

**A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES**

**NEWFOUNDLAND AND LABRADOR HYDRO'S
2009 CAPITAL BUDGET APPLICATION
FINAL SUBMISSION**



NEWFOUNDLAND AND LABRADOR HYDRO

NOVEMBER 14, 2008

Table of Contents

Introduction.....	2
Compliance Matters.....	4
Response to Intervenors' Submissions	5
Refurbish Fuel Storage Facility - Holyrood (Project B-2)	5
Perform Wood Pole Line Management Program (Page B-13)	7
Replace Diesel Units, Norman Bay, Postville & Paradise River (Page B-17). ..	10
Replace Accommodations, Septic System and Upgrade Plant Communications System, Cat Arm (Page B-19).....	11
Pave Parking Lots and Roadways, Bishop's Falls (Page D-30).....	13
Install Transformer Storage Ramps, Labrador (Page D-41).....	14
Install Pole Storage Ramps, Various Sites, (Page D-62)	15
Construct Transmission Storage Ramps, Bay d'Espoir (Page D-67)	16
Conclusion.....	18
Capital Budget Application.....	18
Rate Base	18

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

3

4 **IN THE MATTER OF** an Application by
5 Newfoundland and Labrador Hydro for
6 an Order approving: (1) its 2009 capital budget
7 pursuant to s.41(1) of the Act; (2) its 2009
8 capital purchases, and construction projects
9 in excess of \$50,000 pursuant to s.41 (3) (a)
10 of the Act; (3) its leases in excess of
11 \$5,000 pursuant to s. 41 (3) (b) of the Act;
12 and (4) its estimated contributions
13 in aid of construction for 2009 pursuant to
14 s.41 (5) of the Act and for an Order pursuant to
15 s. 78 of the Act fixing and determining its average
16 rate base for 2007.

17

18

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

20

21

1 **Introduction**

2 Newfoundland and Labrador Hydro (Hydro) filed its 2009 Capital Budget
3 Application on August 11, 2009 seeking the Board's approval of 2009 capital
4 expenditures in the amount of \$47,865,000. Interventions were filed by
5 Newfoundland Power, the Consumer Advocate, and the Industrial Customers.
6 The Board and all three intervenors filed Requests for Information (RFI's)
7 however, only the Consumer Advocate and the Island Industrial Customers filed
8 final submissions in this matter, both of which were filed on November 10, 2008.

9

10 Hydro is required by section 37 of the Public Utilities Act to provide electrical
11 service and facilities that are safe and adequate and just and reasonable. In
12 addition, section 3 of the Electrical Power Control Act, 1994 requires that Hydro
13 provide electrical service that is efficient, that is provided such that its customers
14 have equitable access to an adequate supply of power, and that is provided at
15 least cost consistent with reliable service. The projects proposed in Hydro's 2009
16 capital budget are necessary to enable Hydro to comply with these legislated
17 requirements.

18

19 In recent years, Hydro has faced an increased need to replace aging assets that
20 are nearing, or are at the end, of their useful lives. The timely replacement of
21 these aging assets is essential to ensure that Hydro can continue to provide safe
22 and reliable electrical service. A possible result of not proactively replacing or
23 refurbishing assets in a timely manner and in advance of their failure is the need to

1 apply for an increasing number of unplanned, i.e. supplementary, capital projects
2 throughout each year. Indeed, the Industrial Customers have made an
3 observation as to an increasing trend in this practice. Having said that, Hydro is
4 mindful of the rates pressure that each additional capital projects can cause and
5 proposes to do only those projects that are prudent and necessary in the provision
6 of safe, reliable and least cost power. In choosing the projects in the present
7 Application, Hydro has strived to strike the right balance between project
8 advancement and project deferral.

9

10 The choice and consideration of projects for the Holyrood Thermal Generating
11 Station poses a particularly difficult challenge. This asset will remain to be an
12 absolutely essential generating facility to provide power and energy to the Island
13 Interconnected system for at least the next seven years. Meanwhile, there are
14 serious issues arising with this facility which need immediate attention and which
15 require remediation and refurbishment within this time frame. The problems that
16 have been identified with the Holyrood fuel storage system, which grounds one of
17 the major projects included in the Application, is an example of a project that
18 requires immediate attention.

