

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

AN ORDER OF THE BOARD

NO. P.U. 24(2022)

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

7 **IN THE MATTER OF** an application by
8 Newfoundland and Labrador Hydro for an
9 Order approving supplemental capital
10 expenditures for four projects at the
11 Holyrood Thermal Generating Station
12 pursuant to section 41(3) of the **Act**.
13

14
15 **Application**

16
17 On June 6, 2022 Hydro filed an application for approval of supplemental capital expenditures for
18 the following projects at the Holyrood Thermal Generating Station (the “Application”):

- 19 (i) Refurbishment of the Day Tank (\$89,400 in 2022, \$707,800 in 2023)
20 (ii) Refurbishment of Tank 2 (\$162,300 in 2022, \$4,563,300 in 2023)
21 (iii) Replacement of the Tank Farm Underground Firewater Distribution System
22 (\$83,500 in 2022, \$1,330,500 in 2023)
23 (iv) Upgrade of the Unit 2 Turbine Control System (\$235,900 in 2022, \$490,100 in
24 2023).
25

26 According to the Application the proposed capital work is required to support the extension of
27 operation of the Holyrood Thermal Generating Station to March 31, 2024.¹
28

29 The Application was copied to: Newfoundland Power Inc. (“Newfoundland Power”); the
30 Consumer Advocate, Dennis Browne, Q.C.; a group of Island Industrial customers: Corner Brook
31 Pulp and Paper Limited, Braya Renewable Fuels (Newfoundland) GP Inc. (formerly known as NARL
32 Refining Limited Partnership) and Vale Newfoundland and Labrador Limited (“Industrial

¹ On February 4, 2022 Hydro advised the Board that it would be extending the Holyrood Thermal Generating Station readiness to operate to March 31, 2024 to ensure reliable service for customers while the Muskrat Falls Project assets and the Labrador-Island Link (LIL) are brought online and proven reliable.

1 Customer Group”); the communities of Sheshatshiu, Happy Valley-Goose Bay, Wabush, and
2 Labrador City; Praxair Canada Inc.; and Teck Resources Limited; and

3
4 On June 17, 2022 the Industrial Customer Group and the Board issued requests for information
5 (“RFI”s). Hydro submitted its responses to the RFIs on June 30, 2022.

6
7 Newfoundland Power filed comments on July 7, 2022 and the Industrial Customer Group filed
8 comments on July 12, 2022. Hydro filed a reply submission on July 15, 2022.

9
10 The Consumer Advocate did not file any RFIs or submissions.

11 **Application Evidence**

12 (i) Refurbishment of Day Tank

13
14
15
16 The Application proposes capital expenditures for the refurbishment of the Holyrood Thermal
17 Generating Station Day Tank in the amount of \$797,200, with estimated expenditures of \$89,400
18 in 2022 and \$707,800 in 2023. Work is planned to begin in 2022 to allow sufficient time to order
19 critical parts and allow completion in 2023.

20
21 The Day Tank is a vertical storage tank with a capacity of 4,112 barrels of No. 6 fuel and is the
22 primary supply tank for all three boilers at the station and also services the essential need for
23 fuel recirculation. The Day Tank was commissioned in 1969 and underwent a floor replacement
24 in 1998. An internal inspection in 2013 showed a 70-80% material loss in a critical area of the
25 floor. An in-service inspection was recommended for 2018 as well as a standard ten-year
26 inspection interval. The in-service inspection was conducted in 2018 and repairs were made at
27 the time. In accordance with Hydro’s environmental Certificate of Approval, the Day Tank
28 requires an out-of-service inspection and refurbishment by August 2023. Hydro engaged a
29 certified American Petroleum Institute (“API”) tank inspection contractor to perform a remaining
30 life assessment to possibly extend the Day Tank inspection interval beyond August 2023 but it
31 was found that such an extension was not possible under existing standards based on established
32 corrosion rates and historical tank data.

