

May 26, 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:

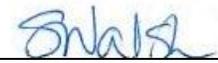
**Re: Application for Purchase of Diesel Generator in Charlottetown, Labrador**

Please find enclosed Newfoundland and Labrador Hydro's application for approval to purchase a diesel generator for Charlottetown, Labrador. This project is required to meet peak demand and support the provision of reliable service for the residents of Charlottetown and Pinsent's Arm. The cost of this project is \$350,000.

Should you have any questions, please contact the undersigned.

Yours truly,

**NEWFOUNDLAND AND LABRADOR HYDRO**



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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  
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Paul L. Coxworthy, Stewart McKelvey  
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**Labrador Interconnected Group**

Senwung Luk, Olthuis Kleer Townshend LLP  
Julia Brown, Olthuis Kleer Townshend LLP



# Application for Purchase of Diesel Generator in Charlottetown, Labrador

May 26, 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”) for an order approving the purchase of a diesel generator for use in Charlottetown, Labrador, pursuant to Section 41(3) of the Act.

**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.

**B. Application**

2. Hydro provides electrical service to approximately 290 customers in the communities of Charlottetown and Pinsent’s Arm, located on the southern Labrador coast.
3. The Charlottetown Diesel Generating Station was constructed in 1989 and housed three gensets inside the powerhouse to provide electrical service to the communities. The largest customer on the Charlottetown Distribution System is a shrimp processing plant which has been in service for 20 years.
4. The Charlottetown Diesel Generating Station and its three gensets were destroyed by a fire on October 7, 2019. Power was restored to the communities through the use of one of the two mobile generators that were located outside the building, onsite to meet the summer peak load from the local shrimp processing plant.

5. At that time, it was also determined that a third unit would be needed in Charlottetown to meet the annual peak load and to ensure reliable energy supply for the communities. The necessity of this third unit will continue until a long-term supply solution is implemented for the region.<sup>1</sup> The requirement for a third unit is more particularly described in Schedule 1 to this application.
6. An appropriate unit that fit the requirements, Unit 2102, was identified at the Muskrat Falls site shortly after the 2019 fire and was transported from Muskrat Falls to Charlottetown and placed into service. The unit has been on loan to Hydro since that time at no cost to Hydro or its customers; this arrangement was not intended to be long-term. Nalcor Energy (“Nalcor”), who currently owns the unit, has recently indicated it will either need to sell the unit to Hydro or charge rental costs as, although the asset belongs to Nalcor, it is being used solely for Hydro’s purposes. As indicated, Hydro has requirements for a third unit at this site to meet peak load requirements and ensure the provision of reliable energy supply until such time as a permanent, long-term solution is implemented.
7. Hydro identified four alternatives for the continued supply of power to Charlottetown and Pinsent’s Arm. They are the purchase of Unit 2102, rental of Unit 2102, rental of a new unit, or purchase of a new unit. These options are evaluated in Schedule 1 to this application, with the conclusion being that the purchase of Unit 2102 at a cost of \$350,000 is the most appropriate and least-cost option.

**C. Hydro’s Request**

8. Hydro requests that the Board make an Order pursuant to Section 41(3) of the *Act* approving the Hydro’s acquisition of Unit 2102 to enable the continued supply of reliable power to Charlottetown and Pinsent’s Arm, Labrador.

**D. Communications**

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

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<sup>1</sup> Hydro is currently assessing long-term supply options for the southern Labrador region and anticipates an application to the Board in the near-term. The earliest anticipated time frame for implementation of a permanent solution for the Charlottetown area is 2024.

