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November 15, 2024

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Via Electronic Mail

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

Attention: Ms. Jo-Anne Galameau, Executive Director and Board Secretary

Dear Ms. Galameau:

**Re: Newfoundland and Labrador Hydro- Reliability and Resource Adequacy Study
Review- IIC Requests for Information**

Enclosed please find the Island Industrial Customers Group Requests for Information IIC-NLH-009 to 022 dated November 15, 2024 in relation to the above noted Application.

We trust this is in order.

Yours truly,

Stewart McKelvey

Paul L. Coxworthy

PLC/tas

Enclosures

ecc. Board of Commissioners of Public Utilities
Jo-Anne Galameau
Jacqui Glynn
Katie R. Philpott
Maureen Greene, KC
PUB Official Email
Newfoundland and Labrador Hydro
Shirley Walsh
NLH Regulatory

Newfoundland and Labrador
Board of the Commissioners
of Public Utilities
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Newfoundland Power

Dominic Foley

NP Regulatory

Consumer Advocate

Dennis Browne, K.C., Brown Fitzgerald Morgan & Avis

Stephen F. Fitzgerald, Brown Fitzgerald Morgan & Avis

Sarah G. Fitzgerald, Brown Fitzgerald Morgan & Avis

Bernice Bailey, Brown Fitzgerald Morgan & Avis

Labrador Interconnected Group

Senwung Luk, Olthuis Kleer Townshend LLP

Nicholas E. Kennedy, Olthuis Kleer Townshend LLP

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IN THE MATTER OF the *Electrical Power Control Act, 1994*, SNL 1994, Chapter E-5.1 ("EPCA") and the *Public Utilities Act* RSNL 1990, Chapter P-47 ("Act"), as amended and regulations thereunder; and

IN THE MATTER OF Newfoundland and Labrador Hydro's Reliability and Supply Adequacy Study

REQUESTS FOR INFORMATION OF THE ISLAND INDUSTRIAL CUSTOMERS GROUP

IIC-NLH-009 – IIC-NLH-022
ISSUED November 15, 2024

IIC-NLH-009 In regard to the Island Hydroelectric Supply Refresh Study (October 1, 2024), Section 5.0 (pdf pages 21-22) please:

- a Indicate specific anticipated activities, timing and budgets for each activity stream (e.g., environmental, engineering, hydrological monitoring, consultation).
- b Provide the expected decision dates when any project(s) are anticipated to move to being "formally considered for expansion planning".
- c Indicate which of the 5 options identified for further study by AtkinsRealis are anticipated to proceed to more detailed review, and which (if any) are already considered screened out. Please indicate any projects that have already been screened out due to "operational requirements" and provide specific details about what operational requirements led to the filtering (e.g., cost, location, seasonality, etc.).
- d For each of the 5 sites identified for further study, please indicate the current status with respect to hydrological monitoring (e.g., incomplete data, need to extrapolate or interpolate) and the additional hydrological monitoring sites and/or data Hydro is anticipating to have installed to address these weaknesses, along with timelines.
- e Provide Hydro's response to each of the 9 recommendations for additional work provided by AtkinsRealis at pdf page 213 of the submission (Attachment 1 page 189 of 231).

40 f Indicate why Gisborne Lake and Piper's Hole did not receive cost
41 estimates in Table 7 (pdf page 18 of 351) and indicate the timing, if
42 any, for expected production of cost estimates.

43 IIC-NLH-010 In regard to the Technical Conference #3 presentation, page 47 (Maritime
44 Link – LIL relationship) and the Firm Energy Criteria:

45 Daymark indicated in their March 9, 2024 memo (2024 Resource Plan
46 Appendix A, page 5 of 11): "However as the nature of the analysis is
47 deterministic, it presents worst case scenario conditions and results. To
48 draw more general conclusions, a probabilistic analysis would be
49 informative."

50 Hydro indicates at Technical Conference Presentation 1 that the "critical
51 dry sequence" occurred between 1959 and 1962 (slide 45).

