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December 23, 2015

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

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

Dear Ms. Blundon:

**RE: Newfoundland and Labrador Hydro's - Amended General Rate Application
Final Submissions of Nunatsiavut Government**

Please find enclosed the original and twelve (12) copies of the Final Submissions of the Nunatsiavut Government in respect of the above-noted Application.

We have provided an electronic copy of this correspondence together with the enclosures to all the concerned parties.

Should you have any questions or concerns please contact the undersigned.

Yours truly,

Benson Buffett PLC Inc.

A handwritten signature in blue ink, appearing to read 'Genevieve M. Dawson', written over a horizontal line.

GENEVIEVE M. DAWSON
GMD/sfp
Encl.

Geoffrey P. Young, Senior Legal Counsel, Newfoundland & Labrador Hydro
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Paul Coxworthy, Stewart McKelvey

IN THE MATTER OF the *Electrical Power Control Act, 1994*, S.N.L 1994, Chapter E-5.1 (the "EPCA") and the *Public Utilities Act*, R.S.N.L. 1990, Chapter P-47 (the "Act") and regulations thereunder; and

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

AND IN THE MATTER of an amended general rate application filed by Newfoundland and Labrador Hydro on November 10, 2014.

NUNATSIAVUT GOVERNMENT

FINAL SUBMISSIONS

ISSUED: December 23rd, 2015

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Legislative Framework

1. NL Hydro is the chief provider of electricity to Nunatsiavut. Nunatsiavut is not on the Labrador Interconnected electrical grid. The isolated areas of Nunatsiavut are serviced by individual diesel generated facilities. Nunatsiavut includes Nain, Hopedale, Rigolet, Makkovik and Postville.
2. Due to the isolation and reliance on diesel generated facilities the residents of Nunatsiavut have different concerns and different challenges than other isolated areas of island Newfoundland, particularly during winter months when access to the communities is limited.
3. The authority for both the NL Hydro and the Public Utilities Board ("PUB") is through legislation. There are two acts which regulate electricity in the province of Newfoundland and Labrador. There is the *Public Utilities Act* (the "Act") and the *Electrical Power Control Act, 1994* (S.N. 1994, Chapter – E-5.1) (the "EPCA").
4. The PUB is an independent, quasi-judicial agency established under the laws of Newfoundland and Labrador to regulate public utilities in Newfoundland and Labrador. Regulation of the legislation is designed to ensure consumers receive safe and reliable electricity at rates that are reasonable while allowing the utility to earn a fair rate of return on its investment in supplying electrical service. The regulations strive to strike an equitable balance between the interests of the consumer and the utility.
5. The Act sets out the structure of the Board and defines its powers. The Board has the responsibility for general supervision of public utilities in the province, which requires the Board to approve rates, capital expenditures and other aspects of the business of public utilities.
6. In addition to the provisions of the Act, the Board is also mandated through the EPCA, particularly section 3 which outlines the power policy of the province.
7. The EPCA mandates the PUB to make right decisions that are reasonable and not unjustly discriminatory. The legislation also ensures that NL Hydro is permitted to earn a just and reasonable financial return while maintaining a sound credit rating in the financial markets of the world. The legislation calls for the most effective production, transmission and distribution of power that will afford customers the lowest possible cost of electricity consistent with equitable, safe and reliable service.

**Reference: ORDER NO. P.U.7 (2002-2003: June 7, 2002)
Pages 11-17**

Nunatsiavut Government and Legislation

8. Both in the Act and the EPCA, there is a reference to Labrador Inuit Rights. In section 4.2 of the Act it states:

This Act shall be read and applied in conjunction with the Labrador Inuit Land Claims Agreement Act, and, where a provision of this Act is inconsistent or conflicts with a provision, term, or condition of the Labrador Inuit Land Claims Agreement Act, the provision, term or condition of the Labrador Inuit Land Claims Agreement Act shall have precedence over the provisions of this Act”.

9. In the EPCA, section 2.1 (1) states:

This Act and Regulations made under this Act shall be read and applied in conjunction with the Labrador Inuit Land Claims Agreement Act and, where a provision of this Act or Regulations made under this Act is inconsistent or conflicts with a provision, term or condition of the Labrador Inuit Land Claims Agreement Act, the provision, term or condition of the Labrador Inuit Land Claims Agreement Act shall have precedence over the provisions of this Act or Regulations made under this Act.

Section 2.1(2) states:

- i. Where, under this Act the public utilities board issues a license, the public utilities board may add to that license terms and conditions that the licensee must comply with in order to ensure compliance with the terms and conditions of the Labrador Inuit Land Claims Agreement Act.*

10. Pursuant to section 5.2.12 of the *Labrador Inuit Land Claims Agreement Act*, Inuit lands may not be flooded or used for storage of diversion water by any person without the consent of the Nunatsiavut Government.

Reference: Labrador Inuit Land Claims Agreement Act, section 5.2.12

Regulatory Principles

11. The regulatory principles used by the PUB have been set out in Order No. P.U.14 (2004) Page 22 – 24.
12. With respect to rate stability and predictability, it is noted that “rates and revenues should be stable and predictable from year to year with a minimum of unexpected changes seriously adverse to either rate payers or utility companies. This principle may justify smoothing out increases to avoid sharp rate climbs or temporary fluctuations. The emphasis using this standard relates to the timing of rate implementation”.
13. With respect to end result, the PUB noted “In compliance with the legislation, the end result must be fair, just and reasonable from the perspective of both the consumer and utility”.
14. With respect to practical attributes, the PUB noted the following: “Rates should be simple, understandable and publicly acceptable with a minimum of controversy on implementation. There is little doubt that there are conflicting parts of rate regulation. What may seem reasonable for one group of customers may be severely unjust to another and also to the utility.

**Reference: Decision and Order of the Board, Order No. P.U.14
(2004), Pages 22-24**

History of Nunatsiavut

17. Mr. Darryl Shiwak, Minister of Lands and Natural, appeared before the PUB on November 30, 2015. Minister Shiwak also provided a report to the PUB and it is part of the pre-filed evidence of the record before the PUB.
18. The evidence of Minister Shiwak is very important as it provides context for some of the relief sought by the people of Nunatsiavut.
19. The people of Nunatsiavut are Inuit. They have occupied the circumpolar regions of the world for longer than 5,000 years. Their earliest ancestors lived mainly on the north coast of Labrador where they travelled all over to harvest the resources of the land and sea.
20. The Inuit are also one of the founding peoples of Canada.
21. In the 1760s, Moravian missionaries became the first Europeans to make a presence north of Hamilton Inlet. With the Missionaries present, the Inuit began to change their way of life. Their nomadic and communal lifestyle was not encouraged, and the missionaries unfortunately brought disease that slowly began to wipe out our population. Over time, the Inuit life became more connected to the emerging trade economy of Newfoundland and Labrador.
22. However, the demise of trade in the 1920s brought further social and economic upheaval. The Hudson's Bay Company and the Commission of Government took control of the Moravian stores with little success. After Confederation, the Moravian Church, the Grenfell Mission, and the provincial government of Newfoundland suspended services to the northern communities of Hebron, Okak, and Nutak. Residents were abruptly resettled throughout the region that is now known as Nunatsiavut and also to North West River, and the trauma of that move continues to resonate in the present day.

Economic Conditions in Nunatsiavut

Income and Employment

23. As indicated already there are 5 communities in Nunatsiavut: Nain, Hopedale, Makkovik, Postville and Rigolet. The population of each community is as follows:

Total Census Population, 2011

Community	Population
Nain	1190
Hopedale	555
Makkovik	360
Postville	205
Rigolet	305
Nunatsiavut	2615

24. The average income of the people of Nunatsiavut is:

Personal Income Per Capita, 2011 (\$)

Community	Gross	After tax
Nain	20,400	15,400
Hopedale	18,100	13,700
Makkovik	27,900	21,000
Nunatsiavut	22,133	16,700
Newfoundland and Labrador	31,000	21,400
Canada	40,650	33,998

. **Data was unavailable for Rigolet and Postville in 2011. The 'Nunatsiavut Average' is based on data presented from Nain, Hopedale and Makkovik

25. The employment figures for the total community population are:

	Total population age 15 yrs. and over	In the labour force	Employed	Unemployed	Unemployment rate
Nain	890	510	375	135	26.5
Hopedale	435	265	180	85	32.1
Makkovik	285	195	125	70	35.9
Postville	160	95	75	25	26.3
Rigolet	240	170	90	75	44.1
Nunatsiavut	-	-	-	-	33
Newfoundland and Labrador	-	-	-	-	14.6
Canada	-	-	-	-	7.8

