           |
| Gross Plant Rating (MW)                           | 490       | 490       | 490       | 490       | 490       | 490       | 490       |
| Gross Capacity Factor (%)                         | 26.8%     | 23.4%     | 20.1%     | 22.1%     | 21.3%     | 23.9%     | 30.3%     |
| Gross Generation (MWh)                            | 1,151,515 | 1,005,740 | 861,860   | 948,900   | 916,880   | 1,024,380 | 1,299,760 |
| Station Services (MWh)                            | 71,287    | 65,875    | 58,790    | 63,586    | 61,054    | 66,938    | 82,587    |
| Net Generation (MWh)                              | 1,080,228 | 939,865   | 803,070   | 885,314   | 855,826   | 957,442   | 1,217,173 |
| No. 6 fuel usage (bbls)                           | 1,728,681 | 1,534,707 | 1,363,179 | 1,469,169 | 1,428,337 | 1,610,966 | 2,068,884 |
| Plant Net Fuel Conversion Factor (kWh/bbl)        | 625       | 612       | 589       | 603       | 599       | 594       | 588       |
| Failure Rate (Forced Outages/Oper. Hours x 8760)  | 7.60      | 8.11      | 6.27      | 2.95      | 8.22      | 8.84      | 3.87      |
| Incapability factor (% of time)                   | 32.70     | 39.88     | 26.98     | 33.32     | 26.92     | 53.96     | 35.64     |
| Weighted DAFOR (% of time)                        | 15.65     | 17.38     | 5.07      | 7.88      | 5.98      | 36.58     | 9.00      |
| Utilization Forced Outage Probability (% of time) | n/a       | n/a       | n/a       | n/a       | n/a       | n/a       | n/a       |

Note: 1. The outage information excludes impacts from outside sources that result in the generating unit being restricted or a unit outage. This includes outages caused by transmission equipment or any condition Outside of Plant Management Control.

2. It is important to note that comparison of the 2014 year to date data to other years is not meaningful due to the impact of the operating pattern and annual maintenance outage schedules on a number of the performance measures. In particular, any measure which utilizes operating hours and planned outage hours in its calculation will be skewed because there is significant operating time on the generating units in the fall and some planned outage work has not yet been completed.

3. In 2013 Unit 3 sync condense time was for testing only. The unit was not available for synchronous condensor operation during the late spring and summer due to planned capital work. Avalon voltage support was provided by the capacitor banks at Come by Chance.

