

HAND DELIVERED

September 4, 2014

Board of Commissioners  
of Public Utilities  
P.O. Box 21040  
120 Torbay Road  
St. John's, NL A1A 5B2

Attention: G. Cheryl Blundon  
Director of Corporate Services  
and Board Secretary

Ladies and Gentlemen:

**Re: Newfoundland and Labrador Hydro 2015 Capital Budget Application**

Please find enclosed the original and 12 copies of Newfoundland Power's Requests for Information NP-NLH-1 to NP-NLH-59 in relation to the above noted Application.

For convenience, the Requests for Information are provided on three-hole punched paper.

Newfoundland Power notes that in its original filing on August 1, 2014, Newfoundland and Labrador Hydro ("Hydro") indicated that a report for its proposed \$14.3 million *Upgrade Circuit Breakers* project would be filed by August 31, 2014. This project is one of the largest in Hydro's 2015 Capital Budget Application. To date, this report has not been filed by Hydro as indicated. Given the unexplained delay, Newfoundland Power expects that it will ultimately be provided adequate time to review and, if necessary, ask questions on this project.

A copy of this letter, together with enclosures, has been forwarded directly to the parties listed below.

If you have any questions regarding the enclosed, please contact the undersigned at your convenience.

Yours very truly,



Peter Alteen, QC  
Vice President,  
Regulation & Planning

**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 2015 capital budget  
pursuant to s.41(1) of the Act; (2) its 2015  
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 2015 pursuant to  
s.41 (5) of the Act.

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**Requests for Information by  
Newfoundland Power Inc.**

**NP-NLH-1 to NP-NLH-59**

**September 4<sup>th</sup>, 2014**

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## Requests for Information

**Reference:**           **Volume I, 2015 Capital Budget: Capital Budget Summary with Multi-Year Projects Separated**

NP-NLH-001           Provide a table comparing budget and actual expenditure by year, for each prior year, for all multi-year projects with expenditures planned in 2015.

**Reference:**           **Volume I, 2015 Capital Budget: Capital Budget Summary with Multi-Year Projects Separated**

NP-NLH-002           Confirm that the Application does not request approval for multi-year project expenditures identified for 2016 and 2017. If you are unable to provide confirmation, please indicate for what multi-year expenditure approval is being sought in this Application.

**Reference:**           **Rehabilitate Salmon River Spillway, Volume I, Section C, Page C-9**

*“This project is the first two years of an estimated five year program to rehabilitate the Salmon River Spillway Structure.”*

NP-NLH-003           Provide the current estimate for all five years of the five year program and indicate whether this project is considered by Hydro to be a multi-year project.

**Reference:**           **Upgrade Powerhouse Roofing, Volume I, Section C, Page C-11**

*“This project comprises the first year of a three year program for the completion of roof upgrades at the Holyrood Thermal Generating Station (Holyrood). Upgrades consist of the replacement of all Holyrood Powerhouse roofing areas deemed to have a remaining service life of less than five years.”*

NP-NLH-004           Provide the current estimate for all three years of the three year program and indicate whether this project is considered by Hydro to be a multi-year project.

**Reference:**           **Upgrade Powerhouse Roofing, Volume I, Section C, Page C-12**

*“Given the roofing systems’ age and noted condition, the occurrence of leaks is imminent.”*

NP-NLH-005           Have there been recorded leaks in the powerhouse roof? If so please provide details including date, location and damage experienced.

**Reference: Upgrade Powerhouse Roofing – Holyrood, Volume I, Tab 4**

NP-NLH-006 Please reconcile the statement at page i of Volume I, Tab 4 “*The upgrades, outlined in this proposal, include the replacement of roofing areas deemed to have a remaining service life of less than **two** years.*” with the statement at C-11 “*Upgrades consist of the replacement of all Holyrood Powerhouse roofing areas deemed to have a remaining service life of less than **five** years.*” (emphasis added)

NP-NLH-007 Has there been any major work or upgrades on the powerhouse roof for the past 10 years? If so, please provide details.