Cost of Energy

26. The average cost of energy from NL Hydro is very high. For a small 3 bedroom duplex bungalow with electric heat, average energy consumption was 2089 kWh per month in 2014-2015, (ranging from 444 kWh in May to 3916kWh in February). The average cost was \$275.49 per month (ranging from \$29.75 in May to \$555.50 in February, after the Northern Strategic Plan subsidy was applied). It is interesting to note that unlike 67% of the homes in Nain, this home is *not* in need of major repair.
27. The most common heating source (used by 55% of homes) is a wood burning stove or fireplace. More than half of the households in Nain and Hopedale have difficulty keeping their dwelling warm (including 57% in Nain and 64% in Hopedale). That works out to be 44% on average for residents of all communities. The average heating cost during a typical winter month (December, January, February) is \$619. The average heating cost during a typical summer month (June, July, August) is \$155. It is interesting to note that this question was asked of all participants in the Nunatsiavut Housing Needs Assessment, though 44% of homes are not sufficiently heated, as noted above. The average cost of heat would likely rise significantly if 100% of homes were adequately heated, and residents were not experiencing barriers (cost barriers, among others) preventing them from attaining sufficient amounts of fuel to provide home heating.
28. In 2014-2015 a drum of oil cost about \$335 in Nain. The average house burns 2-3 drums/month between October and April. Average cost per month is \$837.50.

Food

29. The average cost of food is noted below.

Weekly Cost of the Revised Northern Food Basket for a Family of Four

	2007	2008	2009	2013
Nain	\$283	-	\$337	\$366
Hopedale	\$281	-	\$318	\$341
Rigolet		\$297	\$310	-
Makkovik	\$269		\$304	\$288
Postville	\$281	\$294	\$310	-
Nunatsiavut	-	-	\$316	\$331
Happy Valley	\$224	\$232	\$253	-
Goose Bay				
Montreal	\$209	\$219	\$229	-

30. The 2007-2008 Inuit Health Survey established household food security rates for Nunatsiavut (including all 5 communities). Across Nunatsiavut 55.8% of households were food secure. 28.6% of households were moderately food insecure. 15.6% of households were severely food insecure.
31. An average of 44% of households in Nunatsiavut are food insecure relative to 10.6% in the province and 8.3% in Canada.

Note- the study defined 'moderate food insecurity' as - a compromise in quality and/or quantity of food consumed by adults and/or children due to a lack of money for food; and, 'severe food insecurity' as- disrupted eating patterns and reduced food intake among adults and/or children (eg. skipping meals or entire days of meals).

32. Levels of food insecurity in Nunatsiavut are likely even more severe today than they were in 2008. This study was completed while Inuit were still harvesting caribou – an important food source that is no longer available.

Housing Situation

33. There are 314 (47%) private homes in Nunatsiavut. 297 (41%) of the homes are owned by the Torngat Regional Housing Association (TRHA). 51 homes (7%) are owned by the Newfoundland and Labrador Housing Corporation (NLHC). 36 homes (5%) are identified as 'other' (including rental units, among other possibilities).
34. The 47% identified as 'owned by residents' is a little misleading as we suspect it likely includes TRHA homes and homes built through other social housing programs during Labrador Inuit Association days that residents have paid for under highly subsidized rates. While residents may no longer pay rent, THRA retains 'ownership' of these dwellings.

Cost of Transportation

35. The Nunatsiavut communities are accessible by air only from the middle of November until the middle of July. These dates vary each year depending on sea ice conditions. During summer months, the communities are accessible by ferry and air, though ferry service has been unreliable in recent years.
36. The cost of a flight from Nain to Goose Bay, return is almost \$1,000 (\$971.80 through Air Labrador). A return flight to St. John's is about \$1,700 (\$1697.54 through Provincial Airlines). The cost of a return ferry trip on the Northern Ranger (Nunatsiavut Marine) from Nain to Goose Bay is over \$300 (\$312.52).
37. The high cost of transportation also increases the cost of all goods sold in the remote, isolated communities of Nunatsiavut. Despite subsidies offered through the Food Mail Program in 2009, the average weekly cost of food was 63\$ higher in Nunatsiavut than in Happy Valley-Goose Bay, while Happy Valley-Goose Bay was a further 24\$ higher than the population center of Montreal (see response to item 'g'

above). While data is unavailable for 2013 for Montreal and Happy Valley-Goose Bay, the cost of food in Nain, Makkovik and Hopedale under the Nutrition North Program clearly indicate a continuous rise since 2009. The cost of all other goods (including lumber and other building supplies, school supplies, clothing, etc.) are similarly high relative other regions.

Land Claims Agreement

38. In the 1970s, the Labrador Inuit Association (LIA) was formed, and they filed a claim with the Government of Canada. For the next 30 years, the Inuit worked hard to promote their culture, health and well-being, and their constitutional, democratic, and human rights.
39. On December 6, 2004, members of the Newfoundland and Labrador House of Assembly passed provincial legislation to give effect to the Labrador Inuit Land Claims Agreement Act. It received Royal Assent the same day.
40. The Agreement was ratified when it received Senate approval and received Royal Assent on June 23, 2005 from Canada's Governor General. The Nunatsiavut Government came into effect on December 5, 2005, and it began preparations for the first ever Nunatsiavut elections. The first elected Nunatsiavut Assembly was sworn in on October 17, 2006.
41. The Agreement sets out the details of land ownership, resource sharing, and self-government. It provides for the establishment of the Labrador Inuit Settlement Area (or LISA), totaling about 72,500 square kilometers (or 28,000 square miles) of land and 48,690 square kilometers (or 18,800 square miles) of sea. The Agreement provides Labrador Inuit special rights related to traditional land use in this area.
42. Within the Settlement Area, 15,800 square kilometers (or 6,100 square miles) is designated as Labrador Inuit Lands, which is owned by Labrador Inuit.
43. The signing of the Labrador Inuit Land Claims provided the people of Nunatsiavut the opportunity to take control of their own affairs and to determine their own destiny.
44. The Nunatsiavut Government has responsibilities and rights similar to other governments, such as planning for sustainable economic development, protecting and preserving Labrador Inuit culture and traditions, and implementing social programs on behalf of Beneficiaries of our Land Claims Agreement.
45. Unlike other governments, the Nunatsiavut Government is a consensus government – a non-partisan system of governing that is more in keeping with the way Inuit have always made decisions. Unanimous agreement is not necessary for decisions to be made, but rather a majority vote of acceptance – after much discussion and consideration of various viewpoints.
46. The Nunatsiavut Government appeals to PUB not as a special interest group but as a Government who has the right and obligation to guide the economic development of Nunatsiavut.

Our Position on the General Rate Application

Rates

47. As has been stated many times the rates charged must be reasonable and not unjustly discriminatory. Also all resources and facilities for the production, transmission and distribution of power in the province should be managed and operated in the manner that would result in consumers in the province having equitable access to an adequate supply of power. The legislation calls for the most effective production, transmission and distribution of power that will afford customers the lowest possible cost of electricity consistent with equitable, safe and reliable service.
48. The rate increases proposed by NL Hydro are as attached in Appendix A. The real effect of the increase in domestic service to the Labrador Isolated System is an 11.4% increase, which is significant.

Reference: 2013 Amended GRA Filing: Reconciliation to Original GRA Filing RFI PUB-NLH-107 Revised (Revised 1. Nov.20-14)

49. Applying the regulatory principles outlined in paragraph 13 herein, we suggest an 11.4% increase in rates is a sharp increase.
50. The rate increases proposed by NL Hydro for all rate payers in Nunatsiavut are not reasonable or sustainable. The increase cannot be paid by the residents, both residential and commercial, of Nunatsiavut. The income levels cannot pay for such increases. It is not a matter of spending discretionary money. There is no discretionary money now, even without the rate increase.
51. The current cost of living is already exorbitant. An increase in electrical rates will affect household bills, cost of food, and cost of transportation. As explained by Minister Shiwak, for some residents there is no access to wood as an alternative heat source. Further, many home are inadequately heated now.

Reference: PUB Hearing Transcript November 30, 2015 Minister Shiwak

52. The Nunatsiavut Government is aware that the cost to NL Hydro to operate these diesel generating facilities is very high. Presently, the customers living in Nunatsiavut do not pay the full cost of supplying electricity to their homes. The same is true of other isolated communities throughout the island portion of Newfoundland and Labrador. However, cross subsidization has been a part of the history of electrical distribution in the Province of Newfoundland and Labrador since the 1960s. Furthermore, it is the same with electrical utilities throughout Canada. It is part of the social institutions of Canada.

