

**NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES**

AN ORDER OF THE BOARD

NO. P.U. 17(2016)

1 **IN THE MATTER OF** the *Electrical Power*
2 *Control Act, 1994*, SNL 1994, Chapter E-5.1 (the
3 "*EPCA*") and the *Public Utilities Act, RSNL 1990*,
4 Chapter P-47 (the "*Act*"), as amended, and regulations
5 thereunder; and
6

7 **IN THE MATTER OF** an application by
8 Newfoundland and Labrador Hydro for approval
9 of a capital expenditure to procure 12 MW of
10 diesel generation at the Holyrood Thermal Generating
11 Station, pursuant to section 41 of the *Act*.
12
13

14 **The Application**
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16 On February 22, 2016 Newfoundland and Labrador Hydro ("Hydro") filed an application
17 seeking approval of a capital expenditure in the amount of \$6,300,000 for the purchase of 12
18 MW of diesel generation at the Holyrood Thermal Generating Station ("Holyrood"), comprised
19 of six diesel units, each of a capacity of 2 MW (the "Application"). The proposed capital
20 expenditure of \$6.3 million includes a one-time payment of \$5.0 million plus lease payments
21 applied against the purchase price of \$1.3 million. The Application also seeks approval of the
22 deferral and amortization of the \$1.3 million over a period of five years with unamortized
23 balances to be included in rate base.
24

25 The Application was copied to Newfoundland Power Inc. ("Newfoundland Power"), the
26 Consumer Advocate, Mr. Tom Johnson ("Consumer Advocate"), a group of three Island
27 Industrial customers: Corner Brook Pulp and Paper Limited, North Atlantic Refining Limited
28 and Teck Resources Limited (the "Industrial Customer Group"), Vale Newfoundland and
29 Labrador Limited ("Vale"), and Praxair Canada Inc. ("Praxair").
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31 The Board, Newfoundland Power and the Consumer Advocate filed Requests for Information
32 ("RFIs") which were answered by Hydro on March 22, 2016. On April 14 and 15, 2016 the
33 Industrial Customer Group and the Consumer Advocate filed submissions and Hydro filed a
34 reply submission on April 18, 2016. Newfoundland Power and Vale advised the Board that
35 they did not have any comments or take any position on the Application. The Board did not
36 receive any communication from Praxair.

1 Evidence and Submissions

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3 The Application states that, since January 2014, Hydro has leased and operated eight 2 MW
4 Caterpillar XQ 2000 mobile diesel generators (the "Diesel Units") at Holyrood, which were
5 installed to provide black start capability.¹ Hydro states it now has an opportunity to make a
6 cost-effective purchase of six of these Diesel Units and the associated equipment for an
7 estimated additional capital cost of \$5.0 million.
8

9 In support of the purchase, Hydro states that the Diesel Units are required to ensure adequate
10 and reliable supply on the Avalon Peninsula. Hydro states that delivery of hydro electricity
11 capacity from the western portion of the Island System to the Avalon Peninsula is constrained
12 and that reserve levels on the Avalon Peninsula are more restricted than those of the Island
13 System. Following the voltage collapse event on the Avalon Peninsula on March 4, 2015
14 Hydro completed an analysis of system conditions. The results of the analysis indicate that the
15 Diesel Units are required to supply a P90 peak loading condition² in the event of a single
16 worst-case contingency. Hydro also states that it is currently performing an in-depth review of
17 Holyrood and its future capability. If this review indicates a reduction in capacity of any of the
18 Holyrood units, the need for the Diesel Units to meet the peak will be further supported despite
19 their relatively small contribution.
20