**DATED** at St. John's in the Province of Newfoundland and Labrador this 26th day of May, 2021.

**NEWFOUNDLAND AND LABRADOR HYDRO**



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## Schedule 1

### Diesel Generator Purchase – Charlottetown, Labrador



# Diesel Generator Purchase

Charlottetown, Labrador

May 26, 2021

A report to the Board of Commissioners of Public Utilities



## 1 **Executive Summary**

2 On October 7, 2019, the Charlottetown Diesel Generating Station experienced a catastrophic fire that  
3 resulted in a total loss of the building including the three diesel generating units. Power was restored to  
4 the communities of Charlottetown and Pinsent’s Arm later the same day by using one of the two mobile  
5 generators located outside the building. It was determined that a third unit would be needed in  
6 Charlottetown to meet the annual peak load and to ensure reliable energy supply for the community. A  
7 unit that fit the requirements, Unit 2102, was identified at the Muskrat Falls site and was transported  
8 from Muskrat Falls to Charlottetown and placed into service. The unit has been on loan to  
9 Newfoundland and Labrador Hydro (“Hydro”) since that time at no cost (i.e., rental or acquisition costs)  
10 to Hydro or its customers; this arrangement was not intended to be long term. Nalcor Energy (“Nalcor”)  
11 has recently indicated it will either need to sell the unit to Hydro or charge rental costs as the asset  
12 belongs to Nalcor, yet is being used solely for Hydro’s purposes. As indicated, Hydro has requirements  
13 for a third unit at this site to meet peak load requirements and ensure the provision of reliable energy  
14 supply until such time as a permanent, long-term solution is implemented.<sup>1</sup> The anticipated duration  
15 associated with the requirement for this interim diesel generator solution in Charlottetown is expected  
16 to be until at least 2024. Hydro is proposing the purchase of the diesel generator (i.e., Unit 2102) at a  
17 cost of \$350,000.

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<sup>1</sup> Hydro is near completion of its considerations related to long-term supply for the southern Labrador region, which includes Charlottetown, and expects to file an application with the Board of Commissioners of Public Utilities (“Board”) in the coming months.

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## 1 **1.0 Introduction**

2 Following the fire at the Charlottetown Diesel Generating Station on October 7, 2019, power was  
3 restored to the communities of Charlottetown and Pinsent’s Arm through the use of mobile generators.  
4 Two of the mobile units used were already on site at Charlottetown to meet the summer peak load from  
5 the local shrimp processing plant.<sup>2</sup> At the time, it was also determined that a third unit would be needed  
6 in Charlottetown to meet the annual peak load and to ensure reliable energy supply for the  
7 communities. A unit that met the necessary requirements, Unit 2012, was identified through Nalcor and  
8 relocated from Muskrat Falls to Charlottetown and placed into service. Hydro has identified the  
9 continued need for a third unit in Charlottetown through to 2024.

## 10 **2.0 Background**

11 Hydro provides electrical service to approximately 290 customers in the communities of Charlottetown  
12 and Pinsent’s Arm, located on the southern Labrador coast, as indicated in Figure 1.<sup>3</sup> The largest  
13 customer on the Charlottetown Distribution System is a shrimp processing plant which has been in  
14 service for 20 years.

15 The Charlottetown Diesel Generating Station was constructed in 1989 and housed three gensets<sup>4</sup> inside  
16 the powerhouse to provide electrical service to the community. Since 2001, two mobile gensets have  
17 been utilized for peak loading, which occurs when the shrimp plant is in operation during the shrimp  
18 processing season in the summer months. The Charlottetown Diesel Generating Station was destroyed  
19 by a fire on October 7, 2019.

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<sup>2</sup> The shrimp plant employs upwards of 100 people and is the economic driver in the area. The shrimp plant operates seasonally through the summer and fall months.

<sup>3</sup> Population numbers are based on the 2016 Census.

<sup>4</sup> Diesel generating units are referred to as “genset.”