53. It is clear from prior decision of the PUB, without compelling change in either legislation or public policy, the Board will not incorporate the ability to pay among its criteria for rate setting.

**Reference: Decision and Order of the Board, Order No. P.U.14
(2004), Pages 22-24**

54. This may be so, however, we would suggest that the words fairness, just and reasonable indicate something more than a pure application of legislation. These terms indicate that the PUB can apply some discretion.
55. Further authority for our position comes from the regulatory principles outlined under the section herein titled Legislative Framework. If the PUB is to consider the "end result" as one of its guiding principles the end result must be what one pays on a bill.
56. We can also take some guidance from the Supreme Court of Newfoundland and Labrador – Court of Appeal. In The Matter of Section 101 of the Public Utilities Act, R.N.S. 1990, c. P-47, Green J.A.:

Having conducted this brief survey, I will now attempt to state some general principles to be used in the interpretation and application of the local legislation:

- 1. The Act should be given a broad and liberal interpretation to achieve its purposes as well as the implementation of the power policy of the province;*
- 2. The Board has a broad discretion, and hence a large jurisdiction, in its choice of the methodologies and approaches to be adopted to achieve the purpose of the legislation and to implement provincial power policy;*
- 3. The failure to identify a specific statutory power in the Board to undertake a particular impugned action does not mean that the jurisdiction of the Board is thereby circumscribed; so long as the contemplated action can be said to be "appropriate or necessary" to carry out an identifiable statutory power and be broadly said to advance the purposes and policy of the legislation, the word will generally be regarded as having such an implied or incidental power;*
- 4. In carrying out its functions under the Act, the Board is circumscribed by the requirement to balance the interests, as identified in the legislature, of the utility against those of the consuming public;*
- 5. The setting of a "just and reasonable" rate of return is of fundamental importance to the utility and must always be an important focus of the Board's deliberation; however, the "entitlement" of the utility to a just and reasonable rate of return does not guarantee is that level of return. The "entitlement" is to have Board address that issue and to make its best prospective estimate, based on its full consideration of all available evidence, for the purpose of setting rates, tolls and charges.*
- 6. The Board has jurisdiction, which will not generally be interfered with on judicial review, to make a determination of what is just and reasonable rate of return with*

in a "zone of reasonableness" and in doing so is not constrained in its choice of applicable methodologies, so long as they can be rationally justified in accordance with sound utility practice and are not inconsistent with the achievement of the purposes and policies of the legislation.

Reference: In The Matter of Section 101 of the Public Utilities Act, R..N.S. 1990, c. P-47 (NL CA) (1998) 164 Nfld. & P.E.I.R. 60, para 36 of Case

57. Given the comments of the Court of Appeal the PUB has ample discretion to look to the all the circumstance of the people of Nunatsiavut.
58. We suggest that the concept of what is reasonable has to be placed in context. What is the context of the proposed rate increases?
59. The economic conditions of the people of Nunatsiavut have already been laid out. The same are stark. It appears the people of Nunatsiavut must bear an increase in rates when they cannot afford to pay the same. It is not a matter of asking for a favour or suggesting the PUB discriminate one class of rate payer over another. The consuming public in this case cannot afford a standard of basic living which most people in the rest of Newfoundland and Labrador take for granted.
60. We suggest the matter of reasonableness and discretion also comes into play when one considers the Inuit lands, which are adjacent to Churchill Falls and Muskrat Falls, receive no electricity from either development. We note in passing on the issue of adjacency and common resources it has been a concern of the residents of Newfoundland and Labrador for many years that others take our fish.
61. Further it is interesting to note, unlike other Intervenors, the Labrador Inuit are mentioned in both the Act and the ECPA. This, the Nunatsiavut Government would suggest, indicates that the rights of the Inuit of Labrador take some precedence over the rights of others.

Muskrat Falls

60. As a matter of public record, Phase One, of the Lower Churchill Project, often referred to as the Muskrat Falls development, was sanctioned in 2012 and first power is expected in 2018.
61. In 2012 the estimated cost to develop Muskrat Falls was \$6.2 million. By June 2014 the estimated costs rose to \$6.99 million. By September 2015 the estimated cost was \$7.65 million. Despite the costs associated with the development of this water right and lands adjacent to the land of the LISA occupied by the residents of Nunatsiavut, the residents of Nunatsiavut receive no benefit, other than a few temporary jobs, from this development. Nunatsiavut will not be tied in to the main electrical grid and there are no plans to do so.

62. As part of the development of Muskrat Falls, Nalcor, the parent company to NL Hydro, will flood the Muskrat Falls reservoir, creating methylmercury upstream from the Labrador Inuit Settlement Area. A recent peer-reviewed publication led by Harvard University shows that, as a result of this flooding, methylmercury levels flowing downstream into Lake Melville will rise significantly, contaminating the environment, including important wild foods for Inuit, such as fish and seal.
63. Methylmercury is a potent neurotoxin that affects neurodevelopment and cardiovascular health.
64. Although there is a significant risk to the environment, culture and health of the people of Nunatsiavut from this development there is no benefit to the people of Nunatsiavut.

Reference: Pre-filed evidence of Minister Darryl Shiwak, Appendix C

65. Furthermore, and contrary to the Labrador Inuit Land Claims Agreement Act, and both the Act and the EPCA, the development of Muskrat Falls will flood a reservoir upstream of Lake Melvill, creating methylmercury that then flows downstream into Lake Melville, including the Labrador Inuit Settlement Area. As indicated, this flooding will cause a significant rise in methylmercury levels in Lake Melville and irreparable harm to the environment of Nunatsiavut.
66. Any such flooding, which effects the Labrador Inuit Settlement Area, without the consent of the Nunatsiavut Government is contrary to both the Act and the EPCA.
67. We realize the development of Muskrat Falls is presently outside the jurisdiction of the PUB. However, we understand that after completion of the development Muskrat Falls will be passed over to NL Hydro. It is interesting to note that this development will not have the regulatory framework offered by the PUB.
68. This is difficult to justify and profoundly unfair to the people of Nunatsiavut. We suggest that this may be one of the circumstances taken into consideration by the PUB.
69. It is clear by the incorporation of the Labrador Inuit Land Claims Agreement Act into both the Act and EPCA, the Government of Newfoundland and Labrador had a public policy in mind. It was to protect the ancient lands of Nunatsiavut.
70. Finally, of great interest to the Nunatsiavut Government was that most of the executives, including Mr. Ed Martin, were not aware of the reference to the Labrador Inuit Land Claims Agreement Act, in the Act of ECPA. Why is this relevant? It demonstrates the executives, the operating minds of both Nalcor and NL Hydro, were not aware of the provincial public policy relating to Nunatsiavut.

Reliability

71. The issue of reliable safe electricity was canvassed with both Mr. Darren Moore, Manager, Transmission and Rural Operations, and Ms. Dawn Dalley, Vice-President, Corporate Relations and Customer Service. Through their testimony it is clear that the residents of Nunatsiavut do not have a reliable source of power.

Reference: PUB Hearing Transcript October 8 pages 111 – 114, page 115 lines 1-14, page 124, line 25, page 125 - 130

72. Further, it is interesting to note fire suppressant systems were not introduced into the diesel facilities in Nunatsiavut until 2012 and this was only done as a result of an independent review concerning the number of fires in the diesel generated facilities. At the time of the hearing, fire suppressant systems were still not installed in Nain, Postville, Makkovik and Rigolet. Based on common sense one would think you would not need an independent consultant to recommend this basic system in isolated areas, and further why has it taken so long to put the suppressant system in place. If a fire happens during the winter months, it is a significant risk to energy supply and the health and wellbeing on Inuit.

Reference: PUB Hearing Transcript October 8 page 117, lines 17-25, page 118, page 119, and page 120 lines 125 - 130

Reasonable Expenses of NL Hydro

73. The Nunatsiavut Government also suggests the expenses presented by NL Hydro in the GRA must also be reasonable in order to determine a reasonable rate of return.
74. On imprudent expense, we suggest this matter was extensively reviewed through the Prudence Review. The imprudent expenditures were as outlined in the various reports.
75. The Nunatsiavut Government also has concerns about the rising cost submitted by NL Hydro as outlined in the numerous cost deferral applications and the amended cost deferral application submitted by NL Hydro.
76. We also suggest NL Hydro has not taken active steps to pursue cost reduction strategies through more aggressive conservation measures and alternative energy sources, which are further explained herein.

