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June 27, 2023

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

Attention: Cheryl Blundon
Director of Corporate Services and Board Secretary

Re: Application for the Construction and Installation of Ultra-Fast Electric Vehicle Charging Stations

Enclosed please find Newfoundland and Labrador Hydro's ("Hydro") application for the construction and installation of ultra-fast electric vehicle ("EV") charging stations.

In 2021, Hydro installed 14 Direct Current Fast Chargers ("DCFC") along the Trans Canada Highway ("TCH") in Newfoundland and Labrador. This initial investment focused on geographic coverage with only one fast charger installed at each site. Hydro's monitoring of station usage data indicates that congestion and wait times are occurring at certain sites during peak travel times, as a result of increased levels of EV usage along the TCH.

In its application, Hydro proposes to construct seven ultra-fast charging stations at the five most utilized locations along the TCH ("Project"). Each charger will be capable of supplying 175 kW, with two sites operating in a paired configuration capable of supplying up to 350 kW to a single vehicle. Due to long lead times associated with specialized charging equipment (in excess of six months from the order date), Hydro is seeking approval through a supplemental capital application in order to adhere to Project timelines associated with external funding.

This Project is in partnership with the Government of Newfoundland and Labrador ("Government") who will fund the majority of the capital cost of the $2.1 million Project; Hydro will contribute the remaining funds necessary beyond what is funded by Government ($0.1 million). The capital funds Hydro expends on this Project are not proposed for inclusion in its regulated rate base for recovery from customers 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.kd

Encl.

ecc:

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Jacqui H. Glynn
PUB Official Email

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Consumer Advocate
Dennis M. Browne, KC, Browne Fitzgerald Morgan & Avis
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Newfoundland Power Inc.
Dominic J. Foley
Lindsay S.A. Hollett
Regulatory Email

Construction and Installation of Ultra-Fast Electric Vehicle Charging Stations

June 27, 2023

An application to the Board of Commissioners of Public Utilities

newfoundland labrador hydro

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

IN THE MATTER OF an application by Newfoundland and Labrador Hydro ("Hydro") for an Order approving the construction and installation of seven ultra-fast Direct Current Fast Chargers ("DCFC") pursuant to Section 41(3) of the *Act* ("Application").

To: The Board of Commissioners of Public Utilities ("Board")

THE APPLICATION OF HYDRO STATES THAT:

A. Background

1. Hydro, a corporation continued and existing under the *Hydro Corporation Act, 2007*,[1] is a public utility within the meaning of the *Act*, and is subject to the provisions of the *EPCA*.

2. Hydro operates a network of 23 public DCFCs in Newfoundland and Labrador.[2] Hydro installed 14 of these DCFC installations along the Trans-Canada Highway ("TCH") in 2021. Since these chargers were commissioned in August 2021, usage has grown rapidly leading to congestion and user wait times during peak travel periods.

3. The growth in energy sales from DCFCs since August 2021 is shown in Chart 1 of Schedule 1 to this Application; there is a notable peak during the summer months. Hydro expects this trend to continue as more electric vehicles ("EV") are operated within the province by both residents and tourists.

[1] *Hydro Corporation Act, 2007*, SNL 2007, c H-17.

[2] A portion of Hydro's chargers are operated under the takeCHARGE partnership.

B. Application

4. Hydro has the opportunity to avail of funding from the Government of Newfoundland and Labrador ("Government") to install seven ultra-fast DCFCs at five of Hydro's most utilized charging sites along the TCH ("Project").

5. Hydro intends to increase its specification from 62.5 kW to a minimum of 175 kW. Sites with two ultra-fast DCFCs (i.e., Goobies and Deer Lake) will be installed in a paired configuration, capable of directing power from both chargers (350 kW) to a single vehicle. This will allow for significantly faster charging with compatible vehicles, charging from 10% to 80% in as little as 18 minutes. Hydro's current DCFCs would require approximately 50 minutes to provide the same amount of energy.

6. The completion of the proposed Project will reduce congestion for existing and future EV owners, and provide faster charging speeds to compatible EVs.

7. This Project will allow for increased numbers of EVs to be owned and operated within the province which will serve to significantly reduce greenhouse gas emissions when compared to internal combustion engines.

8. The estimated capital cost of this Project is $2,059,800. Hydro anticipates receiving the majority of the Project costs, up to $2 million, from Government funding. Hydro will contribute the remaining funds necessary for the Project; however, the capital funds Hydro expends on this Project are not proposed for inclusion in its regulated rate base for recovery from customers at this time.