1 **Compliance Matters**

2 Under Order No. P.U. 30 (2007), the Board required Hydro to file a status report
3 on the capital projects approved under that Order. This report was filed with the
4 Application at Vol. I, Section H, and is in compliance with that Order.

5

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

9

10 Under Order No. P.U. 30 (2007), the Board required Hydro to file a Five-Year
11 Capital Plan. This information is included as part of Hydro's 2009 Capital Plan,
12 filed with the Application at Vol. I, and is in compliance with that Order.

13

14 Under Order No. P.U. 30 (2007), the Board required Hydro to file a report on the
15 Upgrade System Security Plan. This information is filed with the Application at
16 Vol. I, Tab 17, and is in compliance with that Order.

1 **Response to Intervenors' Submissions**

2 ***Refurbish Fuel Storage Facility - Holyrood (Project B-2)***

3 The fuel storage capacity of these four tanks is approximately 864,000 barrels.
4 Two of these tanks were constructed in 1968, the other two in 1979. The fuel
5 tanks, dyked containment system, drainage system, and pipe supports for these
6 assets have deteriorated to the point that refurbishment is necessary to ensure
7 that they can continue to provide reliable fuel storage. Three major concerns have
8 arisen that need to be addressed:

9

- 10 1. There is a reduced capacity of the dykes to contain spilled fuel oil caused
11 by volumes of water that are present at times due to inadequate drainage;
- 12 2. The soils within the tank farm are saturated resulting in frost heave which
13 causes stress to the pipe support foundations; and
- 14 3. There are repairs required to each of the four tanks where the metal
15 components have been affected by oxidation due to the water in the dyked
16 containment area.

17

18 Problems with these fuel storage system components have been identified by
19 external consultants as being required to be addressed. Failing to address
20 problems with the integrity of the fuel storage systems would be irresponsible as it
21 puts the facility at risk for an oil spill. In addition, there are environmental
22 regulations that require that upgrades be undertaken. Hydro is required by the
23 *Storage and Handling of Gasoline and Associated Products Regulations, 2003,*

1 (often referred to as “GAP”) made under the Environmental Protection Act¹ to take
2 reasonable, prudent and effective steps to ensure that oil spills do not occur. Also,
3 in particular, the application of these Regulations to the Holyrood fuel tank facility
4 requires that the dyke containment volume be 44.8 million litres; however, at
5 present, the actual containment volume is 40.2 million litres when the site is
6 affected by retained water.² Drainage enhancements are thereby required to
7 ensure the storage facilities comply with the regulations at all times, including after
8 heavy rainfalls.

9

10 The external engineering report by SGE Acres (appended to Vol. II, Tab 1, filed
11 with Hydro’s Application), was prepared on the basis that the facility should be
12 enabled to continue in operation for a period of twenty years. This period was
13 chosen to cover all future operating scenarios for Holyrood. Hydro is not
14 proceeding at this time with all items indicated in that report as being needed but it
15 is proceeding with only those items that have been identified as requiring attention
16 and which, in Hydro’s judgment, require immediate action. These matters would
17 require this action whether the period of time for which Hydro was to use the
18 Holyrood facility were to be 3 years, 7 years or 20 years. For that reason, the fact
19 that the engineering consultant was requested to provide an expert opinion as to
20 the requirements to achieve a 20-year life extension does not diminish the
21 relevance of the information that was relied upon for this proposal. The defects
22 that will be addressed by this project are ones that need to be addressed

¹ *Storage and Handling of Gasoline and Associated Products Regulations, 2003*, Newfoundland and Labrador Regulation 58/03; Environmental Protection Act, S.N.L. 2002, Chapter E-14.2

² SGE Acres Report, Vol. II, Tab 1, Appendix B, page 2-8

1 immediately to ensure that Hydro can provide safe and reliable generating assets
2 and an environmentally compliant fuel storage facility. The information and
3 materials contained in the Application and supporting documentation fully justify
4 this project.