**Reference: Provide Service Extensions, Volume I, Section C, Page C-32**

NP-NLH-008 Expand Table 2 to include a row for each Region providing the number of service extensions completed in each year from 2009 to 2013.

NP-NLH-009 For each year from 2009 to 2013 calculate the unit cost for connecting a service extension in each Region, and the unit cost corporately.

**Reference: Upgrade Distribution Systems, Volume I, Section C, Page C-33**

NP-NLH-010 Provide the list of Distribution Feeders to be upgraded in 2015.

NP-NLH-011 Please explain the difference between this \$3,340,000 project and the \$1,954,900 project with the same project title on page C-39. For the latter, please indicate whether this project is considered by Hydro to be a multi-year project.

**Reference: Inspect Fuel Storage Tanks, Volume I, Section C, Page C-41**

*“While the inspection findings are not yet known, anticipated refurbishment costs have been included for the Hardwoods and McCallum sites.”*

NP-NLH-012 Provide full details on the basis for the \$1,761,100 budget estimate including details on sites to be addressed in 2015.

**Reference:** Volume I, 2015 Capital Plan, Page 4

*“Hydro is proposing to undertake significant rehabilitation at each of its mini hydro projects at Snook’s Arm and Venams Bight over the next three years in order to continue to provide least cost and reliable power.”*

NP-NLH-013 Provide the economic analysis completed by Hydro that confirms that the significant rehabilitation proposed for Snook’s Arm and Venams Bight will provide least cost power into the future.

**Reference:** Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Page D-50

*“The unit at Snook’s Arm has been de-rated since 2008 due to a failure on the braking mechanism on the unit (called the Giljet) in conjunction with an issue with the alignment of the machine. The unit has since been realigned and the Giljet repaired, however the unit will still only reach 500 kW of production, not 560 kW as on the nameplate. This de-rating is a result of many components of the machine reaching the end of its useful life. In this current state, there is a need to perform major rehabilitation work to ensure Snook’s Arm can safely and reliably produce energy.”*

NP-NLH-014 What components of the machine have reached the end of their useful life? Provide a list identifying the components and whether or not they are currently working.

NP-NLH-015 Has Hydro estimated the cost of retirement for both the Snook’s Arm and Venam’s Bight hydro plants? If so, please provide the estimate.

**Reference:** Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Page D-50

*“This generating station is operated continuously, except for maintenance, in accordance with the target unit output settings shown in Figure 2, established in a report published in May 2000 titled Snook’s Arm and Venam’s Bight Hydroelectric Developments – Water Management Study (See Appendix A), prepared at that time by Hydro’s Generation Engineering Department.”*

NP-NLH-016 Provide a table showing the actual annual production by year in MWh over the period from 2004 to 2013 for both the Snook’s Arm and Venam’s Bight hydro plants.

- NP-NLH-017 Over the 2004 to 2013 period was Hydro able to achieve the target unit output settings shown in Figure 2 in light of the unit de-rating described on page D-50?
- Reference:** **Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Page D-51**
- “There have been no replacements of major components on the generating unit. In 2006 the wooden stave penstock was replaced with a steel penstock, the total cost of the penstock replacement was \$ 2.2 million dollars.”*
- NP-NLH-018 Provide the economic analysis completed prior to the 2006 replacement of the Snook’s Arm woodstave penstock justifying that the project was consistent with least cost reliable service. Indicate whether this analysis included the currently proposed rehabilitation.
- NP-NLH-019 Using a net present value analysis, what was the levelized cost of energy (¢ per kWh basis) over a 50 year term for the life extension of Snook’s Arm hydro plant brought about by the replacement of the penstock in 2006.
- NP-NLH-020 Please provide Hydro’s estimate of the system marginal cost of energy (¢ per kWh basis) following the Labrador Interconnection for comparison with the levelized cost of energy provided in the response to Request for Information NP-NLH-019 above.
- Reference:** **Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Page D-53**
- “In 2002 Hydro inspected the components of the turbine and documented the results in a report titled Snook’s Arm Turbine Inspection (see Appendix C).”*
- NP-NLH-021 Has Hydro completed any other inspection of the components of the Snook’s Arm turbine since this 2002 inspection?
- Reference:** **Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Page D-57**
- “In 2003 an internal visual assessment was performed on the electrical equipment at Snook’s Arm.”*
- NP-NLH-022 Has Hydro completed any other assessment of the Snook’s Arm electrical equipment since this 2003 assessment?