52 a Please provide a probability assessment of the firm energy criteria
53 implications, as described by Daymark.

54 b Please describe in detail how Hydro arrived at an annual firm
55 energy requirement criteria based on a 3 year dry sequence. For
56 example, did Hydro use the situation limited to the worst year of the
57 3 years? Is it based on a sequence of sequential drawdowns of
58 island reservoirs? Please explain the analytical approach.

59 IIC-NLH-011 Hydro indicates at RAP Appendix B: Planning Criteria and Study
60 Methodology, page 8-9 of 57 that:

61 "From an energy perspective, it is also necessary to decouple the two
62 interconnected systems. Further analysis has been completed to define
63 the operational relationship between LIL flow, Island Interconnected
64 System demand, and Maritime Link flow. Under normal system
65 conditions, the amount of energy that can flow over the LIL to the Island is
66 limited by the interdependencies with the Maritime Link and Island load.
67 This interdependence exists because both HVdc links must work together
68 using RAS that will suddenly reduce their power flows (runbacks) to
69 transiently regulate system frequency in the event a contingency occurs
70 on the other HVdc link. This LIL to Maritime Link relationship has less of
71 an impact on the amount of power that can be absorbed on the Island
72 than the amount of UFLS that is available and would be triggered
73 following a bipole trip. The amount of available UFLS is directly
74 proportional to the total Island load. As a result, it is now confirmed that
75 there are restrictions on the amount of energy that is able to flow from
76 Muskrat Falls to the Island, resulting in the recommendation to consider
77 the two regions independently when assessing firm energy requirements."

78 Hydro represents the above relationship in Technical Conference #3
79 presentation slide 47 (Maritime Link (ML) – LIL relationship).

- 80 a Please provide a copy of any third-party reports or analysis
81 commissioned by Hydro related to assessing the limitation
82 represented by the Technical Conference #3 presentation slide 47.
- 83 b Please describe what is meant by "it is now confirmed that there are
84 restrictions on the amount of energy that is able to flow from
85 Muskrat Falls to the Island" and indicate the specific process, timing
86 and form by which Hydro arrived at or received this confirmation.
87 Please provide a copy of any internal reports or memos that
88 document the confirmation process.
- 89
- 90 IIC-NLH-012 With reference to IC-NLH-011, please confirm that absent the limitation
91 represented by the Technical Conference #3 presentation slide 47, the
92 energy criteria would be easily met with the import capability over LIL in
93 all years of the planning sequence. If not, please provide an analysis of
94 the energy criteria constraint assuming this limitation was not a constraint,
95 and update Table 3 (page 44 of the RAP Overview) assuming this
96 limitation was not a constraint.
97
- 98 IIC-NLH-013 With reference to IC-NLH-011, please provide a description of the outcome
99 of operating the LIL deliveries to the Island at a level higher than
100 represented in the Technical Conference #3 presentation slide 47
- 101 (i) Under normal operating conditions (e.g., no outages) can the
102 higher level of deliveries be achieved? If not, why not, and what
103 would be the consequences?
- 104 (ii) What types of non-normal outages or system conditions would
105 lead to broader Island issues if the system was operated as
106 described in (i) above.
- 107 IIC-NLH-014 With reference to IC-NLH-011, please provide a copy of any analysis
108 conducted of equipment installation or other mitigation measures
109 considered by Hydro, including cost, to ensure the limitation represented
110 by the Technical Conference #3 presentation slide 47 is resolved or
111 mitigated.
- 112 IIC-NLH-015 With reference to IC-NLH-011, would additional UFLS on the Island permit
113 partial or full resolution of the limitation represented by the Technical
114 Conference #3 presentation slide 47?
- 115 (i) If yes, how much UFLS is required and why was this not
116 pursued?
- 117 (ii) If not, why will this not work?
- 118

119 IIC-NLH-016 With reference to IC-NLH-011, please indicate any role considered for
120 batteries on the island in mitigating the limitation represented by the
121 Technical Conference #3 presentation slide 47, including by responding to
122 the following:

123 (i) Why is this not a cost effective alternative to help resolve the
124 limitation?

