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October 23, 2009

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 (Hydro) – 2010 Capital Budget Application

Enclosed please find ten copies of Hydro's Final Submission with regards to the above-noted 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/Peter Alteen – Newfoundland Power (3)
Paul Coxworthy – Stewart McKelvey Stirling Scales
Joseph S. Hutchings, Q.C. – Poole Althouse
Thomas Johnson – Consumer Advocate (2)

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

2010 CAPITAL BUDGET APPLICATION
FINAL SUBMISSION

NEWFOUNDLAND AND LABRADOR HYDRO

October 23, 2009

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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 2010 capital budget pursuant to s.41(1) of the Act; (2) its 2010 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 2010 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 2008.

TO: The Board of Commissioners of Public Utilities ("the Board")

1 Introduction

Newfoundland and Labrador Hydro (Hydro) filed its 2010 Capital Budget Application on August 3, 2009 seeking the Board's approval of 2010 capital expenditures in the amount of $52,775,000. Interventions were filed by Newfoundland Power, the Consumer Advocate, and the Industrial Customers. The Board and all three intervenors filed Requests for Information (RFI's), however, only the Consumer Advocate and the Island Industrial Customers filed final submissions in this matter, both of which were filed on October 20, 2009.

Hydro is required by Section 37 of the Public Utilities Act to provide electrical service and facilities that are safe and adequate and just and reasonable. In addition, Section 3 of the *Electrical Power Control Act, 1994* requires that Hydro provide electrical service that is efficient, that is provided such that its customers have equitable access to an adequate supply of power, and that is provided at least cost consistent with reliable service. The projects proposed in Hydro's 2010 capital budget are necessary to enable Hydro to comply with these legal duties.

The duties and responsibilities associated with providing electrical service are part of the legal framework of regulation which also comprises franchise rights and the monopoly arrangement. The Industrial Customers correctly postulate that regulation is intended to "replace the competitive restraint that has been removed by the monopoly character of the

utility," however, this observation pertains to pricing only which is but one aspect of the regulatory bargain. The other component of the regulatory bargain pertains to service: in exchange for the monopoly, the public is entitled to a high level of reliability, and the customer expects and deserves nothing less.

No such bargain or responsibility exists with a company that provides a service or commodity in a competitive market. Those companies are free to make choices about the level of quality of their product, a fact which will affect the price that must be charged for the product, which in turn can be a factor that influences the level of revenues they will receive. The Industrial Customers submit that the level of revenues that competitive companies receive determine the amount of capital spending they can support and, further, that regulators should emulate this function in approving the capital budgets of the utilities they regulate.

While the proposition of the role of the regulator as a replacement of market forces is a compelling analogy and one commonly drawn, it has serious limitations as a complete working model for the regulation of monopoly utilities. The flaw in the logic of the Industrial Customers' submission is that it is presumed that the level of revenues to be received will be, or can be, set according to some independently determined and reliable basis, aside from costs of providing safe, adequate and reliable service. Further, it implies that there is some natural, obvious and appropriate level of capital spending that flows from these revenue amounts. Projecting the capital spending practices and policies of

competitive industries onto utilities ignores the public utility responsibility to provide safe and reliable service.

It must be acknowledged that very often in competitive industries, significant risks are taken to keep capital costs down, sometimes by allowing assets to run to failure. Companies in competitive industries can lawfully choose to run their operations in that manner and their shareholders may be only too pleased to take those risks, indeed in certain business environments they may have little choice. However, running assets, or indeed businesses, to failure is not a permissible option for a public utility providing an essential service, nor is it a mode of assets management or utility regulation that can be condoned by the regulator acting under legislation as exists in this jurisdiction.

As stated above, the regulation of capital spending of electrical utilities in this jurisdiction requires that the utilities spend those amounts required to purchase and construct assets so that they provide electrical service and facilities that are safe and adequate and just and reasonable. This test, combined with the least cost test prescribed under the *Electrical Power Control Act, 1994*, together contain sufficient and complete policy direction to the Board to enable it to consider and decide upon the capital spending of the utilities it regulates, always ensuring that the best interests of the customers are maintained over both the short term and the long term.

