

October 14, 2015

The Board of Commissioners of Public Utilities  
Prince Charles Building  
120 Torbay Road, P.O. Box 21040  
St. John's, Newfoundland & Labrador  
A1A 5B2

**Attention: Ms. Cheryl Blundon**  
**Director Corporate Services & Board Secretary**

Dear Ms. Blundon:

**Re: Newfoundland and Labrador Hydro – 2013 AMENDED General Rate Application  
Prudence Review – Liberty's Report – Hydro's Surrebuttal**

Enclosed please find the original plus 12 copies of Hydro's Surrebuttal with regard to the above noted matter.

Should you have any questions, please do not hesitate to contact the undersigned.  
Yours truly,

**NEWFOUNDLAND AND LABRADOR HYDRO**



Tracey L. Pennell  
Legal Counsel

TLP/bs

cc: Gerard Hayes – Newfoundland Power  
Paul Coxworthy – Stewart McKelvey Stirling Scales  
Thomas J. O'Reilly, Q.C. – Cox & Palmer  
Senwung Luk – Olthuis, Kleer, Townshend LLP  
Danny Dumaresque  
ecc: Roberta Frampton Benefiel – Grand Riverkeeper Labrador

Thomas Johnson – Consumer Advocate  
Yvonne Jones, MP Labrador  
Ed Hearn, Q.C. – Miller & Hearn  
Genevieve M. Dawson – Benson Buffett

**IN THE MATTER OF** the *Electrical Power Control Act, 1994*, SNL 1994, Chapter E-5.1 (the “EPCA”) and the *Public Utilities Act*, RSNL, 1990, Chapter P-47 (The “Act”), as amended, and regulations thereunder; and

**IN THE MATTER OF** a general rate application filed by Newfoundland and Labrador Hydro on July 30, 2013; and

**IN THE MATTER OF** an amended general rate application filed by Newfoundland and Labrador Hydro on November 10, 2014; and

**IN THE MATTER OF** a prudence review relating to certain Actions and costs of Newfoundland and Labrador Hydro.

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***Newfoundland and Labrador Hydro***

***Surrebuttal Evidence***

***October 14, 2015***

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1 **1. INTRODUCTION**

2

3 Newfoundland and Labrador Hydro ("Hydro") is in receipt of the Liberty Consulting Group's ("Liberty")  
4 Reply Evidence dated September 17, 2015 on the Prudence Review of Hydro Decisions and Actions  
5 ("Liberty Reply Evidence").

6

7 This Surrebuttal specifically addresses comments made by Liberty in its Reply Evidence to Hydro's Reply  
8 Evidence of August 7, 2015, including Appendices A and B thereto, being the Gannett Fleming 2015  
9 Betterment Report and the La Capra Associates, Inc. ("La Capra") independent Consulting Report. It  
10 generally tracks the section headings of Liberty's Reply Evidence, and also includes surrebuttal  
11 comments from La Capra and Gannett Fleming.

12

13 Hydro appreciates the opportunity to provide this Surrebuttal in reply to Liberty's Reply Evidence. For  
14 clarity, Hydro is providing this Surrebuttal to address key issues arising from Liberty's Reply Evidence,  
15 but any failure to specifically rebut a statement made by Liberty in its Reply Evidence should not be  
16 taken as Hydro's concurrence with such statement.

17

18 **2. PREVENTATIVE MAINTENANCE DEFERRAL AND GOOD ASSET MANAGEMENT PRACTICE**

19

20 Liberty suggests at pages 3 and 4 of its Reply Evidence that Hydro fails to make a critical distinction  
21 between preventative maintenance and corrective maintenance, and that the deferral of preventative  
22 maintenance work necessarily involves deferring work without having taken appropriate actions  
23 designed to understand potential consequences. Hydro disagrees that its Reply Evidence or the record  
24 implies any failure to distinguish between preventative maintenance and corrective maintenance.

25 Hydro has consistently provided responses to Requests for Information ("RFI's") specifically referring to  
26 differentiated preventative and corrective maintenance activities (see for example PR-PUB-NLH-020 and  
27 PR-PUB-NLH-034). Hydro clearly differentiates preventative maintenance (or "PM") from corrective  
28 maintenance (or "CM") work dealing with issues arising from time to time with an asset or as discovered  
29 during preventative maintenance activities.

30

31 More importantly however Hydro's practices of deferring PM activities from time to time to deal with  
32 more critical "break-in" work (i.e., unforeseen work that was not included in Hydro's original annual

1 work plan) that may arise, does not suggest a situation where the “deferral of preventative maintenance  
2 work necessarily involves deferring work without having taken appropriate actions designed to  
3 understand potential consequences”, as Liberty suggests.

4

5 For example, in its detailed response to PR-PUB-NLH-052, Hydro has specifically explained the process it  
6 followed in deciding to defer preventative maintenance. As noted in that response, specific criteria  
7 were employed to determine when maintenance would be deferred. Hydro only deferred PM routines  
8 on some of its terminal station transformers and air blast circuit breakers where “it was necessary to  
9 address unplanned corrective maintenance work” and to “ensure resources were deployed on the most  
10 critical work for customer supply” [emphasis added].

11

12 Further, in response to PR-V-NLH-001, Hydro specifically provided a comprehensive listing of the most  
13 critical work in 2013 that required Hydro to defer certain PM work. The work included measures that  
14 needed to be taken to respond to a severe storm experienced on January 11, 2013, and other key  
15 equipment failures. Hydro’s response to PR-V-NLH-002 identifies the extensive amount of labour and  
16 overtime hours required to carry out this break-in work. The information in the foregoing responses  
17 clearly demonstrates a considered approach to deferral of preventative maintenance.

18

19 Any decision at Hydro to defer PM work is only taken after full consideration of the criticality of the  
20 break-in work versus the criticality of the otherwise planned preventative maintenance. Each such  
21 decision is fully analyzed by the experienced members of Hydro’s Long-term Asset Planning Group, its  
22 Short Term Planning and Scheduling Group and its Work Execution Managers. These individuals have  
23 available to them the information on the assets in the PM program, they are aware of the condition of  
24 the equipment based on available condition assessments and operating history, and they utilize their  
25 extensive experience and judgment in making determinations as to whether preventative maintenance  
26 should be deferred in order to carry out work which is deemed more critical from a reliability  
27 perspective.

28

29 The Hydro annual budgeting process naturally includes an allowance for a certain amount of break-in  
30 work, as corrective maintenance and capital issues do arise outside of the planned PM/CM program.  
31 However, in 2013 and 2014 there were extensive requirements that were not anticipated or planned  
32 for. For example only, the Hardwoods Gas Turbine alternator replacement was necessary to have the

1 Hardwoods Gas Turbine available as it is a critical winter readiness asset. In order to carry out the  
2 extensive work that this significant activity required, Hydro resources had to be redeployed for that  
3 project.

4  
5 Hydro is not aware that it is normal utility practice (as stated by Liberty at page 4 of its Reply Evidence)  
6 to always provide the resources necessary to adhere to PM schedules in addition to addressing  
7 emergent work and critical capital work. This is obviously the goal, as it is at Hydro, but the very nature  
8 of corrective and break-in work that may arise from time to time is that it is unplanned, and therefore  
9 engineering judgment needs to be utilized on an ongoing real time basis to determine the most critical  
10 work to be done for reliability purposes. The simple fact of deferral outside of a regular preventative  
11 maintenance cycle is not imprudent action.

12  
13 Hydro relied on the informed engineering judgment of those individuals most familiar with the assets  
14 and Hydro's system. Hydro respectfully disagrees that this approach is "unsupported by any discernable  
15 analysis of risks, costs/benefits, alternatives, or other structured deliberation" as suggested by Liberty at  
16 page 5 of its Reply Evidence. In fact, Hydro's process fully engages in deliberation by those technical and  
17 engineering employees best able to make these decisions, which decisions were and continue to be fully  
18 informed by Hydro's structured and purposeful asset condition assessments and maintenance programs.  
19 See, for example, Hydro's responses to PR-PUB-NLH-178 and PR-PUB-NLH-129.

20  
21 Hydro disagrees with Liberty's comment at page 5 of its Reply Evidence that Hydro "made, but then  
22 abandoned, a plan to catch up on work already behind schedule in 2010". Hydro took the proactive  
23 approach of putting in place a specific plan to catch-up on outstanding maintenance work over a six-year  
24 period. Hydro did not abandon that plan. During a portion of that time period, it deferred certain  
25 preventative maintenance, with the continued intent of ensuring completion of the catch-up program  
26 within the planned window. Such a plan, however, does not in any way preclude deferrals within that  
27 time period where more critical reliability issues arise. Hydro remains on track to meet its catch-up plan  
28 for preventative maintenance.

29  
30 Hydro's approach balances reliability considerations, resources and cost to provide least-cost reliable  
31 service to its customers, with the focus being on ensuring the most critical reliability work is performed  
32 on a priority basis. Hydro disagrees that "finding an opportune time to take equipment outages" is the

1 only reason to deviate from a PM schedule (as suggested by Liberty at page 4 of its Reply Evidence),  
2 regardless of the nature of the break-in work that may arise or the cost and resources required to  
3 complete all such critical work together with the preventative maintenance. This is especially the case  
4 where such decisions are being made by those individuals with the experience and knowledge of the  
5 assets to make reasoned engineering decisions.