| Hardwoods Gas Turbine Plant                       | 2008         | 2009         | 2010         | 2011         | 2012         | 2013       | 2014 YTD     |
|---------------------------------------------------|--------------|--------------|--------------|--------------|--------------|------------|--------------|
| <b>Overall Plant (Hardwoods Gas Turbine)</b>      |              |              |              |              |              |            |              |
| Gross Unit Rating (MW) <sup>(1)</sup>             | 54           | 54           | 50           | 50           | 50           | 50         | 50           |
| Gross Capacity Factor (%)                         | 0.83%        | 0.50%        | 0.71%        | 0.14%        | 0.35%        | 0.39%      | 1.19%        |
| Gross Generation (MWh)                            | 3,938        | 2,369        | 3,089        | 634          | 1,534        | 1,699      | 5,227        |
| Station Services (MWh)                            | 939          | 964          | 1,198        | 823          | 873          | 714        | 776          |
| Synchronous Condensor Use (MWh)                   | <u>3,521</u> | <u>3,406</u> | <u>6,336</u> | <u>3,319</u> | <u>4,068</u> | <u>266</u> | <u>3,240</u> |
| Net Generation (MWh)                              | (522)        | (2,001)      | (4,445)      | (3,508)      | (3,407)      | 719        | 1,211        |
| No. 2 fuel usage (gal) <sup>(2)</sup>             | 397,039      | 223,967      | 289,309      | 73,044       | 151,158      | 140,958    | 504,593      |
| Unit Gross Fuel Conversion Factor (kWh/gal)       | 9.9          | 10.6         | 10.7         | 8.7          | 10.1         | 12.1       | 10.4         |
| Operating Time (hours)                            | 206.40       | 104.13       | 150.00       | 38.38        | 103.30       | 80.98      | 301.00       |
| Synchronous Condensor Time (hours)                | 3,398        | 3,458        | 5,943        | 3,187        | 3,790        | 75         | 4,124        |
| Unit Planned Outage Time (hours)                  | -            | -            | 953          | 594          | 51           | -          | 22           |
| Unit Maintenance Outage Time (hours)              | 41           | 211          | 163          | 19           | -            | 1,831      | 6            |
| Unit Forced Outage Time (hours)                   | 8            | 40           | 221          | 28           | 474          | 300        | 264          |
| Number of Planned Outages                         | 5            | -            | 5            | 4            | 5            | -          | 2            |
| Number of Maintenance Outages                     | 4            | 10           | 8            | 2            | -            | 3          | 2            |
| Number of Forced Outages                          | 14           | 12           | 7            | 5            | 13           | 4          | 11           |
| Failure Rate (Forced Outages/Oper. Hours x 8760)  | 85.11        | 168.25       | -            | 228.22       | 255.10       | 216.34     | 98.43        |
| Incapability factor (% of time)                   | 8.42         | 14.45        | 23.47        | 7.58         | 13.42        | 30.89      | 11.39        |
| DAFOR (% of time)                                 | n/a          | n/a          | n/a          | n/a          | n/a          | n/a        | n/a          |
| Utilization Forced Outage Probability (% of time) | 13.23        | 16.84        | 19.34        | 10.20        | 35.14        | 15.94      | 14.97        |