Energy Conservation

77. As part of the isolated system operated by Hydro the electrical energy supply to Nunatsiavut is run from diesel generated stations. The cost of diesel fuel and operating expenses associated with diesel generation contribute significantly to the cost to supply electricity to Nunatsiavut.
78. The Nunatsiavut Government submits energy conservation is key to reducing the cost of supplying electricity to Nunatsiavut.
79. Furthermore, energy conservation is crucial to sustainable development in Nunatsiavut.
80. In addition, energy conservation lowers emissions and therefore has a positive effect on the environment.
81. Also, and perhaps more important to Hydro, reducing the cost of energy will lower the amount Nunatsiavut contributes to the rural deficit.

Reference: Rural Deficit Annual Report: Summary of Specific Initiatives, NL Hydro, March 2015, Information #8, Table 1, Page 2

82. Previous Hydro rate applications have touched on energy conservation as a way to reduce electrical bills. The PUB has recognized energy conservation as a laudable goal. In PUB 8 2007 the PUB made the following comments:

The issue of energy conservation has been a recurring theme before the Board in prior hearings and the Board commends both Hydro and NP for their joint initiative in this area. The Board agrees with the Consumer Advocate that Hydro can play an important role with regard to educating consumers concerning energy usage and improved efficiency and also about the relative costs of alternate energy sources by comparison to electricity. However, in light of the prospective and joint initiative being funded by both utilities, the Board finds that it would be prudent and practical to await the results of the CDM study. The consultant is expected to catalogue CDM technologies, identify applicable technologies, develop program concepts as well as complete a market and economic analysis for the residential, commercial and industrial sectors.

The study will also provide a list of initiatives and expected results for each initiative based on experience in other jurisdictions. In the Board's view this comprehensive information will be valuable in determining what energy conservation programs and demand management techniques can be employed by each utility in satisfying the needs of their respective customers. It is the Board's understanding that these initiatives will have both a short-term and long-term focus and consequently may prove valuable in impacting demand and hence future supply considerations to be determined within the context of the Integrated Resource Plan, considered below.

Hydro will be required to file, no later than June 30, 2008, a report outlining its five year strategic plan with respect to energy conservation initiatives, which should include a description, timing and cost of the program elements to be implemented by Hydro and a copy of the CDM Potential Study.

Reference: PUB 8 2007 page 57

83. Since the above noted directive, Hydro has put in place two (2) energy conservation initiatives. The takeCHARGE initiative ("takeCHARGE") is sponsored by Hydro and NP. This initiative was available to all eligible Hydro and NP customers throughout Newfoundland and Labrador. The Isolated Community Energy Efficiency Program ("Efficiency Program") is available to isolated communities on the diesel system.

takeCHARGE Program

84. The takeCharge program, which commenced in 2009, provides rebates for insulation, windows, and thermostat upgrades. The threshold criteria for this program is as follows:
- a. Recipients must own their own home;
 - b. The home has an active electricity account;
 - c. The home is detached, semi-detached, or a mobile/modular home on a permanent foundation and intended as a residence;
 - d. The home is all-electric, or if a supplementary heating system is in place that the house has an annual electricity usage equal to or greater than 15,000 kwh;

**Reference: RFI IN-NLH-166, PUB Hearing Transcript
November 20, 2015, page 2, line 19**

85. Based on the above noted criteria, Hydro estimates 15% of customers on the isolated diesel systems would be eligible for these programs.

Reference: RFI IN-NLH-166

86. The expert report of Mr. Chris Henderson indicates 62% of residents in the region are renters. These residents of Nunatsiavut do not own their own homes.

**Reference: Pre-filed Expert Report of Chris Henderson, line
45**

87. Furthermore, approximately 17% of the residential customers on the Labrador isolated diesel systems have an energy consumption of 15,000kwh/yr or greater.

Reference: RFI IN-NLH-167

88. As a result of this criterion, most of the residences of Nunatsiavut cannot avail of the takeCHARGE program.
89. Nothing further needs to be said about the takeCHARGE program as a method of energy conservation for the residence of Nunatsiavut.

The Isolated Community Energy Efficiency Program

90. The Efficiency Program is more accessible to the residents of Nunatsiavut. This program was launched in 2012, and among other things, offers light bulb exchange, water heater and pipe wrap, faucet aerators, low flow shower heads, and weather stripping. In February 2012, Summerhill was commissioned to manage the implementation and monitoring of the Isolated Systems Energy Efficiency Program for NL Hydro. The Efficiency Program has gone through a four-year cycle now. Hydro rolled out this plan, several communities at a time, on the isolated diesel systems. It has been somewhat successful as its target market is isolated communities.
91. One of the criticisms we offer of the Efficiency Program is it is piece meal in nature, and it does not address area of homes where heat loss is greatest, attics, basements and windows.
92. Mr. Barry Brophy, Energy Efficiency Manager, NL Hydro, stated this about the Efficiency Program "There's only so many light bulbs you can put in."

Reference: PUB Hearing Transcript November 24, 2015, page 11 line 10

93. The major setback with the Efficiency Program is the amount of mold and mildew Summerhill found while implementing some of the water heater and pipe wrapping initiatives. There were also ventilation problems with some homes. This means this part of the Efficiency Program could not be implemented.

Reference: PUB Hearing Transcript November 24, 2015 – Page 6, Lines 8-12, Page 7, Lines 1-10

94. Mr. Christopher Henderson, expert witness for the Nunatsiavut Government, suggests a whole systems approach to energy conservation in Nunatsiavut. His expert report notes the following:

*However, the Nunatsiavut Government has concluded that insufficient effort has been devoted to energy efficiency and renewable energy for the region as a sustainable energy approach with longer term economic potential.
Specifically:*

1. *Energy efficiency efforts to date have been modest and have consisted of general information on electricity consumption practices, and the promotion of minor equipment (lighting, water use, etc.) installation. Larger and more*

substantive opportunities exist such as more energy-efficient: building systems, large electricity-consuming equipment and advanced lighting (e.g. LEDs). Catalysing these energy efficiency opportunities requires more planning, management and investment than has been the case in the past, and a more flexible and inclusive program than is currently the case.

Reference: Pre-filed Expert Report of Chris Henderson, Lines 158 through to 169

95. This method would involve analysis of the entire home being assessed. It would not be a piece meal method of energy conservation but rather a review of the entire home/structure to determine a comprehensive energy conservation program per home.

96. This method was also suggested by KEMA in their report entitled "takeCHARGE Process and Market Evaluation Final Report (KEMA Report)". One of the key recommendations of the KEMA Report was a "whole house program" or bundle energy efficiency measures. The KEMA Report states:

A broader more comprehensive approach to the existing home markets is to take whole house approach to energy efficiency. A whole house program would incentivize participants to implement all eligible measures rather than just installing a single measure e.g., attic insulation. This type of program focuses on improving the overall energy performance of the home and can potentially capture additional savings opportunities. An alternative to the whole house approach would be to bundle a smaller sub-set of measures together e.g., attic insulation, basement ceiling and basement wall insulation with programmable thermostats.

Reference: takeCHARGE Process and Market Evaluation Final Report CA-NLH-215, Attachment I (Rev 1, Nov 20-14) (page 135 of 206)

97. To date Hydro has approached energy conservation in ad hoc manner.

98. When questioned by Mr. Johnson, Consumer Advocate, on why the recommendation of KEMA on whole house systems was not offered by Hydro, Mr. Barry Brophy, witness for Hydro could not offer any explanation.

Reference: PUB Hearing Transcript page 13, lines 19-25, pages 14 lines 1-15, page 15 lines 1-25, page 16 lines 1-10

99. NL Hydro, in its Rural Deficit Annual Report also emphasized the importance of energy efficiency in the isolated system communities.

100. The Nunatsiavut Government submits Hydro must look at whole systems.

101. We request that the PUB direct Hydro to study and preferably implement an energy conservation plan based on the whole system approach and that a timeline be proposed for such an initiative.