6  
7 Hydro acknowledges that it is operating a fleet of older equipment, but Hydro has specifically carried  
8 out condition assessments and evaluations related to its assets. Hydro disagrees that its maintenance  
9 for air blast circuit breakers has become “more lax” as suggested by Liberty at page 5 of its Reply  
10 Evidence, or that Hydro’s practices do not take account of the age of its assets. Hydro has been  
11 proactive in dealing with the aging nature of its assets through condition assessments, increased capital  
12 spending and its breaker replacement program. Hydro has specifically developed a long term asset  
13 management plan for circuit breaker replacement and refurbishment as noted in PR-PUB-NLH-84,  
14 Attachment 1.

15  
16 Liberty then states at pages 6-7 of its Reply Evidence, that where “circumstances exemplify a  
17 widespread failure to adhere to prudent practice, it is proper to draw a cause/effect association in the  
18 absence of credible exculpatory reasons supported by substantial evidence”. Hydro disagrees that the  
19 record in any way exemplifies widespread failure by Hydro to adhere to prudent practice. Hydro has  
20 been proactive in dealing with its assets, has used well-informed engineering judgment in making  
21 decisions on critical priority work, and has steadfastly remained focussed on least-cost reliable supply.  
22 Liberty itself confirms once again at page 7 of its Reply Evidence that neither itself nor Hydro have been  
23 able, despite Hydro’s significant efforts, to determine specific causes of the key issues related to the  
24 January 2014 outage. Hydro disagrees that in the absence of such findings it is “proper to draw a  
25 cause/effect association in the absence of credible exculpatory reasons” to the contrary. Liberty would  
26 put Hydro to the test of proving a negative in order to avoid a disallowance of costs, a standard which  
27 Hydro does not believe has regulatory support.

28

29 **3. SUNNYSIDE T1 TRANSFORMER**

30

31 Liberty states at page 7 of its Reply Evidence that its discussion that follows indicates that Hydro gave  
32 transformer maintenance at Sunnyside’s T1 “essentially no priority”. This is not supported by the record

1 already filed in this proceeding. At page 2 of its Reply Evidence, Liberty suggests that Hydro “did not  
2 even establish dates for finally performing the maintenance deferred”. With respect to Sunnyside T1  
3 Transformer, Hydro’s Reply to PR-PUB-NLH-166 specifically explained as follows:

4

5 “The Sunnyside T1 transformer was in the maintenance management  
6 system as a backlogged item to be added to the upcoming annual work  
7 plan. However, it failed before the work on the asset could be  
8 scheduled. Hydro fully intended to conduct the overdue six-year  
9 preventative maintenance on Sunnyside T1 in the 2014 annual work  
10 plan. As stated in Hydro’s response to PR-PUB-NLH-052, the process of  
11 selecting overdue transformers that are to be included in the annual  
12 work plan is led by the Short Term Planning and Scheduling Group in  
13 consultation with Work Execution and Long Term Asset Planning. The  
14 annual work plan for 2014 was under development when T1 failed in  
15 January, 2014 and as a result, the six-year preventative maintenance for  
16 T1 would not have been documented in the 2014 annual work plan.”

17

18 Thus, the record is clear that Sunnyside T1 transformer, which was only overdue for maintenance by  
19 about three months of a six-year cycle, was fully intended to be addressed in the upcoming year had it  
20 not failed in the very short window following the scheduled six-year preventative maintenance program.  
21 Liberty’s suggestion to the contrary is not supported. Further, as specifically discussed in the response  
22 to PR-PUB-NLH-167 (Revision 1, Jun 10-15) and noted in Hydro’s Reply Evidence:

23

24 “Hydro’s investigation, which involved third party expertise, did not  
25 determine that the deferred maintenance resulted in the equipment  
26 failures. In particular, the breakers involved in the transformer damage  
27 were examined and no cause for the misoperation was determined.  
28 Both breakers had been operated successfully prior to the events. . . .  
29 The Sunnyside breaker was closely examined with no problems found.”[emphasis added]

30

31 These factual determinations cannot be ignored to draw an unproven cause/effect determination as  
32 Liberty suggests.

33

34 At page 6 of its Reply Evidence, Liberty notes that with respect to Sunnyside T1, “its bushings’ problems  
35 are among the issues that scheduled preventative maintenance is designed to detect and prevent”. In  
36 response to PR-PUB-NLH-169 (Revision 1, Jun 10-15), Hydro specifically noted that despite the extensive  
37 post-incident investigation which involved third party expertise, “[t]here was no evidence found which  
38 indicated that the regular deferred maintenance would have determined there was an issue with either



1 the breaker or the bushing". Liberty suggests that the simple failure to have strictly adhered to the six-  
2 year maintenance cycle, despite Sunnyside T1 being only about three months outside that cycle,  
3 suggests that a cause/effect relationship can be implied in part on the basis that bushing problems are  
4 among those that scheduled preventative maintenance may detect.

5  
6 Despite the fact that the post-incident review does not necessarily indicate that preventative  
7 maintenance would have determined the bushing issue, it is also important to be aware that the Doble  
8 test for bushings is not a pass/fail test. Rather, it measures the amount of insulation degradation  
9 around the bushing. If hypothetically some level of degradation had been found, that could have led to  
10 potential enhanced monitoring or possibly placing the transformer in priority for eventual replacement  
11 of the bushing. Bushing replacement is a very intrusive process to the transformer and therefore is  
12 carried out in a scheduled, planned and deliberate fashion. Thus, even hypothetically had there been  
13 some issue indicated by preventative maintenance, there is nothing to suggest that it would have been  
14 of an order of magnitude to replace the bushing, or to replace the bushing in the very short time period  
15 outside of the PM cycle.

16  
17 Thus Liberty's comment at page 8 of its Reply Evidence that failing to have carried out the Sunnyside T1  
18 preventative maintenance strictly within the six-year cycle "very well may have cost Hydro the  
19 opportunity to identify" the eventual bushing issue is not determinative in any event. Unlike as stated  
20 by Liberty at page 8 of its Reply Evidence, there was no "extended" deferral of preventative  
21 maintenance for Sunnyside T1.

22  
23 Liberty goes on at pages 9 and 10 of its Reply Evidence to suggest that the gassing levels at Sunnyside T1  
24 should have been an indication of specific concern with that transformer. As Hydro made clear in its  
25 response to PR-PUB-NLH-023, Hydro's many years of experience of low-level gassing in such  
26 transformers was consistent with the OEM's opinion that this appeared to be caused by "gas migrating  
27 from the tap changer compartment to the main transformer tank." Hydro went on to specifically  
28 explain in that RFI response that:

29

30 "From the gas results Hydro has been tracking, there have been  
31 transformers that have experienced low level gassing dating back to  
32 1979. As a result of this data, it was accepted that this was a common  
33 characteristic seen in transformers with tap changers and therefore no

1 further action was taken. Replacing the gaskets also introduces risks to  
2 the integrity of the transformer due to the requirement to drain the  
3 transformer oil and enter the transformer. Therefore, Hydro has taken  
4 the approach to monitor the gas levels so that increasing gassing levels,  
5 which may indicate an incipient fault, are identified and acted upon.”  
6

7 Thus Hydro was carrying out the requisite monitoring based on decades of experience, and there was no  
8 indication that Sunnyside T1 had a specific issue due to increasing levels of gassing which took the levels  
9 outside the range historically seen on these units. Further, as Hydro noted in its Reply Evidence (page  
10 12), the recently completed leak test on the Stony Brook T2 Transformer (a similar transformer to  
11 Sunnyside T1) has confirmed the gas is migrating from the tap changer to the transformer tank, further  
12 validating Hydro’s and the OEMs understanding of this issue. Hydro does not agree with Liberty that  
13 validation with respect to a similar transformer is inappropriate. Liberty contends at page 10 of its Reply  
14 Evidence that Hydro “deciding not” to take action was imprudent. However, Hydro did not decide to  
15 not take action. Hydro took the appropriate action in the circumstances to continue to sample and  
16 monitor gassing levels, so that increasing gassing levels could be identified and acted upon. To further  
17 support this, Hydro had prepared a spreadsheet in 2009 to track all transformers with acetylene to  
18 ensure gas generation rates were not significant and transformer gassing was stable. In the case of  
19 Sunnyside T1, the levels did not suggest special action. Further, there has been no suggestion that the  
20 gassing levels at Sunnyside T1 were associated with the failure which occurred with that transformer –  
21 which post event analysis indicated was a bushing failure.  
22

#### 23 **4. BREAKER B1L03**

24

25 At page 10 of its Reply Evidence, Liberty states that “cold spells do not excuse equipment failure, but  
26 rather underscore the importance of faithful execution of required preventative maintenance”. Hydro  
27 did not suggest that cold weather was an “excuse” for equipment failure, nor does the record suggest  
28 that Hydro did not maintain its equipment in consideration of its service area’s weather conditions.  
29 Liberty goes on to state that “Hydro has reported sufficient information from which to conclude that it  
30 has no basis, following investigation, to attribute the breaker failure to cold weather in any event”.  
31 Hydro is unclear of the specific basis Liberty has relied upon in making this conclusion. Hydro has not  
32 concluded that the cold weather during the applicable period caused the breaker failure, nor did it state  
33 as such. It simply pointed out that sustained cold weather can have an impact on circuit breaker  
34 performance (see PR-V-NLH-003 and 004), and is a factor that must be taken into account, especially

1 where the breakers previously (and with Western Avalon subsequently) operated correctly (see PR-PUB-  
2 NLH-167, (Revision 1, Jun 10-15)).