125 (ii) In scenarios where Hydro has considered batteries as a
126 capacity resource, is their potential contribution to helping meet
127 the energy criteria (by increasing LIL import capability)
128 considered? If yes, how? If not, why not?

129 IIC-NLH-017 With reference to IC-NLH-011, please provide a list of other solutions
130 considered to mitigated the limitation represented by the Technical
131 Conference #3 presentation slide 47 (e.g., flywheels, easily shed pumped
132 storage hydro loads, speed-no-load hydro operation, etc.) and why these
133 are not included in the options being considered?

134 IIC-NLH-018 With reference to IC-NLH-011, Appendix B page 39 of 57 indicates UFLS
135 would be the only mechanism to offset a loss of supply. Would the result of
136 insufficient UFLS in relation to LIL inflow be a larger scale outage? If so,
137 what would be the scale and expected timing and frequency of such an
138 event? (e.g., it appears likely to occur in summer).

139 IIC-NLH-019 Has Hydro conducted any cost-benefit analysis of the cost of adding new
140 wind energy generation to the Island as compared to the number and scale
141 of avoided outages from simply running the LIL above the level indicated
142 in Technical Conference #3 presentation slide 47? If so, please provide the
143 calculations and analysis.

144 IIC-NLH-020 In the discussion of CTs (RAP Appendix C, page 40 of 163, section
145 4.4.2.1.2), Hydro indicates significant need for and benefits of Synchronous
146 Condensers in terms of transient stability, voltage regulation and frequency
147 regulation. If these capabilities are included with the CT, would it mitigate
148 mitigating the limitation represented by the Technical Conference #3
149 presentation slide 47, and if so, by how much?

150 IIC-NLH-021 The CT option includes an assumption that 10 days of fuel must be burned
151 off annually (RAP Appendix C, Section 6.2.1.1.6). Is this energy generation
152 from fuel burn off included in the energy criteria assessment? If not, why
153 not? What amount of energy is included in the 10 day burn-off assumption?

154 IIC-NLH-022 Daymark indicates in their May 9, 2024 memo (2024 Resource Plan
155 Appendix A, page 4 of 11) that: "Because the flow over the LIL is dependent
156 on Island load, three load scenarios were considered in the analysis."

157 a Please indicate the testing completed by Daymark of the
158 assumptions regarding the dependence of LIL/ML flow and Island
159 load, related to transiently regulating system frequency. Provide
160 copies of any studies or analysis conducted by Daymark regarding

161 system frequency regulation on the Island system, and the LIL/ML
162 interaction.

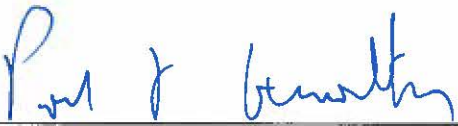
163 b Please provide Daymark's independent third-party assessment of
164 the responses to the questions posed in IIC-NLH-011 to IC-NLH-
165 020 (above) and whether Daymark had been tasked with assessing
166 each aspect of the limitation represented by the Technical
167 Conference #3 presentation slide 47 prior to completion of Hydro's
168 RAP.

169 DATED at St. John's, Newfoundland and Labrador, this 15th day of November, 2024.

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171 **POOLE ALTHOUSE**

172




for Dean A. Porter

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174 **COX & PALMER**

175



for Denis J. Fleming

176 **STEWART MCKELVEY**

177



Paul L. Coxworthy

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The Board of Commissioners of Public Utilities
Attention: Ms. Jo-Anne Galarneau, Executive Director and
Board Secretary, Ms. Jacqui Glynn, Katie R. Philpott, Maureen
Greene, KC, PUB Official Email

Newfoundland & Labrador Hydro
Attention: NLH Regulatory

Newfoundland Power
Attention: Mr. Dominic J. Foley, NP Regulatory

Consumer Advocate
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Ms. Sarah G. Fitzgerald, Ms. Bernice Bailey

Labrador Interconnected Group
Attention: Senwung F. Luk, Nicholas E. Kennedy

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