New Diesel Generation Conservation

102. Chris Henderson provided detailed information about the new advances in diesel generation technology. The fuel savings with the new diesel generation would assist with rising fuel costs and save on carbon emissions. The Additional Information filed by Chris Henderson indicates the following with respect to new Diesel Generation Systems:

Developments in Regards to Diesel Generation Systems

- *A number of technological innovations are occurring in diesel power generation.*
- *A notable technology has been developed by Innovus Power of California. The company's Variable Speed Diesel System: reduces fuel requirements and lowers operating costs, with resulting fewer GHG emissions.*
- *The system can reduce diesel fuel consumption by up to 35%, and up to 70% when integrated with local renewable power generation.*
- *Innovus is working with several Canadian utilities including BC Hydro and NWT Power to determine the feasibility of site demonstrations*

Reference: Additional Information, Testimony of Chris Henderson, Lumos Energy, Expert to the Nunatsiavut Government, Lines 69 through to 77

103. In addition to this, Mr. Henderson was questioned by Mr. Jeffrey Young, NL Hydro, and Mr. Thomas Johnson, Consumer Advocate, with respect to the new generation of diesel systems. The transcript notes the following:

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- 1 for everybody in Nunatsiavut.*
2 MR. YOUNG:
3 Q. Right.
4 MR. CHRIS HENDERSON:
5 A. So district heating has some potential in the
6 region, but for the diesel plants, not a lot
7 because of the nature of the geology and the
8 nature of the community design, but probably
9 would have looked at it for Hopedale.
10 MR. YOUNG:
11 Q. Our experience, as I mentioned, is somewhat

12 *limited, and the bedrock, the distances, the*
13 *lead loss is the issues, yeah.*
14 **MR. CHRIS HENDERSON:**
15 *A. Right.*
16 **MR. YOUNG:**
17 *Q. One last thing, and it's in your additional*
18 *information, I'm quite interested in this*
19 *actually, is the variable speed diesels. I'm*
20 *just curious what size units they would be,*
21 *because there's one in BC that's being looked*
22 *at, you said?*
23 **MR. CHRIS HENDERSON:**
24 *A. Yes, from 100 megawatts up to 10 megawatts.*
25 **MR. YOUNG:**

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1 *Q. No, kilowatts?*
2 **MR. CHRIS HENDERSON:**
3 *A. I'm sorry, from 100 kilowatts to about 10*
4 *megawatts.*
5 **MR. YOUNG:**
6 *Q. Okay.*
7 **MR. CHRIS HENDERSON:**
8 *A. It can be sized - they're sized differently.*
9 *I can certainly be pleased to share additional*
10 *information about the company. I mean, these*
11 *are the kinds of innovations that we're just*
12 *really looking into because you will have to*
13 *replace the diesel system sometime in the next*
14 *years, I would imagine, in the region, or*
15 *expand, and the potential for variable speed*
16 *systems - the challenge may be technically*
17 *integrating the variable speed with the*
18 *existing fixed speed systems.*
19 **MR. YOUNG:**
20 *Q. Right.*
21 **MR. CHRIS HENDERSON:**
22 *A. But doable, not - it's been done. It's just*
23 *not the plant you have now, but it's not*
24 *requiring a wholesale plant replacement*
either.

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1 **MR. YOUNG:**
2 *Q. Okay, so you can add one of these units?*
3 **MR. CHRIS HENDERSON:**
4 *A. Yeah. You'd probably have to make some*
5 *changes to control systems to allow them to be*
6 *integrated with the current system.*
7 **MR. YOUNG:**
8 *Q. I can see the value of that if you were*

9 putting on that incremental system.
10 MR. CHRIS HENDERSON:
11 A. Sure.
12 MR. YOUNG:
13 Q. If you had two units on at sort of full load,
14 looking at two more -
15 MR. CHRIS HENDERSON:
16 A. Right.
17 MR. YOUNG:
18 Q. Just that one and (unintelligible). It's
19 interesting and something to look forward to.
20 Thank you, Mr. Henderson, that's all my
21 questions.
22 MR. CHRIS HENDERSON:
23 A. Thank you.
24 CHAIRMAN:
25 Q. Mr. O'Brien.

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1 MR. O'BRIEN:
2 Q. No questions.
3 CHAIRMAN:
4 Q. Mr. Johnson.
5 MR. CHRIS HENDERSON - CROSS-EXAMINATION BY JOHNSON, Q.C.:
6 JOHNSON, Q.C.:
7 Q. I did, and Mr. Young picked up on that because
8 I think the diesel will be with us for some
9 time to come, and as regards the development
10 of that technology by Innovus Power of
11 California, when was it developed?
12 MR. CHRIS HENDERSON:
13 A. About five years ago.
14 JOHNSON, Q.C.:
15 Q. About five years ago, and are the capital cost
16 of these units - do you know much about the
17 capital cost relative to what we've
18 traditionally been using in the isolated
19 communities in this jurisdiction?
20 MR. CHRIS HENDERSON:
21 A. They would be slightly higher, probably in the
22 range of 10 to 12 percent higher than your
23 current capital cost, but a reduction offset
24 of that are up to 30 to 35 percent reduction
in diesel fuel consumption.

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1 JOHNSON, Q.C.:
2 Q. In your additional information, you indicated,
3 as you've testified, that Innovus is working
4 with several Canadian utilities, including BC
5 Hydro and Northwest Territories Power to

6 *determine the feasibility of site*
7 *demonstration, so what sort of work are they*
8 *doing, just visiting the California*
9 *operations, going through the figures, is that*
10 *what it's consisting of up to this point?*
11 *MR. CHRIS HENDERSON:*
12 *A. They're looking actually at physical*
13 *installation in BC sometime in the next year.*
14 *JOHNSON, Q.C.:*
15 *Q. Okay.*
16 *MR. CHRIS HENDERSON:*
17 *A. So they're now in negotiation of that*
18 *contract.*
19 *JOHNSON, Q.C.:*
20 *Q. All right, those were my questions. Thank you*
21 *very much.*

Reference: PUB Hearing Transcript November 30, 2015 page 65, lines 16-25, pages 66 lines 1-25, page 67 lines 1-25, page 68 lines 1-25, page 69 lines 1-21

104. The Nunatsiavut Government requests the PUB direct Hydro to study and file a report with respect to the new diesel generation technology. Any such study and report should have a timeline.

Alternative Energy Sources

105. An intricate part of lowering the cost of supplying energy to Nunatsiavut must be an effort to find alternate energy sources. The Nunatsiavut Government is dedicated to exploring alternative energy sources and to this effect it has been working on a strategic energy plan. The Nunatsiavut Energy Security Plan is outlined in the pre-filed evidence of Mr. Darryl Shiwak, Minister of Lands and Natural Resources for the Nunatsiavut Government.

Reference: Pre-filed evidence of Minister Darryl Shiwak, Appendix B

106. The Nunatsiavut Government Energy Security Plan is lengthy. To demonstrate the type of analysis and effort the Nunatsiavut Government gives to this undertaking we provide a copy of the following excerpt from the Energy Security Plan for the Nunatsiavut Government.

Track B: High Priority Sustainable Energy Projects

Below are the actions proposed under High Priority Sustainable Energy Projects Pathway "B" and factors pertinent to implementation.

PHASE 1:

1. 2015-16 Bio-Heating Demonstration

Purpose: Testing the potential of more energy efficient stoves in terms of wood fuel requirements, cost, indoor air quality and space heating quality

Function: 2015-16: Installation and evaluation of 6 high efficiency stoves. 2016-17: Installation and evaluation of 2 biomass-based household district heating systems

Timeline: 2015-16, 2016-17

Resources: Activities for 2015-2016 funded through NRCan, funding to be found for 2016-2017, if direction approved

Outcome: Demonstration of technical and economic viability and performance of high energy efficiency stoves and biomass-based district heating systems

For further details see the Biomass-to-Energy Conversion to Promote Economic Development and Social Well-Being in Nunatsiavut prepared for the Nunatsiavut Government and NRCan, March 2015

2. Solar - Diesel Integration Demonstration

Purpose: To demonstrate the effectiveness of integrating a solar array into a diesel reliant isolated system

Function: Installation of solar hot water heating capacity for the Illusuak Cultural Centre in early fiscal 2016-17, followed by consideration of solar PV installation on the facility later in the year provided funding and support can be obtained.

Timeline: 2016-17

Resources: Supported by the federal government and industry contributions

Outcome: Solar demonstration in Nunatsiavut

3. 2016-17 Wind Energy - Diesel Integration Demonstration

Purpose: To demonstrate the effectiveness of integrating a wind turbine into a diesel reliant isolated system

Function: Small scale wind-diesel hybrid in a Nunatsiavut community (potentially Hopedale)

Timeline: 2017-18

Resources: TBD

Outcome: Wind energy demonstration in Nunatsiavut

PHASE 2:

1. Nunatsiavut Energy Efficiency 'PAYS' Demonstration/Demand Side Management

Purpose: To promote programming and financing through a new stand-alone program, or through NLH whereby capital would be available to install more energy efficiency devices (lighting, water heating, etc.) and improved building insulation

Function: To reduce heating and electricity bills financing through energy cost savings.