5

6 Additional references: CA-NLH-6; IC3-NLH through IC8-NLH

7

8 ***Perform Wood Pole Line Management Program (Page B–13)***

9 Hydro has chosen the Wood Pole Line Management (WPLM) program as a means
10 to assist in the management of its 26,000 transmission line poles. This project was
11 first approved by the Board in its Order No. P.U. 53 (2004), at which time it
12 observed as follows:

13

14 This approach is a more strategic method of managing wood poles
15 and conductors and associated equipment and [the Board] is
16 persuaded that the new WPLM Program, based on Reliability
17 Centered Maintenance (RCM) principles, will lead to an extension of
18 the life of the assets, as well as a more reliable method of
19 determining the residual life of each asset. One of the obvious
20 benefits of RCM will be to defer the replacement of these assets
21 thereby resulting in a direct benefit to the ratepayers.³
22

23 The WPLM program is a means of using testing (both destructive and non-
24 destructive) to identify poles that are subject to decay so that they can be removed
25 from service before they fail. This decay occurs through the normal aging process
26 of the poles, the exposure of the poles to the elements, and due to the decreased
27 levels, over time, of preservative in the poles. The aim of the program is to ensure

³ Order No. P.U. 53 (2004), p. 23

1 that decayed poles are identified and retreated or replaced before they fail in
2 service, thereby avoiding more expensive repairs, rebuilds and service outages,
3 and dangers to lineworkers.⁴

4

5 The response to IC 10–NLH indicates that a similar number of poles have been
6 identified as requiring replacement as have been identified in previous years. This
7 does not, as the Industrial Customers have suggested, mean that there has not
8 been any advancement in prudent pole management. As these poles age, the
9 choices are to replace them by reconstructing the transmission line as the poles
10 approach the end of their expected lives or to assess their condition and
11 strategically replace the poles, crossarms and associated equipment as the need
12 arises. Corrective measures can then be taken such as replacing only those poles
13 that fail the testing or by adding wood preservative to extend the lives of the poles
14 that have prematurely lost preservative material.

15

16 The methods used to analyze the poles to assess their lost strength and the
17 degree of rot that is occurring includes non-destructive testing that is calibrated by
18 testing poles to their breaking point at specialized facilities at Memorial University.
19 This level of analysis and information, based upon Reliability Centered
20 Management principles, is well beyond that which can be obtained from “local
21 knowledge”, which can identify only those defects which are visible at the surface
22 of the pole and only on those poles which are visited while performing other duties.

⁴ An Engineering Report Supporting this Project, *2009 Wood Pole Management*, is filed at Vol II, Tab 4. Other information concerning this Project is found in the responses to the following RFI's: CA-9-NLH; and IC9-NLH through IC13-NLH.

1 Such inspections are haphazard, superficial, and unsystematic, and cannot
2 provide a reliable indication of the condition of transmission structures.

3

4 It is difficult to understand the point the Industrial Customers make as to statistical
5 evidence sought to justify the WPLM program. The purpose of the WPLM is to
6 provide information so that the poles and components that are replaced are only
7 those that require replacement, and to remediate or repair those for which
8 replacement can be deferred through prudent intervention. As Hydro's inventory
9 of poles in service age, it can be expected that a greater number of them will fail,
10 though this most often occurs with poles that are subjected to severe weather
11 events such as ice storms. To provide the sort of data the Industrial Customers
12 appear to be seeking, it would appear that poles of similar ages and in similar
13 geographic areas, some managed through a WPLM program and the others
14 managed through "local knowledge", would have to be assessed in parallel for a
15 number of years. Though such an approach might provide the sort of statistical
16 data required to convince the Industrial Customers of the merits of the project, it
17 would be impractical and irresponsible.

18 There are at least three other Canadian utilities using methods similar to the Wood
19 Pole Management Program: BC Hydro, Hydro One and Manitoba Hydro.