The Industrial Customers' assertion is correct that in recent years there have been increases in Hydro's capital spending in both capital budgets and unbudgeted projects. However, if customers are to receive safe and reliable service at least cost, this is unavoidable. The vast majority of Hydro's proposed 2010 capital budget deals with projects that replace aging or failing assets or refurbish them so as to extend their lives. The Board is aware that a considerable amount of the plant owned, operated and maintained by Hydro was constructed in the period during and following the mid-sixties when the Island grid, and the Bay d'Espoir and Holyrood generating stations were constructed. This plant is typically forty-plus years old and in many cases is at or near the end of its predicted useful life.

Deterioration of assets of this age is inevitable, sometimes failure is imminent, and Hydro is striving to renew and replace these assets with due regard for the competing concerns for system reliability and cost containment. This sometimes means that replacements are deferred only to have expensive replacements or repairs required to be performed as unbudgeted projects and at times when the assets would normally be expected to be in service. Hydro is striving to ascertain, as best as it can, which equipment will require attention or replacement so that all such work can be carried out in connection with its annual capital budget filings. To this end, it has carried out and acquired engineering studies on some of its key aging assets to better prevent failures from occurring in service so that interruptions and costs can be kept to a minimum. Examples of this approach include condition assessments of its Holyrood facilities and the Plant Life Extension of its

Hardwoods Gas Turbine plant.[1] It is hoped that by acquiring this expert advice and guidance the best decisions can be made so that the system and the service it provides can be sustained at reasonable and adequate levels of performance at least cost.

[1] 2010 Capital Plan (Vol. 1 at page 12) refers to the Holyrood condition assessment approved by the Board under Order No. P.U. 28(2009); Project B-2, Upgrade Plant Life Extension-Hardwoods, is in this budget filing with a report at Vol.2, Tab 1.

2 Compliance Matters

Under Order No. P.U. 36 (2008), the Board required Hydro to file, in conjunction with the 2010 Capital Budget Application, a status report on the 2009 capital budget expenditures showing for each project:

(i) the approved budget for 2009;

(ii) the expenditures prior to 2009;

(iii) the 2009 expenditures to the date of the application;

(iv) the remaining projected expenditures for 2009;

(v) the variance between the projected total expenditures and the approved budget; and

(vi) an explanation of the variance.

This report was filed with the Application at Vol. I, Section H, and is in compliance with that Order.

Under Order No. P.U. 14 (2004), the Board required Hydro to file a ten-year Plan of Maintenance Expenditures for the Holyrood Thermal Generating Station. This report was filed with the Application at Vol. I, Section I, and is in compliance with that Order.

Under Order No. P.U. 30 (2007), the Board required Hydro to file a five-year Capital Plan. This information is included as part of Hydro's 2010 Capital Plan, filed with the Application at Vol. I, and is in compliance with that Order.

3 Responses to Intervenors' Submissions

3.1 B-2 – Upgrade Gas Turbine Plant Life Extension – Hardwoods: $1,305,000—2010; $4,690,000 future years

The Hardwoods Gas Turbine facility performs two essential functions for the Island Interconnected System: it operates in synchronous condenser mode approximately 60% of the time to provide voltage support; it is used as a generating source (50 MW) approximately 1% of the time to provide power to the grid on peak or in emergency situations. The plant has been in service since 1977. It will be required to remain in service until the mid 2020's (its anticipated retirement) whether the Island receives power from a Labrador transmission infeed or the Island Interconnected Grid remains isolated.