Timeline: 2016-17, and onwards

Resources: To be determined in discussion with the provincial government and NLH
Outcome: Improved energy efficiency and reduced energy costs

A description of PAYS is found on the next page.

2. Nunatsiavut Sustainable Energy Infrastructure Fund (NSEIF)

Purpose: Establishment of a long term infrastructure fund to improve the energy efficiency of new and existing buildings in the region. Could be linked to a larger infrastructure fund

Function: Promotion of a systems-oriented approach to new building design for regional facilities and buildings

Timeline: 2018-24

Resources: To be determined

Outcome: Community and building infrastructure that is more energy efficient

Reference: Pre-filed evidence of Minister Darryl Shiwak, Appendix B, Page 8 Lines 127 – 139, Page 9 Lines 140 – 163, Page 10 Lines 164-18

107. NL Hydro has done its own research into alternative energy sources for isolated communities. In December 2009, NL Hydro filed a report entitled "Preliminary Assessment of Alternative Energy Potential in Coastal Labrador" ("Alternative Energy Report"). The Alternative Energy Report was detailed and its recommendations were clear.
108. The Alternative Energy Report is lengthy. However, the economic analysis on Nain, Hopedale and Makkovik is very instructive. With respect to Nain, Hopedale and Makkovik, the following was noted:

Nain

5.1.2 Economic Analysis

Based on simulation results, using current estimates of wind, hydro and solar potential, Nain could easily use a wind turbine to supply 30% of its required system load. As forecasted system growth occurs and diesel fuel prices rise, the percentage of load that could be supplied by wind energy increases slightly to 31% with the addition of an extra turbine. There is an immediate financial benefit to using wind energy in comparison with diesel fuel prices, and this benefit increases as fuel prices rise.

Hopedale

5.2.2 Economic Analysis

The simulation of wind turbines in the Hopedale system provides the largest savings through use of wind energy over diesel fuel in the study. Based on the 2011 forecasted system load, turbines could be used to supply 43% of the community's energy requirements. As the system load and fuel prices increase, an additional turbine could be integrated to increase the system load met by wind energy to 47%. In addition, as these increases in costs are encountered, the margin in savings over diesel fuel increases as well, making wind energy even more economically beneficial.

Makkovik

5.3.2 Economic Analysis

Makkovik has a choice of viable alternative energy solutions: both wind and hydro offer financially attractive options. With respect to wind energy, Makkovik could potentially integrate multiple wind turbines. Based on the 2011 load forecast, the turbines could supply the system with 35% of its required energy. As fuel prices and system load increase, the model suggests that no additional wind turbines be added to the system. Consequently, the proportion of wind energy supplied to the system remains constant.

Hydro generation appears to be an economically attractive option for Makkovik. The unit energy costs of Sites MK S-1, 1, and MK S-2 are lower than the current costs of diesel energy, and the costs of energy from the hybrid system noted above. As the price of diesel rises, these hydro options become increasingly attractive. Site 1 could possibly replace the Makkovik diesel plant, but will require the inclusion of the cost of reservoir storage as part of the project.

Reference: NLH 2013 Amended General Rate Application, Information #18, filed October 22, 2015

109. NL Hydro therefore is aware of what types of alternative energy sources would best work in these communities. It is interesting to note that although these recommendations have been with NL Hydro since 2009, they have yet to file a follow up report of the same.
110. At the time of the hearing, October 22, 2015, we were informed that a follow up report would be filed within one (1) month.

Reference: PUB Hearing Transcript October 22, 2015, Page 50, Lines 14-24, Testimony of Mr. Robert Moulton, Manager of Generation and Rural Planning

111. NL Hydro certainly has a history with wind energy and the application of the same to island Newfoundland. We suggest there is some familiarity with wind energy.
112. According to the 2013 Amended Rate Application, *"The Province of Newfoundland and Labrador has a world-class wind regime that is being utilized on both on the island interconnected and isolated systems"*. The 2013 General Rate Application goes on to say that the wind energy operations in Ramea, St. Lawrence, and Fermeuse have been operating with great success. The wind energy programs have reduced diesel consumption and displaced many tons of greenhouse gas emissions.

Reference: NLH 2013 General Rate Application, Page 2.5, Lines 20-29 and Page 2.6, Lines 1-15

113. Chris Henderson in his expert report and additional information filed with the Board provided a comprehensive review of the alternative energy sources throughout Canada, particularly, in northern regions. An excerpt of the same is attached.

Attachment "A"

From Nunavut Government website.

Renewable Energy Opportunities

Firm Technology Options that Can Replace Diesel as Primary Source of Power

Proven Northern Application	Emerging Potential
<p style="text-align: center;">Run of River Hydro Projects</p> <p>Power from diverted water that relies on the natural flow of the river and uses a gate or intake structure that controls water flow, or an enclosed pipe to deliver water to hydro turbines in a power plant.</p>	<p style="text-align: center;">Very Low Head Hydro (1-5MW)</p> <p>Power from diverted water that relies on minimal elevation difference, in the 4 to 10 metre range. Conventional hydro projects typically require at least 10 metres of drop.</p>
<p style="text-align: center;">Conventional Hydro Storage Projects</p> <p>Power from water that is stored in a reservoir or held by a dam and the flow is managed to provide power as needed.</p>	<p style="text-align: center;">Hydrokinetic turbines (15kW – 200kW)</p> <p>Fixed hydro turbine with minimal structures intended for river application. Technology is in the pre-commercial stage of testing. Units generally too large for our shallow Northern rivers.</p>
<p style="text-align: center;">Large Scale Biomass Combined Heat and Power</p> <p>Biomass, which is wood pellets, wood chips or wood product, is burned in a boiler, creating steam for driving a steam turbine for electrical generation, and having useable heat for a district or industrial heating system. Requires no or very low cost high quality biomass and steam plant operators.</p>	<p style="text-align: center;">Small Scale Biomass Combined Heat and Power</p> <p>A boiler can create hot water, driving a specialized low temperature (ORC) turbine to create electricity, and the ORC residual heat can feed a district heat system.</p>
	<p style="text-align: center;">Tidal Power</p> <p>Submerged turbine with minimal added structures that relies on current from tide water to generate power.</p>
<p>Wood pellets, above, are a source of biomass that can be burned to create steam which drives a steam turbine for electrical generation. Low or no cost biomass is required to make it an affordable option for primary generation.</p>	<p style="text-align: center;">Hydro Kite (40kw)</p> <p>Tethered, steerable, prototype of submerged kite-like structure being tested in the Fraser river</p>
	<p style="text-align: center;">Geothermal Energy (Power & Heat) 1MW</p> <p>System that relies on pumping hot fluids to the surface from deep in the earth (3-4 kilometres) to spin a turbine that produces electricity. Residual heat could feed a district heat system.</p>

Diesel Offset Options (Diesel Displacement)

Electricity options that can be used in place of some of the diesel consumed in a community when the renewable energy source is available (i.e. when the wind is blowing or the sun is shining).

Proven Northern Application	Emerging Potential
<p style="text-align: center;">Solar Power</p> <p>The conversion of sunlight into electricity using photovoltaic arrays. Suitable for residential and</p>	<p style="text-align: center;">Biomass Combined Heat and Power</p> <p>Solutions are emerging that allow wood to be gasified or burned to generate electricity and heat</p>

<i>utility scale application.</i>	<i>by-product. The technology requires a no/low cost biomass source to emerge.</i>
Wind <i>Wind generation is the conversion of wind energy into electricity. Proven as a utility-scale energy source capable of displacing 8 to 10 per cent of diesel consumption in isolated systems.</i>	Airborne Wind Turbine <i>This is a preliminary concept for a tethered wind turbine that does not rely on conventional tower construction and can conceivably operate at much higher hub height.</i>

Storage Technology

Although expensive to implement today, storage technology continues to improve and has the potential to significantly improve the level of renewable energy that can be relied on to offset diesel and/or natural gas in our remote communities. The only proven renewable storage option at this time is hydro power.

Proven Northern Application	Emerging Potential
Water (hydro) as a form of energy storage	Lithium Ion Batteries
Lead Acid batteries	Hydrogen Fuel cells
Nickel Cadmium Batteries	Compressed Air

Reference: Additional Information of Mr. Christopher Henderson, expert witness for the Nunatsiavut Government

114. Furthermore, Mr. Henderson in his testimony spoke in detail about the new efficiencies in battery power and storage for solar systems.
115. Mr. Henderson has been involved with the replacement of diesel generation in the community of Inukjuak, Northern Quebec, Region of Nunavik. He has been involved with the Government of Ontario with the conversion of 23 remote communities of diesel to electrical transmission. He has worked with the Government of Manitoba in the community of Lac Brochet and Barron Lake. They are looking at a hydro project for diesel. He has also worked in a number of coastal communities in British Columbia, looking at different innovations of power systems, including a more efficient diesel system. Mr. Henderson has also advised Yukon Energy with their innovations for remote communities.