20 Additional references: CA-NLH-9; IC-9-NLH through IC13-NLH

1 **Replace Diesel Units, Norman Bay, Postville and Paradise River**

2 **(Page B–17)**

3 Hydro is proposing that it replace Unit 2020, a 90 kW unit installed at Paradise
4 River. Unit 2020 is 26 years old. Due to its age, several replacement parts are
5 not readily available for this unit. For example, a lube oil cooler has developed
6 leaks that cannot be repaired due the unavailability of replacement parts. This
7 diesel unit needs to be replaced with a reliable unit. It is proposed that it be
8 replaced with a much smaller unit in the range of 27 – 35 kW.

9
10 This unit was first installed at Mud Lake in 1982. It was relocated to Paradise
11 River in 2000. As a 90 kW unit in a system with a peak load of 35 kW, it is
12 severely oversized for the load it serves. Even at peak loads it runs at only 42 per
13 cent of its nameplate rating and at all times of its operations it is running well
14 below its efficient loading point.⁵ Due to problems of fouling and the associated
15 reliability problems that are encountered when diesel units are run for long periods
16 at low loads, this unit has been used sparingly. The other units at Paradise River
17 are 50 kW. To provide the appropriate level of generating capacity to meet low
18 load circumstances, the replacement unit should be of a smaller capacity. A
19 replacement unit of the proposed capacity will meet Hydro's generation planning
20 criterion, by a safe margin, of being able to meet the peak load with the single
21 largest unit out of service. Replacing the obsolete, unreliable unit with one of an

⁵ See Response to PUB-NLH-3, page 2 of 4, where the optimal loadings of diesel units, and problems that are encountered when loading falls significantly below those levels, are discussed. Other RFI's on this project are PUB-NLH-9 and CA-NLH-10.

1 appropriate size will facilitate proper unit load sharing amongst the diesel units and
2 will assist Hydro to provide least cost electrical service in this community.

3

4 Additional references: PUB-NLH-3; CA-NLH-10

5

6

7 ***Replace Accommodations, Septic System and Upgrade Plant***

8 ***Communications System, Cat Arm (Page B-19)***

9 The present accommodations facilities at the Cat Arm hydro-electric generating
10 station are in excess of their expected service lives of 20 years, having been built
11 as temporary accommodations in 1982 from left over construction trailers following
12 completion of the original project.

13 The facilities are now subject to a mould problem and Hydro has provided to the
14 Board an environmental consultant's report indicating that remedial work is
15 required to return the camp to a habitable state. Carrying out this remedial work is
16 not being considered because a replacement for the camp is required due to its
17 general condition and unsuitability. In addition, removing the mould would require
18 the disassembly of the facility and the addition of a new air exchanger system and
19 a new foundation to remediate the cause of the mould; these would be extremely
20 expensive remedial projects to undertake on facilities that are at the end of their
21 useful lives and require replacement for other causes.⁶ For these reasons, Hydro

⁶ See response to RFI IC18-NLH

1 determined that carrying out the mould remediation recommendations of the
2 consultants were not economic and decided to discontinue the use of the facility.

3

4 Indications of the unsuitability of the present facility include the lack of separate
5 accommodations for males and females, a deteriorating septic system, and
6 unacceptable recreational facilities for long stays.

7

8 An alternative to replacing the accommodations at the camp is to commute by
9 means of a two-hour round trip to Pollard's Point to stay at hotel accommodations.

10 This location is generally unsuitable for extended stays for Hydro's employees and
11 contractors' crews due to, e.g., limited food selections (fast foods only). In
12 addition, there is a fatigue factor and a safety concern caused by the travel
13 requirement.

14 There have been instances when employees have refused to stay at the Pollard's
15 Point hotel, opting to travel further to Deer Lake to stay in acceptable
16 accommodations. Deer Lake, however, is a four-hour round trip and results in
17 considerable traveling fatigue and lost productivity. Also, the costs of traveling to
18 these accommodations exceed the costs of constructing acceptable and
19 reasonable on-site accommodations for employees maintaining the Cat Arm site.