3

4 Liberty then suggests at page 11 of its Reply Evidence that Hydro should not be able to recover the  
5 breaker replacement costs for breaker B1L03 on the basis that, in their view, “[t]he available  
6 information demonstrates only a small likelihood that Hydro would have replaced breaker B1L03 in  
7 2015”. However, Hydro would have and is, in any event, as part of its ongoing breaker replacement  
8 program, replacing air blast circuit breakers in 2015. Since such a breaker would have been replaced  
9 there is no reason to deny recovery of the cost of the breaker chosen for replacement. This simply  
10 denies Hydro recovery of the cost of a replacement breaker that will be installed to the benefit of its  
11 customers. If recovery of this cost was denied, it is unclear when it would be allowed to go into rate  
12 base, notwithstanding that Liberty themselves have argued that Hydro should replace all of their air  
13 blast circuit breakers. There is no reason to deny recovery of the costs of replacement for a breaker that  
14 all parties, including Liberty, agree should be replaced as part of an ongoing air blast circuit breaker  
15 replacement program.

16

17 **5. BETTERMENT**

18

19 Please see Appendix A which is Gannett Fleming’s surrebuttal comments to the issues raised in Liberty’s  
20 Reply Evidence at pages 12-14 with respect to this issue. Hydro concurs with these comments.

21

22 **6. 2014 REVENUE DEFICIENCY – OUTAGE INQUIRY LEGAL FEES; CONSULTING FEES**

23

24 With respect to this issue, Liberty states at page 14 of its Reply Evidence that they “remain open to an  
25 apportionment that has substantiation”. As Liberty notes at page 15, Hydro indicated that the billings  
26 underlying this issue could be made available for Liberty to review, but Liberty was unable to complete  
27 this review before their Reply was required. As noted in PR-PUB-NLH-204, the required information  
28 remains available to Liberty at any point so that it can substantiate the apportionment noted in Hydro’s  
29 Reply Evidence, but was not submitted with the RFI response in order to maintain the appropriate  
30 privilege.

1 On page 15, Liberty also asked “why the apportionment applied percentages rather than a simple  
2 totalling of the amounts of fees and expenses attributable from billing information”. However, as noted  
3 in Hydro’s response to PR-PUB-NLH-204 each individual/narrative fee description in each of the invoices  
4 was analyzed to properly allocate the fees for each of the four categories analyzed and discussed in  
5 Hydro’s Reply Evidence. This provided a more detailed analysis of the exact time spent on each of the  
6 four categories noted. The overall percentage was simply determined to be able to apply it to the  
7 disbursements, as unlike the specific legal fees, disbursements (e.g. travel expenses) were not easily  
8 identifiable by cost category.

9

10 At page 16 of its Reply Evidence Liberty indicates that the invoice provided in PR-PUB-NLH-208 still  
11 “leaves the record without substantiation from contemporaneous source documents”. Hydro can make  
12 available the supporting background to the invoice to provide further substantiation as may be required  
13 by Liberty.

14

15 **7. BLACK START PROJECT**

16

17 Please see Appendix “B”, La Capra’s Surrebuttal Evidence which deals with this issue.

18

19 Hydro concurs with the views expressed by La Capra.

20

21 **8. UNIT 1 TURBINE FAILURE**

22

23 Please see Appendix “B”, La Capra’s Surrebuttal Evidence which deals with this issue.

24

25 Hydro concurs with the views expressed by La Capra.

26

27 Hydro also particularly notes Liberty’s statement at page 24 of its Reply Evidence that there is no  
28 documentation of a test of the speed of the motor in 2011, and further, that Liberty believes it is  
29 obvious that had the test been done, one or more of the misalignments would have been revealed when  
30 the motor failed to reach speed.

1 Hydro specifically provided the relevant invoice from the contractor in response to PR-PUB-NLH-182  
2 (Revision 1, Jun 19-15) Attachment 2, which indicates that the motor “ran and test OK”. As Hydro  
3 indicated in that response, “the contractor is a reputable and experienced motor repair company with  
4 numerous major clients who are fully qualified to carry out the tendered work.” Also as noted in that  
5 response, the contract provided that the contractor was “responsible for inspection and quality  
6 assurance to ensure compliance with the SPECIFICATIONS”. The Specifications provided that all work to  
7 be performed was to be performed in accordance with ANSI/EASA Standard AR100, and for the  
8 performance of all required tests in accordance with that standard.

9  
10 Thus, Hydro was utilizing a reputable contractor, pursuant to specific contractual requirements, and  
11 obtained confirmation that the motor “ran and test OK”. Also as noted in the response to PR-PUB-NLH-  
12 182 (Revision 1, Jun 19-15), “[t]he contractor has confirmed to Hydro that the relevant tests would have  
13 been carried out on the motor as per the contract.”

14  
15 Therefore, Hydro does not agree with Liberty that no documentation of such a test is available. Clearly  
16 it cannot be imprudent for Hydro to rely on a reputable motor repair contractor, pursuant to specific  
17 contractual stipulations, with documentation as part of the invoicing process confirming that the  
18 returned motor was in proper working order. It would simply be impractical for Hydro to reconfirm  
19 contractual requirements with every contractor for every motor repair, especially where there have  
20 been no prior concerns with the contractor’s work, and where all indications were that the work was  
21 fully performed. Thus, Liberty’s conclusion at page 24 of its Reply Evidence that “one can only conclude  
22 that the test was never done” is not supported, and Hydro has never had any reason to question the  
23 veracity of the contractor in question, or any reason in the specified instance to have done further  
24 follow-up.

25

26 **9. 2014 REPLACEMENT COSTS**

27

28 At page 26 of its Reply Evidence, Liberty suggests that (in the event that the Board determines any costs  
29 should not be recovered) Hydro has not proposed a better estimate than Liberty’s approach for a  
30 potential disallowance for 2014 replacement costs. Liberty then suggests on page 27 that its admittedly  
31 “less rigorous” approach should be relied on due to the fact that specific information required to make  
32 the subject determination is not available. The lack of data at the necessary level of granularity may

1 support the use of a different approach, but it does not support the “rough estimate” that Liberty has  
2 proposed. Liberty states that Hydro has not proposed a better estimate, making Liberty’s approach  
3 reasonable under the circumstances. Hydro disagrees. Liberty’s approach simply picked the four days  
4 following the event, whereas Hydro’s approach averages the period before and after the event. There is  
5 no doubt that Hydro’s approach relies on a more balanced period of time than the four days chosen by  
6 Liberty.

7  
8 Liberty suggests that the last four days of the period (January 9 to 12, 2014) are more representative  
9 and more accurate. However, Liberty itself noted the “temperatures were more benign in the January  
10 9-12 period” at page 17 of its July 6, 2015 Final Report, where they initially raised this potential  
11 disallowance. For the reasons stated in Hydro's Reply Evidence and this Surrebuttal, Hydro disagrees  
12 that the underlying actions related to these costs were imprudent. However, if the Board disagrees,  
13 Hydro believes that a review of the applicable period fully suggests that a utilization of an average of the  
14 time period before and after the four day period in question would be more balanced and reasonable.

15  
16 Further, at page 27 of its Reply Evidence, Liberty maintains that even though Unit 1 was partially  
17 available on January 8, 2014, this should not be taken into account. Hydro disagrees that a disallowance  
18 can be associated with a time period for which none of the disallowed costs are applicable. This factor  
19 also mitigates in favour of utilization of a broader average over both of the four day periods.

20  
21 **10. CONCLUSION**

22  
23 As noted in various instances above, Hydro believes many of the comments made by Liberty in its Reply  
24 Evidence are not reflective of the totality of the evidence provided by Hydro in this proceeding. Hydro’s  
25 actions were based on its overall approach to least-cost reliable supply and decision making at the  
26 various times in question that took the best information then known into account.

# NEWFOUNDLAND AND LABRADOR HYDRO

St. John's, Newfoundland

CALCULATION OF ASSET BETTERMENT RELATED TO  
THE SUNNYSIDE AND WESTERN AVALON  
TRANSFORMER CAPITAL ADDITIONS

## **SURREBUTTAL EVIDENCE OF LARRY E. KENNEDY**

**OCTOBER 13, 2015**



**SURREBUTTAL**  
**BETTERMENT CALCULATIONS**  
**LARRY KENNEDY**

**Introduction and Overview**

**Q1. Please state your name and business address**

A1. My name is Larry Kennedy and my business address is Suite 277, 200 Rivercrest Drive S.E., Calgary, Alberta, T2C 2X5.

**Q2. Please state your occupation.**

A2. I am Vice President of Gannett Fleming Canada ULC, a wholly-owned subsidiary company of Gannett Fleming Inc.

**Q3. Have you previously testified before this or any other regulatory boards?**

A3. Yes, I have testified on numerous occasions before regulatory boards throughout Canada as summarized in my Curriculum Vitae attached to this evidence. Also, as summarized in my Curriculum Vitae, I have prepared a number of additional depreciation reviews that have resulted in negotiated settlements or where appearances were not required.

Of specific note, I have prepared a number of expert reports and testimony on depreciation-related matters on behalf of Newfoundland and Labrador Hydro, and most recently completed a report regarding the Betterment calculations as presented in evidence in this proceeding.

**Q4. Please state the purpose of this surrebuttal evidence.**

A4. I was retained by Newfoundland and Labrador Hydro to prepare independent expert rebuttal to respond to a Prudence Review report prepared by Liberty Consulting Group (“the Liberty report”). The 2015 Betterment Report prepared by Gannett Fleming (the “Gannett Fleming report”) was filed in this proceeding as Appendix A of the Newfoundland and Labrador Hydro Reply Evidence (the



“Company Reply Evidence”). In response to the Company Reply Evidence the Liberty Consulting Group filed Reply evidence on September 17, 2015 (the “Liberty Reply”) commenting on various portions of the Company’s Reply Evidence, including the Gannett Fleming report. This surrebuttal evidence provides comment on the assumptions and conclusions reached in the Liberty Reply regarding the Gannett Fleming report.