33
34 The Application proposes the refurbishment of the Day Tank to ensure the full availability of the
35 Holyrood Thermal Generating Station for the winter 2023-2024 season. The Application states
36 that a functional day tank must be available as steam operations at the Holyrood Thermal
37 Generating Station will continue until March 2024 and that refurbishing the Day Tank is the only
38 option to maintain the reliable and compliant operation of the Day Tank.

39 ii) Refurbishment of Tank 2

40
41
42 The Application proposes capital expenditures for the refurbishment of Tank 2 at the Holyrood
43 Thermal Generating Station in the amount of \$4,725,600, with estimated expenditures of
44 \$162,300 in 2022 and \$4,563,300 in 2023. Work is planned to begin in 2022 to allow for the

1 procurement of critical components to ensure the required refurbishment is completed before
2 the expiration of the tank's certificate of authorization in June 2023.

3
4 Tank 2 is one of four tanks that comprise the tank farm at the Holyrood Thermal Generating
5 Station. Each tank stores approximately 200,000 barrels of No. 6 fuel used for the thermal
6 generating units. In 2021, in anticipation of reduced production, Tank 1 was retired and the plant
7 moved to a three-tank operation. According to the Application a three-tank operation is required
8 at the Holyrood Thermal Generating Station to maintain Hydro's current commitment to have
9 the facility fully available for generation until March 31, 2024. The Application states that there
10 are operational risks associated with moving to a two-tank operation as well reliability risks in
11 the event of equipment failure. The Application proposes the refurbishment of Tank 2 to ensure
12 that the Holyrood Thermal Generating Station has three fuel storage tanks in reliable operating
13 condition to reduce the impact of fuel shipment and docking delays on Hydro's ability to maintain
14 the full generation availability of the Holyrood Thermal Generating Station.

15
16 At the time of the last out-of-service inspection completed on Tank 2 in 2008 the inspection
17 contractor recommended an inspection interval of ten years. In 2018 Hydro engaged a tank
18 inspection contractor to complete a remaining life assessment of Tank 2 and, based on the
19 findings of this inspection, an extension to the out-of-service inspection interval was granted to
20 December 2021. In 2020 a remaining life assessment indicated that refurbishment would be
21 required for tank operation beyond 2023. Based on these findings the governmental certifying
22 authority granted a final extension to June 2023, which aligned with the previously planned
23 transition to a synchronous condenser facility.

24
25 iii) Replacement of Tank Farm Underground Firewater Distribution System

26
27 The Application proposes capital expenditures for the refurbishment of the Tank Farm
28 Underground Firewater Distribution System at the Holyrood Thermal Generating Station in the
29 amount of \$1,414,000, with estimated expenditures of \$83,500 in 2022 and \$1,330,500 in 2023.
30 Execution of the project would be combined with the execution of the approved 2022 project to
31 replace the underground firewater distribution system.²

32
33 The Tank Farm Underground Firewater Distribution System was originally installed during the
34 construction of generating Units 1 and 2 in 1969 and Unit 3 in 1979 and provides fire protection
35 for the fuel oil storage tanks and associated fuel piping. The operating experience set out in the
36 Application shows that failures have been occurring regularly since 2018. The replacement of the
37 tank farm firewater loop was recommended by Hatch Ltd. in 2022.³ Considering the deteriorated
38 condition of the original tank farm firewater loop, its criticality in providing reliable fire protection

² Order No. P.U. 37(2021) approved the replacement of the underground firewater distribution system surrounding the buildings at the Holyrood Thermal Generating Station. The replacement of the tank farm firewater loop was not proposed at that time as the end of generation at the facility was anticipated to be March 31, 2023.

³ Hatch Ltd. *HTGS Condition Assessment and Life Extension Study*, March 30, 2022, (**Hatch 2022 Study**). Report filed by Hydro on March 31, 2022 as Attachments 1, 2 and 3 to the Reliability and Resource Adequacy Study Review – Assessment to Determine the Potential Long-Term Viability of the Holyrood Thermal Generating Station.

