Newfoundland & Labrador

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

IN THE MATTER OF THE

2021 CAPITAL BUDGET APPLICATION

FILED BY

NEWFOUNDLAND AND LABRADOR HYDRO

DECISION AND ORDER OF THE BOARD

ORDER NO. P.U. 2(2021)

BEFORE:

Darlene Whalen, P. Eng., FEC
Chair and CEO

Dwanda Newman, LL.B.
Vice-Chair

Christopher Pike, LL.B, FCIP
Commissioner

NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

AN ORDER OF THE BOARD

NO. P.U. 2(2021)

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

IN THE MATTER OF an application by Newfoundland and Labrador Hydro for an Order, pursuant to sections 41 and 78 of the *Act*:

(a) approving its 2021 capital purchases and construction projects in excess of $50,000;
(b) approving its 2021 Capital Budget of $107,452,400; and
(c) fixing and determining its average rate base for 2017, 2018, and 2019 in the amounts of $2,068,754,000, $2,265,683,000, and $2,306,047,000 respectively.

BEFORE:

Darlene Whalen, P. Eng., FEC
Chair and CEO

Dwanda Newman, LL.B.
Vice-Chair

Christopher Pike, LL.B, FCIP
Commissioner

TABLE OF CONTENTS

I BACKGROUND

1. The Application

Newfoundland and Labrador Hydro ("Hydro") filed its 2021 Capital Budget Application (the "Application") with the Board of Commissioners of Public Utilities (the "Board") on August 4, 2020. On August 7, 2020 Hydro filed a revision to the Application to include information that had been inadvertently omitted. On November 2, 2020 Hydro filed a second revision to the Application to revise the 2017 rate base as a result of a correction to Hydro's average deferred charges for 2017. In this revision Hydro also corrected information within the five-year plan, updated capital spending figures in light of the impact of COVID-19, and corrected various minor errors. The Application requested that the Board make an order:

(a) approving its 2021 capital purchases and construction projects in excess of $50,000;
(b) approving its 2021 Capital Budget of $107,452,400; and
(c) fixing and determining its average rate base for 2017, 2018, and 2019 in the amounts of $2,068,754,000; $2,265,683,000; and $2,306,047,000 respectively.

Notice of the Application, including an invitation to participate, was published on August 15, 2020. Details of the Application and supporting documentation were posted on the Board's website.

On August 26, 2020 an intervenor submission was received from the Consumer Advocate, Dennis Browne, Q.C. (the "Consumer Advocate"). On August 27, 2020 Newfoundland Power Inc. ("Newfoundland Power") and a group of Island Industrial customers: Corner Brook Pulp and Paper Limited, NARL Refining LP and Vale Newfoundland and Labrador Limited (the "Industrial Customer Group") filed intervenor submissions. On September 1, 2020 an intervenor submission was received from the communities of Sheshatshiu, Happy Valley-Goose Bay, Wabush and Labrador City (the "Labrador Interconnected Group").

On September 16, 2020 Hydro provided an overview of the Application in a presentation to representatives from Newfoundland Power, the Consumer Advocate, consultants for the Consumer Advocate, counsel and consultant for the Labrador Interconnected Group, counsel for the Industrial Customer Group as well as Board staff. Participants were given the opportunity to ask questions or raise areas of concern.

On September 22, 2020 Requests for Information ("RFIs") were issued by the Board. On September 23, 2020 the Industrial Customer Group and Newfoundland Power filed RFIs. On that same day the Consumer Advocate filed RFIs as well as a request for a technical conference. On September 29, 2020 the Labrador Interconnected Group filed its RFIs. On October 21, 2020 Hydro responded to all 172 RFIs filed.

On November 3, 2020 the Consumer Advocate advised that there were no issues identified which required further review in a technical conference.

On November 4, 2020 Grant Thornton LLP ("Grant Thornton"), the Board's financial consultant, filed a report with respect to its review of the calculation of Hydro's 2017, 2018 and 2019 average

rate base. Grant Thornton's report was circulated to Hydro, the Consumer Advocate, Newfoundland Power, the Industrial Customer Group and the Labrador Interconnected Group.

On November 16, 2020 Newfoundland Power advised that it had no submissions on the Application and the Industrial Customer Group advised that they had no comment on the Application. The Consumer Advocate filed a written submission on November 16, 2020 and the Labrador Interconnected Group filed a written submission on November 23, 2020. A letter of comment was filed with respect to the Application by ChargePoint Inc. Hydro filed its reply submission on November 25, 2020.

2. Board Authority

Section 41 of the *Act* requires a public utility to submit an annual capital budget of proposed improvements or additions to its property for approval of the Board no later than December 15th in each year for the next calendar year. In addition, the utility is also required to include an estimate of contributions toward the cost of improvements or additions to its property which the utility intends to demand from its customers.

Subsection 41(3) of the *Act* prohibits a utility from proceeding with the construction, purchase or lease of improvements or additions to its property without the prior approval of the Board 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.

Section 78 of the *Act* gives the Board the authority to fix and determine the rate base for the service provided or supplied to the public by the utility and also gives the Board the power to revise the rate base. Section 78 also provides the Board with guidance on the elements that may be included in the rate base.

3. Capital Budget Guidelines

In 2007 the Board established Capital Budget Guidelines (the "Guidelines"). In 2019 the Board commenced a review of the Guidelines and in early 2020, as part of this review, the Board advised that additional requirements would be implemented for the 2021 capital budgets, including:

i. introductory presentations outlining the capital budget application;
ii. additional information with respect to the deferral of projects; and
iii. additional information on the revenue requirement impacts of the proposed capital projects.

The review of the Guidelines is ongoing in a separate regulatory process and, until the conclusion of this review, the existing Guidelines remain in effect.

II PROPOSED 2021 CAPITAL BUDGET

In accordance with the legislation, regulations and Guidelines the Application included detailed information to support the proposed 2021 Capital Budget as well as the proposed individual expenditures. The Application also set out specific information required to be filed in compliance

with previous Board Orders, including reports related to the Holyrood Thermal Generating Station, 2020 capital expenditures and Hydro's five-year capital plan.