**Q5. Please provide the context for your response to the evidence filed in this proceeding.**

A5. This surrebuttal evidence will demonstrate the following:

- The Liberty Reply conclusion that “*The ‘worst’ case for customers should be that they pay no more than what would have been paid in the absence of imprudence*” shows a mis-understanding of the concept of betterment. As such the Liberty Reply does not consider that the undepreciated value of the replaced assets are no longer included in the Company’s net book value (or “rate base”);
- The Liberty Reply does not recognize the concept of retirement dispersion being a widely-held concept of capital recovery for rate regulated entities;
- The Liberty Reply recommends the deferral of the betterment of the new assets to an indefinite future period that cannot be determined;

**Q5. Please describe why you believe that the Liberty Reply demonstrates a lack of understanding of the concept of betterment as used by Newfoundland and Labrador Hydro.**

A5. The Liberty Reply includes the following statement:

*“A threshold problem arises from the need to address what happens with respect to recovery of the remaining costs of the replaced asset. The notion of ‘betterment’ would imply that if the replacement is ‘better’ than what it replaced then the recoverable costs for the measurement of that ‘betterment’ come on top of those replaced.”<sup>1</sup>*

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<sup>1</sup> Liberty Reply, page 12, lines 14-17.

Based on the above quote, it appears that Liberty does not understand the Company's accounting treatment related to the replaced assets. The above comments appear to indicate the Liberty assumption that the net book value of the assets will remain in rate base and will continue to be recovered. However, as has been the long term practice, when a replaced asset is retired, Hydro takes a loss in that year for the remaining loss (net book value) on disposal. As a result, the replaced asset would no longer be included in average rate base and Hydro would stop earning a return on that disposed asset. Additionally, as the assets are removed from the gross plant in service balances, all further capital recovery through depreciation expense is ceased.

Given that the capital recovery of the replaced assets through depreciation expense is ceased, it is appropriate that the installed value of the replaced assets are included in the investment base that forms the basis of the company's depreciation expense. In this manner the customer tolls reflect the annual consumption related to use of the assets available to the provision of electricity service. Over the long term (i.e. the total remaining life of the replacement assets) the customers will be responsible for the total cost of the replacement asset in addition to the consumed service value of the replaced asset over the period it was providing utility service. Overall, the customers have received the benefit of both the replacement and the replaced assets over the period for which they were providing utility service.

**Q6. Is the above description of “betterment” the process being requested in this Proceeding.**

A6. No, while I believe that the complete inclusion of the original cost of the replacement asset into rate base is reasonable, I note that the requested treatment by Newfoundland and Labrador Hydro in the event of an adverse finding is only to include an amount equal to the original cost<sup>2</sup> multiplied by the % of the replaced

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<sup>2</sup> Less improvements such as B1T1 and Transformer T1 protection and pre-scheduled replacements B1L03 and B2T1 as noted in PR-PUB-NLH-203.

asset already consumed as determined in Tables 1 and 2 of the “Gannett Fleming report” filed in this proceeding as Appendix A of the Company Reply Evidence. In this manner, the Company’s treatment will be consistent with the premise that “*The ‘worst’ case for customers should be that they pay no more than what would have been paid in the absence of imprudence*” as stated in the Liberty Reply. In my view, this is a conservative approach to ensure that the customer tolls are based on the assets available for utility service at any point in time.

It is these concepts of “betterment”, both of which reflect the fact that the customers have historically received a long term benefit caused by the long historic life of the historic asset, combined with the fact that the replacement asset is new and will live for a complete estimated life cycle that seems to be missing from the Liberty Reply evidence.

**Q7. Please provide an overview of the concept of retirement dispersion that is inherent in the depreciation rate calculations of utilities such as Newfoundland and Labrador Hydro.**

A7. In the determination of average service life estimates for utilities, it is not practicable to determine the specific average service life estimate for each individual asset. Given the large volume of assets in utility service, and further given that retirement of assets can be caused by a number of factors (or “forces of retirement”) it is not possible to determine which force of retirement will cause the retirement of any specific asset. Electric utility assets may be retired due to a number of reasons including physical condition, third party damage, capacity issues, manufacturer support, technological obsolescence, forces of nature (lightning, floods, wind damage, etc.) and catastrophic failure. Given the large number of factors that cause retirement of utility assets, it is not possible to determine which force of retirement will cause the retirement of any specific asset. For example, at the time of installation, it is not possible to determine whether any specific substation transformer will eventually be retired due to age and condition, or a force of nature such as a lightning strike, technological changes, change to

electricity demand, or catastrophic failure. What is known, however, is that any one of the forces of retirement may cause the retirement of any of the transformers in service in any year into the future.

In order to determine the average service life of utility assets, given the multiple forces that can cause retirement of any specific asset, a long standing approach has been to determine an expected retirement dispersion curve for a group of homogenous assets. The most popular family of retirement dispersion curves is known as the Iowa Curves, which were popularized in 1935 by Robley Winfrey<sup>3</sup>. The Iowa curves provide for a specific probability of a retirement of a percentage of the total investment installed in any vintage (or installation year) through to the period at which all investment is retired.

For example, the Iowa curve that was used in the determination of the average service life estimate for Circuit Breakers, and which forms the basis of the current average service life estimate is attached as Attachment 1 to this evidence. The expected retirement dispersion is reflected in the smoothed line on the chart marked as Iowa 45-S2. As indicated by plotted Iowa curve, by age 40, it is anticipated that over 35 percent of investment installed in any given year will be retired. It is also apparent that at any given age, there is a probability of some investment to be retired. Based on the expected retirement dispersion, the retirement due to failure of replaced assets was expected in the average service life determination as currently approved by the Newfoundland and Labrador Public Utilities Board. As such, it is common for assets of the age of the replaced assets to be replaced with the cost of the replacement assets being fully recovered over the expected life of the replacement asset. However, as noted previously in this surrebuttal, the Company is only requesting the rate base inclusion of the portion of the original cost of the replacement asset based on the already consumed portion of the damaged assets at the time of replacement.

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<sup>3</sup> As described in the text "Statistical Analysis of Industrial Property Retirements" , Bulletin 125 of the Iowa Engineering Experiment Station published by the Engineering Research Institute of the Iowa State University, 1935.

**Q8. Explain why the Liberty Reply recommendation regarding the deferral of the betterment of the new assets to an indefinite future period is not possible.**

A8. The Liberty Reply makes the following statement:

*“The most direct way to ensure that customers pay no more than would have occurred absent imprudence is to conclude that, absent imprudence, Hydro would not have replaced and would have made no claim for the replaced equipment (subject to the case of Breaker B1L03, discussed earlier) in this rate proceeding. In the first proceeding whose test period post-dates the likely end of lives of the replaced equipment, Hydro would have the opportunity to show that the equipment is used and useful and not in existence prematurely. Given that the replacement equipment at that time will have been in operation for some time, it would seem logical to begin consideration for inclusion in rate base on the basis of depreciated cost at that time. [Emphasis added].”<sup>4</sup>*

As identified in this evidence, the retirement of utility assets can be caused by a number of forces of retirement at any age. It is not correct to suggest that the retirement of the replaced assets at approximately age 40, is in any manner unexpected. Furthermore, as identified in Attachment 1 to this evidence, there is retirement activity anticipated at virtually every age from age 1 through age 80, with significant levels of retirement activity occurring at ages 20 through 80. As such, the timing for the potential inclusion into rates of the replacement assets can logically be considered at any age from the current through age 80, and in fact the logical timing (in the view of the Liberty Reply) may have long past, based on the currently Public Utilities Board approved retirement dispersion curve. In summary the practicable application of the logical timing as recommended in the Liberty Reply is not possible to determine.

**Q9. Does this conclude your surrebuttal evidence?**

A9. Yes.

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<sup>4</sup> Liberty Report, page 13, line 22 through page 14, line 3.

## LARRY E. KENNEDY, CDP

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### TECHNICAL SPECIALTIES

- Public Utility Plant Depreciation
- Public Utility Plant Accounting

### PERSONAL INFORMATION

- Diploma, Applied Arts - Business Administration, Northern Alberta Institute of Technology, 1978
- Member, Society of Depreciation Professionals
- Certified Depreciation Professional

### EXPERIENCE

Mr. Kennedy joined Gannett Fleming, Inc. in January 1999 and is a Vice President of Gannett Fleming Canada ULC. His responsibilities include the assembly of data, the preparation and review of depreciation studies, advice to clients regarding asset retirement obligation accounting, plant accounting issues, and provision of general regulatory litigation support.

Representative assignments include:

- **AltaGas Utilities Inc.:** A number of depreciation studies have been completed, which included the assembly of basic data from the Company's accounting systems, statistical analysis of retirements for service life and net salvage indications, discussions with management regarding the outlook for property, and the calculations of annual and accrued depreciation. The studies were prepared for submission to the Alberta Energy and Utilities Board. Mr. Kennedy has appeared before the Alberta Utilities Commission on behalf of AltaGas on a number of occasions.
- **AltaLink LP:** An initial study was developed for submission to the Alberta Utilities Commission ("AUC") in 2002. The study included the estimation of service life characteristics, and the estimation of net salvage requirements for all electric transmission assets. A net salvage study and technical update was also filed with the Board in 2004. Since 2004 additional depreciation studies were filed in 2005, 2010 and 2012. The 2010 and 2012 studies included a number of provisions in order to ensure compliance to Alberta's Minimum Filing Requirements for depreciation studies and for compliance to the International Financial Reporting Standards.