1 for the fuel oil storage tanks and associated fuel piping, and given the extension of the generation
2 availability of the Holyrood Thermal Generating Station until March 31, 2024, the Application
3 states that deferral of this project is not appropriate and would result in an unacceptable risk
4 associated with impairment of the firewater distribution system for the tank farm area.

5
6 iv) Upgrade Turbine Control System - Unit 2

7
8 The Application proposes capital expenditures to upgrade the Turbine Control System for Unit 2
9 at the Holyrood Thermal Generating Station in the amount of \$726,000, with estimated
10 expenditures of \$235,900 in 2022 and \$490,100 in 2023. Obsolete hardware will be replaced and
11 the original equipment manufacturer will complete software configurations for the new
12 equipment, conduct testing and will complete the installation and commissioning during the next
13 maintenance outage.

14
15 The Turbine Control Systems on both Unit 1 and Unit 2 were installed in 2003 and are responsible
16 for adjusting the steam intake of the turbines to ensure that the desired rotational speed is
17 maintained which is critical for the stability of the power system. Hydro has had an agreement
18 with the original equipment manufacturer to provide support on these systems since 2013. This
19 agreement expires in March 2023 and the supplier has indicated that the new agreement may
20 not include guaranteed personnel and/or spare parts. The 2022 Hatch Study categorizes the
21 governor systems as a medium risk area for a number of reasons, including system obsolescence
22 and notes that, once the system support expired, an upgrade would be desirable.

23
24 The Application proposes the upgrade of the Unit 2 Turbine Control System and that the
25 processors and modules removed from Unit 2 be kept as spares for the Unit 1 system. This
26 approach will bring the Unit 2 control system in good standing to allow original equipment
27 manufacturer support while balancing cost and reliability. The Application states that, if Holyrood
28 generation is required beyond 2024, Hydro would consider replacement of the Unit 1 Turbine
29 Control System.

30
31 **Submissions**

32
33 Newfoundland Power supported the Application and submitted that the proposed capital
34 expenditures are necessary for the Holyrood Thermal Generating Station to continue to be
35 available to supply the Island Interconnected system for the indicated timeframe. Newfoundland
36 Power noted, however, that the sustained need to incur capital expenditures to maintain the
37 Holyrood facility in the absence of a complete understanding of its purpose or role beyond 2024
38 is both concerning to Newfoundland Power and costly for customers.

39
40 The Industrial Customer Group also expressed concern about the prospect of further substantial
41 capital expenditures being proposed by Hydro prior to a firm decision being made about the long-
42 term future of the Holyrood Thermal Generating Station after March 2024. The Industrial
43 Customer Group stated that it did not have questions or concerns regarding the refurbishment
44 of the Day Tank, given Hydro's statements that it would avail of opportunities to reduce costs in

1 the project. The Industrial Customer Group submitted that the Board should include a
2 requirement for Hydro to report in a timely manner on the results of the assessment of the tank
3 floor's condition and on whether costs were able to be mitigated by reducing the amount of floor
4 replaced.

5
6 The Industrial Customer Group noted no specific concerns in relation to the replacement of the
7 Tank Farm Underground Firewater Distribution System and the upgrade of the Unit 2 Turbine
8 Control System. In relation to the refurbishment of Tank 2, the Industrial Customer Group
9 questioned why the analysis performed by Hydro's consultant in 2018, showing 2027 as the
10 remaining life assessment for the Tank 2 floor, was not given more credence and expressed
11 concern as to why Hydro's consultant, and ultimately Hydro, acquiesced to the reassessment of
12 the remaining life, from 2027 to June 2023, by application of the standard API RP 575 instead of
13 AP 653. The Industrial Customer Group submitted that Hydro has not provided any meaningful
14 measure of the risk entailed by maintaining the status quo for Tank 2 for just a further nine
15 months and that, in the event that the Board approves the refurbishment of Tank 2, a
16 requirement for Hydro to report in a timely manner on the results of the assessment of the
17 condition of the tank and on whether costs of this project were able to be reduced by the
18 reduction of the scope of work to the minimum necessary for reasonable mitigation of risk for a
19 further nine months to March 2024 should be included. The Industrial Customer Group stated
20 that there are remaining questions about the process which led to the apparent change in the
21 remaining life of the Tank 2 floor and submitted that more meaningful responses should be
22 reasonably expected to justify a proposed \$4.725 million capital expenditure.