Reference: PUB Hearing Transcript November 30, 2015, Page 32, Line 25, Page 33, Lines 1-24

116. Mr. Henderson also offered evidence for a pay as you save system ("PAYS") in Manitoba.

The take Charge Program is a good program. It's been well intentioned and it has a number of positive parts. However, it also is not a holistic community energy planning or holistic individual residence or facility energy efficient and conservation

program. I'll give you a comparison. If you go to Manitoba, Manitoba has a system called PAYS, Pay As You Save. In Manitoba, virtually any business, institution, or community home owner can go to the provincial utility of Manitoba Hydro and say, look, I'd like to renovate all these aspects of my home, windows, and major appliances, building systems, building envelope, and I will access a fund from the utility to do that, and as I save, and that has to be part of a plan with the utility, then that money that was used for those initiatives is paid back, and once it's paid back, then I'm free and clear.

Reference: Hearing Transcript November 30, 2015, Page 39, Lines 9-22

117. The Nunatsiavut Government submits the PAYS system is an initiative which should be implemented by NL Hydro.
118. It appears this type of program is also a priority for the Government of Newfoundland and Labrador. On December 14, 2015 the Premier of Newfoundland and Labrador, the Honourable Dwight Ball, directed the Honourable Perry Trimper, Minister of Environment and Conservation, to develop pay-as-you-save programs for residential, commercial and industrial retrofits for people and businesses in the Province.

Reference : Letter from the Premier of Newfoundland and Labrador, the Honourable Dwight Ball, to the Honourable Perry Trimper, Minister of Environment and Conservation, dated December 14, 2015, Attachment B

119. Mr. Henderson was of the opinion that a lot more could be done by NL Hydro and to this effect he noted the following:

What programs like Manitoba have done is take a holistic approach to a home, but more importantly for communities like isolated communities on the North Coast, you want a comprehensive community energy planning approach and that's what I think you will see when you see the Nunatsiavut energy security plan tabled. It's trying to say, look, can you look at the community of Nain, Hopedale, or Rigolet, or Makkovik, and see how those communities are using energy and reduce energy together with them. So what I would point to in the testimony, and also in the additional material, is things have changed. There is a report that we were privy to that was commissioned by Newfoundland and Labrador Hydro in 2009, looking at various forms of renewal energy in the region, and concluded at that time that while there was some more wind energy monitoring being done, there wasn't much potential in solar, there wasn't much potential in geothermal bio-mass, and some of that is definitely factually correct, there's not much potential in geothermal, for example. However, 2009 is six years ago and things have changed. I mean, in that 2009 report, it was said that if solar power costs come down, they should be considered.

Well, in the last six years they have come down now almost 65 percent for solar panels, control systems, and converters/inverters, and as a result, elsewhere in

Canada in Northwest Territories, in Northern Ontario, in BC, you see large scale conversions of systems that are remote into solar power with solar storage. Solar panels will come down a further 20/25 percent in the next two/three years, and so storage costs are going down which allows both backup capacity for solar power. That's an example of how renewable energy should be looked at more assertively.

There was a report commissioned by the Newfoundland Government in 2014 to look at these issues again. We do not have the final report yet, it's not available, we look forward to it. So the simple point that we would make here is that part from the reality of energy in the North Coast communities which is challenging, given the economic situation and the link between heating and power, is that we believe that there is greater potential for a more holistic community energy planning approach and a more holistic home energy efficiency and conservation approach, which does require new tools. It may require, for example, an investment fund that has a payback mode that could be commissioned on the part of the utility potentially with the Provincial Government as it is, for example, in Manitoba. We do believe that certain forms of renewable energy have changed in both the reliability, the performance, and the economics in the last six years that has led other jurisdictions with remote communities in Canada and elsewhere in the world to start installing them because they're working better.

If you go to Colville Lake in Northwest Territories, you'll see a large solar ray that covers a property about twice the size of this building footprint that is now generating over 60 percent of the power requirements in Colville Lake. Northwest Territories didn't do this happenstance. They did it because it made sense. If you go to Northwest Territories and you look at the EKATI Mine, three years ago they installed three wind turbines at that mine. This is a perfectly private operation, they look at full cost accounting. They worked so well, they installed three more this summer. In addition, there's opportunities to be innovative here in the context of newer technologies. People are well aware of the wind hydrogen system in Ramea Island, but if you look in a northern community like Salluit, the Xstrata Mine in Nunavik in Northern Quebec, there you had a wind deal system installed a year and a half ago which involved a major contribution on the part of the Federal Government, in fact, covering almost 60 percent of the cost to recognize it was a cost factor that should not be borne by rate payers in the province, but because there was innovation potential there, you could see how wind diesel systems could work that's not up and operating.

So there's opportunity both for conservation with holistic approach community-wise and building-wise, building on takeCharge as a start and go further. Two, it's an opportunity to look at renewable energy because renewable energy technologies are becoming more effective and more cost effective. Thirdly, it's an opportunity to look at innovation in systems because there are supports, including a partnership with the Federal Government. Those are opportunities we believe should be part of the system for Nunatsiavut that do have an impact on rate payers over the medium to long term and also home owners in the region and businesses.

Reference: PUB Hearing Transcript November 30, 2015 Testimony of Mr. Christopher Henderson, Page 39, Lines 22-25, Page 40, Lines 1-25, Page 41, Lines 1-25, Page 42, Lines 1-25, Page 43, Lines 1-25, Page 44, Lines 1-9

120. The Nunatsiavut Government is of the opinion NL Hydro could do much more in the way of alternative energy sources. They have their own studies. Other utilities throughout Canada have studies and put into place a host of other energy sources. Mr. Henderson has provided examples of many.
121. Further, the Nunatsiavut Government has not been passive in this area and has put into place a long-term sustainable security plan.
122. It is unclear why NL Hydro has not hastened the study process given the Alternative Energy Report they undertook in 2009. The above noted examples indicate much of the work has already been done in other northern climates throughout Canada.
123. The Nunatsiavut Government takes the position NL Hydro should be required to file, no later than 2016, a report outlining its five year strategic plan with respect to alternative energy sources in Nunatsiavut. The same should include a description, timing and cost of the plan to be implemented by Hydro.

Costs

124. The Nunatsiavut Government submits that an award of costs in its favour is justified based on the following:
 - a. The rising cost of energy is a major concern to the people of Nunatsiavut. The cost of energy consumes a significant amount of monthly income to the people of Nunatsiavut. As such, the Nunatsiavut Government had a significant interest in participating in the within Application.
 - b. The interest of the Nunatsiavut Government in the within Application were discreet from the interest of other groups. The communities on the coast of Labrador which rely on diesel generated facilities have their own issues, in particular reliability, with NL Hydro.
 - c. The Nunatsiavut Government submits it had to make representation to the Board concerning conservation and alternative energy sources. Such representations were significant.
 - d. The Nunatsiavut Government participated in the within Application to ensure safe and reliable service at just and reasonable rates for the people of Nunatsiavut.
 - e. The Nunatsiavut Government submits it participated within reason in the Application process. It participated only when necessary to advance the issues of the people of Nunatsiavut.

DATED at St. John's, in the Province of Newfoundland and Labrador, this 23rd day of December, 2015.



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TO: The Board of Commissioners of Public Utilities

Ms. Cheryl Blundon
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AND TO: Newfoundland and Labrador Hydro

Mr. Geoffrey P. Young
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St. John's, NL A1B 4K7

AND TO: Newfoundland Power Inc.