9. Further details on the Project, including the specific work and the proposed time frame for that work, are detailed in the report attached to this Application as Schedule 1.

C. Newfoundland and Labrador Hydro's Request

10. Hydro hereby requests that the Board make an Order, pursuant to Section 41(3) of the *Act,* approving the Project and Hydro's capital expenditure of approximately $2,059,800 as more particularly described in this Application and in the report attached as Schedule 1.

DATED at St. John's in the Province of Newfoundland and Labrador this 27th day of June 2023.

NEWFOUNDLAND AND LABRADOR HYDRO

Shirley A. Walsh
Counsel for the Applicant
Newfoundland and Labrador Hydro,
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St. John's, NL A1B 4K7
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Schedule 1

Ultra-Fast Direct Current Fast Chargers

Construction and Installation

Ultra-Fast Direct Current Fast Chargers – Construction and Installation

Location: Various

Investment Classification: Service Enhancement

Asset Category: Distribution

Executive Summary

In partnership with the Government of Newfoundland and Labrador ("Government"), Newfoundland and Labrador Hydro ("Hydro") is proposing to install seven ultra-fast Direct Current Fast Chargers ("DCFC") at five of Hydro's most utilized charging sites along the Trans-Canada Highway ("TCH") in an effort to alleviate congestion and provide faster charging speeds to compatible electric vehicles ("EV"). Each charger will be capable of supplying 175 kW, with two sites being constructed in a paired configuration capable of supplying up to 350 kW to a single vehicle. Compatible vehicles will be able to charge from 10% to 80% state of charge in 18 minutes. This project will allow for increased numbers of EVs to be owned and operated within the province which will serve to significantly reduce greenhouse gas ("GHG") emissions when compared to internal combustion engines. The life-to-date reduction in GHG emissions from Hydro's existing EV chargers is estimated at 330 tonnes. This is directly from charging at the EV charging stations and does not include GHG reductions from at-home charging.

The estimated project cost is approximately $2.1 million with planned completion by September 2025. Hydro anticipates receiving 95% of the funds required for this project from Government,[1] with minimal expenditure of Hydro funds. Hydro is not proposing approval of cost recovery at this time.

[1] Subject to finalization of funding agreements and final project costs.

Contents

1.0 Introduction

Hydro currently operates a network of 23 public DCFCs in the province.[2] Hydro installed the province's first 14 DCFC installations along the TCH in 2021. Since these chargers were commissioned in August 2021, usage has grown rapidly leading to congestion and user wait times during peak travel periods. The growth in energy sales from DCFCs over this period, with a notable peak during the summer months, is shown in Chart 1. Hydro expects this trend to continue as more EVs are operated within the province by both residents and tourists.