The failure rate for this facility is unacceptable at over four times the rate for Hydro's gas turbine units and 17 times the CEA average.[2] A review of IC-NLH-10 shows that over the years there have been a wide variety of causes and particular systems involved with these outages. Hydro retained the services of Stantec to provide a condition assessment of the facility to determine the best course of action to ensure that the facility could provide reliable service for the next fifteen years.[3] A number of refurbishments were recommended.[4]

[2] Vol. 2, Tab1, page 7.
[3] Vol. 2, Tab 1, Appendix A, page A2.
[4] Vol. 2, Tab 1, Appendix B

The Industrial Customers have indicated that the response to CA-NLH-31 confirms that there is work to be done in 2009 (inspection of rotors and stators) in order to determine whether these components will require refurbishing and they have asked the Board to conclude that approving this capital project is therefore premature. In response to this assertion, Hydro submits that the Board ought to consider the whole of the information provided in connection with this project. As stated in Hydro's response to that RFI, there is some additional investigational work required to finally delineate the project that requires another outage to the equipment. It is not practical or prudent to (1) take a plant outage for the sole purpose of performing this inspection or (2) to defer this capital project until absolutely every work detail is known in advance of the work commencing. Further, Hydro submits that in no event could it reasonably or honestly state to the Board that it has determined in advance absolutely every detail of the work to be performed on a piece of equipment as complicated as a 32 year-old, 50 MW Gas Turbine plant. The prudent approach is to do an extensive study, which has been done, to determine within a reasonable level of certainty what work that will be performed. It should be realized that the specific amounts of work cannot be ascertained until a detailed, hands-on, inspection occurs—often, as is the case here, these final details will not be known until a plant outage is taken and the refurbishing work commences.

3.2 B-8 – Refurbish Fuel Storage Facility – Holyrood: $2,500,000

This proposed project is the refurbishment of Tank 4 of the Holyrood Thermal Generating Station tank farm. This work is required to ensure that Hydro can continue to safely,

reliably and responsibly store very large quantities of residual fuel for use in its generating station. Hydro is in the process of refurbishing its tanks in a gradual and planned manner, which commenced in its 2008 capital program, to ensure that there is always sufficient storage for the fuel it needs to have on hand - taking all storage tanks out of service in a single year is obviously not an option. Carrying out this program over a period of years also avoids a particularly large capital cost being incurred in a single year.

The report provided by SGE Acres arose from inspections done over a period of years; the tank in question was inspected in 2004. The Industrial Customers have indicated that this information is stale, however, two facts should be kept in mind: (1) it is not rational to conclude that the state of the tanks has improved since the inspection was carried out so, if anything, the requirement to do the work is greater now than it was before; and (2) the reason that more recent inspections were not completed was provided in the response to IC-NLH-21 – carrying out inspections of oil tanks require that they first be cleaned. Because of the nature of residual fuel oil, the cleaning required for inspections is an expensive proposition[5].

3.3 B-10 - Upgrade Plant Access Road Bay d'Espoir: $1,550,000

This is the only access road to the Bay d'Espoir generating plant, the largest generating facility on the Island part of the province. The road has fallen into disrepair over the years

[5] In 2004, the cost of cleaning and inspecting this tank was $179,200 – Vol.2, Tab 4, page 4.

and requires upgrading to ensure that vehicular traffic can safely, reliably and efficiently pass over it to bring employees, contractors and equipment to the generating station.

While it is correct that title to the road is held by the province, this road is used primarily, in fact almost exclusively, to gain access to the generating plant and related facilities. Travel on this road by the general public or for other purposes is negligible. Ninety Hydro employees use this road daily while there were only 150 tourists, or fewer, using this road annually.[6] In that sense, it is completely appropriate that ratepayers, not taxpayers pay the costs of this upgrade; it is ratepayers who get the benefit from having Hydro's employees and contractors having safe and reliable access to the plant.

Hydro would add that the importance of title to the road is moot because under Section 3(6) of the *Hydro Corporation Act, 2007,* title to all property held in Hydro's name is vested in the Crown in right of the province.[7] Hydro submits that the Board should look at the substance of the arrangement here and not at the technical issue of how the Crown holds title, that is, under its own name or under Hydro's name. The relevant, substantive fact here is that this road was built and has been maintained by Hydro to provide access to the generating station and related facilities. Its use by members of the public is *de minimis*. The road is in need of upgrading and Hydro, who built and uses the road, should pay for this work.

