

May 4, 2021

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Application for Approval to Replenish the Allowance for Unforeseen Items Account

As indicated in Newfoundland and Labrador Hydro's ("Hydro") Allowance for Unforeseen Items Report for the period ending March 31, 2021,¹ Hydro's Allowance for Unforeseen Items Account balance has been diminished by \$108,000 due to expenditures related to the replacement of a failed diesel engine in Port Hope Simpson. The enclosed application seeks approval of the restoration of the Allowance for Unforeseen Items Account to \$1,000,000, which amount is in accordance with Board Order No. P.U. 2(2021), and which Hydro believes to be an appropriate and prudent amount at this time.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO



Shirley A. Walsh
Senior Legal Counsel, Regulatory
SAW/sk

Encl.

ecc: **Board of Commissioners of Public Utilities**
Jacqui Glynn
PUB Official Email

Newfoundland Power
Kelly C. Hopkins
Dominic J. Foley
Regulatory Email

¹ Filed with the Board of Commissioners of Public Utilities on April 15, 2021.

Consumer Advocate

Dennis M. Browne, Q.C., Browne Fitzgerald Morgan & Avis
Stephen F. Fitzgerald, Browne Fitzgerald Morgan & Avis
Sarah G. Fitzgerald, Browne Fitzgerald Morgan & Avis
Bernice Bailey, Browne Fitzgerald Morgan & Avis

Industrial Customer Group

Paul L. Coxworthy, Stewart McKelvey
Denis J. Fleming, Cox & Palmer
Dean A. Porter, Poole Althouse

Praxair Canada Inc.

Sheryl E. Nisenbaum
Peter Strong, Linde

Teck Resources Limited

Shawn Kinsella



Application for Approval to Replenish the Allowance for Unforeseen Items Account

May 4, 2021

An application to the Board of Commissioners of Public Utilities



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

IN THE MATTER OF an application by Newfoundland and Labrador Hydro (“Hydro”) pursuant to Section 41(3) of the Act for the approval of a capital expenditure to supplement the Allowance for Unforeseen Items for the construction and purchase of certain improvements and additions to its property.

To: The Board of Commissioners of Public Utilities (“Board”)

THE APPLICATION OF HYDRO STATES THAT:

A. Background

1. Hydro is a corporation continued and existing under the *Hydro Corporation Act, 2007*, is a public utility within the meaning of the Act, and is subject to the provisions of the EPCA.
2. Section 41(3) of the Act states that a public utility shall not proceed with the construction, purchase or lease of improvements, or additions to its property where:
 - a) The cost of the construction or purchase is in excess of \$50,000; or
 - b) The cost of the lease is in excess of \$5,000 in a year of the lease, without the prior approval of the Board.
3. Hydro has had one unforeseen capital expenditure in 2021 that met the criteria for the Allowance for Unforeseen Items which related to the replacement of a failed diesel engine in Port Hope Simpson. Expenditures for this project were \$108,000,¹ reducing the approved 2021

¹ Hydro’s final report in relation to this project was filed on March 23, 2021 reflecting forecast costs of \$112,700 and indicated that actual final costs would be reported in Hydro’s Allowance for Unforeseen Capital Expenditures Monthly Reporting. On April 15, 2021, Hydro filed its Allowance for Unforeseen Capital Expenditures Monthly Report for the month ending March 31, 2021, in which it indicated that the final costs of the project were \$108,000.

allowance of \$1,000,000 to \$892,000 as at March 31, 2021. Hydro filed its final report in relation to this project on March 23, 2021. Hydro's report is provided as Schedule 1 to this application.

B. Application

4. Where expenditures have been made in a year and the account balance has diminished, the Capital Budget Guidelines permit a utility to apply for approval of an additional amount in the Allowance for Unforeseen Items Account provided the utility shows that usage of the account has been consistent with the guidelines.
5. Hydro submits that it remains prudent to maintain an appropriate unforeseen allowance of \$1,000,000 to permit Hydro to address unforeseen events that may arise during the remainder of 2021. Hydro requests that the Board approve a supplementary allowance of \$108,000 to maintain the full allowance of \$1,000,000.