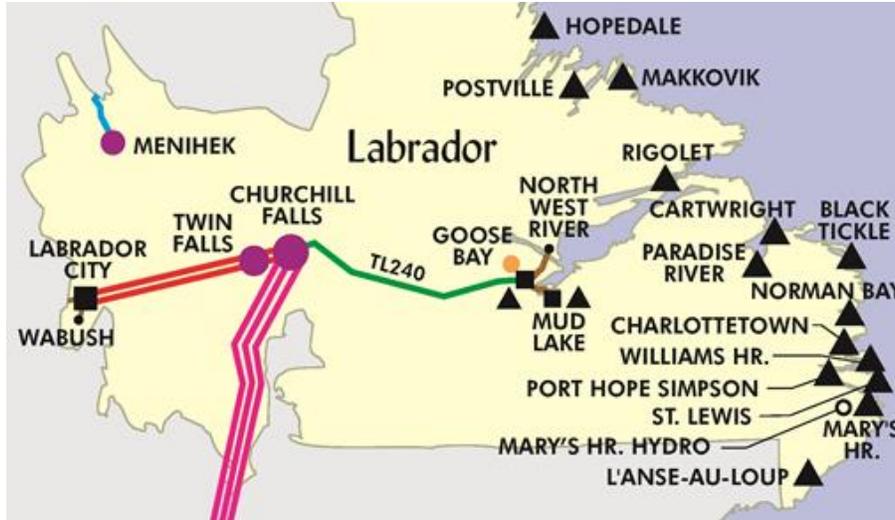


Figure 1: Location of Charlottetown

1 **2.1 Existing System**

2 Since the 2019 fire, the Charlottetown Diesel Generating Station has had three mobile generating units  
 3 providing power to the community, including: Unit 2088 (910 kW), Unit 2089 (725 kW), and Unit 2102  
 4 (910 kW). Diesel generating stations are designed such that firm power<sup>5</sup> can be delivered in the event of  
 5 failure of the largest generating unit. As such, the forecasted peak load can be met during the failure of  
 6 a genset; however, all remaining units are required to be in service to meet that load. While the shrimp  
 7 processing plant is operating, two units are required to be online. Without a third unit, adequate firm  
 8 supply would not be available to serve the load of both towns, including the shrimp processing plant;  
 9 without a functioning third unit, an outage to either of the two remaining units would result in customer  
 10 outages.

11 Unit 2102 is a Caterpillar mobile unit that houses a C-32 genset with a prime power rating of 910 kW as  
 12 seen installed in Charlottetown in Figure 2. This unit is currently owned by Nalcor and was provided to  
 13 Hydro for temporary emergency use at no cost. The owner of this unit has indicated that its continued  
 14 use will require purchase or rental of the unit by Hydro.

<sup>5</sup> Firm power is calculated as the summation of the capacity of all units minus the capacity of the largest unit.



Figure 2: Unit 2102 Installed in Charlottetown

## 2.2 Operating Experience of Unit 2102

Unit 2102 was taken out of service on July 20, 2020 after a partial failure of the unit caused an outage to the communities of Charlottetown and Pinsent’s Arm. Following an inspection of the genset and the determination that it had suffered a catastrophic failure of its generator component, Hydro initiated a project to replace the generator portion of the genset utilizing the Allowance for Unforeseen Items Account.<sup>6</sup>

The generator replacement was completed and the unit was released for service on August 8, 2020. As indicated in Hydro’s Allowance for Unforeseen Final Report regarding the Charlottetown Generator Failure, dated September 8, 2020, should Hydro not proceed with the purchase or rental of Unit 2102 for any reason, the generator purchased via the Allowance for Unforeseen Items Account will be removed from Unit 2102 and retained by Hydro. The generator is compatible with other gensets in Hydro’s fleet.

## 2.3 Maintenance History

As of April 2021, Unit 2102 had accumulated approximately 2,400 hours of generation; such units can typically run up to 20,000 hours of service prior to requirement of an overhaul. The unit is anticipated to

<sup>6</sup> Hydro notified the Board of its intention to utilize the Allowance for Unforeseen Items Account for completion of this project on July 29, 2020.