## LARRY E. KENNEDY, CDP

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- **ATCO:** Studies have included the development of annual and accrued depreciation rates for the electric transmission and distribution systems for the Alberta Assets of ATCO Electric, in addition to the generation, transmission, and distribution assets of Northland Utilities (NWT) Inc. and the distribution assets of Northland Utilities (Yellowknife) Inc. ATCO Electric studies were submitted to the AUC for review, while the Northland Utilities Inc. studies were submitted to the Northwest Territories Utilities Board and Yukon Electric Company Limited (YECL) was submitted to Yukon Public Utilities Board. ATCO Gas studies were prepared in 2010 and were the subject of a review by the AUC. Elements of all of the studies included the service life analysis for all accounts using the retirement rate analysis, discussion with management regarding outlook, and the estimation of net salvage requirements.
- **BC Hydro:** This assignment included the development of an average service life study for all of the BC Hydro's electric generation, transmission, distribution and general plant assets. The study, which was prepared for submission to the British Columbia Utilities Commission ("BCUC), included development of depreciation policy for the company, development of procedures to extract data from the company databases, tours of the company facilities, interviews with operational and management representatives, and the compilation of a detailed report. The assignment included the support of the study through the regulatory process. Mr. Kennedy has also completed a review of the cost allocation procedures and practices which was filed with the BCUC in 2010.
- **Centra Gas Manitoba, Inc.:** The study included development of annual and accrued depreciation rates for all gas plant in service. Elements of the study included a field inspection of metering and compression facilities, service buildings and other gas plant; service life analysis for all accounts using the retirement rate analysis on a combined database developed from actuarial data and data developed through the computed method; discussions with management regarding outlook; and the estimation of net salvage requirements. A similar study was completed in 2006 and in 2011. The 2011 depreciation study was the subject of a review by the Manitoba Public Utilities Board in 2012. Mr. Kennedy has also consulted on issues regarding IFRS compliance and required componentization.
- **Enbridge Gas Distribution Inc.:** Full and Comprehensive depreciation studies have been completed in 2009 and 2011. The 2009 study also included review of the company's gas storage operations. Both studies included the development of annual and accrued depreciation rates for all depreciable natural gas distribution, transmission and general plant assets. Elements of the studies included the service life analysis for all accounts using the computed mortality

## LARRY E. KENNEDY, CDP

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method of analysis, discussion with management regarding outlook, and the estimation of net salvage requirements. Studies were prepared for submission to the Ontario Energy Board.

Mr. Kennedy has also completed an allocation of the accumulated depreciation accounts into the amounts related to the recovery of original cost and the amounts recovered in tolls for the future removal of assets currently in service. The allocations were determined as of December 31, 2009 and were deemed by the company's external auditors to be in conformance with proper accounting standards and procedures. In 2013, a review of the reserve required for the future removal of assets currently in service was undertaken by Mr. Kennedy. The results of the review were summarized in evidence presented by Mr. Kennedy to the Ontario Energy Board.

- **ENMAX Power Corporation:** Studies have included the development of annual and accrued depreciation rates for all depreciable electric transmission assets. Elements of the studies included the service life analysis for all accounts using the retirement rate analysis, discussion with management regarding outlook, and the estimation of net salvage requirements. Studies were prepared for submission to the Alberta Department of Energy and more recently for submission to the Alberta Energy and Utilities Board. Similar studies have also been completed for submission for the ENMAX Electric Distribution assets for submission to the AUC. The ENMAX distribution asset assignments also included an extensive asset verification project where the plant accounting and operational asset records were verified to the field assets actually in service.
- **Fortis Inc.:** Studies have included the development of annual and accrued depreciation rates for the electric distribution assets in Alberta and for the generation, transmission, and distribution assets in British Columbia. The FortisBC Inc. studies were completed and filed with the BCUC in 2005, 2010 and 2011 encompassing both the FortisBC electric and natural gas companies. FortisAlberta studies were completed in 2004 (updated in 2005), 2009 and 2010. Elements of the studies included the development of average service lives using the retirement rate method of analysis, development of net salvage estimates, compliance with IFRS, and the determination of appropriate annual accrual and accrued depreciation rates.
- **International Financial Reporting Standards (IFRS):** Mr. Kennedy has been retained by numerous clients encompassing most Canadian Provinces and Territories. The assignments included the review of company's assets and depreciation practices to provide opinion on the compliance to the IFRS. The assignments have also included the issuance of opinion to the External Auditors



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of Utilities to comment on the manner in which the Utilities can minimize differences in the regulatory ledgers and the accounting records used for financial disclosure purposes. Mr. Kennedy has also presented to the Canadian Electric Association, the Society of Depreciation Professionals, the Canadian Energy Pipeline Association, and to the British Columbia Utilities Commission on this topic.

- **Mackenzie Valley Pipeline Project:** This assignment included the review of the proposed depreciation schedule for the proposed Mackenzie Valley Pipeline. The review included a discussion of the policies used by the company and the depreciation concepts to be included in a depreciation schedule for a Greenfield pipeline. The review was supported through appearance at the oral public hearings before the National Energy Board of Canada.
- **Manitoba Hydro:** A study was developed to determine the appropriate depreciation parameters for all electric generation, transmission and distribution assets. The study was submitted to the Manitoba Public Utilities Board. Elements of the study included a field review of electric generation and transmission plant, the service life analysis for all accounts using the retirement rate analysis, discussion with management regarding outlook, and the estimation of net salvage requirements. A similar study was also completed in 2006 and in 2011. The 2011 depreciation study was the subject of a review by the Manitoba Public Utilities Board in 2012. Mr. Kennedy has also consulted with Manitoba Hydro on issues regarding IFRS compliance and required componentization.
- **Newfoundland and Labrador Hydro:** Mr. Kennedy developed a comprehensive depreciation study that included the development of depreciation policy and rates for Newfoundland and Labrador Hydro. The study provided a significant review of the previous depreciation policy, which included use of a sinking fund depreciation method and provided justification for the conversation to the straight-line depreciation method. The study, which was prepared for submission to the Newfoundland and Labrador Utilities Commission, included a significant amount of discussion regarding the development of depreciation policy for the company. The study also included development of procedures to extract data from the company databases, tours of the company facilities, interviews with operational and management representatives, development of appropriate net salvage rates, development of average service life estimates, and the compilation of the report for submission in a General Tariff Application. Additional studies were also completed in 2008 and 2010. The 2010 study was the subject of Regulatory Review in 2012.

## LARRY E. KENNEDY, CDP

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- **Ontario Power Generation:** Assignments have included a review of the Depreciation Review Committee process completed in 2007. This review provided recommendations for enhanced internal processes and controls in order to ensure that the depreciation expense reflects the annual consumption of service value. Additionally, full assessments of the lives the regulated assets were completed in 2011 and 2013, and were submitted to the Ontario Energy Board for review.
- **TransCanada PipeLines Limited – Alberta Facilities:** The assignment included working with the company to develop the appropriate depreciation policy to align with the organization’s overall goals and objectives. The resulting depreciation study, which was submitted to the Alberta Energy and Utilities Board, incorporated the concepts of time-based depreciation for gas transmission accounts and unit based depreciation for gathering facilities. The data was assembled from two different accounting systems and statistical analysis of service life and net salvage were performed. For gathering accounts, the assignment included the oversight of the development of appropriate gas production and ultimate gas potential studies for specific areas of gas supply. Field inspections of gas compression, metering and regulating, and service operations were conducted. Studies were completed in 2002 and 2004, 2007, 2009 and 2012.
- **TransCanada PipeLines Limited – Mainline Facilities:** The study prepared for submission to the National Energy Board of Canada (“NEB”) included the development of annual and accrued depreciation rates for gas transmission plant east of the Alberta – Saskatchewan border. Elements of the study included a field inspection of compression and metering facilities, service life and net salvage analysis for all accounts. The study was completed in 2002, and was supported through an appearance before the NEB. Study updates have been completed in 2005, 2007, 2009 and an additional full and comprehensive study was completed in 2011. The 2011 study was fully supported through an appearance before the NEB in 2012

Mr. Kennedy has successfully completed the series of week-long programs offered by Depreciation Programs, Inc. and is a past president of the Society of Depreciation Professionals.