[6] Vol.2, Tab 5 filed August 31, 2009, "Upgrade Access Road Report", at page 8.

[7] 3.(6) Property of the corporation is the property of the Crown, but title to it is vested in the name of the corporation. *Hydro Corporation Act, 2007*, S.N.L. 2007, Chapter H-17.

3.4 B-12 - Replace Pump House Motor Control Centers – Holyrood: $1,048,000

This project is required to ensure that the motor control centers provide reliable service and can be worked upon in a safe manner and in a safe environment.

The pumphouses are essential components to the Holyrood Thermal Generating Station as they provide a source of cooling water from Indian Pond to the generating station for use in the turbine boilers. Each pumphouse contains a variety of transfer and circulating pumps and the motor control center in each pumphouse provides the means of controlling their functions. At present, these motor control centers are not housed in controlled environments in dedicated structures, rather they are housed in the main open equipment area, a damp environment that has led to their corrosion from moisture buildup. The only practical option is to segregate the motor control centers to a dry enclosure, separate from the open pumphouse area[8]. Outages of this component of the Holyrood Thermal Generating Station can cause outages to the generating station.[9] Continuing to house this equipment in this damp and corrosive environment threatens the reliability of the plant. In addition, the present configuration of the pumphouses requires employees maintaining the equipment to be exposed to 600 volt electrical equipment.[10]

[8] CA-NLH-6
[9] Vol. 2, Tab 6, page 8
[10] Vol. 2, Tab 6, page 7

3.5 B-32 – Upgrade TL-244—Plum Point to Bear Cove: $144,000—2010; $1,055,000 future years

This 23 km, 131 structure transmission line was originally constructed in 1983 and was upgraded in 1996 during the GNP interconnection project. The proposal to upgrade this 138 kV line is required to remedy certain shortcomings that were identified in recent years that have, in all likelihood, been the cause of the outages for this transmission line to be four times higher than Hydro's average for lines of this voltage. This cause was determined through an engineering assessment carried out in 2008.[11]

It is important to realize that, with the exception of one span of this transmission line, none of the proposed upgrades replace or duplicate work that was done through upgrades that were carried out to this line in 1996 when the voltage was increased from 69 kV to 138 kV.[12] In 1983, this line was built to the standard used in the period of its original construction and the voltage upgrade in 1996 was constructed in accordance to the standard that applied at the time.[13] The ratepayer is not being asked to pay any additional capital costs now due to a substandard design that occurred in 1983 or 1996; rather, the upgrades proposed for 2010 have been chosen by Hydro with the benefits of hindsight and additional engineering

[11] Vol. 2, Tab 13, page 3.
[12] One span requires mechanical leveling of the terrain under the conductor as the most practical and economic means of curing a low ground clearance problem that exists in ice loading conditions. See Vol. 2, tab 13, page 19.
[13] Vol.2 tab 13, page 4.

effort.[14] Adding 138 kV standard crossarms at this time will be the same work that might have been undertaken in 1996 had it been known then that lowering the crossbraces and adding counterweights, which affected a result which met the then current standard, were not going to be effective modifications by the standards of today.

The root of the problem appears to be that with the increase in voltage, insufficient clearances existed between the conductor and other parts of the transmission plant (poles, crossarms, and crossbraces).[15] The proposed modifications will enable Hydro to improve the performance of this line so that reliable service can be provided to customers in this region.

