



NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES
120 Torbay Road, P.O. Box 21040, St. John's, Newfoundland and Labrador, Canada, A1A 5B2

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2019-06-04

Ms. Shirley Walsh
Senior Regulatory Counsel
Newfoundland and Labrador Hydro
P.O. Box 12400
Hydro Place, Columbus Drive
St. John's, NL A1B 4K7

Dear Ms. Walsh:

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

Enclosed are Requests for Information PUB-NLH-058 to PUB-NLH-079 regarding the above-noted application.

If you have any questions, please do not hesitate to contact the Board's Legal Counsel, Ms. Jacqui Glynn, by email, jglynn@pub.nl.ca or telephone (709) 726-6781.

Sincerely,


Sara Kean
Assistant Board Secretary

SK/cj
Enclosure

ecc Newfoundland & Labrador Hydro
Mr. Geoff Young, E-mail: gyoung@nlh.nl.ca
NLH Regulatory, E-mail: NLHRegulatory@nlh.nl.ca
Newfoundland Power Inc.
Mr. Ian Kelly, Q.C., E-mail: ikelly@curtislaw.com
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Mr. Danny Dumaresque
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1 **IN THE MATTER OF**
2 the *Electrical Power Control Act, 1994*,
3 SNL 1994, Chapter E-5.1 (the “*EPCA*”)
4 and the *Public Utilities Act*, RSNL 1990,
5 Chapter P-47 (the “*Act*”), as amended, and
6 regulations thereunder; and
7
8
9 **IN THE MATTER OF** Newfoundland and Labrador
10 Hydro’s Reliability and Supply Adequacy Study.

**PUBLIC UTILITIES BOARD
REQUESTS FOR INFORMATION**

PUB-NLH-058 to PUB-NLH-079

Issued: June 4, 2019

1 **Avalon Capacity Study, Solutions to Serve Island Demand During a LIL Bipole Outage,**
2 **May 24, 2019**
3

- 4 **PUB-NLH-058** Reference Avalon Capacity Study, page 6: The base case demand assumption
5 is said to be the 2028 P90 peak load of 1,762 MW; please:
6 a. Indicate and explain whether this amount becomes 1,815 MW including
7 station service loads and 38.4 MW of transmission losses.
8 b. Explain how this relates to other demand assumptions.
9
- 10 **PUB-NLH-059** Reference Avalon Capacity Study, page 7: The base case assumes ML available
11 with no export commitments. Please explain if and to what extent the results
12 change if the export commitments are non-zero.
13
- 14 **PUB-NLH-060** Reference Avalon Capacity Study, page 8, Table 2-2: The base case assumes
15 ML can deliver up to 300 MW. Please explain:
16 a. If and to what extent the results change if ML cannot deliver 300 MW, e.g.
17 because of one pole being unavailable or because of high power demands
18 in Nova Scotia.
19 b. Whether Hydro has any further actions in place to acquire firm capacity
20 purchases over the ML.
21
- 22 **PUB-NLH-061** Reference Avalon Capacity Study, page 7: The base case assumes the ML
23 frequency controller is available as import capacity permits; please:
24 a. Identify how much import capacity this requires.
25 b. Whether the ML would be able to deliver more than 300 MW if the
26 frequency on the IIS were to drop below the frequency range.
27
- 28 **PUB-NLH-062** Reference Avalon Capacity Study: The base case assumes a minimum
29 operating reserve of 70 MW maintained on the Island Interconnected system.
30 Please explain how this relates to the operational reserve requirement.
31
- 32 **PUB-NLH-063** Reference Avalon Capacity Study, page 26, Table 7-3: please:
33 a. Describe and explain whether 4 GTs solve all the issues analyzed in this
34 study.
35 b. Describe whether resolution would also require reactive support or thermal
36 upgrades.
37 c. Indicate and explain whether the table implies that a generation-only
38 option could work for all cases, including a 3PF at BDE.
39
- 40 **PUB-NLH-064** Reference Avalon Capacity Study, Table 7-2, page 24 and Table 7-3 page 26:
41 Has Hydro reviewed TGS proposed solutions and determined which of the
42 identified solutions is preferred in their opinion? If not, when will such analysis
43 be concluded?