1. Overview

The proposed 2021 Capital Budget is as follows:

2021 Proposed Capital Budget ($000s)	
2021 Single Year Projects	
Generation	$17,311.6
Transmission and Rural Operations	18,975.2
General Properties	3,708.9
Allowance for Unforeseen Events	1,000.0
Projects under $50,000	197.9
Multi-year (2021 Expenditures)	
Multi-year projects commencing in 2021	31,456.7
Multi-year projects commencing in 2020	34,802.1
Total 2021 Capital Budget	**$107,452.4**

The 2021 multi-year expenditures include 12 projects which are proposed to begin in 2021 and 13 projects previously approved by the Board. The proposed future year capital expenditures associated with capital projects proposed for 2021 are $38,860,400 for 2022, $10,747,400 for 2023, and $3,674,700 for 2024.[1] The Application estimated contributions in aid of construction to be recovered from customers for 2021 to be approximately $290,000 for distribution upgrades and service extensions.

2. Evidence Filed with the Application

The Application sets out information supporting the 2021 Capital Budget as well as the proposed purchase and construction of improvements or additions to Hydro's property. The supporting information for each of the projects is comprehensive and consistent with the level of information filed in recent capital budget applications and is in accordance with the Board's Guidelines.

The Application explained that approximately 45% of the proposed expenditures relate to transmission and rural operations, 47% relate to generation, and 7% is for general properties. Multi-year projects account for $66.2 million of the budget and, of this amount, $31.5 million relates to multi-year projects which commence in 2021. The total proposed capital expenditures for projects commencing in 2021 are $72.7 million.

In its 2021 Capital Projects Overview Hydro highlighted its aging asset base, noting that the majority of its installed assets, including the hydroelectric installation at Bay d'Espoir, the Holyrood Thermal Generating Station, the Stephenville and Hardwoods gas turbines, and much of its transmission and distribution systems are at least 40 to 50 years old. Hydro stated that it

[1] This does not include expenditures for the 2021–2024 diesel plan replacement in Charlottetown and the installation of fire protection in the Port Hope Simpson diesel plant which Hydro had said it plans to apply for in 2021.

recognizes the need to balance system investment to maintain reliability with the management of costs to minimize upward pressure on customer rates. In an effort to reduce costs while maintaining reliable service, Hydro stated that it realigned projects based on the condition of assets, enabling adjustment to the timeframes associated with project execution. Hydro stated that the projects proposed for 2021 are primarily driven by the requirement to refurbish aging assets, accommodation of load growth in Labrador West, and extension of the service life of the Holyrood Thermal Generating Station as well as legislative compliance, for example to meet safety and environmental requirements.

According to the 2021-2025 Capital Plan, Hydro plans to invest approximately $625 million in plant and equipment over the next five years, resulting in an average annual capital expenditure of approximately $125 million. Hydro stated that, while the projects identified for the 2021-2025 period are primarily required for sustaining capital, the 2021-2025 Capital Plan also reflects expenditures related to capital additions for upgrades required to accommodate growth in Labrador West in the amount of $22 million, to address the Charlottetown plant fire in the amount of $64 million, and refurbishment work at the Bay d'Espoir penstocks in the amount of $47 million.

In the Holyrood Thermal Generating Station Overview report Hydro stated that this plant is a critical part of the Island Interconnected system and is necessary to reliably meet both winter peak demand and annual energy requirements. Throughout 2019 and 2020 the Holyrood Thermal Generating Station operated at a higher level of thermal production than was originally contemplated due to delays with the in-service of the Labrador-Island Link. The report stated that Hydro has committed to having the Holyrood Thermal Generating Station fully available for generation until 2022.[2] As such, significant changes to Hydro's maintenance strategy are not planned at this time but changes in equipment maintenance intervals may be considered depending on annual operating hours. Upon the successful integration and demonstrated reliability of the Muskrat Falls assets Hydro plans to decommission Units 1 and 2 and the steam components of Unit 3 at the Holyrood Thermal Generating Station. Unit 3 will continue to operate in synchronous condenser mode only. Planned expenditures for the Holyrood Thermal Generating Station over the 2021-2025 period total $43.2 million which includes capital expenditures associated with post-steam operation. The 2021 capital project proposals for the Holyrood Thermal Generating Station are based on asset condition, equipment obsolescence, forecast production requirements, and Hydro's commitment with respect to the continued availability of the Holyrood Thermal Generating Station until 2022. Hydro asserts that the proposed projects reflect the necessary rehabilitation and replacement projects to ensure customer needs can be met.

3. Submissions

The Consumer Advocate noted that Hydro is seeking approval of $107.5 million which is less than the amount approved for its 2020 Capital Budget and, as such, recommended that the Board approve the expenditures requested. The Consumer Advocate submitted that Hydro has provided a prioritized list of projects in the Application, has made an attempt to respond to the poor economic climate in the Province, and has held 2021 capital expenditures at levels slightly less than those approved by the Board for 2020.

[2] On September 28, 2020 Hydro advised the Board of an extension to the operation of the Holyrood Thermal Generating Station as a generating facility from March 31, 2022 to March 31, 2023.

The Consumer Advocate argued that the recommendations from the Midgard Consulting Inc. ("Midgard") report filed on August 24, 2020 as part of the review of the current Guidelines are directly relevant to the Application. The Consumer Advocate emphasized support for an envelope approach whereby a maximum or cap is put in place on the amount of capital expenditures that a utility can spend in a given year. The Consumer Advocate argued that, given the current economic conditions in the Province, there has never been a more urgent time to approve an envelope and urged capping capital budget investments at 2020 approved levels or less. The Consumer Advocate argued that, based on Midgard's key findings and recommendations, there is considerable asymmetry of information between utilities and the intervenors under the current Guidelines and that this asymmetry is favourable to the utilities. The Consumer Advocate stated that Hydro has not gone far enough in the Application to address this asymmetry of information and has simply not provided the information necessary for the Board to make an informed decision about the merits of the projects identified in the Application. The Consumer Advocate stated that Hydro has not quantified the risks of delaying projects included within the Application nor has it quantified the benefits of the projects such as cost reductions owing to efficiency improvements, and improvements in reliability metrics such as SAIDI and SAIFI. The Consumer Advocate recommended that the Board serve notice to Hydro that in future capital budget applications the benefits of a project to consumers in terms of cost savings and/or improvements in reliability as well as the risks associated with project deferral be quantified.