1 operate during peak loading in Charlottetown and Pinsent’s Arm until a long-term supply solution is  
2 implemented for this region, which is expected to occur by the end of 2024. In the interim, the unit is  
3 expected to be used for approximately 2,000 hours a year.

## 4 **3.0 Analysis**

### 5 **3.1 Identification of Alternatives**

6 Hydro evaluated the following alternatives for the continued supply of power to Charlottetown and  
7 Pinsent’s Arm:

- 8 • Alternative 1: Purchase Unit 2102;
- 9 • Alternative 2: Rent Unit 2102;
- 10 • Alternative 3: Rent New Unit; and
- 11 • Alternative 4: Purchase New Unit.

12 Foregoing a third unit is not an option, as a third unit in Charlottetown is required to meet demand and  
13 support the provision of reliable service for the residents of Charlottetown and Pinsent’s Arm.

### 14 **3.2 Evaluation of Alternatives**

#### 15 **3.2.1 Assumptions and Considerations**

- 16 • Operation and maintenance costs from 2021 to 2024 are assumed to be the same for each  
17 option, and therefore no such costs were considered in the cost-benefit analysis.
- 18 • For Alternative 1, the purchase price has been identified as \$350,000 for Unit 2102.<sup>7</sup>
- 19 • For Alternative 2, the rental cost is the identified rental price for Unit 2102.<sup>8</sup>
- 20 • For Alternative 3, the rental costs are based on a budgetary quote from a third-party vendor.

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<sup>7</sup> The proposed purchase price of \$350,000 reflects Nalcor's cost of acquiring the unit, which followed an assessment of the unit's operating hours and condition and subsequent negotiations. As the unit has been used solely by Hydro since its acquisition by Nalcor, Hydro is proposing to acquire the unit at the same cost.

<sup>8</sup> The proposed rental rate of \$15,000 per month was determined based on an assessment of rental rates for equivalent used diesel gensets with operating history comparable to that of Unit 2102.

- 1 • For Alternative 4, the purchase price of a new unit is based on Hydro’s historical costs for similar  
2 units, while accounting for estimated cost increases to meet current Environment Canada  
3 regulations.<sup>9</sup>
- 4 • Alternatives 3 and 4 include costs to remove Unit 2102 and install the new genset.
- 5 • Alternatives 3 and 4 would require the use of Unit 2102 for at least another 6 months for these  
6 alternatives to be implemented which would be an additional cost not accounted for in the cost-  
7 benefit analysis.
- 8 • The cost-benefit analysis considered costs of operation/ownership from 2021 to 2024 inclusive,  
9 based on current estimated timelines for implementation of a long-term supply solution.
- 10 • Given Hydro’s ownership of the generator component of Unit 2102, a salvage value of 80% of  
11 the original value of the generator was applied to alternatives not requiring the use of Unit 2102  
12 to facilitate comparison of all alternatives.

### 13 **3.2.2 Alternative 1: Purchase Unit 2102**

14 This alternative consists of the purchase of Unit 2102, which is currently installed at the Charlottetown  
15 Diesel Generating Station site. This option includes the cost to purchase the unit from its current owner,  
16 as presented in Table 1.

#### 17 **Costing information**

18 Purchase cost of Unit 2102: \$350,000.

**Table 1: Alternative 1 Estimate (\$000)**

<b>Project Cost</b>	<b>2021</b>	<b>2022</b>	<b>Beyond</b>	<b>Total</b>
Material Supply	350.0	0.0	0.0	350.0
Labour	0.0	0.0	0.0	0.0
Consultant	0.0	0.0	0.0	0.0
Contract Work	0.0	0.0	0.0	0.0
Other Direct Costs	0.0	0.0	0.0	0.0
Interest and Escalation	0.0	0.0	0.0	0.0
Contingency	0.0	0.0	0.0	0.0
<b>Total</b>	<b>350.0</b>	<b>0.0</b>	<b>0.0</b>	<b>350.0</b>

<sup>9</sup> Current Environment Canada regulations require new mobile diesel gensets to meet Environmental Protection Agency Tier-4 emissions standards.