- 1 **PUB-NLH-065** Reference Avalon Capacity Study: The measures required to meet the 3PF
2 (Including BDE) are much more extensive than those for the 3PF (not including
3 BDE); please explain why the ac network is so sensitive to this fault.
4
- 5 **PUB-NLH-066** Reference Avalon Capacity Study: Please provide the predicted/assumed
6 annual Bipole outage rate for the LIL for each of the following faults/events,
7 and for each provide the minimum and maximum time to resume operation of
8 at least one of the poles:
9 a. A broken neutral/earth return conductor with or without contact to a
10 HVDC conductor
11 b. A broken HVDC conductor with contact to the other pole
12 c. Up to 3 fallen towers
13 d. More than 3 fallen towers
14 e. The failure of any equipment common to both poles that could result in a
15 trip of both poles
16 f. The unavailability of the sea electrodes (also state the maximum power
17 that can be delivered using metallic return)
18 g. Any control and protection failures that could cause both poles to trip
19 h. Any generic/latent fault in pole equipment which may result in
20 accelerated ageing, the need for replacement of the control and protection
21 system, or other additional maintenance, and/or any other needs to take
22 one pole out of service for a prolonged period, during which the trip of
23 the remaining pole would cause a Bipole outage
24 i. Catastrophic events such as a fire that affects both poles, extreme weather
25 conditions that could damage the overhead lines, switchyard equipment
26 or buildings, acts of terrorism
27 j. The outage of all 3 HVDC cables
28
- 29 **PUB-NLH-067** Reference Avalon Capacity Study, pages 24 and 26: Please provide costs and
30 rate impact estimates for each of the transmission and generation solutions
31 listed in Tables 7-2 and 7-3.
32
- 33 **PUB-NLH-068** Reference Avalon Capacity Study: Please:
34 a. Confirm that Hydro intends to keep the generation plant on the Avalon
35 Peninsula operational until the LIL has been proven to operate reliably. In
36 the response indicate whether Hydro has studied the implications of the
37 extended operation of generation plant on the Avalon Peninsula beyond
38 2020. If yes, describe the extended period Hydro believes such plant can
39 operate reliably. If Hydro does not intend to keep all existing generation
40 plants on the Avalon operational after the LIL is in service, please explain
41 in detail why not.
42 b. Provide Hydro's proposed criteria for reliable operation of the LIL.

- 1 **PUB-NLH-069** Reference Avalon Capacity Study, Section 6: Please provide the estimated
2 annual (capital carrying costs, O&M, and other) costs:
3 a. For keeping each existing generation plant on the Avalon Peninsula
4 operational.
5 b. For each of the generators in each plant.
6
- 7 **PUB-NLH-070** Reference Avalon Capacity Study, Section 4: Please provide outage rates for
8 Hydro's transmission lines in terms of hours per kilometer-year. Please
9 provide these rates by voltage class and, if available, construction type, such
10 as lattice tower, steel pole, wood pole, and wood H-frame.
11
- 12 **PUB-NLH-071** Reference Avalon Capacity Study, Section 4: Please provide Hydro's
13 estimates of the time it would take to fully restore service after a full or partial
14 system collapse on the Avalon Peninsula caused by voltage instability or
15 dynamic instability.
16
- 17 **PUB-NLH-072** Reference Avalon Capacity Study, Section 4: Please provide Hydro's
18 estimates of the probabilities of 230 kV transmission outages in the Bay
19 d'Espoir to Soldier's Pond corridor occurring either simultaneously with or
20 during a LIL bipole outage.
21
- 22 **PUB-NLH-073** Reference Avalon Capacity Study, Section 4: Please list the number of times
23 there has been a three phase fault at Bay d'Espoir.
24
- 25 **PUB-NLH-074** Reference Avalon Capacity Study: Please provide any estimates of customer
26 costs arising from power outages by customer class, outage duration, and/or
27 other categorizations that may be available derived from customer surveys,
28 other utilities' published values, or internal or external analysis.
29
- 30 **PUB-NLH-075** Reference Avalon Capacity Study: The TGS study demonstrates that, in the
31 event of a LIL bipole outage, there are transmission constraints and/or a lack
32 of generation capacity, available in certain scenarios to meet customer load.
33 Does Hydro continue to be of the opinion that under frequency load shedding
34 is the solution for such situations? In the response indicate the maximum
35 period of time Hydro believes load shedding will need to be utilized while the
36 LIL is non-operational.
37
- 38 **General**
39
- 40 **PUB-NLH-076** Please provide annual deliverability point reliability measures, such as CAIDI
41 and SAIFI, at the district or zone level, for the most recent five years.
42
- 43 **PUB-NLH-077** May 2019 Near-Term Generation Adequacy Report: Please provide a
44 comparison of Island demand forecasts for the May 2019 Near Term
45 Generation Adequacy Report, the 2018 Reliability and Resource Adequacy
46 Study, the November 2016 ESRA, and at least one prior ESRA. Please focus

- 1 the comparison to what can be characterized as a base case or medium forecast
- 2 in each of these studies. Also, please provide a narrative discussion of the key
- 3 differences between the assumptions underlying these forecasts.
- 4
- 5 **PUB-NLH-078** Please provide a description of the relationship between the NLSO and Hydro.
- 6
- 7 **PUB-NLH-079** Further to PUB-NLH-046 please provide the fixed charge rates, including
- 8 administrative and general costs, that would be used for annualizing the capital
- 9 costs of the supply expansion options under consideration in Volume III of the
- 10 Reliability and Resource Adequacy Study.

DATED at St. John’s, Newfoundland this 4th day of June 2019.

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

Per 
Sara Kean
Assistant Board Secretary