C. Hydro's Request

6. Therefore, Hydro makes application that the Board make an Order approving, pursuant to Section 41(3) of the *Act*, the additional amount of \$108,000 to be added to the Allowance for Unforeseen Items Account.

D. Communications

7. Communications with respect to this application should be forwarded to Shirley A. Walsh, Senior Legal Counsel, Regulatory for Hydro.

DATED at St. John's in the Province of Newfoundland and Labrador this 4th day of May 2021.

NEWFOUNDLAND AND LABRADOR HYDRO



Shirley A. Walsh
Counsel for the Applicant
Newfoundland and Labrador Hydro,
500 Columbus Drive, P.O. Box 12400
St. John's, NL A1B 4K7
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Schedule 1

Allowance for Unforeseen Final Report

March 23, 2021

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Port Hope Simpson Diesel Engine Failure – Allowance for Unforeseen Items Final Report

On September 14, 2020 Newfoundland and Labrador Hydro ("Hydro") advised the Board of Commissioners of Public Utilities of its intended use of the Allowance for Unforeseen Account for the replacement of a failed generating unit at the Port Hope Simpson Diesel Generating Station. The engine replacement was completed on February 21, 2021. As per the Capital Budget Guidelines, the final report regarding the expenditure is attached.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO



Shirley A. Walsh
Senior Legal Counsel, Regulatory
SAW/kd

ecc: **Board of Commissioners of Public Utilities**
Jacqui Glynn
PUB Official Email

Port Hope Simpson Diesel Engine Failure

Final Report

March 23, 2021

A report to the Board of Commissioners of Public Utilities



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1 **1.0 Introduction**

2 Newfoundland and Labrador Hydro (“Hydro”) has 23 diesel generating stations, 18 of which are prime
3 power stations¹ serving a total of approximately 4,400 customers. Diesel generating stations are
4 designed such that demand can be met in the event of failure of the largest generating unit provided all
5 other units remain in service. The Port Hope Simpson Diesel Generating Station (“Port Hope Simpson
6 DGS”) has three generating units: Unit 2099 (545 kW), Unit 2100 (725 kW), and Unit 2073 (455 kW).

7 On September 8, 2020,² Unit 2099 tripped offline while it was the only unit online serving the town load.
8 Power was restored using Unit 2100. During the investigation into the outage, Hydro determined that a
9 valve had dropped and contacted the piston, causing substantial damage to the engine. Unit 2099 had
10 accumulated approximately 8,100 operating hours since it was installed in 2018. The unit had shown no
11 signs of valve issues during its most recent planned maintenance. Hydro’s assessment of the damage
12 determined that the engine was not salvageable and the only viable alternative was to replace the
13 engine. There were no safety issues related to this incident.

14 While Hydro is considering the potential retirement of the Port Hope Simpson DGS as part of its study of
15 options to serve communities in Southern Labrador, immediate replacement of the failed unit was
16 necessary to continue to reliably meet Hydro’s Firm Capacity³ requirements. Hydro expects that the
17 new engine will be required in Port Hope Simpson until at least 2024, and will serve as a spare if it is
18 deemed fit for continued service following the potential retirement of the Port Hope Simpson DGS.

19 A project was initiated for immediate replacement of the engine utilizing the Allowance for Unforeseen
20 Items account. In correspondence dated September 14, 2020,⁴ Hydro notified the Board of
21 Commissioners of Public Utilities (“Board”) of its intention to utilize the Allowance for Unforeseen Items
22 account to fund costs associated with completing this project.

¹ Prime power stations are not interconnected to the grid and serve as the primary source of capacity and energy for isolated systems.

² As the engine failed after Hydro’s 2021 Capital Budget Application was filed with the Board in August 2020 and immediate action was required to ensure reliability in Port Hope Simpson, this expenditure could not have been considered within Hydro’s annual capital budget application.

³ “Firm Capacity” refers to the plant’s capacity with its largest unit out of service.

⁴ Newfoundland and Labrador Hydro “Port Hope Simpson Engine Failure Allowance for Unforeseen Item Notification,” letter, September 14, 2020.

