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November 28, 2011

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
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ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

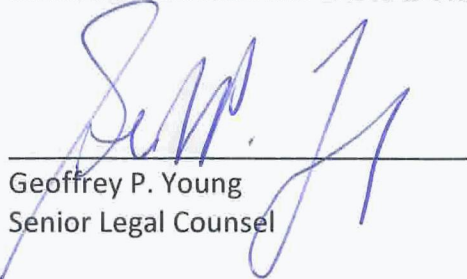
Re: Newfoundland and Labrador Hydro – 2012 Capital Budget Application

Please find enclosed ten copies of Hydro's reply to Phase II written submissions with regard to Hydro's 2012 Capital Budget Application.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO



Geoffrey P. Young
Senior Legal Counsel

GPY/jc

cc: Gerard Hayes – Newfoundland Power (2)
Paul Coxworthy – Stewart McKelvey Stirling Scales

Thomas Johnson – Consumer Advocate (2)
Dean Porter – Poole Althouse

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

**2012 CAPITAL BUDGET APPLICATION
PHASE II SUBMISSION**

NEWFOUNDLAND AND LABRADOR HDYRO

November 28, 2011



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IN THE MATTER OF the *Public Utilities Act*, (the “Act”); and

IN THE MATTER OF an Application by Newfoundland and Labrador Hydro for an Order approving: (1) its 2012 capital budget pursuant to s.41(1) of the Act; (2) its 2012 capital purchases, and construction projects in excess of \$50,000 pursuant to s.41 (3) (a) of the Act; (3) its leases in excess of \$5,000 pursuant to s. 41 (3) (b) of the Act; and (4) its estimated contributions in aid of construction for 2011 pursuant to s.41 (5) of the Act and for an Order pursuant to s. 78 of the Act fixing and determining its average rate base for 2010.

TO: The Board of Commissioners of Public Utilities (“the Board”)

1 Introduction

Hydro filed its 2012 Capital Budget with the Board of Commissioners of Public Utilities (the Board) dated August 3, 2011 seeking approval under Section 41 of the *Public Utilities Act* (the Act) of \$87.9 million in capital expenditures and seeking approval under Section 78 of the Act of its 2010 rate base in the amount of \$1,484,659,000. On August 25, 2011, the Board advised that it had decided to conduct the review of Hydro's 2012 Capital Budget Application in two phases, with Phase I dealing with non-Holyrood Thermal Generating Station (Holyrood) capital budget proposals, any urgent Holyrood projects identified as such for inclusion in Phase I and any Holyrood projects that were consented to by the parties. Hydro, on August 31, 2011, provided a list of projects to be included in each of Phases I and II. Additionally, the Board, in Order No.P.U. 20(2011) decided that capital budget proposals submitted by Hydro in July 2011 for the refurbishment of Tank 3 at the fuel oil storage facility and the work for the Unit 1 stack breeching, a portion of which was not approved on Order No. P.U. 20(2011) should be considered in the Phase II review of Hydro's 2012 Capital Budget Application. On September 26, 2011, the Board determined that the Upgrade Transmission Line Corridor Bay d 'Espoir to Western Avalon project, because of a delay in Hydro's filing of the report on that project, and the magnitude of the project, should be considered in Phase III of the Application. This submission deals with the capital projects included in Phase II.

Hydro seeks approval of its 2012 Capital Budget projects as identified for consideration as Phase, II projects and in support of that Application, makes the following submissions.

1 **2 Legislative Framework**

2 Hydro is required by Section 37 of the Act to provide electrical service and facilities that are
3 safe and adequate and just and reasonable. Section 41 of the Act requires Hydro to obtain
4 approval from the Board for its annual capital budget. In addition, Section 3 of the *Electrical*
5 *Power Control Act, 1994* requires that Hydro provide electrical service that is efficient, that is
6 provided such that its customers have equitable access to an adequate supply of power, and
7 that is provided at least cost consistent with reliable service.

8
9 The projects proposed in Hydro's 2012 capital budget are necessary to enable Hydro to comply
10 with these legal duties. The level of capital expenditures considered in Phase II is required to
11 enable Hydro to maintain its infrastructure and meet its statutory obligations to provide
12 electrical service and facilities that are safe and adequate and just and reasonable.