**Reference:**           **Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Page D-57**

*“There is also a decommissioned RTU cabinet and two side panels.”*

NP-NLH-023           Is the Snook’s Arm hydro plant remotely controlled from Hydro’s Energy Control Centre?

NP-NLH-024           How many operators are responsible for the operation and maintenance of the Snook’s Arm and Venam’s Bight hydro plants? Where are these operators stationed?

**Reference:**           **Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Page D-60**

*“In the past years, from 2007 to 2014, the Snook’s Arm unit has been off line due to needed runner repairs, an alignment problem, and failure of the Giljet assembly.”*

NP-NLH-025           Provide the unit availability by year for the period from 2004 to 2013.

**Reference:**           **Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Pages D-60 and D-61**

*“The five-year maintenance history for the Snook’s Arm Generating Unit is shown in table 2.”*

NP-NLH-026           What costs are included in this maintenance history?

NP-NLH-027           Provide a table showing the annual operating (including maintenance cost, operator’s labour, and other operating cost) and capital cost for Snook’s Arm hydro plant.

**Reference:**           **Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Appendix B, Page D-67**

*“The purpose of these tests was to determine the present condition of the runners to confirm that planned runner replacements are justified.”*

NP-NLH-028           Confirm that the runners were not replaced following the 1993 report and provide the justification for not proceeding with the project at that time.

**Reference:**           **Refurbish Generation Unit – Snook’s Arm, Volume I, Section D, Appendix B, Page D-78**

*“At present the efficiency of these units is between 65% and 81%.”*

NP-NLH-029           Estimate the lost production from 1993 to present in gigawatthours for continuing to use these inefficient runners instead of replacing them with 92% efficient runners as suggested in this report.

**Reference:**           **Purchase Spare Transformer Paradise River, Volume II, Tab 12, Pages 4-5**

*“The average net annual production for the last 5 years from the Paradise River is 35 GWh. A comparable amount of energy costs nearly \$6.4 million to generate at the Holyrood thermal generating station.”*

NP-NLH-030           The proposed spare transformer won’t be received and placed in storage until April 2016. Has Hydro completed an economic analysis to justify this project as least cost considering the planned in service date for Muskrat Falls of 2017? If so, please provide it.

**Reference:**           **Purchase Spare Transformer Paradise River, Volume II, Tab 12, Page 5**

*“The spare unit would be stored at the Bishop’s Falls Warehouse on a new concrete pad. Upon arrival of the transformer to the Bishop’s Falls Warehouse, the transformer will be dressed, filled with oil, appropriately tested and set up for long term storage.”*

NP-NLH-031           Has Hydro considered replacing the existing transformer at Paradise River with the proposed spare transformer rather than placing it in storage as a spare? Please provide details of these considerations.

**Reference:**           **Purchase Spare Transformer Paradise River, Volume II, Tab 12, Page 7 and Appendix A**

*“A new transformer would have a DP (degree of polymerization) value of around 1000 and would reach its end of life at around a DP of 200.”*

NP-NLH-032           What is the degree of polymerization criteria Hydro uses for the immediate replacement and removal of transformers from service?

NP-NLH-033           Please provide a copy of Appendix A indicating the age of each transformer.



**Reference:** Upgrade Power Transformers, Volume II, Tab 14

*At page 17 of its Interim Report of May 15<sup>th</sup>, 2014, in its Investigation and Hearing into the Supply Issues and Power Outages on the Island Interconnected System, the Board found that Hydro deferred preventative maintenance in 2013 on its Sunnyside T1 transformer even though laboratory analysis showed a significant increase in acetylene gas in the transformer.*

NP-NLH-034 Please provide detailed explanation as to whether Hydro views its use of condition assessment tools in 2013 on its Sunnyside T1 transformer as consistent with North American utility practice.