The Labrador Interconnected Group stated that there are four capital projects of significant interest to the communities they represent: (i) Additions for Load Growth - Happy Valley Line 7, (ii) Labrador City L22 Voltage Conversion, (iii) Additions for Load - Wabush Substation Upgrades, and (iv) Wabush Terminal Station Upgrades. The Labrador Interconnected Group expressed support for the first three of these projects and stated that they are necessary to ensure safe, adequate and reliable service to ratepayers in Labrador.

With respect to the Wabush terminal station upgrades project the Labrador Interconnected Group argued that there is uncertainty as to whether the proposed upgrades to the Wabush terminal station are necessary. Given the significant cost of the proposed upgrade work, the Labrador Interconnected Group advocated that Hydro should provide further information to the Board to explain why the proposed upgrades are necessary, and that the project should not be approved until that time. The Labrador Interconnected Group noted that there does not appear to be evidence as to the forecasted frequency or extent of the curtailments to Tacora Resources Inc. ("Tacora") in the event that transfer capacity is insufficient. The Labrador Interconnected Group also stated that it is not clear why the costs of upgrades, if required, should not be directly assigned to Tacora, and it is not clear why this work is required given that synchronous condenser 3 ("SC3") is in service.

The Labrador Interconnected Group noted that SC3 is currently owned by the Iron Ore Company of Canada ("IOC") and has been in service under a temporary operating agreement since the fall of 2019 with the incremental transfer capability it provides being exclusively available to IOC. According to the Labrador Interconnected Group discussions between Hydro and IOC are ongoing with respect to the future role that SC3 will play in the Wabush electrical system. The Labrador Interconnected Group noted that while Hydro's projection suggests that without intervention demand would exceed system capacity by almost 200 hours per year starting in 2021, that projection assumes that SC3 is not in service. The analysis also demonstrates that if SC3 were to be commissioned no curtailments would be required. The Labrador Interconnected Group further stated that it appears that SC3 can provide firm service to IOC, so only Tacora would be subject

to curtailment in the event that transfer capacity was insufficient. The Labrador Interconnected Group argued that, if upgrades are required only to prevent Tacora from experiencing curtailments, it is not clear why those costs are not directly assigned to Tacora.

ChargePoint Inc. ("ChargePoint") filed a letter of comment which stated that it supports Hydro's request for $0.3 million for the purchase and installation of 18 Level 2 chargers at nine Hydro-owned sites across the Province. ChargePoint contended that this investment will facilitate the integration of electric vehicles into Hydro's fleet, enabling Hydro to save money on fuel and maintenance costs over a vehicle's lifetime. In addition, ChargePoint asserted that Hydro's integration of fleet electrification will help demonstrate the feasibility of electric cars in the Province.

Hydro noted in its reply submission that the Consumer Advocate had no specific objection to any project proposed within the Application and, in fact, recommended approval of the Application in its entirety. With respect to future capital budget applications Hydro referenced the ongoing review of the Guidelines and stated that it will provide its submissions on the review as part of that separate proceeding.

With respect to the comments of the Labrador Interconnected Group it is Hydro's position that the evidence before the Board clearly demonstrates that the Wabush terminal station upgrades are justified based on reliability benefits to customers in Labrador West. Hydro stated that the existing system capacity of 350 MW in Labrador West is not firm and the upgrades are required to firm up both the transmission capability and the transformation capacity in Labrador West in accordance with established criteria. Without these upgrades customers in Labrador West are subject to curtailment when a transformer fails. Hydro contended that the Labrador Interconnected Group incorrectly connects the requirement for this project with the operating status of synchronous condenser SC3, providing capacity to IOC and preventing curtailments to Tacora. Hydro agreed that, currently, any necessary curtailment in Wabush involves the power supplied to IOC and Tacora and does not directly impact Hydro's Rural customers. However, Hydro emphasised that this is only due to contractual arrangements between Hydro and the Industrial customers, which may be subject to change to ensure the equitable access to an adequate supply of power to all customers. Hydro noted that, in other parts of the Province, if system load curtailment is necessary it is not limited to Industrial customers.

Hydro submitted that the proposed project consists solely of system additions that are necessary irrespective of whether SC3 becomes a long-term option. Hydro noted that SC3 is a reactive power source and has no impact in terms of power transformer capacity at the Wabush terminal station and that the evidence demonstrates that power transformer upgrades are required regardless of the operational status of SC3. Hydro stated that 83 MVAr is required for support to the system and that the reactive capacity of SC3 is only 60 MVAr. Consequently, irrespective of the status of the SC3, an additional 23 MVAr is required. This would be provided by the purchase of the 23 MVAr capacitor bank proposed in the Application. In Hydro's view the evidence before the Board demonstrates that the proposed project is necessary to ensure reliable service to all customers in Labrador West on an equitable basis and provides a reasonable balance of service reliability and cost. Hydro stated that the cost of this project would be recovered from all customers on the Labrador Interconnected system with approximately two thirds of the costs recovered through the Labrador Industrial Transmission demand rate. Hydro estimated the rate impact for Hydro Rural customers to be less than 2% when the project is fully in service.

4. Board Findings

Pursuant to section 41 of the *Act* the Application seeks approval of Hydro's proposed 2021 Capital Budget and the proposed individual projects with expenditures in excess of $50,000. The Board has reviewed the Application and supporting information and reports, the responses to the RFIs and the submissions of the parties and sets out its determinations in relation to the proposed capital expenditures and Hydro's 2021 Capital Budget in the following sections.

4.1 Proposed Capital Expenditures

The capital expenditures set out in the Application are $107,452,400 for 2021, $38,860,400 for 2022, $10,747,400 for 2023, and $3,674,700 for 2024.[3] Support was provided for each of the proposed capital expenditures in excess of $50,000 including a project description, justification, expenditures, costing methodology, and future commitments. For 23 of the more significant projects additional information and reports were provided setting out further details in relation to the proposed expenditures and the justification for approval.[4] Other reports filed with the Application include the 2021 Capital Projects Overview, the 2021 – 2025 Capital Plan, and the Holyrood Thermal Generating Station Overviews. The 2021-2025 Capital Plan provides information in relation to Hydro's capital planning, its five-year capital plan and the 2021 Capital Budget. Further support for the proposed capital expenditures was provided in Hydro's responses to the 172 RFIs filed in relation to the Application. The Board's findings with respect to the proposed expenditures are addressed below.