3 Level of Expenditures

In assessing the projects being proposed, Hydro has ensured that it is complying with the power policy provisions of section 3 of the *Electrical Power Control Act, 1994* which require that electrical service is managed and delivered in a manner that is efficient and at the lowest cost consistent with reliable service. Choosing least cost options and managing and operating power facilities in the most efficient manner will result in the delivery of power at rates that, over the longer term, are as low as they can reasonably be.

Given the aforementioned legislative requirement, choosing capital projects always requires an appreciation of the appropriate balance between reliability and cost. Phase II of Hydro's present capital budget application contains the additional complexity the future role of the Holyrood Thermal Generating Station given Hydro's plan and expectation to gain access to power from the Muskrat Falls hydro-electric project as a means of meeting the Island's long term power requirements.

As stated in its application, Hydro requires that Holyrood be maintained and equipped to provide efficient and reliable base load service until late 2016, the expected date of the availability of power from the Labrador infeed. Between 2017 and 2020, Holyrood will be required to provide reliable standby generation service and will provide synchronous condensing through to 2020 and thereafter. It is prudent and in the best interest of Hydro's customers for Hydro to be able to operate the plant at full capacity at anytime during the 2017-2020 period and it is imperative that the assets and infrastructure be so planned.

4 Specific Projects

Refurbishment of the Fuel Oil Storage Facility

Hydro applied for approval of this project for 2011 on July 15, 2011 and by Order No. P.U. 20(2011), the Board determined that this application would be considered amongst the Phase II projects of Hydro's 2012 Capital Budget.

The Industrial Customers (IC) submission indicates that Hydro "... is driven by hypersensitivity to low probability risks which can be mitigated by means other than this substantial capital expenditure." An analysis of this project requires that the difference in risk perspective between Hydro and the IC be explored. The analysis also requires a proper consideration of the evidence before the Board.

The first point to be made is that Holyrood is expected to run at sustained high capacity levels in the peak months in several of the years between now and 2017. Table 4 of the Report filed on this project (Refurbishment of the Fuel Oil Storage Facility, see section 4.6 at page 19) provides a fuel consumption forecast for the years 2011 through to 2016. The forecast fuel consumption amounts in 2015 and 2016 are 2,595,399 and 2,666,367 bbls respectively; these are years which are similar to those experienced in 2002-2005 (see page 8 of the Report, Refurbishment of Fuel Oil Storage Facility). The basis for this fuel forecast information is described in greater detail in the response to IC-NLH-14.

In 2002, the fuel in storage in Holyrood was in excess of the three tank volume on four occasions. The largest drop in storage volume in that year occurred from late January to late February when the amount of fuel in the Holyrood tanks fell some 460,000 bbls from approximately 760,000 bbls to approximately 300,000 bbls (see page 8 of the Report, Refurbishment of Fuel Oil Storage Facility). It is noteworthy that the effective three tank storage level is 550,000 bbls and the effective two tank storage level is approximately 360,000

1 bbls. In Hydro's opinion, it is imprudent to run Holyrood with as few as two-tanks, as suggested
2 by the IC. Indeed, due to the fact that at present there are only two tanks in reliable condition,
3 Hydro has indicated (see page 1 of the Report, Refurbishment of Fuel Oil Storage Facility) that it
4 intends to apply to the Board to include the refurbishment of Tank 1 in its 2013 Capital Budget.
5 This would reinstate the full storage capacity at Holyrood to reliable condition, assuring that
6 fuel storage risks do not jeopardize the reliability of this essential generating asset.

7
8 It is clear from this that running Holyrood at the levels anticipated in the coming years requires
9 a very a high degree of certainty that at least three of the four tanks will be in operation at all
10 times. Running with only three tanks in operation is courting the disastrous scenario of an
11 outage of one of those tanks resulting in a fuel storage shortage driven curtailment of
12 generation. This is because a two tank operation of the plant (a single tank outage
13 contingency) during a time of heavy fuel consumption will result in insufficient storage. The IC
14 submission indicates at page 4 that Holyrood service can be maintained by three tanks but this
15 ignores the reality that some provision for a tank outage contingency must be maintained. As is
16 clear from the responses to IC-NLH-13 and IC-NLH-18, a loss of a tank due to contingency event
17 has already occurred and cannot be persuasively said to be a remote possibility.