1 The engine replacement was completed and the new unit was released for service on February 21, 2021.
2 This report details the activities Hydro undertook to restore the capacity of the Port Hope Simpson DGS.

3 **2.0 System Overview**

4 **2.1 Existing System**

5 There are three units installed in the Port Hope Simpson DGS: Unit 2099 (545 kW), Unit 2100 (725 kW),
6 and Unit 2073 (455 kW), providing a Firm Capacity of 1,000 kW. The failed engine in Unit 2099 is a CAT
7 C18 that was installed in 2018 and had operated for approximately 8,100 hours prior to failure. Unit
8 2099 would have been due for overhaul once it reached 20,000 operating hours, which was forecast to
9 occur in 2025.

10 **2.2 Operating History**

11 Unit 2099 had approximately two years of operating history and had operated reliably until its failure on
12 September 8, 2020, when an exhaust valve dropped into the cylinder impacting the piston. Valve
13 adjustments are made annually during planned maintenance and Unit 2099 showed no signs of issues
14 during its most recent planned maintenance.

15 **2.3 Operational Impact**

16 Unit 2099 is the second largest unit in the Port Hope Simpson DGS and had operated for approximately
17 8,100 hours since its installation, making it the most utilized genset⁵ in the plant. Following the
18 generator failure on September 8, 2020, the community was supplied by the remaining two units in the
19 plant, Unit 2100 and Unit 2073, until a retired engine from Unit 2093 in Mary's Harbour was installed⁶ to
20 provide backup when either of the other units had to be taken offline for routine maintenance, such as
21 oil changes. This engine is only suitable for emergency backup use as it had exceeded its expected useful
22 operating hours and therefore cannot reliably be used on a sustained basis. Without the installation of
23 the engine from Unit 2093, subsequent failure of an additional unit or removal of a unit from service for
24 planned maintenance would have put the Port Hope Simpson DGS in violation of its Firm Capacity
25 requirements, and would likely have resulted in outages to the town.

⁵ A "genset" is defined as the combination of a prime mover (engine) and an electrical generator.

⁶ Costs associated with the installation and removal of the former Mary's Harbour Unit 2093 are operating expenses; they are not included in project costs outlined in Section 5.0.

1 **3.0 Alternatives Considered**

2 **3.1 Repair**

3 The investigation into the failure, in consultation with the Original Equipment Manufacturer,
4 determined that the damage to the engine was irreparable. From a technical perspective, it would have
5 been impossible to repair the damage to make the generator safe and reliable for continued, sustained
6 operation for the remainder of the expected useful life of this engine. As such, repair was not a viable
7 alternative.

8 **3.2 Replacement with Spare Engine**

9 To restore firm capacity of the Port Hope Simpson DGS in the short term, Hydro installed a spare engine,
10 which had previously been removed from Unit 2093 in Mary's Harbour. This engine had exceeded the
11 expected useful operating hours for a 1,800 RPM engine and was installed and used on an emergency
12 basis only as it is not suitable for continued use on a sustained basis. Therefore, using this engine as a
13 permanent replacement for the failed Unit 2099 engine was not a viable solution due to reliability
14 concerns. Further, there were no other engines in Hydro's spares that would be suitable for replacing
15 the failed engine in Unit 2099.

16 **3.3 Replacement with New Engine**

17 Replacement with a new engine was a viable alternative. Hydro was able to source a CAT C18 engine
18 rated for 545 kW, which is a direct replacement for the failed Unit 2099 engine, for a total estimated
19 project cost of \$131,000.

20 **3.4 Deferral of Replacement**

21 Hydro's Firm Capacity criteria require Hydro to have adequate capacity to serve the town if its largest
22 generator is offline. Without a third generator with approximately the equivalent capacity of Unit 2099,
23 subsequent failure of an additional unit or removal of a unit from service for planned maintenance
24 would put the Port Hope Simpson DGS in violation of Hydro's Firm Capacity requirements, likely
25 resulting in outages to the town. Therefore, for reliability purposes, deferral of the replacement was not
26 a viable option.