Generation

The proposed generation expenditures for 2021 of $50.7 million account for 47% of Hydro's overall 2021 Capital Budget. These expenditures relate to Hydro's hydroelectric, thermal and gas turbine generation.

The proposed 2021 capital expenditures for hydraulic plant in the amount of $21.3 million are higher than the five-year historical average of $14.0 million, primarily related to the planned increase in work required to support the refurbishment of aging assets. Hydro's major hydraulic generating plants range in age from 16 to 52 years and capital expenditures are required to ensure continued reliability and to maximize the useful operating lives of these assets. The generation expenditures include $10.2 million related to the second year of the 2020-2021 hydraulic generation refurbishment and modernization project.[5] The proposed expenditures for the 2021-2022 hydraulic generation refurbishment and modernization project are $6.6 million for 2021 and $6.5 million for 2022. The generation expenditures for 2021 also include $1.3 million for hydraulic generation in-service failures. The proposed four-year program to refurbish the Ebbegunbaeg Control Structure includes expenditures of $3.2 million for 2021, $3.2 million for 2022, $3.5 million for 2023 and $3.7 million for 2024.

Proposed 2021 capital expenditures for thermal generation in the amount of $22.7 million are materially higher than the five-year historical average of $10.7 million, primarily related to the

[3] The 2021 expenditures include $197,000 for capital projects less than $50,000 and $1,000,000 for the Allowance for Unforeseen Events.
[4] There are 73 individual projects in the Application.
[5] Approved in Order No. P.U. 6(2020).

inclusion of projects required to support the readiness to operate the Holyrood Thermal Generating Station as a generating facility until March 31, 2022.[6] This level of capital work was not reflected in last year's capital budget application because at the time Hydro planned to retire the Holyrood Thermal Generating Station as a generating facility on March 31, 2021 and production was higher than anticipated in 2019 and 2020. Based on the age and condition of the Holyrood Thermal Generating Station assets, as well as historical experience with these assets, the proposed expenditures are required to support the extension of this generating facility. The proposed 2021 thermal generation expenditures include the amount of $11.4 million for steam generation related projects which include (i) $8.0 million for an overhaul of the Unit 1 turbine and valves, (ii) $3.0 million for a boiler condition assessment and miscellaneous upgrades program, and (iii) $0.4 million for an overhaul of the Unit 3 boiler feed pump east. In addition, expenditures of $11.3 million for 2021 are proposed in relation to post-steam generation related projects and thermal in-service failures.

Proposed 2021 capital expenditures for gas turbines in the amount of $6.4 million are somewhat higher than the five-year historical average of $5.7 million. The 2021 capital expenditures related to the Holyrood Gas Turbine include: (i) $2.5 million for the execution of a two-year combustor inspection;[7] (ii) $0.6 million for the completion of the project to install partial discharge monitoring;[8] and (iii) $0.3 million to construct a lube oil cooler hood and containment system. Proposed expenditures for the Happy Valley Gas Turbine include: (i) $2.4 million to replace the fire suppression system;[9] (ii) $0.2 million to replace fuel oil, lube oil, and glycol pumps; (iii) $0.1 million to replace the voltage regulator; and (iv) $0.1 million to upgrade the compressed air system. Additionally the gas turbine generation expenditures include $0.2 million for the purchase of capital spares for gas turbines. There are no planned capital expenditures for either the Hardwoods or Stephenville Gas Turbines in 2021 or in the five-year capital plan.

The Board accepts that the proposed hydroelectric, thermal and gas turbine generation expenditures are justified and should be approved.

Transmission and Rural Operations

Expenditures related to transmission and rural operations for 2021 total $48.2 million, accounting for 45% of overall planned capital expenditures. These expenditures include amounts related to transmission, terminal stations, rural generation and distribution.

The proposed transmission expenditures for 2021 in the amount of $2.9 million are materially lower than the five-year historical average of $66.5 million which were higher in recent years due to the construction of the TL 267 and TL 266 transmission lines. The proposed 2021 expenditures are for the wood-pole line management program related to Hydro's approximately 2,300 kilometres of wood-pole transmission lines.

The proposed capital expenditures for terminal stations for 2021 in the amount of $24.2 million are below the five-year historical average of $28.3 million. Hydro owns and operates more than 50 high voltage terminal stations. Many of these terminal stations were constructed in the 1960s

[6] The operation of this facility has now been extended to March 31, 2023.
[7] An additional $2.4 million is proposed for 2022.
[8] Approved in Order No. P.U. 6(2020).
[9] Approved in Order No. P.U. 6(2020).

with expected useful lives in the range of 40-50 years and, as a result, refurbishment and general upgrades are necessary to support Hydro's ability to provide reliable service. Expenditures are proposed for the continued upgrade of power transformers and circuit breakers in the amount of $5.4 million, terminal station refurbishment and modernization in the amount of $11.9 million, terminal station in-service failures in the amount of $1.8 million, and the purchase of sulphur hexafluoride gas recovery systems in the amount of $0.1 million. Expenditures to upgrade the Bottom Brook and Stephenville terminal stations in the amount of $1.5 million for 2021 are proposed to support the continued provision of reliable service to customers in Stephenville following the planned retirement of the Stephenville Gas Turbine.[10] Expenditures of $1.2 million in 2021, $6.4 million in 2022 and $2.9 million in 2023 are proposed related to multi-year projects for additions at the Wabush substation that are required to accommodate load growth in Labrador West.

The proposed terminal station expenditures also include expenditures for Wabush terminal station upgrades in the amount of $2.3 million for 2021, $4.9 million for 2022 and $4.3 million for 2023. These expenditures are proposed on the basis that they are required to maintain reliable service and meet forecast load growth. The proposed upgrades include the installation of two new 125 MVA transformers to replace two 65 MVA transformers and 23 MVar of additional capacitor banks to provide necessary reactive voltage support. The Labrador Interconnected Group questioned the proposed upgrades to the Wabush terminal station and submitted that it is not clear that the upgrades are necessary and that, given the associated costs, Hydro should be required to provide further information.