1 **3.2.3 Alternative 2: Rent Unit 2102**

2 This alternative consists of the rental of Unit 2102 that is currently installed at the Charlottetown Diesel  
 3 Generating Station site. This option includes the cost to rent the unit from its current owner as  
 4 presented in Table 2.

5 **Costing information**

6 Rental cost of Unit 2102: \$15,000 per month for approximately 48 months.

**Table 2: Alternative 2 Estimate (\$000)**

<b>Project Cost</b>	<b>2021</b>	<b>2022</b>	<b>Beyond</b>	<b>Total</b>
Material Supply	180.0	180.0	360.0	720.0
Labour	0.0	0.0	0.0	0.0
Consultant	0.0	0.0	0.0	0.0
Contract Work	0.0	0.0	0.0	0.0
Other Direct Costs	0.0	0.0	0.0	0.0
Interest and Escalation	5.4	8.8	28.2	42.4
Contingency	0.0	0.0	0.0	0.0
<b>Total</b>	<b>185.4</b>	<b>188.8</b>	<b>388.2</b>	<b>762.4</b>

7 **3.2.4 Alternative 3: Rent New Unit**

8 This alternative consists of the rental of a new mobile genset capable of generating at least 910 kW of  
 9 prime power. This option includes the cost of removal of Unit 2102, the cost to rent a unit based on  
 10 quoted rates, and the salvage value of the Hydro-owned generator component of Unit 2102, as outlined  
 11 below and presented in Table 3.

12 **Costing information**

- 13 • Rental cost of New Unit: Average monthly rate of \$21,300<sup>10</sup> for 48 months in total.
- 14 • Installation of the new unit and removal of Unit 2102: \$ 160,000.
- 15 • Salvage value of Unit 2102 generator component: \$ 59,800.

<sup>10</sup> \$12,000 per month for standby (six months per year) and \$30,600 per month for triple shift hours (sixmonths per year).

**Table 3: Alternative 3 Estimate (\$000)**

<b>Project Cost</b>	<b>2021</b>	<b>2022</b>	<b>Beyond</b>	<b>Total</b>
Material Supply	255.6	255.6	511.2	1,022.4
Labour	160.0	0.0	0.0	160.0
Consultant	0.0	0.0	0.0	0.0
Contract Work	0.0	0.0	0.0	0.0
Other Direct Costs	0.0	0.0	0.0	0.0
Interest and Escalation	11.0	12.6	40.1	63.7
Contingency	0.0	0.0	0.0	0.0
<b>Total</b>	<b>426.6</b>	<b>268.2</b>	<b>551.3</b>	<b>1,246.1</b>

### 1 3.2.5 Alternative 4: Purchase New Unit

2 This alternative consists of the purchase of a new mobile genset capable of generating at least 910 kW  
 3 of prime power. This option includes the cost to install the new unit and remove Unit 2102, the cost to  
 4 purchase the unit, and the salvage value of the Hydro-owned generator component of Unit 2102, as  
 5 outlined below and presented in Table 4.

#### 6 Costing information

- 7 • Purchase cost of a new unit: \$ 1,000,000.<sup>11</sup>
- 8 • Installation of the new unit and removal of Unit 2102: \$ 160,000.
- 9 • Salvage value of Unit 2102 generator component: \$ 59,800

**Table 4: Alternative 4 Estimate (\$000)**

<b>Project Cost</b>	<b>2021</b>	<b>2022</b>	<b>Beyond</b>	<b>Total</b>
Material Supply	1,000.0	0.0	0.0	1,000.0
Labour	160.0	0.0	0.0	160.0
Consultant	0.0	0.0	0.0	0.0
Contract Work	0.0	0.0	0.0	0.0
Other Direct Costs	0.0	0.0	0.0	0.0
Interest and Escalation	31.8	0.0	0.0	31.8
Contingency	0.0	0.0	0.0	0.0
<b>Total</b>	<b>1,191.8</b>	<b>0.0</b>	<b>0.0</b>	<b>1,191.8</b>

<sup>11</sup> Current Environment Canada regulations require new mobile diesel gensets to meet Environmental Protection Agency Tier-4 emissions standards.