1 Hydro would point out that, contrary to the submission of the Consumer Advocate,
2 this project was supported by an engineer’s report.⁷ This report is in accordance
3 with the Capital Budget Application Guidelines.⁸ The other reports filed in
4 connection with this report are from the environmental consultants, Pinchin
5 Leblanc Environmental, who recommended that the mould be removed by
6 qualified contractors.⁹

7

8 Additional references: CA-NLH-11; IC14-NLH through IC20-NLH

9

10 ***Pave Parking Lots and Roadways, Bishop’s Falls (Page D–30)***

11 Hydro’s Bishop’s Falls facilities comprise its prime transmission, transportation and
12 warehouse location on the island and serves as the Central Region’s
13 headquarters. These roadways and parking areas are subject to being muddy
14 throughout the year and to slippery conditions in winter. Hydro is proposing to
15 pave 7,000 square meters of parking lots and roadways around its Service
16 Building, Helicopter Hangar and Diesel/Network Services shop. This will provide
17 for a safer and cleaner workplace and will reduce maintenance costs on snow
18 clearing equipment.

⁷ *Cat Arm Hydro Generating Station Replacement of Accommodations*, (Vol. II, Tab 7)

⁸ See Capital Budget Application Guidelines/Policy, Item 3, Expenditures in Excess of \$500,000, at page 8 of 11.

⁹ Attached to the above Report of D.A.Rendell, P.Eng., as Appendix A, are two mould investigation reports by Pinchin Leblanc Environmental Limited. Other information concerning this project is found in the responses to the following RFI’s: CA-NLH-11; IC14-NLH through IC20-NLH.

1 Hydro submits that it is reasonable and prudent to provide paved parking lots and
2 roadways for high vehicular and pedestrian traffic areas around its major
3 workspaces and equipment maintenance facilities. Paved parking lots and
4 roadways are universally recognized by all classes of commercial and industrial
5 enterprises as the norm and good business practice to maintain property
6 cleanliness, facilitate access, ease snowclearing and maintenance, and to provide
7 convenience to employees, customers, service providers and the public.

8

9 Additional reference: CA-NLH-24

10

11 ***Install Transformer Storage Ramps, Labrador (Page D-41)***

12 Hydro is proposing that it construct transformer storage ramps at its diesel stations
13 at Nain and Cartwright to replace makeshift ones that are now in place. These
14 ramps will be properly designed to carry the loads, will store the equipment at the
15 correct heights for loading and unloading and for inspection for possible oil leaks,
16 and will avoid risks of accidental damage during snow clearing operations.

17 The Consumer Advocate suggests that the fact that no oil spills have resulted from
18 transformer damage during snow clearing operations to date means that the risk of
19 such an occurrence is not a credible justification for the project. Also, the
20 Consumer Advocate has opined that the ramps in Cartwright and Nain “appear to
21 be adequate for the purpose of storing transformers”. In response, Hydro
22 respectfully submits that the identification of an environmental risk ought not to

1 wait for an accident to occur in order for the risk, and the project to prevent it, to be
2 validated. Further, Hydro would add that the present makeshift storage systems
3 do not comply with Hydro's considered and established practices for the storage of
4 this type of equipment in its facilities in other locations on the Island and elsewhere
5 in Labrador.

6

7 Additional reference: CA-NLH-26

8

9 ***Install Pole Storage Ramps, Various Sites (Page D–62)***

10 Hydro is proposing to construct pole storage ramps at the Nain and Postville
11 Diesel Plants in 2009. This would allow Hydro to store poles in the same manner
12 as it does in other locations and communities in the province, e.g. Holyrood.¹⁰ The
13 proper storage of poles on ramps provides for their easier sorting, selection and
14 handling and ensures that the poles do not deteriorate early due to ground
15 contact.