Note: 1. The outage information excludes impacts from outside sources that result in the generating unit being restricted or a unit outage. This includes outages caused by transmission equipment or any condition Outside of Plant Management Control.

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3. The gas turbine unit was derated to 50 MW as of January 1, 2010, however it remained as a 54 MW rated MCR unit in Hydro's Generation Equipment Status (GES) database until January 1, 2013.

4. There was fuel consumed at the Hardwoods GT in December 2013 that was not reported until January 2014.

| Stephenville Gas Turbine Plant                    | 2008    | 2009    | 2010    | 2011    | 2012   | 2013    | 2014 YTD |
|---------------------------------------------------|---------|---------|---------|---------|--------|---------|----------|
| <b>Overall Plant (Stephenville Gas Turbine)</b>   |         |         |         |         |        |         |          |
| Gross Unit Rating (MW) <sup>(1)</sup>             | 54      | 54      | 50      | 50      | 50     | 50      | 50       |
| Gross Capacity Factor (%)                         | 0.05%   | 0.04%   | 0.09%   | 0.04%   | 0.00%  | 0.44%   | 1.37%    |
| Gross Generation (MWh)                            | 223     | 202     | 382     | 173     | -      | 1,908   | 5,983    |
| Station Services (MWh)                            | 1,525   | 1,286   | 1,221   | 1,083   | 466    | 1,285   | 1,675    |
| Synchronous Condensor Use (MWh)                   | 6,077   | 4,550   | 5,105   | 5,803   | -      | 2,858   | 4,723    |
| Net Generation (MWh)                              | (7,379) | (5,634) | (5,944) | (6,713) | (466)  | (2,235) | (415)    |
| No. 2 fuel usage (gal) <sup>(2)</sup>             | 27,081  | 21,291  | 48,665  | 18,446  | -      | 39,674  | 508,544  |
| Unit Gross Fuel Conversion Factor (kWh/gal)       | 8.2     | 9.5     | 7.8     | 9.4     | n/a    | 48.1    | 11.8     |
| Operating Time (hours) <sup>(3)</sup>             | 22.97   | 9.57    | 51.45   | 13.03   | -      | 65.63   | 327.00   |
| Synchronous Condensor Time (hours)                | 7,929   | 6,421   | 6,433   | 8,096   | -      | 4,169   | 5,003    |
| Unit Planned Outage Time (hours)                  | 53      | 37      | 262     | 65      | -      | 295     | 5        |
| Unit Maintenance Outage Time (hours)              | 209     | 163     | 71      | 37      | -      | 283     | 256      |
| Unit Forced Outage Time (hours)                   | 11      | 220     | 28      | 189     | 8,784  | 3,663   | 114      |
| Number of Planned Outages                         | 9       | 5       | 8       | 6       | -      | 1       | 1        |
| Number of Maintenance Outages                     | 8       | 7       | 7       | 7       | -      | 6       | 2        |
| Number of Forced Outages                          | 6       | 6       | 4       | 7       | -      | 5       | 13       |
| Failure Rate (Forced Outages/Oper. Hours x 8760)  | -       | 915.68  | -       | -       | n/a    | 266.94  | 144.73   |
| Incapability factor (% of time)                   | 51.72   | 56.09   | 49.63   | 54.76   | 100.00 | 54.28   | 31.73    |
| DAFOR (% of time)                                 | n/a     | n/a     | n/a     | n/a     | n/a    | n/a     | n/a      |
| Utilization Forced Outage Probability (% of time) | 9.77    | 12.70   | 5.83    | 16.41   | n/a    | 50.00   | 11.70    |