18
19 The fuel storage contingency plan of the IC is, with respect, dangerously speculative and
20 assumes that an oil delivery arrangement can be made which assures the availability of fuel oil
21 deliveries on a highly compressed and reliable schedule. PUB-NLH-16 shows just how
22 precarious the two tank operation of Holyrood would be on a two tank basis. Even with fuel
23 deliveries every 2- 3 weeks, the plant's fuel storage position would be within days of a
24 generation curtailment on numerous occasions during the winter peak generation season. This
25 exposes Hydro to being unable to meet load requirements if there are any difficulties in
26 securing a fuel delivery on time or within very short delays. It is not as if there are appropriate
27 size and class oil tankers, loaded with the correct specification of residual fuel oil, lying in queue
28 off Baccalieu Island throughout the winter season. The evidence is clear from PUB-NLH-16 that
29 Hydro's ability to reliably meet its forecast generation needs during the period between now

1 and the Labrador infeed is dependent upon ensuring that at least three tanks are available.
2 Ensuring that at least three tanks are available requires Hydro to have four tanks in good
3 working order so that the failure of any single tank will not expose Hydro's customers to power
4 and energy shortages.

5
6 The IC submission provides a peculiar view of safety related elements to Hydro's facilities—that
7 they are not justifiable until there has been either demonstrated a causal connection to an
8 accident that has already occurred or a Government directive requiring the specific action. It
9 also seems to suggest that safe work places and practices can be achieved either through
10 capital jobs or through enhanced safety procedures. In response, Hydro submits that the
11 reality is that safe work places are achieved when risks are identified and an appropriate
12 response is given, and when multi-disciplinary approaches are taken to resolving identified
13 safety concerns. Training, consultations with employees, work practice method changes, and
14 physical improvements to plant are all part of the solution of providing and sustaining a safe
15 work place. They are rarely, if ever, equally effective alternatives. The safety related capital
16 improvements proposed with this project form an essential part to this multidisciplinary
17 approach.

20 **Upgrade Marine Terminal – Holyrood**

21
22 This project is needed to ensure that Holyrood can continue to receive fuel in a safe, timely and
23 reliable manner until it no longer performs the function of a generating station. The jetty and
24 related facilities were constructed in the late 1960's and have received no significant upgrading
25 since that time. Since 1996, major maintenance costs have been less than \$1 million. There
26 have been a number of significant changes to the oil shipping industry since then pertaining to
27 the size and nature of ships that deliver oil. Also, safety and environmental standards and
28 expectations have evolved. Depending on hydrology, the marine terminal is expected to
29 receive approximately 50 shipments of oil over the next several years.

1 Hydro has taken a conservative approach to this facility due to the uncertainties that surround
2 its requirement over the longer term. In particular, in 2009 Hydro's consultant was instructed
3 to complete its condition assessment with a view to those refurbishments that would be
4 necessary to enable the facility to provide only another ten years of service (P2-PUB-NLH-22,
5 P2-PUB-NLH-24, P2-PUB-NLH-25). It is clear that Hydro's consulting engineers, Hatch, took this
6 factor into account. For instance, the Hatch report (Appendix B to the Refurbishment of the
7 Marine Terminal Report, at page B27) takes this factor into account when estimating the
8 number of anodes to be replaced.

9
10 A number of the refurbishments are required to address safety concerns. At present, the
11 marine terminal does not have a means of conducting an evacuation from the south end of the
12 jetty. There are no man-over-board facilities at present and there is no safe and effective
13 means of docking a support vessel other than a chain ladder.

14
15 The single largest component of the work for this project pertains to the fenders which are
16 devices that absorb the energy of a docking tanker. The fenders are required to be in good
17 working order so that tankers can safely dock to off load fuel. Of the original eight fenders,
18 three have to be repaired and one must be replaced, having fallen into the ocean in 2008
19 where it remains today. Hatch has indicated (page B18) that the impact of another fender
20 falling free from the infrastructure could be catastrophic to either the jetty or to a ship that was
21 nearby at the time of collapse. Hydro submits that, given this information, it would be
22 imprudent in the extreme to continue to operate the marine terminal with the fenders in a
23 deteriorating condition. In the face of this information, the IC have submitted that the need to
24 refurbish the existing fenders can be mitigated sufficiently with the deployment of a laser
25 sensor display to assist in the docking of ships. Hydro submits that while it is likely true that this
26 system would be of some assistance, the threat of a catastrophic failure of which Hydro has
27 been warned cannot be overlooked on the strength of the potential for this device to reduce
28 docking risks. Hydro would point out that Hatch, in no way or manner, posits the installation of
29 such a system as a replacement of a reliable and structurally sound fender system; it is