Mr. Gerard Hayes
Newfoundland Power Inc.
55 Kenmount Road
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St. John's, NL A1B 3P6

AND TO: Consumer Advocate

Mr. Thomas Johnson
O'Dea Earle Law Offices
323 Duckworth Street
St. John's, NL A1C 5X4

AND TO: Vale Newfoundland and Labrador Limited

Mr. Thomas O'Reilly, Q.C.
Cox & Palmer
Scotia Centre, Suite 1000
235 Water Street
St. John's, NL A1C 1B6

AND TO: **Towns of Labrador City, Wabush,
Happy Valley-Goose Bay and North West River**
Mr. Dennis Browne, Q.C.
Browne Fitzgerald Morgan & Avis
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AND TO: **Ms. Yvonne Jones, MP Labrador**
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AND TO: **Innu Nation**
Mr. Senwung Luk
Olthius, Kleer, Townshend LLP
229 College Street
Suite 312
Toronto, ON M5T 1R4

AND TO: **Corner Brook Pulp and Paper Limited,
North Atlantic Refining Limited and
Teck Resources**
Mr. Paul Coxworthy
Stewart McKelvey
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Appendix A

Table 1: Comparison of Customer Rate Impacts

Rate Class	2013 TY Average Increase (Decrease)	2015 TY Average Increase (Decrease)
ISLAND INTERCONNECTED		
Newfoundland Power (NP) wholesale rate impact	-4.8%	4.1%
Estimated end consumers' rate ¹ impact	-3.2%	2.8%
Estimated Rural Customers' rate impact	-3.2%	2.8%
Industrial Customers (IC)	73.1%	39.2%
ISLAND ISOLATED SYSTEMS		
Domestic	0.9%	7.1%
General Service 0 - 10 kW	11.6%	18.5%
General Service Over 10 kW	11.5%	19.2%
Street and Area Lighting	-3.2%	2.8%
Government Departments		
General Service 0-10 kW	22.0%	24.7%
General Service Over 10 kW	27.5%	25.4%
Street and Area Lighting	16.8%	27.5%
LABRADOR INTERCONNECTED		
Domestic	26.0%	1.9%
General Service 0-10 kW	28.5%	1.9%
General Service 10-100 kW	16.6%	1.9%
General Service 110-1,000 kVA	16.9%	1.9%
General Service Over 1,000 kVA	22.0%	1.9%
Street and Area Lighting	42.8%	17.5%
LABRADOR ISOLATED SYSTEMS		
Domestic	0.9%	7.1%
General Service 0 - 10 kW	11.6%	18.5%
General Service Over 10 kW	11.5%	19.2%
Street and Area Lighting	-3.2%	2.8%
Government Departments		
Domestic	17.7%	21.5%
General Service 0 - 10 kW	22.0%	24.7%
General Service Over 10 kW	27.5%	25.4%
Street and Area Lighting	16.8%	27.5%
L'ANSE AU LOUP SYSTEM		
Domestic	-3.2%	2.8%
General Service	-3.2%	2.8%
Street and Area Lighting	-3.2%	2.8%

1 - Estimated pass through to retail level for 2013TY and 2015TY are 67% and 67.5% respectively.

Appendix B

December 14, 2015

Honourable Perry Trimper
Minister of Environment and Conservation,
Minister Responsible for Climate Change and Energy Efficiency,
Minister Responsible for the Multi-Materials Stewardship Board,
Minister Responsible for the Labour Relations Agency,
and Minister Responsible for Francophone Affairs

Dear Minister Trimper:

I am honoured to welcome you to your role as Minister of Environment and Conservation, Minister Responsible for Climate Change and Energy Efficiency, Minister Responsible for the Multi-Materials Stewardship Board, Minister Responsible for the Labour Relations Agency, and Minister Responsible for Francophone Affairs. We have been given an extraordinary opportunity to serve the people of our province and together we will work to create a stronger tomorrow for Newfoundland and Labrador. Over the next four years, we will fulfill our commitments, building on the trust placed in us on November 30, 2015. We shall, without fail, act with integrity in all aspects of our service, striving for excellence in discharging our responsibilities.

Embarking on this journey together, we will be guided by *A Stronger Tomorrow: Our Five Point Plan* to Restore Openness, Transparency and Accountability; Build a Stronger, Smarter Economy; Improve Health and Healthcare; Support Safe and Sustainable Communities; and Invest in Our Future Through Education.

As Premier of Newfoundland and Labrador I expect you to follow the principles of openness, transparency and accountability. It is my intention to ensure policy decisions in government are informed by research, evidence, and evaluation so that citizens can understand how and why decisions are made. It is critical that our government's decisions are also informed by engagement with stakeholders, including our Aboriginal partners, to ensure everyone's voices are heard.

Our government is committed to modernizing our province's legislative process in accordance with these principles and I call upon you to engage your fellow Members, constituents and the general public; avail of the Committee process of the House of Assembly; and seek opportunities for non-partisan cooperation.

We are also committed to creating an environment that captures the full potential of our province's many riches, through diversification, job creation and growth. We will take action to improve the health and well-being of people, empower sustainable community development, protect public safety and advance educational opportunities and outcomes.

Our province is facing significant fiscal challenges that require our collective leadership and the engagement of the public. Together, our government will lead our province towards a more sustainable, economic future.

The protection and enhancement of this province's environment, and management of the province's wildlife, inland fish, water and parkland resources are vital to the preservation of Newfoundland and Labrador as an attractive place for residents, visitors and newcomers. As Minister, I expect you to oversee these aspects of our mandate, together with a number of specific items outlined below.

Environmental Protection

Advancing protected areas planning is central to environmental and cultural conservation, as well as to sustainable development. A well-governed and scientifically-based system for designating protected areas has the potential to benefit not only our environment, but our economy, through ecotourism and research endeavors. You are expected to finalize and publicly release a Natural Areas System Plan in collaboration with your colleagues. You must also develop a provincial wetlands strategy which will, among other things, guide development to avoid or reduce effects on our valuable wetlands. This strategy will provide a formal framework to support conservation work presently being undertaken by municipalities.

You will need to work with your colleagues to develop a water quality action plan to address infrastructure, expertise, and technology to ensure our water systems are safe and sustainable. This action plan should consider the roles of communities and the Federal Government and should aim to reduce, to the greatest extent possible, the number of long-term boil water advisories.

Improving our Designated Hunting Regulations

I ask that you review the current hunting regulations and bring forward amendments to allow persons with disabilities to participate in the activity of hunting in situations where remaining in sight of the designated hunter poses challenges.

Fighting climate change is arguably the greatest challenge of our time. It is a global issue that requires us to do our part here in Newfoundland and Labrador. As Minister Responsible, you are the lead in government for climate change policy and strategy development. You also play a key role with your colleagues in ensuring that climate change and energy efficiency are considered, where required, across departments.

Large Scale Emission Reduction Targets

In collaboration with your colleagues, you will work with large-scale industry to develop emissions reduction targets and publish these targets as part of the new greenhouse gas reduction strategy for the province. Properly designed and implemented, this strategy can be an opportunity to diversify our economy and boost the local environmental industry.

Energy Retrofits

You are directed to develop pay-as-you-save programs for residential, commercial and industrial energy retrofits that generate net benefits, which will improve the use of energy and generate savings for people and businesses in our province. These programs should include performance testing before and after a retrofit is undertaken. New opportunities to partner with municipalities to retrofit subsidized housing should also be explored.

As Minister Responsible for the Labour Relations Agency, you must ensure the protection of labour rights, provide assistance to resolve workplace issues in support of collective agreements and make certain that our employment relations regulatory framework is relevant. While leading the agency, I expect you to implement the priority outlined below.

Minimum Wage

Currently, the Minister Responsible for Labour Relations Agency must review minimum wage regulations every two years as prescribed by the *Labour Standards Act*. There are, however, no legislative requirements directing how the minimum wage should be calculated. I ask that you consult with labour organizations and employers to establish a consistent minimum wage formula that is reflective of changes to the cost of living. This will help both employers and employees with budgeting and business planning processes.

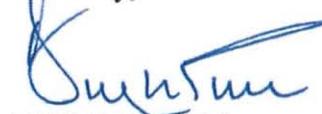
In fulfilling your responsibility as Minister you must ensure collaboration, in a positive and constructive manner, with your Cabinet colleagues. I take this opportunity to remind you that as you carry out your responsibilities, as a Member of the House of Assembly and Member of Cabinet, adhering to the Code of Conduct and the Conflict of Interest guidelines are mandatory, to ensure you discharge your duties with the highest ethical standards.

Deputy Ministers are your key source of support and will provide you with non-partisan advice in meeting your responsibilities. I expect you to develop a positive, respectful and trusting relationship with your Deputy Minister and the public service. I would also ask that you be mindful that Deputy Ministers, among their various responsibilities, are ultimately accountable to me, through the Clerk of the Executive Council.

Our government will report back to the public annually on the achievement of our commitments and make adjustments as required. As a Minister you are accountable for achieving these priorities and meeting other responsibilities within your Department.

Together, we will provide strong leadership to deliver the change we need to move beyond today's challenges and on to a stronger tomorrow.

Sincerely,



DWIGHT BALL
Premier