21 Hydro states that it has also amended its operational practice regarding the dispatch of standby
22 generation.³ Generating units are placed on line to ensure that adequate system capacity is
23 available. The operation of the Diesel Units was required on 20 occasions during the period of
24 January and February 2016 to ensure adequate reserve levels. Hydro also states that it has been
25 experiencing extremely low inflows in its reservoirs and has been running the Diesel Units,
26 along with all sources of standby generation, since January 2016 to provide energy to the
27 Island Interconnected System. Hydro submits that the Diesel Units will provide operating cost
28 savings, as Hydro's standby generation will be able to be dispatched more efficiently, and
29 capital savings, as a secondary black start connection to the Holyrood Combustion Turbine will
30 not be needed.
31

32 The Industrial Customer Group does not oppose the Application. While the Industrial
33 Customer Group states that the black start and fuel saving benefits of the Diesel Units are not
34 sufficient to support the proposed capital expenditure, their position is that the Diesel Units
35 will provide further assurance of reliability of electricity supply. The Industrial Customer
36 Group requests costs for participating in the Application.
37

38 The Consumer Advocate recommends that the Board reject the Application. He submits that
39 the Application is not justified on the basis of system need for reliability and quality of supply

¹ In Order No. P.U. 38(2013) the Board approved a capital expenditure of \$1,263,400 to install a 16 MW diesel plant and other infrastructure to provide black start capability at Holyrood, with recovery of these costs to be determined. In Order No. P.U. 13(2016), the Board accepted the costs associated with the procurement and installation of the diesel units as prudent.

² New planning criteria that generation capacity must be sufficient to maintain a reserve of at least 240 MW based on a P90 peak load forecast for the Island Interconnected System were introduced in Hydro's most recent Generation Adequacy Report in September, 2015.

³ The new approach to operating practice is consistent with the findings of Liberty Consulting Group in their report on the events of March 4, 2015.

1 or on the basis of economics as a least cost alternative. He submits that Hydro's response to
2 DG-CA-NLH-1 states that the Diesel Units are not required to meet its new generation
3 planning criteria nor its transmission planning criteria. The Consumer Advocate also refers to
4 the response to DG-CA-NLH-2, which states "the use of the diesels for system support in
5 response to low hydrology is a benefit of purchasing the diesels, but alone is not proposed as
6 justification for the purchase." The Consumer Advocate states:

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8 The Consumer Advocate therefore concludes that although the system has been
9 under stress compounded by the low water conditions on the Island Interconnected
10 System, the Application does not appear to be based on a requirement to meet
11 system reliability standards. Although the diesel units might provide reliability
12 benefits, they are not required for Hydro to meet its generation and transmission
13 planning criteria. Therefore, the Application should be evaluated from the
14 perspective of economics.
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16 The Consumer Advocate submits that the Diesel Units are not required to provide black start
17 for the Holyrood plants as the new combustion turbine can meet this requirement. The savings
18 of not constructing a black start connection for the combustion turbine is accounted for in
19 Hydro's economic evaluation. The Consumer Advocate notes that in DG-PUB-NLH-3 Hydro
20 states an error was made in the fuel savings calculation, which reduces the cumulative present
21 worth of the project by \$680,000. This reduction changes the cumulative present worth to a
22 cost, rather than a savings. The Consumer Advocate submits that the robustness of this
23 economic analysis indicates that the project would almost certainly be a cost rather than a
24 benefit.
25

26 In its reply submission, Hydro disagrees with the Consumer Advocate's position that the
27 purchase of the Diesel Units is not justified on the basis of system need for reliability or quality
28 of supply. Hydro states that, consistent with its mandate to provide safe and reliable service to
29 its customers, it has enhanced its capabilities to plan for and manage the electrical system for
30 matters that may affect reliability, including updating its generation planning criteria to
31 perform a dedicated assessment of system conditions on the Avalon Peninsula. Hydro
32 acknowledges that there is no violation of its planning criteria for a P50 peak loading condition
33 but states that a P90 analysis does indicate a risk for a capacity shortfall for the Avalon
34 Peninsula for a single contingency. Hydro states that this risk is noteworthy and that it should
35 be considered in combination with Hydro's increased reliance on standby generation to ensure
36 reliable operation of the transmission system. Hydro submits that the use of the Diesel Units
37 since December 2015 is evidence of the importance of these units in contributing to the
38 generation mix that allows Hydro to reliably meet its customers' demand requirements.
39

40 Hydro also disagrees with the Consumer Advocate's statement that the Diesel Units are not
41 required to provide black start. Hydro states that the first phase of the black start testing for the
42 combustion turbine has not started yet and as a result the Diesel Units are still required for
43 black start at Holyrood.