1 recommended as an additional feature that would provide meaningful information to the
2 operation of the jetty in docking procedures. It is important that information provided by
3 engineering consultants be considered in their proper context and meaning and Hydro submits
4 that considering such an errant suggestion as has been made by the IC in this instance would be
5 irresponsible.

6
7 There are some aspects of the project, including the fenders and the quick coupler release for
8 the loading arms, for which the engineering investigations and review have not been absolutely
9 completed. Hydro submits that when dealing with refurbishments of complex facilities, this will
10 often be the case. It is always a valid question as to exactly how much is known about a specific
11 project that is being proposed but in the real world decisions have to be made to proceed with
12 capital work based upon information that is less complete than one would ideally hope. That is
13 not to say that sufficient information has not been gathered to determine that plant is in need
14 of replacement or repair; it is just that the specifics or extent of that work is yet to be
15 determined but will be as part of the detailed engineering work that remains to be done as part
16 of the project.

17
18 Deferring the approval of every capital job until every last detail has been worked out is to
19 strive unrealistically for perfect knowledge and will result in paralysis by analysis. Hydro
20 submits that the Board ought to reject as impracticable the strategy which appears to be
21 proposed by the IC that projects be deferred until absolutely all detailed engineering work is
22 completed. When approving capital work, there is clearly a balance to be struck as to how
23 much information is required to justify a project's approval. Putting it simplistically, that
24 balance lies somewhere between relying upon preliminary investigations which merely identify
25 possible solutions and having all final engineering investigations and design completed. Hydro
26 submits that in the projects under discussion here, the fenders and the quick coupler release
27 system, sufficient engineering information has been obtained and adduced to provide the
28 Board with a level of knowledge and comfort that the work is needed, has been justified, and
29 can proceed prudently to final design.

1 The Consumer Advocate has suggested that some of the deficiencies and problems that Hydro
2 and its engineering consultants have described were first encountered prior to the present year
3 and that Hydro has been managing to receive fuel during this time despite these shortcomings.
4 It is difficult to reconcile this position with that of the IC, that every detail of every capital job
5 must be investigated and solutions completely designed before capital spending can occur. The
6 realities that Hydro is faced with sometimes require it to respond to a problem, such as the loss
7 of a fender, with a temporary work-around, in that case with the cooperation of the shipping
8 industry and pilotage authorities. Meanwhile, it engages specialized expertise, acquires
9 engineering studies, considers the relative need of the projects that are suggested, and decides
10 upon which projects are necessary and will be proposed to the Board for approval. The fact
11 that a complete repair or replacement is not carried out immediately on an emergency basis by
12 a utility cannot sensibly mean that it has forfeited its right to apply for a prudent and proper
13 capital job to reinstate the value and usefulness of assets that are needed to deliver safe,
14 economic and reliable service. Hydro would point out that in the case of the Marine terminal
15 engineering assessment, Hydro engaged the consultant on the basis that the work to be
16 undertaken should be only that required to ensure the facility can operate for 10 years (Hatch
17 Report, page B7).

Operator Training Simulator

22 Hydro requires the proposed Operator Training Simulator (OTS) so that it can train operators
23 expeditiously, in a manner and pace that is more accelerated and concentrated than can occur
24 by exposing operators and operator trainees to scenarios that arise on-the-job in real life
25 situations. The need to have this method of training operators more quickly and
26 comprehensively is driven by the present tight labour market and the fact that Hydro is
27 expecting to face problems with recruitment and retention of operators as Holyrood faces the
28 end of its life as a generating station. Also, the exposure of operators to situations which
29 require specific intervention responses will be much reduced in Holyrood's stand-by stage of

1 operation that is anticipated in the 2017-2020 period. For Holyrood to be a reliable operating
2 and standby plant, and for it to comply with the laws that pertain to its operations (P2-CA-NLH-
3 40), it is essential that it has properly trained and certified operators in sufficient numbers who
4 can safely and reliably start-up and operate the plant as well as provide prompt black-start
5 capability and respond properly to unexpected problems. The exposure of operators to these
6 real-life scenarios is expected to be minimal during this standby period. The OTS can play the
7 crucial role of ensuring that operators are trained and ready to deal with that contingency.