3.6 Page C-2 Install Meteorological Stations – Various Sites: $443,000

This is the third year of a five-year program to install meteorological stations in all of Hydro's reservoirs. The cost-effectiveness of these installations has been clearly shown in previous applications due to the assistance they provide Hydro's operations staff in better predicting reservoir inflows so that the hydraulic generating resources can be optimized and, most importantly, so that inadvertent spill can be avoided or minimized. In IC-NLH-34, the Industrial Customers have asked Hydro to explain why the additional availability of hydraulic generation (which Hydro would submit is, from its perspective, more accurately

[14] Steps were taken at the time of the upgrade of the line to 138 kV to ensure that the line, originally constructed to a 69kV standard, had clearances that complied with the then current 1996 clearance standards for a 138 kV line. See Vol. 2, tab 13, at pages 4-5.
[15] Vol. 2, Tab 13, pages 7, 8.

described as reduced load as opposed to additional hydraulic resources) does not provide an opportunity to defer this project. In their submission, the Industrial Customers have claimed that the answer provided to that RFI does not demonstrate why the project cannot be deferred. With respect, the response does indeed provide a full answer to the question and disproves the Industrial Customers' theory that this project can sensibly be deferred.

The RFI reads, in part, as follows:

> In wet years and in Hydro's present situation of high water levels resulting from reduced demand, the hydrometeorologic data can also be used to plan and minimize spill from the reservoirs.

To explain: to the extent that water is spilled, or more water is spilled than necessary because Hydro had insufficient knowledge as to the extent of a precipitation event, that spill will likely result in higher than necessary amounts of thermal generation. Low customer electrical loads and high water inflow levels result in higher reservoir levels. This means that the margin for error for reservoir management is reduced and having immediate and reliable information as to inflows is all the more critical. Poor knowledge of inflows in such conditions can result in decisions being made about water management that are less than optimal and avoidable spills may occur.

The answer provided to the IC-NLH-34 does not fail to show why the project should not be deferred in conditions such as those being experienced at present, on the contrary, it demonstrates why low load conditions and high water conditions make spill all the more likely and make having accurate and timely information all the more important. The law of diminishing returns has no application to this circumstance—in this case the incremental value of the improved information from additional meteorological stations is, if anything, likely to be larger than would be the case in a dry year with high electrical loads.

3.7 Page C-166—Replace Peripheral Infrastructure—Various Sites: $222,000

The Industrial Customers have proposed that the number of printers or multi-function machines "appears on its face to be excessive" and proposes an arbitrary reduction of 50%. It is obvious that the reality of office layouts and computer application use would mean that such an arbitrary reduction in capacity would result in large numbers of employees not having ready and timely access to the equipment needed to provide efficient service. Hydro wishes to assure the Board and the parties that it takes care to properly and strategically manage its information technology costs and it is leveraging technologies, such as video-conferencing, to assist it in reducing its overall costs.[16] The project describes the process as replacing peripheral equipment which is becoming obsolete or for which the maintenance contracts are expiring. This project demonstrates prudent asset management. Hydro submits that proposals for the arbitrary reductions in information technology equipment,

[16] Vol. 1, Tab C, page C-166.

while perhaps superficially attractive to some, are not prudent regulatory policy and should be rejected.

4 Conclusion

4.1 Capital Budget Application

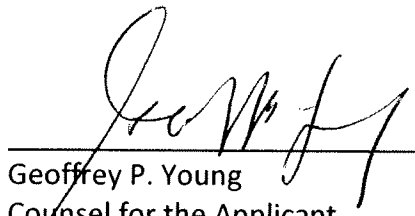
Hydro's 2010 Capital Budget Application contains those projects, and only those projects, that are prudent and necessary to enable Hydro to provide electrical service that is reliable, safe, adequate, reasonable, environmentally compliant and responsible, and least cost.

Hydro respectfully submits that it has provided to the Board and the parties sufficient and proper information and analysis to support all of the projects for which it has applied and that pursuant to Section 41 of the Public Utilities Act, the Board should approve the Application in its entirety.

4.2 Rate Base

Pursuant to Section 78 of the Public Utilities Act, Hydro has applied for the Board to fix and determine its 2008 Average Rate Base at $1,489,786,000, as set out in Vol. I, Section J.

All of which is respectfully submitted on behalf of the Applicant, Newfoundland and Labrador Hydro, this 23rd day of October, 2009.



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