1 **Board Findings**

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3 Hydro proposes to obtain an additional 12 MW of electrical supply by purchasing six 2 MW
4 mobile diesel generators that are currently leased and are installed and operating at Holyrood.
5 Hydro's justification for the Application is increased adequacy and reliability of supply and
6 economic savings.

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8 The Board notes the Consumer Advocate's objection to approval of the Application on the
9 basis that the project is not supported by a system need for additional supply or by the
10 economic analysis completed by Hydro. The Board accepts Hydro's statement that the P90
11 analysis for the Avalon Peninsula indicates a risk of transmission line overloading and
12 therefore a risk of a capacity shortfall for the Avalon Peninsula in the event of a single
13 contingency. The use of a P90 analysis was recommended by Liberty Consulting Group⁴ and
14 was introduced in Hydro's Generation Planning Criteria in September 2015. The Board agrees
15 that this analysis, in combination with the low hydrology and increased use of backup
16 generation being reported by Hydro since December 2015, presents an increased risk of supply
17 than previously forecast by Hydro. The Board notes that supply risk may increase further
18 following the completion of Hydro's on-going analysis of Holyrood and its future capability.
19 At this time, the Board has significant concerns relating to the reliability and availability of
20 Holyrood generation and is satisfied that the purchase of the Diesel Units will assist Hydro to
21 ensure adequacy and reliability of supply to customers.

22
23 The Board accepts that the cumulative present worth for the project may actually result in a
24 cost to customers and not a savings. While Hydro may experience some operational cost and
25 capital savings by purchasing and continuing to operate the Diesel Units, a typo in the report
26 and an error in the fuel savings calculation alter the cumulative present worth to a cost of
27 \$426,000. In DG-PUB-NLH-004, Hydro presents the sensitivity analyses conducted for its
28 Cumulative Present Worth calculation. The results range from a savings of \$162,000 to a cost
29 of \$1,013,000. Despite the potential cost to ratepayers of this asset purchase, the Board accepts
30 that the Diesel Units are required for security of supply. The Board is satisfied that the project
31 is necessary and reasonable to allow Hydro to provide adequate and reliable service and should
32 be approved.

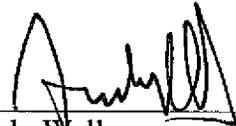
⁴ Liberty Consulting Group, Report on Island Interconnected System to Interconnection with Muskrat Falls, December 17, 2014, Recommendation 2.4

IT IS THEREFORE ORDERED THAT:

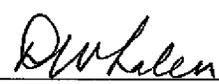
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- 1. The proposed capital expenditure in the amount of \$6,300,000 to purchase 12 MW of diesel generation presently installed at the Holyrood Thermal Generating Station is approved.
- 2. The proposed deferral and amortization of \$1,300,000 over a period of five years with unamortized balances to be included in rate base is approved.
- 3. The Industrial Customer Group is entitled to an award of costs in an amount to be fixed by the Board upon the filing of a detailed cost submission within 30 days of this Order.
- 4. Hydro shall pay all expenses of the Board arising from this Application.

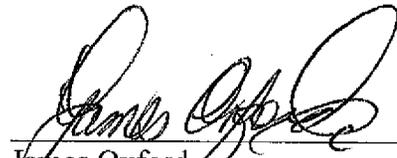
DATED at St. John's, Newfoundland and Labrador, this 24th day of May, 2016.



Andy Wells
Chair and Chief Executive Officer



Darlene Whalen, P.Eng.
Vice-Chair



James Oxford
Commissioner



Sara Kean
Assistant Board Secretary