8
9 Hydro is involved with the employees and their union so as to better prepare Hydro and the
10 employees for the situation that will be faced upon the change of role of the Holyrood plant.
11 Hydro is also considering the possible staffing level requirements, attempting to identify the
12 employees it will have on hand at that time and their levels of training. In short, Hydro is doing
13 what it can to prepare for an anticipated lack of appropriately trained employees in this time
14 frame. These management technics, while essential, do not fulfill all of Hydro's future
15 requirements of providing a reasonable level of certainty that properly trained operators will be
16 prepared to deal with operational exigencies that arise. The OTS will compliment Hydro's
17 recruitment, retention and other training methods.

18 19 20 **Fuel Oil Heat Tracing**

21
22 The need for heat tracing is well explained in the evidence: due to its viscosity, the fuel burned
23 at Holyrood must be heated to be transported through the piping system. A heat tracing
24 system ensures that the oil stays warm while it is in the pipe that transfers oil from the jetty to
25 the tanks. The present system has failed on a number of occasions and requires replacement to
26 ensure that a reliable flow of oil from ships to tanks can be maintained.

27
28 There appears to be no contest by the intervenors that the heat tracing system requires
29 replacement; the issue is whether the cost of the replacement should be borne by ratepayers.

1 A determination of this question requires a consideration, and delineation, of an important
2 regulatory policy.

3
4 Utility assets sometimes fail in service, before the end of their expected useful lives. This can
5 happen for a number of reasons, or as a matter of a combination of a number of factors. In one
6 way or another, human error is often a contributing cause. Consider a transmission pole that
7 fails in service because it is unable to withstand an ice-storm. In such cases, it might be
8 claimed, correctly or otherwise, that the utility used under-designed poles for the particular
9 application or prevalent weather. In other cases there could be information available that, if
10 consulted and considered, might have prevented the choice, configuration, or particular use of
11 an asset in such a way that would have exposed it to a risk of failure. In the case of the heat
12 tracing at Holyrood, Hydro made a decision to employ a certain type of asset to solve a
13 problem, choosing from a number of available options. In so doing it received information as to
14 its deployment, and in particular, was advised to reduce the voltage in the specific application
15 of this heat tracer system choice. It failed to act upon this information to reduce the operating
16 voltage and it appears that this error contributed to or caused the premature failure of the
17 system due to an overheating of the insulating sheath.

18
19 The Consumer Advocate filed two cases in support of his position that Hydro should not be able
20 to recover the capital costs of the heat tracing system because the earlier method used by
21 Hydro had failed due to Hydro's "failure to heed a clear recommendation". Hydro submits that
22 neither of these cases pertains to the present situation and care has to be taken before
23 applying these cases to the present circumstance. Note that the 2002 Ontario Energy Board,
24 Enbridge case included allegations of conflict of interest and a circumstance where the decision
25 taken provided a more profitable outcome for the company at the ratepayers' cost. The
26 subject matter under review was gas transportation contracts involving a number of related
27 companies. The other case filed by the Consumer Advocate deals with catastrophic loss of a
28 turbine runner in a hydro-electric plant where, as the British Columbia Utilities Commission

1 pointed out, (page 79 of the excerpt provided) “BC Hydro’s operational and maintenance
2 management saw fit to not accept and implement the recommended safeguards . . .”.

3
4 In contrast, the unfortunate error occasioned with the Holyrood heat tracing arose from a
5 failure of Hydro’s employees to understand or recognize the combination of factors (the choice
6 of a certain insulation material with a particular voltage level) that led to the melting of tracing
7 wire sheathing (P2-PUB-NLH-49; Appendix C to the Report, Replace Fuel Oil Heat Tracing, at
8 page C5). The copper mineral insulated cable choice was made for a sound reason, because it
9 was believed to be reliable based upon its past service. However, an oversight occurred in the
10 supply of power to the wiring combined with the choice of an additional insulation feature
11 (high density polyethylene jacket) whereby that choice of wire insulation melted leading to the
12 failure (P2-PUB-NLH-44). This does not evince a pattern of carelessness, wanton disregard for
13 ratepayers’ interests or a conflict of interest. At worst, it was an error by Hydro in the use of a
14 technology, *albeit*, an error that ran contrary to some information it had received from a
15 manufacturer.