**Reference:** Upgrade Power Transformers, Volume II, Tab 14, Page 19

*“Many utilities in North America are in a similar position as Hydro in that they have aging infrastructure and are seeking the most economic and reliable solution to this problem as it requires significant investment. There are many documented papers from various transformer owners on the subject of aging transformer infrastructure and various methods to deal with this issue. The majority have considered using condition assessment tools, either internally or through an outside vendor, to help with the decision to either upgrade or replace power transformers.”*

NP-NLH-035 Has Hydro compared its use of condition assessment tools with current use by other North American utilities? If so, please provide details of the comparison.

**Reference:** Increase Fuel Storage Rigolet, Volume II, Tab 18, Page 15

*“The community government in Rigolet is building a new 7,800 foot recreation center which is expected to be connected by the summer of 2014. The total connected load will be 196 kW with 94 kW allocated for electric heat.”*

NP-NLH-036 Is Hydro aware of the building construction and heating system used by the building? If so, describe the extent to which the building construction and heating system reflects energy efficiency considerations and minimizes electricity use.

NP-NLH-037 Did the community government participate in either of Hydro’s conservation initiatives? If so, please describe what upgrades were supported by the programs. If not, why.

NP-NLH-038 On the basis of the reasonably estimated average monthly consumption for the recreation centre, please provide a comparison of a monthly bill using the applicable rural rate and a monthly bill using the equivalent rate applicable to provincial government facilities.

NP-NLH-039 Please indicate how Hydro considered the rural deficit in its decision-making associated with this project.

**Reference: Replace Accommodations and Septic System, Volume II, Tab 20, Page 2**

*“The new accommodations will contain: six bedrooms, each with a dedicated washroom; a common washroom; a kitchen/dining area; laundry facilities; and a common/recreational area...”*

NP-NLH-040 In total, how many washrooms will there be on site following the replacement of the site accommodations?

NP-NLH-041 Describe in detail the common/recreation area, identifying any amenities such as entertainment and Internet connectivity that is being provided in addition to basic accommodation.

**Reference: Replace Accommodations and Septic System, Volume II, Tab 20, Page 2**

*“Logistical issues, associated with site access, have resulted in the requirement to expand the scope of work beyond that of a typical accommodation installation. It is estimated that the cost, arising from the additional scope items, is approximately \$500,000 or one third of the cost.”*

NP-NLH-042 Describe in detail the logistical issues and a cost breakdown for the \$500,000 estimate.

**Reference: Replace Accommodations and Septic System, Volume II, Tab 20, Page 7**

*“The service life of an accommodations camp is 20 years.”*

NP-NLH-043 Provide support for the 20 year service life estimate.

**Reference:** **Replace Accommodations and Septic System, Volume II, Tab 20, Page 7**

*“This alternative includes the completion of renovations and upgrades to the existing facility, as required, to bring it in-line with current industry standards.”*

NP-NLH-044 Provide the industry standards referenced here.

**Reference:** **Replace Accommodations and Septic System, Volume II, Tab 20, Page 10**

*“The installation of new modular housing units constructed using improved insulating components and a modern building envelope will provide a significantly improved dynamic thermal performance and, consequently, result in energy savings.”*

NP-NLH-045 Please provide details on the current specifications for this \$1,550,800 accommodations facility.

NP-NLH-046 How is energy provided at the Ebbegunbaeg site?

**Reference:** **Replace Accommodations and Septic System, Volume II, Tab 20, Page 9**

*“Finally, consideration has to be given to the loss in productivity associated with flying crew members to and from the site.”*

NP-NLH-047 Please provide a description of the consideration, including all economic estimates and assumptions, given to future loss in productivity in Hydro’s decision to construct this \$1,550,800 facility.