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3. The gas turbine unit was derated to 50 MW as of January 1, 2010, however it remained as a 54 MW rated MCR unit in Hydro's Generation Equipment Status (GES) database until January 1, 2013.

4. There was fuel consumed at the Stephenville GT in December 2013 that was not reported until January 2014.

5. The unit was on a forced outage in 2012.

| Bay d'Espoir Generating Station                   | 2008      | 2009      | 2010      | 2011      | 2012      | 2013      | 2014 YTD  |
|---------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Overall Plant (Units 1-7)</b>                  |           |           |           |           |           |           |           |
| Gross Unit Rating (MW)                            | 613.4     | 613.4     | 613.4     | 613.4     | 613.4     | 613.4     | 613.4     |
| Gross Capacity Factor (%)                         | 53.8%     | 45.5%     | 45.8%     | 52.3%     | 48.8%     | 53.5%     | 49.3%     |
| Gross Generation (MWh)                            | 2,897,002 | 2,445,773 | 2,462,069 | 2,811,437 | 2,627,702 | 2,876,419 | 2,651,040 |
| Station Services (MWh)                            | 6,477     | 5,171     | 5,178     | 5,776     | 5,203     | 5,482     | 5,255     |
| Synchronous Condensor Use (MWh)                   | 49        | 110       | 152       | 148       | 172       | 112       | 199       |
| Net Generation (MWh)                              | 2,890,476 | 2,440,492 | 2,456,739 | 2,805,513 | 2,622,327 | 2,870,825 | 2,645,586 |
| Plant Net Hydraulic Conversion Factor (GWh/MCM)   | 0.433     | 0.434     | 0.436     | 0.434     | 0.434     | 0.432     | 0.431     |
| Total Unit Operating Time (hours)                 | 39,349    | 32,749    | 33,809    | 39,509    | 36,641    | 40,275    | 26,218    |
| Synchronous Condensor Time (hours) <sup>(1)</sup> | 130       | 290       | 399       | 391       | 444       | 296       | 467       |
| Unit Planned Outage Time (hours)                  | 2,689     | 2,363     | 5,042     | 3,450     | 4,148     | 5,741     | 3,739     |
| Unit Maintenance Outage Time (hours)              | 59        | 1,234     | 797       | 520       | 2,064     | 283       | 94        |
| Unit Forced Outage Time (hours)                   | 285       | 72        | 5         | 12        | 379       | 332       | 4,383     |
| Number of Planned Outages                         | 15        | 14        | 15        | 8         | 12        | 13        | 4         |
| Number of Maintenance Outages                     | 13        | 21        | 22        | 10        | 20        | 11        | 3         |
| Number of Forced Outages                          | 7         | 4         | 2         | 3         | 14        | 9         | 11        |
| Failure Rate (Forced Outages/Oper. Hours x 8760)  | 0.45      | -         | 0.26      | 0.22      | 0.71      | 1.08      | 1.77      |
| Incapability factor (% of time)                   | 4.93      | 5.98      | 9.55      | 6.54      | 10.72     | 10.37     | 19.21     |
| Weighted DAFOR (% of time)                        | 0.60      | 0.18      | 0.05      | 0.08      | 0.83      | 0.68      | 12.44     |
| Utilization Forced Outage Probability (% of time) | n/a       | n/a       | n/a       | n/a       | n/a       | n/a       | n/a       |