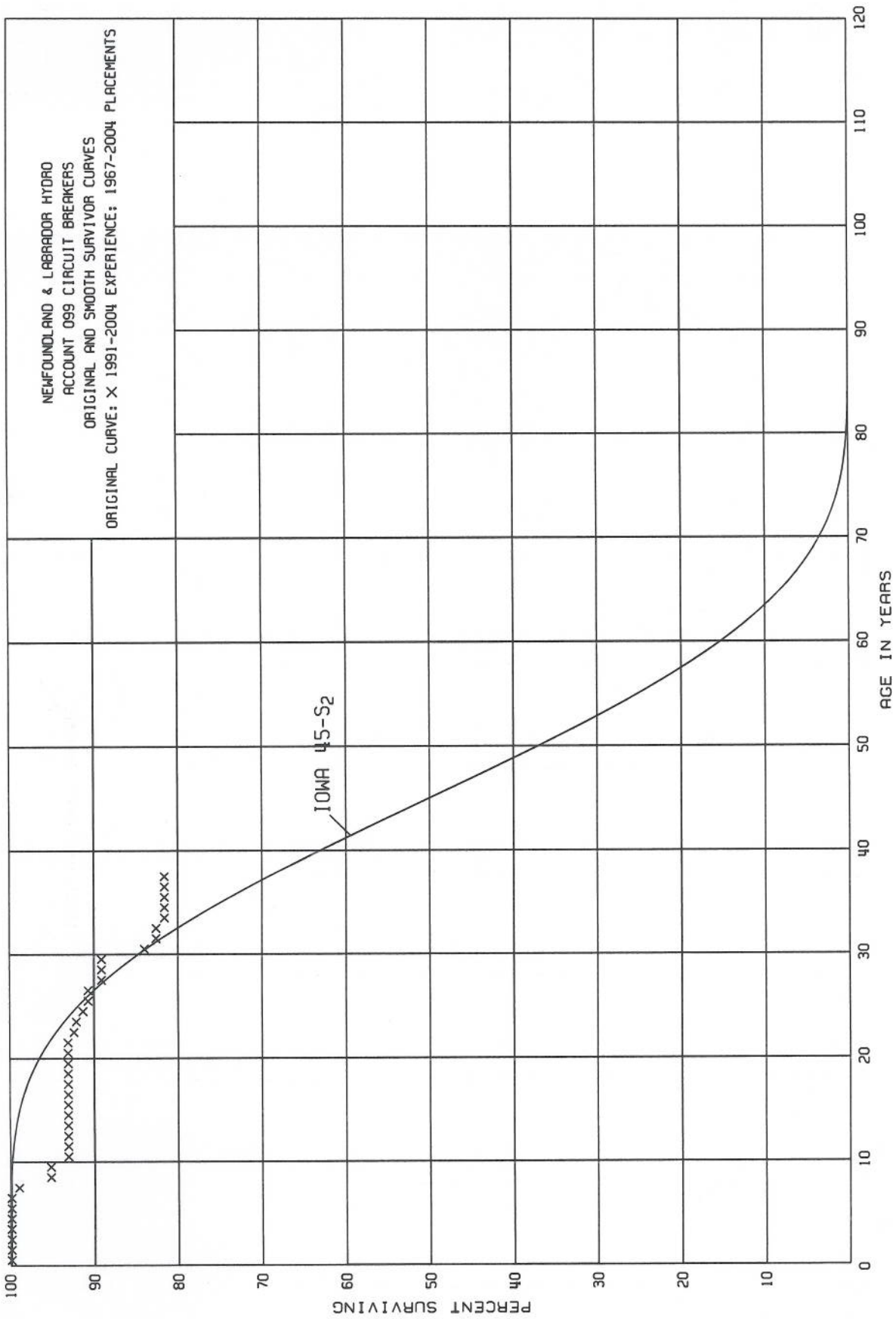
LARRY E. KENNEDY				
SUMMARY OF CASES WHERE EVIDENCE WAS PROVIDED BUT APPEARANCES WERE NOT REQUIRED				
Year	Client	Applicant	Regulatory Board	Proceeding Number
2000	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Energy and Utilities Board	Decision 2002-43
2001	ENMAX Power Corporation	ENMAX Power Corporation - Transmission	Alberta Department of Energy	N/A
2002	Centra Gas British Columbia	Centra Gas British Columbia	British Columbia Utilities Commission	N/A
2002	ENMAX Power Corporation	ENMAX Power Corporation - Transmission	Alberta Department of Energy	N/A
2003	Centra Gas Manitoba	Centra Gas Manitoba	Manitoba Public Utilities Board	N/A
2003	Manitoba Hydro	Manitoba Hydro	Manitoba Public Utilities Board	N/A
2003	City of Calgary	ATCO Pipelines	Alberta Energy and Utilities Board	1292783
2003	City of Calgary	ATCO Electric -ISO Issues	Alberta Energy and Utilities Board	N/A
2004	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Energy and Utilities Board	1305995
2005	Yukon Energy Corporation	Yukon Energy Corporation	Yukon Utilities Board	N/A
2005	NOVA Gas Transmission Ltd.	NOVA Gas Transmission Ltd.	Alberta Energy and Utilities Board	1375375
2005	FortisAlberta Inc.	FortisAlberta Inc.	Alberta Energy and Utilities Board	1371998
2005	ATCO Electric	ATCO Electric	Alberta Energy and Utilities Board	1399997
2005	The City of Red Deer	The City of Red Deer Electric System	Alberta Energy and Utilities Board	1402729
2005	Northland Utilities (Yellowknife) Inc.	Northland Utilities (Yellowknife) Inc.	Northwest Territories Utilities Board	N/A
2005	Northland Utilities (NWT) Inc.	Northland Utilities (NWT) Inc.	Northwest Territories Utilities Board	N/A
2005	ENMAX Power Corporation	ENMAX Power Corporation- Transmission	Alberta Energy and Utilities Board	N/A
2005	FortisBC, Inc.	FortisBC, Inc.	British Columbia Utilities Commission	N/A
2005	New Brunswick Board of Commissioners of Public Utilities	New Brunswick Power Distribution and Customer Service Company	New Brunswick Board of Commissioners of Public Utilities	N/A
2005	British Columbia Transmission Corporation	British Columbia Transmission Corporation	British Columbia Utilities Commission	N/A
2005	Manitoba Hydro	Manitoba Hydro	Manitoba Public Utilities Board	N/A
2005	Centra Gas Manitoba	Centra Gas Manitoba	Manitoba Public Utilities Board	N/A
2005	FortisAlberta Inc.	FortisAlberta Inc.	Alberta Energy and Utilities Board	N/A

LARRY E. KENNEDY				
SUMMARY OF CASES WHERE EVIDENCE WAS PROVIDED BUT APPEARANCES WERE NOT REQUIRED				
<u>Year</u>	<u>Client</u>	<u>Applicant</u>	<u>Regulatory Board</u>	<u>Proceeding Number</u>
2006	BC Hydro	BC Hydro	British Columbia Utilities Commission	N/A
2007	Enbridge Pipelines Limited	Enbridge Pipelines Limited	National Energy Board of Canada	RH-2-2007
2007	FortisAlberta Inc.	Fortis Alberta Inc.	Alberta Energy and Utilities Board	1514140
2007	Kinder Morgan	Terasen (Jet fuel) Pipeline Limited	British Columbia Utilities Commission	N/A
2008	ATCOGas	ATCOGas	Alberta Utilities Commission	1553052
2008	Heritage Gas	Heritage Gas Ltd.	Nova Scotia Utility and Review Board	N/A
2008	ENMAX Power Corporation	ENMAX Power Corporation	Alberta Utilities Commission	1512089
2008	City of Lethbridge Electric System	City of Lethbridge	Alberta Utilities Commission	N/A
2009	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Utilities Commission	N/A
2010	Enbridge Pipelines Limited - Line 9	Enbridge Pipelines Limited - Line 9	National Energy Board of Canada	N/A
2010	Kinder Morgan	Kinder Morgan	National Energy Board of Canada	N/A
2010	Pacific Northern Gas	Pacific Northern Gas	British Columbia Utilities Commission	N/A
2011	SaskPower	SaskPower	Internal Review Committee	N/A
2011	FortisAlberta Inc.	Fortis Alberta, Inc.	Alberta Utilities Commission	1607159
2011	Qulliq	Qulliq	Utilities Rates Review Council	N/A
2011	Heritage Gas Ltd.	Heritage Gas Ltd.	Nova Scotia Utility and Review Board	N/A
2011	ATCO Electric	Northland Utilities (NWT) Inc.	Northwest Territories Utility Board	N/A
2012	Newfoundland and Labrador Hydro	Newfoundland and Labrador Hydro	Newfoundland and Labrador Board of Commissioners of Public Utilities	N/A
2012	City of Red Deer	City of Red Deer	Alberta Utilities Commission	1608641
2012	Enbridge Gas Distribution Inc.	Enbridge Gas Distribution Inc.	Ontario Energy Board	EB 2011-0345
2012	Northwest Territories Power Corporation	Northwest Territories Power Corporation	Northwest Territories Public Utilities Board	N/A
2015	Gaz Metro	Gaz Metro	La Regie de L'Energie	N/A

LARRY E. KENNEDY				
SUMMARY OF APPEARANCES BEFORE REGULATORY BOARDS				
Year	Client	Applicant	Regulatory Board	Proceeding Number
1999	ENMAX Corporation	Edmonton Power Corporation	Alberta Energy and Utilities Board	980550
2001	City of Calgary	ATCO Pipelines South	Alberta Energy and Utilities Board	2000-365
2001	City of Calgary	ATCO Gas South	Alberta Energy and Utilities Board	2000-350
2001	City of Calgary	ATCO Affiliate Proceeding	Alberta Energy and Utilities Board	1237673
2003	AltaLink Management Ltd	AltaLink Management Ltd	Alberta Energy and Utilities Board	1279345
2003	TransCanada Pipelines Limited	TransCanada Pipelines Limited	National Energy Board of Canada	RH-1-2002
2003	City of Calgary	ATCO Gas	Alberta Energy and Utilities Board	1275466
2003	City of Calgary	ATCO Electric	Alberta Energy and Utilities Board	1275494
2004	NOVA Gas Transmission Limited	NOVA Gas Transmission Limited	Alberta Energy and Utilities Board	1315423
2004	ENMAX Power Corporation	ENMAX Power Corporation	Alberta Energy and Utilities Board	1306819
2004	Westridge Utilities Inc.	Westridge Utilities Inc.	Alberta Energy and Utilities Board	1279926
2004	Heritage Gas Ltd.	Heritage Gas Ltd.	Nova Scotia Utility and Review Board	N/A
2004	Central Alberta Midstream	Central Alberta Midstream	Municipal Government Board of Alberta	N/A
2004	AltaLink LP	AltaLink LP	Alberta Energy and Utilities Board	1336421
2004	Central Alberta Midstream	Central Alberta Midstream	Municipal Government Board of Alberta	N/A
2005	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Energy and Utilities Board	1378000
2005	ATCO Power	ATCO Power	Municipal Government Board of Alberta	N/A
2005	ENMAX Power Corporation	ENMAX Power Corporation- Distribution Assets	Alberta Energy and Utilities Board	1380613
2006	AltaLink LP	AltaLink LP	Alberta Energy and Utilities Board	1456797
2006	Imperial Oil Resources Ventures Limited	McKenzie Valley Pipeline Project	National Energy Board of Canada	GH-1-2004