23
24 In its reply Hydro acknowledged that both Newfoundland Power and the Industrial Customer
25 Group expressed concerns in relation to continuing capital expenditures for the Holyrood
26 Thermal Generating Station without full determination of its future role or purpose. Hydro noted,
27 however, that the projects proposed in the Application are required to allow the Holyrood
28 Thermal Generating Station to operate to its currently scheduled end of operation as a generating
29 facility. Hydro concluded that it is necessary to maintain the Holyrood Thermal Generating
30 Station as a reliable source of generating capacity while the Muskrat Falls Project assets and the
31 Labrador Island Link ("LIL") are brought online and proven reliable. The proposed capital
32 expenditures are required to ensure that Hydro can continue to provide service that is safe and
33 adequate and just and reasonable as required by section 37 of the **Act**.

34
35 Hydro noted the Industrial Customer Group's concerns with the refurbishment of Tank 2 but
36 submitted that it is subject to the legislation prohibiting the usage of the tank without
37 certification which was granted only to June 2023. Tank 2 must be registered pursuant to the
38 **Provincial Storage and Handling of Gasoline and Associated Products Regulations, 2003**.
39 Hydro maintained that it cannot use the tank without certification, even if there were evidence
40 indicating that maintaining the status quo was a technical possibility. Hydro stated the Holyrood
41 Thermal Generating Station cannot be operated reliably with less than three tanks and
42 therefore refurbishment of Tank 2 is necessary to ensure it can continue to provide safe and
43 reliable service to customers. With respect to the Industrial Customer Group's request that the
44 Board require Hydro to report on the results of the assessment of the Day Tank floor and the

1 refurbishment of Tank 2 and whether any reductions in costs were possible, Hydro advised that
2 it currently provides this information in its annual Capital Expenditures and Carryover Report,
3 filed each year by March 1.

4

5 **Board Findings**

6

7 Hydro is requesting approval of capital expenditures for four Holyrood Thermal Generating
8 Station projects in the amount of \$7,662,800 with expenditures of \$571,100 in 2022 and
9 \$7,091,700 in 2023. The proposed expenditures are justified on the basis of Hydro's commitment
10 to maintain the Holyrood Thermal Generating Station as a generating facility for two years
11 following the commissioning of the LIL and the need to ensure the facility is able to continue to
12 operate reliably during this period.

13

14 As of the date of the Application the Holyrood Thermal Generating Station is to operate as a
15 standby generation facility until March 31, 2024. Currently there is no certainty as to when the
16 Muskrat Falls Project assets will be in-service and considered fully operational. As such it is
17 possible that the Holyrood Thermal Generating Station will have to be maintained as a standby
18 generation facility beyond March 2024. The Board shares the concerns of both Newfoundland
19 Power and the Industrial Customer Group in regards to the costs of maintaining the Holyrood
20 Thermal Generating Station in generation mode without an understanding of its role beyond
21 2024. Notwithstanding this the Board accepts that, in the absence of any alternative supply
22 sources, it is necessary to maintain the generating capacity of the plant to ensure that Hydro has
23 the capacity to supply reliable power to the Island Interconnected system until the Muskrat Fall
24 Project assets are fully in-service and can provide reliable supply.