The information filed in support of the Wabush terminal station upgrades demonstrates that, currently, if a transformer at the Wabush terminal station fails there is insufficient transformer capacity to meet the forecast peak load. This would result in a violation of Hydro's Transmission Planning Criteria for this system. There are no spare or mobile transformer units on hand to meet the firm peak loading capacity, and as a result it would be a minimum of two years before a new transformer could be sourced and installed. Further the installation of mobile generation in the interim is not a reasonable option considering the costs and logistical issues.[11] While an agreement with the Industrial customers currently provides for curtailment when necessary, it is not clear that this arrangement could reasonably be expected to address the forecast capacity shortfall for the length of time required to replace a transformer. Transformer T4 is 59 years old and has a planned retirement year of 2023 as a result of its condition. The Transformer Capacity Load Flow Analysis report filed with the Application recommended that to ensure that firm loads can be supplied during system peak the transformers T4 and T5, which are both 65 MVA units, be replaced with 125 MVA units. While transformer T5 is only 48 years old it would remain on site as a spare because it is in good condition. The Board is satisfied that, based on Hydro's Transmission Planning Criteria and the load flow analysis, it is reasonable to replace transformers T4 and T5 with two new 125 MVA transformers. Transformer T4 has reached the end of its useful life and needs to be replaced. The proposed replacement of transformer T5 is reasonable in the circumstances to ensure the provision of reliable service to customers in western Labrador. The proposed Wabush terminal station expenditures also include upgrades to the capacitor banks to provide the necessary reactive

[10] Expenditures of $8.4 million are planned for 2022 to support reliable service upon the retirement of the Stephenville Gas Turbine.

[11] Mobile generation would be in excess of $10 million excluding fuel costs. In addition the logistics of an emergency installation in winter months would be problematic.

voltage support to ensure firm transfer capacity in the event of the loss of a synchronous condenser. These upgrades are proposed irrespective of whether synchronous condenser SC3 will continue in service. The issues related to whether this condenser will continue in service will be addressed in a separate application yet to be filed by Hydro. These issues are not related to the proposals in this Application for the Wabush terminal station which are justified to provide the required transformer capacity and ensure the necessary reactive voltage support.

The proposed capital expenditures for rural generation for 2021 in the amount of $6.6 million are below the historical five-year average of $12.5 million.[12] Hydro owns and operates 24 diesel generating stations throughout Newfoundland and Labrador, 19 of which are isolated rural diesel generation plants. Providing service to customers in communities with diesel generation requires that the fuel storage, diesel generating units, facilities, and distribution systems all be kept in safe, reliable, and environmentally responsible working order. Proposed capital expenditures for 2021 include amounts related to previously approved multi-year projects, including $1.2 million to replace the powerhouse roofing system at the L'Anse au Loup and St. Anthony diesel plants, and $0.7 million to upgrade the Nain diesel plant ventilation.[13] Expenditures for projects commencing in 2021 include the overhaul of diesel units in Grey River, Black Tickle, Mary's Harbour, Cartwright, Rigolet, and Hopedale in the amount of $1.2 million, the inspection of the fuel storage tanks in Postville in the amount of $0.5 million, and the replacement of the fuel storage tank in Paradise River in the amount of $0.4 million.

The proposed rural generation expenditures also include expenditures in the amount of $2.6 million for 2021 and $0.5 million for 2022 to replace a diesel genset in Nain. The unit to be replaced has a capacity rating of 865 kW but has been derated to 550 kW as a result of overheating issues. The proposed new genset would have a capacity of 925 kW. The overheating issues are a longstanding problem which has required repeated corrective maintenance interventions and expensive repairs. Operating hours for this unit in the last five years have been less than desired and unplanned maintenance has been frequently required. Hydro has worked with the vendor but has not been able to resolve the problem despite replacing almost all engine components that would be replaced during a typical overhaul. Parts are no longer available and have to be customer made and a replacement engine is not available. The generator was installed in 2002 and has been in service for 18 years. It is now obsolete despite having only approximately 58,000 operating hours as of 2019. Hydro is not confident that another overhaul would fix the overheating issue and decided to forgo the next scheduled overhaul at 60,000 hours.

The Board notes that this unit would not normally be replaced until it has reached 100,000 hours. There is little detail as to the specific work which was undertaken by Hydro to resolve the overheating issues, though it appears that less than $25,000 has been spent on corrective maintenance on the unit since the end of 2015.[14] The information provided does not include evidence of a review by the original equipment manufacturer or another external engineering expert to demonstrate that all options were exhausted before determining that the unit should be replaced. Hydro did not provide an explanation as to why it is not confident that the scheduled overhaul would not address the problem. The Board believes that there is merit in more fully

[12] The Application sets out that Hydro plans to apply in 2021 for approval of expenditures to replace the Charlottetown diesel plant of approximately $64 million over the period 2021-2025.
[13] Approved in Order No. P.U. 6(2020).
[14] PUB-NLH-032.

investigating the option of an overhaul. Even if the overhaul was only partially successful it may mitigate or possibly eliminate the potential supply shortage.

As a result of the derating of the unit there is a violation of the firm capacity requirement for the generating station. The Board is not satisfied that the record demonstrates that Hydro has fully canvassed all the alternatives to address the projected capacity shortfall given the significant cost associated with purchasing a new unit. Based on the information provided this unit appears to operate satisfactorily at 550 MW and it is not clear whether this unit can serve another purpose once it is removed. If this unit was not removed and continued to operate satisfactorily at 550 MW the forecast capacity shortfall in the event of the failure of the largest transformer at the same time as peak would be relatively small, approximately 70 kW in 2021 and 150 kW in 2024.[15] The Application did not address whether it is possible that load reduction strategies could mitigate or potentially eliminate supply shortfalls. In addition it is not clear whether the option of purchasing a smaller capacity genset to augment the existing four gensets was considered. The Board notes the Nunatsiavut Government plans the construction of a 1.8 MW Wind Micro Grid Project at Nain with energization expected in late 2022.[16] While Hydro advised that all generation from this project would be treated as non-firm, it is noted that Hydro treats a certain portion of its wind generation on the Island Interconnected system as being firm.[17] Hydro did not address whether there may be options available to defer the replacement of the genset in Nain until such time as the potential capacity contribution role of the Nain Wind Micro Grid Project is clarified.