LARRY E. KENNEDY				
SUMMARY OF APPEARANCES BEFORE REGULATORY BOARDS				
Year	Client	Applicant	Regulatory Board	Proceeding Number
2008	ATCO Electric	Yukon Electrical Company Limited	Yukon Utilities Board	N/A
2009	Fortis Alberta Inc.	Fortis Alberta, Inc.	Alberta Utilities Commission	1605170
2010	Gazifere	Gazifere	La Regie de L'Energie	R-3724-2010
2010	ATCO Electric	ATCO Electric	Alberta Utilities Commission	1606228
2011	ATCO Gas	ATCO Gas	Alberta Utilities Commission	1606822
2011	Gaz Metro	Gaz Metro	La Regie de L'Energie	R-3752-2011
2011	AltaGas Utilities Inc.	AltaGas Utilities Inc.	Alberta Utilities Commission	1606694
2011	AltaLink	AltaLink	Alberta Utilities Commission	1606895
2011	FortisBC Energy, Inc.	FortisBC Energy, Inc.	British Columbia Utilities Commission	3698627
2011	TransAlta Utilities Corporation	TransAlta Utilities Corporation	Municipal Government Board of Alberta	N/A
2012	FortisBC, Inc.	FortisBC, Inc.	British Columbia Utilities Commission	3698620
2012	TransCanada Pipelines Limited	TransCanada PipeLines Limited	National Energy Board of Canada	RH-003-2011
2012	Manitoba Hydro	Manitoba Hydro	Manitoba Public Utilities Board	2013/2013 GRA
2013	IntraGaz Incorporated	IntraGaz Incorporated	La Regie de L'Energie	R-3807-2012
2013	AltaLink LP	AltaLink LP	Alberta Utilities Commission	1608711
2013	Yukon Electrical Company Limited (YECL)	Yukon Electrical Company Limited (YECL)	Yukon Utilities Board	2013-2015 GRA
2014	ENMAX Power Corporation	ENMAX Power Corporation	Alberta Utilities Commission	1609674
2014	Enbridge Gas Distribution	Enbridge Gas Distribution	Ontario Energy Board	EB-2012-0459
2015	Manitoba Hydro	Manitoba Hydro	Manitoba Public Utilities Board	2014/15 & 2015/16 GRA
2015	AltaLink LP	AltaLink LP	Alberta Utilities Commission	Proceeding 3524 Appearance Pending
2015	ATCO Electric	ATCO Electric	Alberta Utilities Commission	Proceeding 20272 Appearance Pending
2015	EPCOR Distribution & Transmission	EPCOR Distribution & Transmission	Alberta Utilities Commission	Proceeding 20407
2015	EPCOR Distribution & Transmission	EPCOR Distribution & Transmission	Alberta Utilities Commission	Appearance Pending
2015	Newfoundland and Labrador Hydro	Newfoundland and Labrador Hydro	Newfoundland and Labrador Board of Commissioners of Public Utilities	Appearance Pending

LARRY E. KENNEDY				
SUMMARY OF APPEARANCES BEFORE REGULATORY BOARDS				
<u>Year</u>	<u>Client</u>	<u>Applicant</u>	<u>Regulatory Board</u>	<u>Proceeding Number</u>
2015	FortisBC Energy, Inc.	FortisBC Energy, Inc.	British Columbia Utilities Commission	Appearance Pending
2015	FortisBC, Inc.	FortisBC, Inc.	British Columbia Utilities Commission	Appearance Pending
2015	Gazifere	Gaz Metro	La Regie de L'Energie	Appearance Pending





CONSULTANT REPORT

# **Review of Newfoundland and Labrador Hydro Decisions and Actions Related to Outage Events Surrebuttall Evidence**

Prepared for: Newfoundland and Labrador Hydro

Prepared by: La Capra Associates, Inc.

*La Capra Associates*

OCTOBER 14, 2015

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# 1. INTRODUCTION

The Board of Commissioners of Public Utilities of Newfoundland and Labrador (“Board”) retained The Liberty Consulting Group (“Liberty”) to conduct a prudence review of Newfoundland and Labrador Hydro’s (“Hydro”) decisions and actions mostly related to Island Interconnected System (“IIS”) outages experienced during the winters of 2013 and 2014. Some of the scope of the prudence review also covered recovery of Board deferred costs, pending further review, associated with certain decisions and actions.

After the Liberty Prudence Review of Newfoundland and Labrador Hydro Decisions and Actions Final Report (“Liberty Prudence Report”) was submitted to the Board on July 6, 2015, Hydro retained La Capra Associates, Inc. (“La Capra Associates”) as independent outside consultants to review their decisions and actions relative to two of the specific issues discussed in this report.

La Capra Associates prepared a report (“La Capra Report”) filed with the Board on August 7, 2015. In that report, we reviewed the decisions and actions taken by Hydro in relation to the “Black Start” and “Holyrood Unit 1 Turbine Failure” issues.

Liberty filed Reply Evidence (“Liberty Reply”) with the Board on September 17, 2015. The Liberty Reply, in question and answer format, repeated Liberty’s prior opinion on several issues which were addressed in the La Capra Report. The Liberty Reply included reactions to twelve specific issues raised in the La Capra Report.

This report serves as La Capra Associates’ Surrebuttal to the twelve areas where Liberty reiterated their opinions in the Liberty Prudence Report. La Capra Associates overall found that:

- The Liberty Reply stated questions with inaccurate quotation or summarization of statements within the La Capra Report,
- the Liberty Reply contains mostly opinion which reiterates their position taken in the Liberty Prudence Report,
- the Liberty Reply provides at least one area where Liberty clarifies its opinion that their recommendation of a specific disallowance in the Black Start issue is arbitrary, and lastly,
- Liberty’s continued positions appear in certain instances to rely on hindsight in making findings critical of decisions that did not have the benefit of such hindsight.

## 2. ISSUES RAISED BY LIBERTY CONSULTING REPLY EVIDENCE

### 2.1. BLACK START ISSUES

This section addresses seven specific issues raised in the Liberty Reply related to Black Start which include references to the La Capra Report. Overall these issues in the Liberty Reply fail to appropriately acknowledge that Hydro had Black Start plans for the Avalon Peninsula and Holyrood Station.

1. On Page 18 – *Liberty comments that the decision to rely on Hardwoods as a black start resource was plainly wrong, and their interpretation of the Hydro and La Capra position is that black start at Holyrood was not necessary in the first place.*

Here is one of various examples where Liberty implies that Hydro did not have a Black Start plan. Hydro had a Black Start plan for the Avalon Peninsula electric system and for Holyrood station at all times, even prior to and during the January 11, 2013 rare and severe weather event. La Capra Associates understanding is that this Black Start plan for Holyrood would primarily rely on energy available from the grid energy<sup>1</sup> supplied by Hardwoods Station if the peninsula becomes electrically isolated from the remainder of the Island. La Capra Associates thus strongly disagrees with Liberty’s interpretation that our position was that black start at Holyrood “was not necessary in the first place” and Liberty’s conclusion that “the decision to rely on the Hardwoods CT as the black start resource was plainly wrong”.

It is important for accuracy in this discussion to realize that there is reliance on the Hardwoods generation to restart Holyrood only when the peninsula is isolated electrically from the remainder of the Island. La Capra discusses on pages 11 and 12 of its report that Hydro staff made the decision after due consideration of costs and risks involved, that its Black Start plan for Holyrood and the Avalon Peninsula provided sufficient reliability during the interim period where Holyrood would be without on-site black start generation. Hydro’s communication issues with the Board do not alone make Hydro’s decision process flawed. La Capra Associates specifically acknowledged in its report that the Hydro staff made a conscious decision to tolerate the risk associated with not including on-site black start at Holyrood in its Black Start plan after consideration of the costs and reliability benefits. La Capra Associates acknowledges that ultimately having on-site black start generation at Holyrood would have shortened the January

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<sup>1</sup> La Capra understands that there are two transmission lines connecting the peninsula to the remainder of the Island and there are five lines into Holyrood station that can be fed from either the remainder of the Island or Hardwoods CT.

11, 2013 outage duration by 11 hours for some customers. A significant amount of customers were restored earlier from the rest of the grid using the transmission lines.

2. Page 18 – *Liberty comments that black start at Hardwoods is not equivalent to black start at Holyrood and accordingly it would not be considered as a black start solution “by a reasonable utility manager”.*

Liberty has introduced the expression “reasonable utility manager” and La Capra Associates does not understand how Liberty defines a “reasonable utility manager” in terms of risk tolerance. Setting that lack of definition aside, La Capra Associates agrees that a black start plan for Holyrood that relies upon grid supplied energy, including utilization of on-site black start at Hardwoods, is not equivalent to additionally having on-site black start generation at Holyrood. However, operating under Hydro’s Black Start plan using Hardwoods in the interim, as part of an overall black start plan, to black start the Avalon Peninsula cannot be judged as an unreasonable decision made by Hydro staff. Pages 11 and 12 of the La Capra report discuss how it is possible for the Hydro staff to reach a conclusion about using Hardwoods to black start the Avalon Peninsula and Holyrood based on risk tolerance and limited number of black start situations the Hydro staff has experienced in its collective experience.