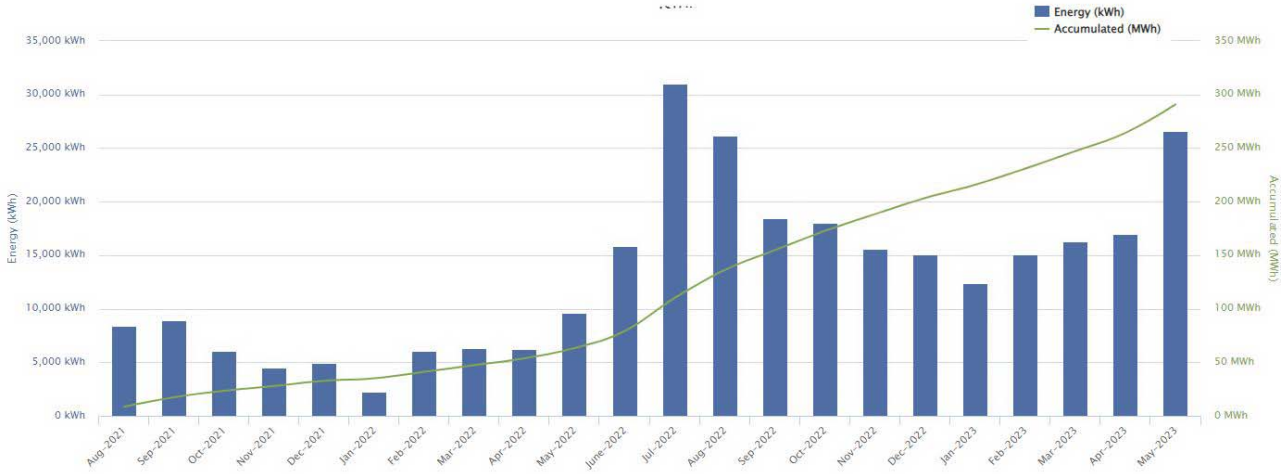

Chart 1: Monthly DCFC Energy Sales

In partnership with the Government, Hydro is proposing to construct seven ultra-fast DCFCs at its five most utilized charging sites.[3] These chargers will add capacity, alleviate congestion, and provide faster charging times reflecting advancements in EV charging technology. With the majority of the capital cost associated with the project to be contributed by the Government, Hydro will not be seeking to recover any costs from ratepayers at this time.

[2] A portion of Hydro's chargers are operated under the takeCHARGE partnership.
[3] Government will hold legal title to these chargers which Hydro will operate and maintain on their behalf. Accounting standards require that Hydro record a capital asset and offsetting contribution associated with this project.

2.0 Background

The total number of DCFC sessions in 2022 by location is provided in Table 1.

Table 1: Total DCFC Sessions in 2022

Location	Sessions
St. John's (Galway)	1,104
Goobies	1,012
Whitbourne	661
Gander	591
Deer Lake	420
Corner Brook	411
Bishop's Falls	387
Holyrood	373
South Brook	345
Glovertown	294
Port Blandford	279
Rocky Harbour	199
Stephenville	86
Port aux Basques	8
Total	**6,170**

Based on this data, combined with site surveys, Table 2 provides the list of sites that have been selected for expansion through the ultra-fast DCFC project.[4]

Table 2: Planned Site Expansions

Location	Number of DCFCs
St. John's (Galway)	1
Whitbourne	1
Goobies	2
Bishop's Falls	1
Deer Lake[5]	2
Total	**7**

[4] Due to a lack of space for expansion, the Gander location was screened out and replaced with Bishop's Falls.
[5] Deer Lake was selected for two ultra-fast DCFCs in anticipation of additional traffic associated with the commissioning of six new DCFCs on the Great Northern Peninsula.

3.0 Project Description and Justification

Hydro's proposed locations for the ultra-fast DCFCs in the context of the existing charging network are provided in Figure 2.

Figure 1: Proposed Locations of Ultra-Fast Chargers

Hydro plans to install ultra-fast DCFCs at existing sites and is working with its current site hosts to secure additional land leases under similar terms.[6] This approach will allow new chargers to be placed in popular locations with the highest usage, which will alleviate congestion and wait times as well as offer

[6] Hydro will enter into the land leases with the site hosts, and allow the installation of the chargers which will be assets of the Government for an initial three-year period before being transferred to Hydro.

operational efficiencies. For example, Hydro's current DCFCs offer both CCS[7] and CHAdeMO[8] plug types. Since that specification was initially selected, CCS had become the dominant multi-vendor plug standard in North America; however, recently Ford, General Motors, and Rivian announced that they would be adopting the Tesla NACS[9] plug standard beginning in 2025 with adapters being made for legacy CCS vehicles. Co-locating ultra-fast DCFCs with the existing DCFC units allows for improved efficiency while ensuring owners of vehicles with legacy plug types can still charge at the same location.[10]

4.0 Asset Overview

In response to the increased charging capabilities of newer EVs, Hydro intends to increase its specification from 62.5 kW to a minimum of 175 kW. Sites with two ultra-fast DCFCs (i.e., Goobies and Deer Lake) will be installed in a paired configuration, capable of directing power from both chargers (350 kW) to a single vehicle. This will allow for significantly faster charging with compatible vehicles, charging from 10% to 80% in as little as 18 minutes. By way of comparison, Hydro's current DCFCs would require approximately 50 minutes to provide the same amount of energy.

5.0 Analysis

5.1 Evaluation of Alternatives

Hydro considered the following alternatives:

- Project deferral; and
- Construct and install ultra-fast DCFCs.

5.1.1 Deferral

The deferral of this project would place Government funding at risk. This funding includes requirements for project completion and equipment in-service dates which, in combination with long equipment lead times, requires that Hydro place equipment orders in the coming months.