Note: 1. The outage information excludes impacts from outside sources that result in the generating unit being restricted or a unit outage. This includes outages caused by transmission equipment or any condition Outside of Plant Management Control.

2. It is important to note that comparison of the 2014 year to date data to other years is not meaningful due to the impact of the operating pattern and annual maintenance outage schedules on a number of the performance measures. In particular, any measure which utilizes operating hours and planned outage hours in its calculation will be skewed because there is significant operating time on the generating units in the fall and some planned outage work has not yet been completed.

3. Synchronous condenser capability is for Unit 7 only.

**Listing of Generating Units Forced Outages for 2014 (up to August 31, 2014)**

| Unit                | Start Date       | Finish Date      | Comment                                                                      |
|---------------------|------------------|------------------|------------------------------------------------------------------------------|
| Hardwoods GT        | 2014/01/01 0:01  | 2014/01/07 19:39 | Fuel System Problem                                                          |
| Stephenville GT     | 2014/01/03 21:32 | 2014/01/03 21:33 | Fuel System Transfer Problem                                                 |
| Stephenville GT     | 2014/01/04 14:10 | 2014/01/04 14:28 | Vibration Alarm                                                              |
| Stephenville GT     | 2014/01/04 15:33 | 2014/01/04 15:56 | External Cause - Related to the Sunnyside Event                              |
| Bay d'Espoir Unit 5 | 2014/01/04 15:34 | 2014/01/04 16:48 | External Cause - Related to the Sunnyside Event                              |
| Bay d'Espoir Unit 6 | 2014/01/04 15:34 | 2014/01/04 16:45 | External Cause - Related to the Sunnyside Event                              |
| Holyrood Unit 1     | 2014/01/04 21:34 | 2014/01/05 21:30 | Vibration issues                                                             |
| Holyrood Unit 2     | 2014/01/04 9:05  | 2014/01/04 21:34 | External Cause - Related to the Sunnyside Event                              |
| Stephenville GT     | 2014/01/04 9:05  | 2014/01/04 9:57  | External Cause - Related to the Sunnyside Event                              |
| Holyrood Unit 1     | 2014/01/04 9:05  | 2014/01/04 21:34 | External Cause - Related to the Sunnyside Event                              |
| Holyrood Unit 3     | 2014/01/04 9:05  | 2014/01/05 1:40  | External Cause - Related to the Sunnyside Event                              |
| Stephenville GT     | 2014/01/05 21:27 | 2014/01/05 22:31 | External Cause - Related to the Sunnyside Event                              |
| Holyrood Unit 2     | 2014/01/05 21:30 | 2014/01/06 5:30  | External Cause - Related to the Sunnyside Event                              |
| Holyrood Unit 1     | 2014/01/05 21:30 | 2014/01/08 15:38 | External Cause - Unit tripped after B1T1 was closed                          |
| Holyrood Unit 3     | 2014/01/05 21:30 | 2014/01/06 7:15  | External Cause - Unit tripped when Holyrood B1T1 was closed                  |
| Stephenville GT     | 2014/01/06 21:48 | 2014/01/06 22:06 | Fuel System Problem                                                          |
| Stephenville GT     | 2014/01/06 22:10 | 2014/01/06 23:14 | Fuel System Problem                                                          |
| Stephenville GT     | 2014/01/07 9:33  | 2014/01/07 11:29 | Fuel System Problem                                                          |
| Stephenville GT     | 2014/01/08 8:25  | 2014/01/09 13:19 | Unit Trip - Engine B failure                                                 |
| Holyrood Unit 2     | 2014/01/10 18:56 | 2014/01/11 1:22  | No. 1 Compressor motor shorted to ground                                     |
| Hardwoods GT        | 2014/01/11 20:59 | 2014/01/11 21:52 | Unit Trip - Cause not recorded                                               |
| Holyrood Unit 3     | 2014/01/12 17:35 | 2014/01/12 18:28 | Main feed water isolator would not open trip low drum level                  |
| Hardwoods GT        | 2014/01/12 18:00 | 2014/01/12 18:58 | Unit Trip - Cause not recorded                                               |
| Holyrood Unit 1     | 2014/01/13 11:16 | 2014/01/14 1:03  | Air Heater West bearing jacket failure                                       |
| Holyrood Unit 2     | 2014/01/16 8:44  | 2014/01/16 15:50 | External Cause - Tripped during testing on unit breaker in terminal station. |
| Hardwoods GT        | 2014/01/22 13:26 | 2014/01/22 13:57 | Unit Trip during testing                                                     |
| Hardwoods GT        | 2014/01/22 14:12 | 2014/01/22 15:06 | Unit Trip during testing                                                     |
| Hardwoods GT        | 2014/01/22 15:20 | 2014/01/22 15:52 | Unit Trip during testing                                                     |
| Hardwoods GT        | 2014/01/22 16:02 | 2014/01/22 16:50 | Unit Trip during testing                                                     |
| Holyrood Unit 1     | 2014/01/27 16:50 | 2014/01/27 18:49 | Burner Management Issue                                                      |
| Bay d'Espoir Unit 6 | 2014/01/30 5:09  | 2014/02/01 22:56 | Rectifying transformer failure                                               |
| Holyrood Unit 1     | 2014/02/01 16:12 | 2014/02/04 15:21 | Steam line to top valves flange gasket blown                                 |
| Stephenville GT     | 2014/02/10 16:19 | 2014/02/10 17:04 | High temperature alarm                                                       |
| Stephenville GT     | 2014/02/11 9:45  | 2014/02/11 11:53 | Alternator belt failure                                                      |
| Bay d'Espoir Unit 6 | 2014/02/17 4:20  | 2014/08/05 13:26 | Rectifying transformer failure (spare unit)                                  |
| Stephenville GT     | 2014/03/06 15:45 | 2014/03/06 16:18 | Fuel Forwarding Pump                                                         |
| Stephenville GT     | 2014/03/06 6:27  | 2014/03/06 6:54  | Unit Trip - Cause not recorded                                               |
| Stephenville GT     | 2014/03/06 9:17  | 2014/03/06 9:56  | Fuel tanks didn't transfer                                                   |
| Stephenville GT     | 2014/03/10 5:54  | 2014/03/10 10:09 | Unit Trip during testing                                                     |
| Bay d'Espoir Unit 3 | 2014/03/18 22:03 | 2014/03/19 1:48  | External Cause - Breaker B2T4 failed close on opening. Bus lock out operated |
| Bay d'Espoir Unit 4 | 2014/03/18 22:04 | 2014/03/21 19:16 | External Cause - Breaker B2T4 failed close on opening.                       |
| Hardwoods GT        | 2014/03/19 10:22 | 2014/03/19 10:43 | Unit tripped during testing                                                  |