The Board finds that the information provided does not demonstrate that Hydro made reasonable efforts to resolve the overheating issues and to investigate other more cost effective alternatives to the proposed replacement of the genset at Nain. The Board believes that Hydro should provide additional information in relation to the issues with the unit and the available alternatives. The additional information should address:

(i) the actual and forecasted loads for Nain for the past five years as well as the forecasted loads for the next five years;
(ii) the amount of load that can be curtailed during periods of peak demand;
(iii) the basis for Hydro's conclusion that an overhaul would not be helpful;
(iv) the details of the work which has been done to date and whether there are other measures which may be available to address the overheating issues;
(v) the reliability of the unit if it continues to be operated with a derated capacity and whether the unit may serve some other purpose if it is replaced;
(vi) the costs and considerations associated with the option of augmenting the existing derated unit with a smaller diesel genset; and
(vii) Hydro's plans with respect to the derivation of an appropriate capacity contribution figure for the Nain Wind Micro Grid Project.

[15] Firm generating capacity equals total generating firm capacity minus the largest generating unit. The largest generating unit in Nain is Unit 2085 rated at 1,275 kW. The total generating capacity with the unit derated is 3,550 kW and the firm generating capacity is 2,275 kW. The peak forecasted load is projected to be 2,343 kW in 2021 increasing to 2,423 kW in 2024.
[16] PUB-NLH-029.
[17] PUB-NLH-030.

The Board's determination with respect to the proposed expenditures to replace the diesel generator in Nain will be addressed in a separate order upon receipt of the required additional information from Hydro.

The proposed capital expenditures for distribution for 2021 in the amount of $12.4 million are consistent with the five-year historical average of $12.1 million. Hydro provides service to residential and general service customers on the Island and in Labrador and owns and operates approximately 3,400 kilometres of distribution lines, principally in rural Newfoundland and Labrador. The proposed distribution expenditures include amounts that are intended to ensure that distribution lines and equipment that require replacement due to asset condition are replaced prior to failure, thereby reducing the probability of service interruptions to customers. The proposed 2021 distribution-related expenditures include the amount of $3.8 million for in-service failures, miscellaneous upgrades and street light modernization. The proposed replacement of existing street lights with light emitting diode ("LED") street lights would result in reduced street and area lighting rates to Hydro's customers. Hydro's experience with LED street lights in Ramea, Nain and Cartwright has yielded lower maintenance, increased energy efficiency, increased reliability, and better-quality lighting. The proposed distribution expenditures also include expenditures for service extensions in the amount of $3.7 million to resolve day-to-day issues and requests throughout its service area, as well as expenditures to address Hydro's worst performing feeders in the amount of $3.5 million in 2021 and $0.8 million in 2022.[18] Proposed distribution expenditures also include $0.2 million related to the continuation of the project to install a recloser remote control at Hampden and Upper Salmon.[19] Expenditures also include $0.6 million to convert the voltage of line L22 in Labrador City to 25 kV to reduce the risk of a loss of supply in the event of a failure of Cooper Hill transformer, and $0.6 million for modifications to Happy Valley line L7.

The Board is satisfied that the proposed transmission, terminal station, rural generation and distribution expenditures are justified and should be approved, with the exception of the proposed expenditures related to the diesel generator unit in Nain which will be addressed in a separate order of the Board.

General Properties

Proposed capital expenditures related to general properties for 2021 in the amount of $7.5 million account for 7% of the overall expenditures. The proposed general property expenditures include amounts related to transportation, information systems, telecontrol and administration.

The proposed capital expenditures for transportation for 2021 in the amount of $3.2 million are higher than the five-year historical average of $2.5 million. Hydro operates a fleet of approximately 335 pieces of light and heavy-duty equipment distributed across its service area. Hydro replaces vehicles within the fleet to ensure availability as and when required using established replacement criteria that consider the operations and the criticality of each asset. The proposed expenditures include 2021 expenditures for the second year of a project to replace light and heavy-duty vehicles in the amount of $1.6 million,[20] and a two-year project to replace 26 light-duty vehicles and six heavy-duty vehicles in the amount of $1.3 million in 2021 and in 2022. Expenditures are also

[18] The 2021 expenditures include $3.2 million approved in Order No. P.U. 6(2020).
[19] Approved in Order No. P.U. 6(2020).
[20] Approved in Order No. P.U. 6(2020).

proposed in the amount of $0.3 million in 2021 to install 18 Level 2 chargers for electric vehicles at nine Hydro-owned sites across the Province to support the integration of electric vehicles within Hydro's fleet which is expected to commence in late 2021 and continue throughout the five-year capital plan period. These expenditures were supported in the comments filed by ChargePoint.

The proposed information systems expenditures in the amount of $2.2 million are consistent with the five-year historical average of $2.0 million. These expenditures are directed towards maintaining Hydro's computing capacity and associated infrastructure, ensuring that it remains current and reliable. Expenditures are proposed for 2021 to upgrade software applications used throughout Hydro in the amount of $0.4 million, to refresh cybersecurity software in the amount of $0.2 million, to replace peripheral infrastructure in the amount of $0.3 million, and to upgrade critical IT/OT and Energy Control Centre infrastructure in the amount of $0.5 million.

The proposed information systems expenditures also include $0.9 million for 2021 to replace personal computing devices and accessories approaching end of life based on Hydro's established criteria. Hydro asserted that its cost management efforts have resulted in a reduced frequency of computer replacements by extending the life cycle duration. A preliminary analysis based on device age identified 128 desktop computers, 139 laptops, 3 workstations, 42 ruggedized mobile computers and 300 monitors for replacement. Based on the information provided the devices identified have been in service for a period of more than five years and have exceeded the expected reliable lifespan. Hydro schedules replacement of desktop/workstation computers on a six-year life cycle and laptop/rugged-mobile computers on a five-year life cycle.