[7] Combined charging system ("CCS").
[8] Legacy direct current fast charging standard.
[9] In November 2022, Tesla announced its proprietary plug type would be available for use by other manufacturers and re-branded to the North American Charging Standard ("NACS").
[10] Hydro anticipates offering a single CCS plug on its ultra-fast DCFCs; however, its equipment specification will allow for consideration of the NACS standard as a secondary plug.

5.1.2 Construct and Install Ultra-Fast DCFCs

Proceeding with this project will enable Hydro to meet growing customer demand and higher charging acceptance rates of new EVs, while availing of third-party funds.

5.1.3 Least-Cost Evaluation

There are no viable alternatives identified to facilitate a least-cost evaluation. The project is majority funded by Government.

This project will allow for increased numbers of EVs to be owned and operated within the province which will serve to significantly reduce GHG emissions when compared to internal combustion engines.

5.1.4 Recommended Alternative

The construction and installation of ultra-fast DCFCs was the only viable alternative identified, as additional charging capacity is required to meet growing customer demand and higher charging acceptance rates of new EVs.

5.1.5 Risk of Asset Stranding

The risk of asset stranding of ultra-fast DCFCs is low, as Hydro has selected the five of the most utilized charging sites along the TCH for installation. Further, there will be a legacy role for ultra-fast DCFCs as EV charging technology continues to evolve, as there is for Hydro's existing DCFCs. For example, the two most popular EVs rebated in Newfoundland and Labrador have been the Chevrolet Bolt and Hyundai Kona EV.[11] The Bolt and Kona EV have maximum charge rates of 55 kW and 77 kW, respectively; and therefore, will continue to be well served by Hydro's existing 62.5 kW DCFCs. The added availability of DCFCs will also help improve charging capacity at peak hours to meet the growing demand for EVs.

[11] Rebate statistics based on the period from April 1, 2022 to March 31, 2023.

6.0 Scope of Work

6.1 Project Budget

The estimate for this project is shown in Table 3.

Table 3: Project Estimate ($000)

Project Cost	2023	2024	2025	Total
Material Supply	0.0	1,077.0	0.0	**1,077.0**
Labour	52.5	20.0	20.0	**92.5**
Consultant	0.0	0.0	0.0	**0.0**
Contract Work	10.0	493.5	164.5	**668.0**
Other Direct Costs	0.0	35.0	0.0	**35.0**
Interest and Escalation	0.0	0.0	0.0	**0.0**
Contingency	0.0	140.5	46.8	**187.3**
Total	**62.5**	**1,766.0**	**231.3**	**2,059.8**

6.2 Project Schedule

The schedule for this project is shown in Table 4.

Table 4: Project Schedule

Activity	Start Date	End Date
Planning:		
Project initiation	August 2023	August 2023
Design:		
Detailed electrical/site design	August 2023	September 2023
Request electrical service	August 2023	September 2023
Procurement:		
Ultra-fast DCFC procurement	August 2023	February 2024
Land leases	August 2023	December 2023
Tender for civil and electrical work	March 2024	April 2024
Construction:		
Civil work	June 2024	November 2024
Electrical work	November 2024	March 2025
Commissioning:		
Final hookup and commissioning	April 2025	July 2025
Closeout:		
Project closeout	July 2025	September 2025

7.0 Conclusion

Hydro's fast charging network is experiencing congestion and wait times during peak travel periods. Hydro is proposing to construct seven ultra-fast DCFCs at its most utilized sites in order to alleviate congestion and provide faster charging speeds to customers. Hydro anticipates receiving funding for 95% of the capital costs associated with this project.[12] Hydro is not proposing approval of cost recovery at this time. This project will allow for increased numbers of EVs to be owned and operated within the province which will serve to significantly reduce GHG emissions when compared to internal combustion engines.

[12] Subject to finalization of funding agreements and final project costs.

Affidavit

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

IN THE MATTER OF an application by Newfoundland and Labrador Hydro ("Hydro") for an Order approving the construction and installation of seven ultra-fast Direct Current Fast Chargers ("DCFC") pursuant to Section 41(3) of the *Act* ("Application").

AFFIDAVIT

I, Walter Parsons, of St. John's in the province of Newfoundland and Labrador, make oath and say as follows:

1) I am Vice President, Transmission Interconnections and Business Development, 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 27th day of June 2023, before me:

Commissioner for Oaths, Newfoundland and Labrador

Walter Parsons

SAMANTHA KEATS
A Commissioner for Oaths in and for
the Province of Newfoundland and Labrador.
My commission expires on December 31, 2027