Note: The External Cause events are not included in the calculation of statistics. They are presented here to show all unit forced outages only.

| Unit                | Start Date       | Finish Date      | Comment                                                                                                 |
|---------------------|------------------|------------------|---------------------------------------------------------------------------------------------------------|
| Bay d'Espoir Unit 2 | 2014/03/27 13:40 | 2014/03/28 12:53 | Speed switch problem.                                                                                   |
| Holyrood Unit 1     | 2014/04/10 1:20  | 2014/04/10 3:34  | Disconnect B1T1 did not close on all three phases                                                       |
| Bay d'Espoir Unit 2 | 2014/04/10 9:04  | 2014/04/10 10:30 | External Cause - Shutdown to investigate air leak on B1T2                                               |
| Bay d'Espoir Unit 4 | 2014/05/04 9:42  | 2014/05/04 11:42 | T4 deluge system trouble (Deluge activated)                                                             |
| Hardwoods GT        | 2014/05/05 20:50 | 2014/05/05 21:52 | Tripped on vibration                                                                                    |
| Bay d'Espoir Unit 7 | 2014/05/06 20:19 | 2014/05/10 19:06 | Water in Bearing Oil Alarm. Faulty bearing coolers.                                                     |
| Hardwoods GT        | 2014/05/06 21:34 | 2014/05/06 23:14 | Proximity/Speed switch problem.                                                                         |
| Bay d'Espoir Unit 5 | 2014/05/11 11:33 | 2014/05/11 17:26 | Shutdown to investigate possible Surface Air Cooler leak. Operators noted excessive water accumulation. |
| Bay d'Espoir Unit 7 | 2014/05/11 7:58  | 2014/05/11 11:01 | Water in Bearing Oil Alarm/Vibration. Removed residual water from bearing.                              |
| Holyrood Unit 1     | 2014/05/12 2:15  | 2014/05/12 22:28 | Disconnect B1T1 middle & west phases arcing                                                             |
| Stephenville GT     | 2014/05/16 10:53 | 2014/05/16 14:44 | Glycol Leak                                                                                             |
| Bay d'Espoir Unit 2 | 2014/05/16 11:06 | 2014/05/16 11:45 | Pit flood alarm                                                                                         |
| Bay d'Espoir Unit 5 | 2014/05/28 4:02  | 2014/05/28 9:30  | Exciter Alarm. Card replaced in Exciter.                                                                |
| Stephenville GT     | 2014/06/06 14:00 | 2014/06/09 11:00 | Loose Wire in controls, speed sensing error.                                                            |
| Hardwoods GT        | 2014/06/06 16:15 | 2014/06/10 13:18 | GGA and GGB wouldn't start during test.                                                                 |
| Bay d'Espoir Unit 4 | 2014/06/13 9:32  | 2014/06/14 15:47 | Water in generator bearing oil due a leaking cooler.                                                    |
| Holyrood Unit 1     | 2014/06/25 17:40 | 2014/06/30 18:00 | Air Heater East top bearing bolts sheared                                                               |
| Hardwoods GT        | 2014/07/04 18:59 | 2014/07/04 19:10 | Fuel Supply Problems                                                                                    |
| Holyrood Unit 3     | 2014/07/08 20:00 | 2014/07/12 12:47 | Fuel Oil Heater East end cover gasket failure, H2 leak                                                  |
| Holyrood Unit 3     | 2014/07/14 14:50 | 2014/07/14 16:35 | Trip on high fan amps                                                                                   |
| Bay d'Espoir Unit 2 | 2014/07/16 7:03  | 2014/07/16 16:54 | External Cause - Shutdown to investigate air leak on B1T2                                               |
| Holyrood Unit 3     | 2014/07/28 7:28  | 2014/07/28 17:47 | Switching on station service                                                                            |
| Holyrood Unit 3     | 2014/07/29 9:43  | 2014/07/29 23:29 | Switching in terminal station                                                                           |

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