1 **4.0 Project Description**

2 **4.1 Chosen Alternative**

3 As it was the only viable alternative to maintaining safe and reliable service to customers in Port Hope
4 Simpson, Hydro proceeded with the replacement of the Unit 2099 engine.

5 **4.2 Project Scope**

6 Work to procure a new engine commenced immediately after the investigation into the failure was
7 completed and it was determined that replacement was the only viable alternative. A new engine was
8 sourced from Toromont CAT which had a four-month lead time from its factory in Brampton, Ontario. To
9 maintain reliability in Port Hope Simpson while waiting for delivery and installation of the replacement
10 engine, a retired engine from a recent engine replacement of Unit 2093 in Mary's Harbour was installed
11 and used on an emergency basis only.

12 To install the new engine in the Port Hope Simpson DGS, the following work tasks were completed:

- 13 • Unit 2099 engine was removed from the genset;
- 14 • The engine from Unit 2093 was temporarily installed into the genset;⁷
- 15 • The new engine arrived from the vendor;
- 16 • The temporary engine from Unit 2093 was removed;⁸
- 17 • The new engine was installed into the genset;
- 18 • Exhaust, coolant lines, fuel lines, electrical cabling and controls were installed; and
- 19 • The new engine was commissioned.

20 Hydro engaged its regional maintenance staff in Labrador to complete this work. All identified work was
21 completed and Unit 2099 was released for service on February 21, 2021.

⁷ Costs associated with this work are operating expenses and are not included in the capital project cost.

⁸ Costs associated with this work are operating expenses and are not included in the capital project cost.

1 4.3 Project Timeline

2 The project milestones and completion dates are listed in Table 1.

Table 1: Project Timeline

Milestone	Completion Date
Engine Failure	September 8, 2020
Inspection Complete	September 10, 2020
Installation of Engine 2093	September 23, 2020
Order Placed for New Engine	October 2, 2020
New Engine Delivered to Port Hope Simpson	February 12, 2021
Mechanical Installation of New Engine Complete	February 20, 2021
Unit 2099 Released for Service	February 21, 2021



Figure 1: Unit 2099

3 5.0 Project Costs

4 The current expenditures for this project are shown in Table 2. The original estimate was \$131,000.

5 Current estimated actual expenses are approximately \$113,000. Project expenditures provided in Table

6 2 reflect costs reported to date. This value may change marginally as final invoicing is received from all

- 1 vendors. Actual final costs will be reported in Hydro’s Allowance for Unforeseen Capital Expenditures
- 2 Monthly Reporting.⁹

Table 2: Project Expenditures

Project Expenditure	Cost (\$)
Labour	10,000
Engine	98,500
Shipping	3,000
Other	1,200
Total	112,700

3 **6.0 Conclusion**

- 4 Unit 2099 suffered catastrophic engine failure on September 8, 2020. Hydro’s inspection of the engine
- 5 determined that there were no viable alternatives to replacement of the Unit 2099 engine. A new CAT
- 6 C18 engine was installed by Hydro personnel and released for service on February 21, 2021.

⁹ Filed with the Board on the tenth business day of each month.



Affidavit

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

IN THE MATTER OF an application by Newfoundland and Labrador Hydro (“Hydro”) pursuant to Section 41(3) of the *Act* for the approval of a capital expenditure to supplement the Allowance for Unforeseen Items for the construction and purchase of certain improvements and additions to its property.

AFFIDAVIT

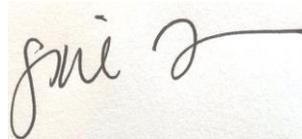
I, Gail Tucker, of St. John’s in the Province of Newfoundland and Labrador, make oath and say as follows:

1. I am Senior Manager, Regulatory, Newfoundland and Labrador Hydro, the Applicant named in the attached application.
2. I have read and understand the foregoing application.
3. To the best of my knowledge, information, and belief, all of the matters, facts, and things set out in this application are true.

SWORN at St. John’s in the)
Province of Newfoundland and)
Labrador this 4th day of)
May 2021, before me:)



Barrister, Newfoundland and Labrador



Gail Tucker