25

26 The proposed capital expenditures are justified on the basis that the four projects are necessary
27 to ensure the continued availability of the Holyrood Thermal Generating Station. The Board notes
28 that there were no objections raised with respect to the refurbishment of the Day Tank, the
29 replacement of the Tank Farm Underground Firewater Distribution System or the upgrade of the
30 Unit 2 Turbine Control System. The Board is satisfied that the refurbishment of the Day Tank is
31 necessary as it is the primary supply tank for all three boilers and the remaining life assessment
32 of the tank showed that it is not possible to extend the required inspection interval beyond 2023.
33 The evidence also shows that the replacement of the Tank Farm Underground Firewater
34 Distribution System is required to provide fire protection for the fuel oil storage tanks and
35 associated piping based on the deteriorated condition of the system and the recent
36 recommendation of Hydro's consultant that it be replaced. The Board also finds that the upgrade
37 of the Unit 2 Turbine Control System, which is critical for the stability of the power system, is
38 necessary based on the lack of reliable spares and original equipment manufacturer support.

39

40 Concerns were raised by the Industrial Customer Group in relation to the proposed expenditures
41 to refurbish Tank 2 at the Holyrood Thermal Generating Station on the basis that there are
42 questions about the remaining life which have not been fully addressed. While the Board agrees
43 that the proposed expenditures for the refurbishment of Tank 2 are significant and must be fully
44 supported, the evidence shows that the tank cannot be operated without certification and that

1 the existing certification will expire in June 2023. The Board is satisfied that it is necessary to
2 maintain Tank 2 to provide for the required three-tank operation to ensure that the Holyrood
3 Thermal Generating Station continues to be available for generation and that the refurbishment
4 of Tank 2 is necessary to allow the continued operation of the tank beyond June 2023 when the
5 current certification will expire.

6
7 The Board is satisfied that the proposed capital expenditures for the four projects at the Holyrood
8 Thermal Generating Station are reasonable and necessary to ensure that Hydro can continue to
9 provide service that is safe and adequate and just and reasonable. With respect to the Industrial
10 Customer Group's request that Hydro be required to report on results of the floor assessment
11 for the Day Tank refurbishment and to demonstrate further efforts to reduce the scope of work
12 for the refurbishment of Tank 2, the Board notes that Hydro is required to file a capital
13 expenditure report each year and also must provide information as to the progress of ongoing
14 capital projects as part of its annual capital budget applications. The Board expects that the
15 identified information will be provided as part of the existing reporting requirements and does
16 not find it necessary to implement any specific additional reporting requirements at this time.

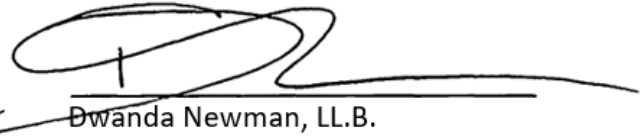
17
18
19 **IT IS THEREFORE ORDERED THAT:**

- 20
21 1. The proposed Holyrood Thermal Generating Station capital expenditures to:
22 a. refurbish the Day Tank in the amount of \$89,400 in 2022 and \$707,800 in 2023,
23 b. refurbish Tank 2 in the amount of \$162,300 in 2022 and \$4,563,300 in 2023,
24 c. replace the Tank Farm Underground Firewater Distribution System in the amount of
25 \$83,500 in 2022 and \$1,330,500 in 2023, and
26 d. upgrade the Unit 2 Turbine Control System in the amount of \$235,900 in 2022 and
27 \$490,100 in 2023,
28 are approved.
29
30 2. Hydro shall pay all expenses of the Board arising from this Application.

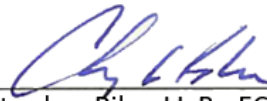
DATED at St. John's, Newfoundland and Labrador, this 18th day of August 2022.



Darlene Whalen, P. Eng., FEC
Chair and Chief Executive Officer



Dwanda Newman, LL.B.
Vice-Chair



Christopher Pike, LL.B., FCIP
Commissioner



Cheryl Blundon
Board Secretary