1 **3.3 Recommended Alternative**

2 A cost-benefit analysis for the period of 2021–2024 inclusive was performed on all four alternatives with  
 3 Alternative 1 being the least-cost option. The summary of the cost-benefit analysis is in Table 5.

**Table 5: Cost-Benefit Analysis –  
 Alternative Comparison Cumulative Net Present Value (“CPW”) to the Year 2021 (\$)**

Alternatives	CPW	CPW Difference between Alternative and the Least-Cost Alternative
Purchase Unit 2102	350,000	
Rent Unit 2102	633,848	283,848
Rent New Unit	1,029,690	679,690
Purchase New Unit	1,047,648	697,648

4 Alternative 1 is the least-cost option to provide Charlottetown and Pinsent’s Arm with prime power until  
 5 the end of 2024.

6 **4.0 Justification**

7 The use of a third unit in Charlottetown is required to meet demand and support the provision of  
 8 reliable service for the residents of Charlottetown and Pinsent’s Arm. Hydro will require the use of the  
 9 third unit until such time as a long-term supply solution is implemented (currently estimated to be  
 10 through 2024). Hydro has considered all viable alternatives and has determined that the purchase and  
 11 continued use of Unit 2102 is the least-cost alternative for the third unit in Charlottetown.

12 **5.0 Project Description**

13 This project is the purchase of a mobile genset that is currently installed and in use in Charlottetown in  
 14 southern Labrador. The unit was installed under emergency conditions due to a fire at the generating  
 15 station and its continued use will require rental or purchase of the unit by Hydro. Hydro is proposing the  
 16 purchase of Unit 2102 for continued use in its current capacity.

17 The estimate for this project is shown in Table 6.

**Table 6: Project Estimate (\$000)**

<b>Project Cost</b>	<b>2021</b>	<b>2022</b>	<b>Beyond</b>	<b>Total</b>
Material Supply	350.0	0.0	0.0	350.0
Labour	0.0	0.0	0.0	0.0
Consultant	0.0	0.0	0.0	0.0
Contract Work	0.0	0.0	0.0	0.0
Other Direct Costs	0.0	0.0	0.0	0.0
Interest and Escalation	0.0	0.0	0.0	0.0
Contingency	0.0	0.0	0.0	0.0
<b>Total</b>	<b>350.0</b>	<b>0.0</b>	<b>0.0</b>	<b>350.0</b>

## 1 **6.0 Conclusion**

2 Since the October 2019 fire in Charlottetown, Hydro has been supplying the community and the  
 3 community of Pinsent’s Arm through the use of three mobile generators. One of these generators is not  
 4 owned by Hydro and has been on loan from Nalcor. As this unit is being used solely for Hydro’s purposes  
 5 and Hydro requires the continued use of a third unit until such time as a long-term supply solution is  
 6 implemented, Hydro is proposing the purchase of this unit from Nalcor. The purchase of Unit 2102 is the  
 7 least-cost option for the provision of a third unit to serve Hydro’s customers in Charlottetown and  
 8 Pinsent’s Arm.



## 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”) for an order approving the purchase of a diesel generator for use in Charlottetown, Labrador, pursuant to Section 41(3) of the Act.

**AFFIDAVIT**

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

1. I am Vice President, Engineering and Technology of 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 26th day of May )  
2021, before me: )



\_\_\_\_\_  
Barrister, Newfoundland and Labrador



\_\_\_\_\_  
Terry Gardiner, P. Eng.