16
17 Utility staff members make innumerable decisions as to the deployment of different material
18 and technology choices in the designing of assets. A great many of these decisions will be
19 supported by recommendations of manufacturers and consulting engineers. Some decisions
20 will be made which will be contrary to that advice due to cost constraints, impracticality, and
21 due to the utility staff’s own expertise, judgment, or experience. In some cases, and it is hoped
22 that this will occur very rarely, it will turn out as revealed by hindsight that the wrong choice
23 was made or that oversights have occurred. These honest and earnestly made human errors
24 are among the causes of some of the failures of assets in service and they should not be
25 deemed as resulting in unrecoverable imprudent expenses except in cases where it can be
26 demonstrated or inferred that a clear disregard of advice occurred or poor judgment was
27 applied that approaches the flagrant or ill-motivated.

1 In this connection, some of the other assertions made by the Consumer Advocate and the IC in
2 their present submission are peculiar and confusing. In the case of the Hatch report filed with
3 the Upgrade Marine Terminal - Holyrood Project, (see page B 18) it is clear that Hatch are
4 providing a warning that a catastrophic loss to the jetty or to a ship could occur if some of the
5 remaining fenders are not secured and repaired. However, it appears that the position of the
6 Consumer Advocate and IC is that this clear advice can be ignored because, after all, there are
7 only five shipping seasons and some fifty oil shipments remaining and nothing untoward has
8 occurred in the last two or three years. So, on the one hand the Board is being urged to ignore
9 advice Hydro has received as to avoiding catastrophic losses but, should an oversight occur and
10 a manufacturer's advice not be acted upon accurately, it is argued that the utility should not
11 recover the capital costs associated with that event because it arose from imprudence.

12
13 While it may not be possible to reconcile these apparently contradictory intervenor
14 submissions, Hydro submits that a utility's admission or a factual finding by a regulator to the
15 effect that an assets failed due to misunderstood or unheeded advice from a manufacturer or
16 consultant is insufficient to ground a claim that the utility has acted imprudently so as to have
17 the recovery of a capital project denied. If the principle is to have meaning and to be effective
18 and just, its application should be saved for circumstances where a decision is taken with the
19 knowledge that it is contrary to good judgment or advice. It is a misapplication of the principle
20 to apply it in cases of mistakes made in good faith, with the best of intentions.

5 Newfoundland Power's Submission

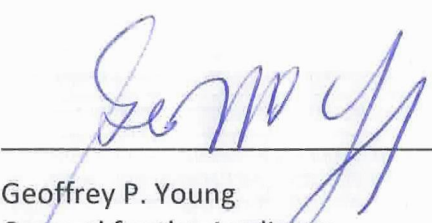
Hydro understands and accepts the point raised in Newfoundland Power's submission that, due to the crucial yet evolving role of Holyrood in Hydro's system and the technical and regulatory complexities that this implies, Holyrood should be treated with special attention in Hydro's future capital budgets so that the consideration of Holyrood related projects can be more readily and comprehensively assessed.

Hydro would also note that Newfoundland power did not oppose any of the Holyrood projects that Hydro included in its 2012 capital budget.

6 Conclusion

Hydro submits that all of the projects submitted for approval and included in Phase II of this Capital Budget are required and necessary to provide electrical service and facilities that are safe and adequate and just and reasonable and that provide electrical service at least cost consistent with reliable service. Hydro's projects have all been chosen, studied and proposed with the understanding that the role of the Holyrood thermal generating station will likely change to a stand-by plant in 2017 but that, until that time, it will be relied upon by the electricity consumers on the Island to produce substantial amounts of power and energy. It is Hydro's responsibility to ensure that this facility is able to provide these essential services and the projects under consideration by the Board in Phase II have been chosen and proposed to meet those changing requirements.

ALL OF WHICH IS RESPECTFULLY SUBMITTED on behalf of the Applicant, Newfoundland and Labrador Hydro, this 28th day of November, 2011.



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