16 Due to the fact that the storage of a number of treated poles in a concentrated
17 area has undesirable environmental impacts, it is appropriate and prudent to
18 construct these storage ramps in accordance with environmental standards
19 designed to mitigate these effects. For this reason, Hydro has consulted the
20 appropriate Federal guidelines in the design of the storage ramps. These

¹⁰ See, for example, the photograph of the Holyrood Pole Storage Ramp on page D – 63.

1 guidelines have been prepared in consultation with the Canadian Electrical
2 Association.¹¹

3 Though this project has environmental implications, it is not an environmental
4 project, *per se*. In Hydro's view, when it undertakes a project, it is responsible and
5 prudent to ensure that, where practicable, it is carried out in an environmentally
6 responsible manner.

7

8 Additional References: PUB-NLH-24 through PUB-NLH-26; CA-NLH-29

9

10 ***Construct Transmission Storage Ramps, Bay d'Espoir (Page D–***
11 ***67)***

12 This project has been proposed to construct two transmission storage ramps at
13 the Camp Boggy pole yard for the purpose of properly storing transformers, waste
14 oil and transmission hardware and equipment. Proper storage ramps for these
15 materials and equipment are essential to provide for safe and efficient loading and
16 unloading and to permit thorough and proper inspection of oil containing vessels
17 and equipment.

18

19 The Consumer Advocate has taken issue with the labour costs associated with
20 this project, being \$39,000. The calculation provided in that submission purports
21 to determine the number of person hours required for the hands-on construction of

¹¹ See generally, the information found at the following website and associated links:
www.gc.ca/toxics/wood-bois/group/guide_e.htm

1 the structures. Hydro would submit that the calculation overlooks the fact, which
2 applies essentially universally to the project cost information Hydro provided with
3 the Application, that the “labour” cost includes engineering design, inspection,
4 project management and equipment rentals.

5

6 Also, Hydro would point out that the comparison of this project to the \$15,000
7 2008 Port Saunders ramp project is misleading as that was a transformer storage
8 ramp of a much smaller size and, that the pole storage ramp installed at Burgeo
9 for \$43,000 is closer to an equivalent project.¹²

10 Additional reference: CA-NLH-31

¹² References to these projects are found in the 2008 Capital Budget Application at page A-6

1 **Conclusion**

2 ***Capital Budget Application***

3 Hydro's 2009 Capital Budget Application contains those projects, and only those
4 projects, that are prudent and necessary to enable Hydro to provide electrical
5 service that is reliable, safe, adequate, reasonable, environmentally compliant and
6 responsible, and least cost. As is explained in more detail in the Capital Plan, the
7 task of determining and carrying out a capital program is made more complex as
8 the infrastructure ages, and as complex planning issues emerge such as the
9 uncertain future of the Holyrood Thermal Generating Station.

10

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

15

16 ***Rate Base***

17 Pursuant to section 78 of the Public Utilities Act, Hydro has applied for the Board
18 to fix and determine its 2007 Average Rate Base at \$1,484,545,000, as set out in
19 Vol. I, Section J.

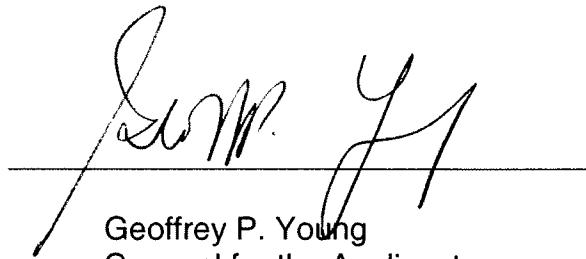
1 All of which is respectfully submitted on behalf of the Applicant, Newfoundland and
2 Labrador Hydro, this 14th day of November, 2008.

3

4

5

6

A handwritten signature in black ink, appearing to read 'G.P. Young', is written over a horizontal line.

7

8

9

10

11

12

13

14

15

16

17

Geoffrey P. Young
Counsel for the Applicant
Newfoundland and Labrador Hydro
P.O. Box 12400
Columbus Drive
St. John's, Newfoundland and Labrador
A1B 4K7

Telephone: (709) 737-1277

Telecopier: (709) 737-1782