The Board notes that Hydro operates and maintains approximately 313 desktop computers, 502 laptops, 75 workstations, 58 ruggedized mobile computers and 273 thin-client computing devices. Based on the information provided it appears that 124 desktops were replaced in 2019 and 203 were replaced in 2020.[21] Given that Hydro stated that it operates 313 desktops and 327 desktops were replaced in the past two years, it is not clear why 128 desktop computers have been identified for replacement in 2021. Hydro did not provide the reconciliation requested to clarify this issue.[22] The Board will not address the proposed information systems expenditures in the amount of $0.9 million for the replacement of Hydro personal computers until further information is provided by Hydro with respect to the proposed expenditures. Hydro should provide a reconciliation with respect to personal computer replacements for the 2014-2020 period setting out the proposed and actual number of units purchased with an explanation as to variances from plan/normal as well as the amount of the proposed expenditures which relate to the identified 128 desktop replacements for 2021.

The proposed capital expenditures for telecontrol in the amount of $1.0 million are below the five-year historical average of $2.9 million. It is noted that planned 2021 expenditures of $2.0 million related to the replacement of VHF mobile radio systems were deferred to 2022.[23] The telecontrol expenditures relate to the requirement for reliable communication systems across Hydro's province-wide facilities, both to control equipment and to support employee communications. The proposed telecontrol expenditures include amounts related to the replacement of battery banks and

[21] NP-NLH-003.
[22] PUB-NLH-016.
[23] The replacement of VHF mobile radio systems was deferred as the current contract is near expiration and Hydro is reviewing current and future functionality.

chargers in the amount of $0.3 million, the upgrade of remote terminal units in the amount of $0.2 million, and the ongoing replacement or refurbishment programs for such items as microwave antenna radomes in the amount of $0.2 million, network communications equipment in the amount of $0.2 million, and other tools and equipment that are part of the communications infrastructure in the amount of $0.1 million.

The proposed capital expenditures for administration in the amount of $1.1 million are relatively consistent with the five-year historical average of $0.8 million. The proposed expenditures are required for the administration of Hydro's business and include $0.6 million for elevator maintenance, $0.2 million for the replacement of the backup power system transfer switches and associated hardware, $0.2 million for the removal of various safety hazards and $0.1 million for the purchase of office equipment.

The Board is satisfied that the proposed transportation, information systems, telecontrol and administration expenditures are justified and should be approved, with the exception of the proposed expenditures related to the replacement of personal computing devices and accessories which will be addressed in a separate order of the Board.

4.2. 2021 Capital Budget

As noted by the Consumer Advocate the amount of Hydro's proposed 2021 Capital Budget is similar to the amount in Hydro's approved 2020 Capital Budget. On this basis the Consumer Advocate recommended that the Board approve the expenditures requested by Hydro. Neither Newfoundland Power nor the Industrial Customer Group challenged Hydro's proposed 2021 Capital Budget. The 2021 Capital Budget reflects expenditures for projects which have been found by the Board to be justified with two exceptions - the replacement of the diesel generator unit in Nain and the replacement of personal computing devices. As a result the Board is satisfied that the 2021 Capital Budget should be approved in the amount of $103,986,400. The issues raised during this matter relating to the ongoing review of the Board's Guidelines, including the implementation of a budget envelope, are appropriately addressed in that review and will not be addressed in this Application.

4.3. Conclusion

The capital expenditures proposed in the Application will be approved, with the exception of the proposed expenditures related to the replacement of the diesel generator unit at Nain and the replacement of personal computing devices. These two projects will be addressed in a separate order of the Board following the filing of additional information by Hydro. Hydro's 2021 Capital Budget will be approved in the amount of $103,986,400.

III 2017/2018/2019 AVERAGE RATE BASE

The following table shows the calculation of the average rate base as of December 31 for 2017, 2018 and 2019:

Newfoundland and Labrador Hydro
Computation of Average Rate Base
for the Years Ended December 31, 2017, 2018, and 2019
($000s)

	2019	2018	2017
Total Capital Assets	**2,152,552**	**2,115,009**	**2,035,322**
Deduct Items Excluded from Rate Base			
Work in Process	(37,417)	(31,655)	(33,556)
Asset Retirement Obligations (net of amortization)	(67)	185	789
Net Capital Assets **(A)**	2,115,068	2,083,540	2,002,555
Net Capital Assets, Previous Year **(B)**	2,083,540	2,002,555	1,699,168
Unadjusted Average Capital Assets **(C)**[24]	2,099,304	2,043,047	1,850,861
Deduct			
Average Net Capital Assets Excluded from Rate Base	(9,679)	(12,208)	(21,141)
Average Capital Assets	2,089,625	2,030,839	1,829,720
Cash Working Capital Allowance - Return 8	1,299	2,640	6,405
Fuel Inventory - Return 10	57,611	56,041	43,617
Supplies Inventory - Return 10	37,701	37,021	34,719
Average Deferred Charges - Return 11	119,811	139,142	154,293
Average Rate Base at Year-End - Return 12	**2,306,047**	**2,265,683**	**2,068,754**

Grant Thornton reviewed Hydro's average rate base for 2017, 2018, and 2019 and noted an exception with respect to the 2019 average rate base. This exception relates to the inclusion of $2.5 million in rate base associated with expenditures in relation to the Bay d'Espoir access roads refurbishment project approved in Order No. P.U. 48(2016). In that order the Board approved the expenditures but required that Hydro record the expenditures in a separate account with the recovery to be addressed in a subsequent order of the Board following a further application by Hydro. Grant Thornton noted that Hydro did not file an application for approval to include these expenditures in the 2019 rate base. Grant Thornton noted that Hydro has appropriately excluded these expenditures in the 2017 and 2018 rate base. Hydro obtained government approval of an

[24] $C = (A+B)/2$.

easement relating to the access roads in December 2019. Grant Thornton reviewed the approved easement issued by the Government of Newfoundland and Labrador as part of its review.

The Consumer Advocate, Newfoundland Power, the Labrador Interconnected Group did not comment on Hydro's 2017, 2018 and 2019 rate base. Hydro requested that the Board approve the Application as submitted.

The Board finds that the components of Hydro's average rage base should be approved for 2017 in the amount of $2,068,754,000, and for 2018 in the amount of $2,265,683,000. With respect to 2019 the Board accepts the information filed by Hydro that it has obtained an easement with respect to the Bay d'Espoir access roads refurbishment project and is satisfied that the components of Hydro's average rate base for 2019 in the amount of $2,306,047,000 should also be approved.