**Reference:** **Install Transformer On Line Gas Monitoring, Volume II, Tab 24, Page 6**

*“As a minimum, Hydro takes an annual oil sample of each of its transformers to measure the oil quality and conduct dissolved gases analysis (DGA). The annual oil sample test can only provide an analysis of transformer condition at the time when the sample is taken. The on line gas in oil monitoring will continuously monitor the transformer and provide early fault detection.”*

NP-NLH-048 If the on line gas monitoring equipment had been installed on transformer T1 at Sunnyside, in Hydro’s opinion, would the fire on January 2<sup>nd</sup>, 2014 have occurred?

NP-NLH-049 Will the new 230 kV transformers being installed at Oxen Pond substation include the on line gas monitoring equipment?

**Reference:** **Install Transformer On Line Gas Monitoring, Volume II, Tab 24, Page 7**

*“...it was decided to develop a plan to install on line gas monitoring equipment on all GSUs and 230 kV and 138 kV transformers over a ten year period...”*

NP-NLH-050 Has Hydro considered accelerating this project over a five year period? If so, please provide cost estimates for completion within a five year period.

**Reference:** **Construct Second Distribution Feeder Nain, Volume II, Tab 25, Page 29**

*“Although a voltage regulator is a technically viable alternative to eliminate the low voltage issue in Nain, it would not be a practical option. In the event of a regulator failure, the necessary heavy equipment to perform a voltage regulator replacement is not available in Nain. As well, access by sea may not be available for up to nine months depending on ice conditions. As a result, this alternative was not considered and was screened out prior to the economic analysis.”*

NP-NLH-051 What is Hydro’s best estimate of (i) the cost of installation of the necessary voltage regulators in Nain, (ii) the cost of provision of a spare regulator stationed in Nain and (iii) the cost of the necessary heavy equipment to replace a voltage regulator?

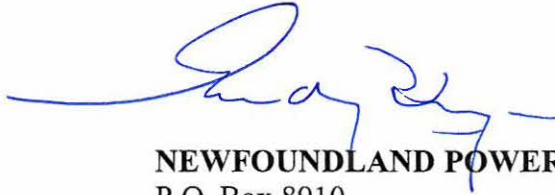
NP-NLH-052 Did Hydro give consideration to the alternative of installing voltage regulators at ground level in Nain with additional physical security to safeguard the public? If not, why not?

NP-NLH-053 Does Hydro have voltage regulators installed on any of its isolated diesel systems? If so, please provide details concerning these installations.

NP-NLH-054 Please indicate how Hydro considered the rural deficit in its decision-making associated with this project.

- Reference:** **Install Automated Meter Reading, Volume II, Tab 26, Page i**  
*“...is part of an ongoing program to install AMR systems for all service areas.”*
- NP-NLH-055 Please provide details on this ongoing program identifying (i) overall program benefits and costs, (ii) the schedule to complete all service areas, including those areas already served with AMR meters and (iii) evidence that the program is consistent with least cost provision of service.
- Reference:** **Install Automated Meter Reading, Volume II, Tab 26, Page 3**  
*“See Appendix 1 for a list of the 5-year AMR plan.”*
- NP-NLH-056 Please provide a copy of Appendix 1.
- Reference:** **Install Automated Meter Reading, Volume II, Tab 26, Page 4**  
*“The AMR system being deployed is Landis + Gyr’s PLX System. The PLX System is a two-way power line carrier based communications system.”*
- NP-NLH-057 Does Hydro plan to use the two-way communication capabilities of the PLX System to do anything other than monthly meter reading? If so will the implementation of this additional functionality be the subject of a future capital budget submission?
- NP-NLH-058 The previous technology deployed by Hydro was the TS1 System. Does Hydro plan to replace the installed TS1 technology with the PLX System in the near future?
- Reference:** **Install Automated Meter Reading, Volume II, Tab 26, Page 7**  
*“...the cumulative net present worth analysis of AMR and the current system has a positive net present worth of \$30,417 after 15 years...”*
- NP-NLH-059 Please indicate the anticipated service life of the new AMR meters and describe Hydro’s views on potential technological obsolescence.

**RESPECTFULLY SUBMITTED** at St. John's, Newfoundland and Labrador, this 4<sup>th</sup> day of September, 2014.



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