3. Page 19 – *Liberty’s conclusion that Hydro’s consideration in 2012 did not consider the warming benefit at all.*

La Capra Associates understands that the Hydro staff made a conscious decision to tolerate the risk associated with not including on-site black start at Holyrood in its Black Start plan after consideration of the costs and reliability benefits. Hydro was aware that on-site black start at Holyrood Station would provide incremental reliability. La Capra Associates believes it is not determinative whether there was explicit consideration of the warming benefit that could result from the presence of on-site generation at Holyrood. The reliability of a Black Start plan for Holyrood that did not contain on-site black start generation was considered. The warming benefit is just one potential way the reliability would have improved.

4. Page 19/20 – *Liberty’s reference to the Hydro action/view as being “outside the range of acceptable utility practice”.*

La Capra Associates does not believe that an 11 hour outage is trivial. Liberty’s above statement about acceptable utility practice is a conclusion that can only be drawn after over emphasizing the words in the La Capra Report that the benefits of black start at Holyrood are limited to “only about 11 hours”. Liberty raises a non-existent characterization by La Capra Associates by stating that La Capra Associates believes that an outage “only limited to 11 hours...[is] presumably insufficient to justify added investment”. This was never said nor implied. In fact, Liberty’s wording suggests that Liberty’s judgement is based on the knowledge of the 11 hour outage as if it was a *fait accompli* at the time of Hydro’s decision making. The 11 hour outage only became a real outcome due to an extreme weather event coupled with Hydro’s then current Black Start plan.

The statement by Liberty that La Capra's, and more importantly Hydro's, view is "outside the range of acceptable utility practice" is simply not valid. Again, Liberty is apparently presuming that Hydro was accepting this exact 11 hour outage. Hydro did not to La Capra's understanding make a decision to accept an 11 hour outage. Hydro made a judgement that its Black Start plan, which was in place for an interim period, for Holyrood and the Avalon Peninsula, provided an acceptable level of reliability.

Consider as an example, a widespread acceptable utility practice when it comes to distribution system investment, design and maintenance. In La Capra Associates experience there is not a single utility that expects that it's planning and operational readiness eliminates the potential for outages. Yet the occurrence of lengthy outages with definitive customer impacts are outcomes that happen everywhere for many reasons including the unpredictability of the weather.

La Capra Associates does not consider that Hydro was accepting an 11 hour outage. Hydro made the decision to rely on a Black Start Plan for an 'interim' period until on-site black start generation could be restored at Holyrood. Liberty's choice to use wording on the bottom of page 19 such as 'customer suffering' does not distract La Capra Associates from its belief that a reasonable decision process was conducted by Hydro.

5. Page 20 – *Liberty's comment that "Utility planners are required to plan for events that they might see, at most, once-in-a-career".*

Liberty again has chosen a terminology, "once-in-a-career", which lacks definition. Is this 10 years, 20 years, 40 years or even more? It is important to understand we are discussing a finite period of time significantly less than a 'career'. The Liberty Prudence Report is questioning Hydro's decision to have a black start operational plan in place for an interim period that does not include on-site generation at Holyrood. It is clear that Hydro made the decision to invest in on-site black start generation at Holyrood with the application for a new Combustion Turbine.

In addition, it is also important to define the expression 'to plan for'. Liberty appears to imply that 'to plan for' means that utilities should take all possible action, and make any possible investment, to prevent or minimize the impact of every conceivable event. La Capra Associates would define 'to plan for' differently. It means to have considered and developed a course of action that may include 1) making investments to prevent or minimize the impact of an improbable event and/or 2) setting up an operational plan to utilize when an improbable event occurs. Utility planners cannot recommend a plan that includes investment for every possible event without impacting customer costs significantly.

6. Pages 22-23 – *Liberty Reply commented that "Denying Hydro recovery of the costs of the long belated solution is one means of attaching consequence to actions that placed customers at risk" and later commented that it "recently participated in a case in Nova Scotia in which the utility was sanctioned \$2 million because the regulator felt its conduct in a rate case was inappropriate."*

La Capra Associates is familiar with many instances where utilities have had disallowances of cost recovery for imprudent actions. Even if the Board agrees with Liberty that Hydro's actions were unreasonable, La Capra Associates does not understand how Liberty makes the leap to suggesting that denying the cost recovery of a valid Board sanctioned investment in Black Start generation is the appropriate consequence. The language in the Liberty Reply admits to being arbitrary by stating its suggested disallowance "is one means". La Capra Associates does not see any rationale for this approach.

La Capra Associates maintains that Hydro's decision making relative to this issue was reasonable and certainly not such as would rise to the level of penalizing the utility. La Capra Associates also views the Liberty recommended penalty as completely arbitrary and not an appropriate regulatory response.

7. Page 22 – *Liberty's comment that "Hydro knowingly took inappropriate risks" in relation to the decision to have a Black start Plan that for an interim period did not include black start generation at Holyrood.*

La Capra agrees that Hydro's decision not to have on-site black start at Holyrood led to an extension of the January 11, 2013 outage. However, we disagree that the decision not to have on-site black start at Holyrood is as described by Liberty; Hydro "knowingly [taking] inappropriate risks". In our experience all operationally related decisions have some degree of risk. As La Capra has stated previously on pages 11 and 12 of its report, Hydro staff made a decision, after considering the risks, that relying on Hardwoods as part of an overall plan to black start Holyrood and the Avalon Peninsula on an interim basis was reasonable given their collective knowledge and experience of the electric system. We have seen nothing in Liberty's Final Report or Reply which suggests otherwise.

## 2.2. HOLYROOD UNIT 1 TURBINE FAILURE

This section addresses an additional five specific issues raised in the Liberty Reply which include references to the La Capra Report. Overall the issues raised in the Liberty Reply are based on Liberty's opinion that Hydro failed to consider information it did not have available at the time of the decision.

8. Page 24 – *Liberty's comment that "Hydro's inability to care properly for the motor in the first place."*

Hydro relied on the same testing procedures that had served it well for the past forty-five years at Holyrood without incident. Operational managers have many real-time issues to address on a daily basis. Is it reasonable to believe Hydro's reliance on testing procedures that had served their purpose for a number of years was somehow imprudent? La Capra Associates does not believe this to be the case.

9. Page 24 - *Liberty's comment that "it is obvious that had the test been done, one or more of the misalignments would have been revealed when the motor failed to reach speed."*

La Capra Associates believes the lack of documentation and misalignments do not necessarily lead to the conclusion that the test was never done. Hydro has explained that they have had maintenance done to several motors and other equipment from this vendor over many years without incident and are continuing to work with them because they consider them a valued resource.

10. Page 25 – *Liberty’s comment “Hydro and La Capra do not discuss this matter”, “regarding quality oversight to this vendor”.*

Liberty’s concern, in this instance, appears influenced by hindsight. Hydro’s experience for many years had been that the existing degree of oversight had proven to be appropriate. Hydro and La Capra Associates both agree with Liberty that going forward improved vendor oversight would help assure consistent and quality vendor performance. Where we disagree is that past practices in this regard amounted to imprudence. Only hindsight would lead to such a finding.

11. Page 25 – *Liberty’s comment “This is simply common sense. Hydro and La Capra suggest otherwise, relying on a bad procedure given to Hydro by the turbine manufacturer 45 years ago.”*

La Capra Associates disagrees with Liberty’s statement. La Capra Associates agrees that a functional test of the system must verify that the system works as intended. However, it is not simply common sense. As Liberty and La Capra have both commented, there is value in reliance on vendor and contractor expertise and utilities cannot afford to have specialists in every area, especially in a utility such as Hydro that has a small fossil generating fleet. On page 20 of the La Capra Report we state that “Given the wide variety of pressing issues affecting plant operations on a daily basis, is it reasonable to expect Hydro’s staff to be focused on redesigning OEM recommended testing procedures, especially when such procedures - up until the point of failure - had been a non-issue? Claiming they should have known the testing practices were inadequate is nothing more than hindsight given the lack of any previous indication there was a problem.” Our position remains unchanged.

12. Page 25 – *Liberty’s comment “Hydro has taken the position that a loss of offsite power is not a single event, but rather requires many failures. This view is not appropriate. Those many failures have indeed occurred simultaneously many times in just the last two years. The bottom line is that a loss of offsite power is a credible contingency and, should it occur, the turbines will trip and will have only one line of defense.” We want to continue to express that such a situation is not a common mode failure or single contingency.*

As previously stated on page 20 of the La Capra Report:

“The issue here once again is a matter of perspective. In our experience, the GE system as described is not unusual for power plants of similar vintage and design. The current system has been in place for nearly forty five years (on both Holyrood 1 and 2) without incident, which indicates to me [us] that the likelihood of a repeat event is very low. Even if the very same, unlikely, outage event were to occur, the new practices and procedures put in place by Hydro’s



management would almost certainly ensure the DC lube oil system's availability, thus preventing any damage.

At some point, a utility needs to ask itself how much redundancy is enough? Any analysis such as this needs to account for not only the costs and potential benefits but also the likelihood of occurrence over the unit's remaining life."

It is important to reiterate that Hydro has already put in place new practices and procedures to ensure that even if an outage event like the one that happened on January 11, 2013 were to occur again, the DC lube oil system would be available, as well as the AC backup.