IV ORDER

IT IS THEREFORE ORDERED THAT:

1. **Hydro's proposed construction and purchase of improvement or additions to its property in excess of $50,000 to be completed in 2021, as set out in Schedule A to this Order, are approved.**

2. **Hydro's proposed multi-year proposed construction and purchase of improvement or additions to its property in excess of $50,000, as set out in Schedule B to this Order, are approved.**

3. **Hydro's 2021 Capital Budget for improvements or additions to its property in an amount of $103,986,400, as set out in Schedule C to this order, is approved.**

4. **Hydro's average rate base for the year ending December 31, 2017 is hereby fixed and determined to be $2,068,754,000.**

5. **Hydro's average rate base for the year ending December 31, 2018 is hereby fixed and determined to be $2,265,683,000.**

6. **Hydro's average rate base for the year ending December 31, 2019 is hereby fixed and determined to be $2,306,047,000.**

7. **Unless otherwise directed by the Board Hydro shall file, with the 2022 Capital Budget Application, an updated overview in relation to the proposed capital expenditures for the Holyrood Thermal Generating Station.**

8. **Unless otherwise directed by the Board Hydro shall file an annual report to the Board on its 2021 capital expenditures by March 1, 2022.**

9. Unless otherwise directed by the Board Hydro shall provide, in conjunction with the 2022 Capital Budget Application, a status report on the 2021 capital budget expenditures showing for each project:

- **i) the approved budget for 2021;**
- **ii) the expenditures prior to 2021;**
- **iii) the 2021 expenditures to the date of application;**
- **iv) the remaining projected expenditures for 2021;**
- **v) the variance between the projected total expenditures and the approved budget; and**
- **vi) an explanation of the variance.**

10. Hydro shall pay all costs and expenses of the Board incurred in connection with the Application.

DATED at St. John's, Newfoundland and Labrador, this 15th day of January, 2021.

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

Dwanda Newman, LL.B.
Vice-Chair

Christopher Pike, LL.B., FCIP
Commissioner

Sara Kean
Assistant Board Secretary

Schedule A
Order No. P.U. 2(2021)
Single-Year Projects over $50,000
Issued: January 15, 2021

NEWFOUNDLAND AND LABRADOR HYDRO
2021 CAPITAL BUDGET
SINGLE YEAR PROJECTS OVER $50,000
($000)

PROJECT DESCRIPTION		2021
GENERATION		
HYDRAULIC PLANT		
Hydraulic Generation In-Service Failures (2021)	1,250.0	
TOTAL HYDRAULIC PLANT		1,250.0
THERMAL PLANT		
Overhaul Unit 1 Turbine and Valves - Holyrood	8,026.6	
Boiler Condition Assessment and Miscellaneous Upgrades - Holyrood	3,000.0	
Thermal In-Service Failures (2021)	2,000.0	
Inspect Chemical Tanks - Holyrood	919.8	
Overhaul Unit 3 Generator - Holyrood	572.7	
Overhaul Unit 3 Boiler Feed Pump East - Holyrood	373.0	
TOTAL THERMAL PLANT		14,892.1
GAS TURBINES		
Construct Lube Oil Cooler Hood and Containment System - Holyrood Gas Turbine	318.8	
Purchase Capital Spares - Gas Turbines (2021)	213.8	
Replace Voltage Regulator - Happy Valley Gas Turbine	131.3	
Replace Fuel Oil, Lube Oil, and Glycol Pumps - Happy Valley Gas Turbine	234.7	
Upgrade Compressed Air System - Happy Valley Gas Turbine	76.6	
TOTAL GAS TURBINES		975.2
TOOLS AND EQUIPMENT		
Purchase Tools and Equipment less than $50,000 (2021) - Hydraulic Plants	194.3	
TOTAL TOOLS AND EQUIPMENT		194.3
TOTAL GENERATION		17,311.6

PROJECT DESCRIPTION		2021
TRANSMISSION & RURAL OPERATIONS		
TERMINAL STATIONS		
Terminal Station In-Service Failures (2021)	1,800.0	
Upgrades for Future Retirement of Stephenville Gas Turbine	1,530.3	
Purchase SF6 Gas Recovery Systems	142.7	
TOTAL TERMINAL STATIONS		3,473.0
TRANSMISSION		
Wood Pole Line Management Program (2021)	2,896.9	
TOTAL TRANSMISSION		2,896.9
DISTRIBUTION		
In-Service Failures, Miscellaneous Upgrades and Streetlight Modernization in Central Region (2021)	1,985.4	
Provide Service Extensions in Central Region (2021)	1,357.4	
Provide Service Extensions in Labrador Region (2021)	1,218.6	
Provide Service Extensions in Northern Region (2021)	1,164.5	
In-Service Failures, Miscellaneous Upgrades and Streetlight Modernization in Northern Region (2021)	1,033.5	
In-Service Failures, Miscellaneous Upgrades and Streetlight Modernization in Labrador Region (2021)	784.7	
Additions for Load Growth - Happy Valley Line 7	617.6	
Labrador City L22 Voltage Conversion	593.6	
TOTAL DISTRIBUTION		8,755.3
GENERATION		
Overhaul Diesel Units - Various (2021)	1,232.9	
Inspect Fuel Storage Tanks - Postville	532.6	
Replace Fuel Storage Tank - Paradise River	350.3	
TOTAL GENERATION		2,115.8
METERING		
Purchase Meters and Metering Equipment (2021)	233.4	
TOTAL METERING		233.4
TOOLS AND EQUIPMENT		
Replace Light Duty Mobile Equipment	549.6	
Replace Snow Groomer (V7601)	331.3	
Purchase Tools and Equipment Less than $50,000 - Labrador Region (2021)	212.8	
Purchase Backhoe - Wabush	179.3	
Purchase Tools and Equipment Less than $50,000 - Central Region (2021)	150.2	
Purchase Tools and Equipment Less than $50,000 - Northern Region (2021)	77.6	
TOTAL TOOLS AND EQUIPMENT		1,500.8
TOTAL TRANSMISSION AND RURAL OPERATIONS		18,975.2

PROJECT DESCRIPTION		2021
GENERAL PROPERTIES		
SOFTWARE APPLICATIONS		
Perform Hydro Software Upgrades & Minor Enhancements - Hydro Place (2021)	372.1	
Refresh Cyber Security Infrastructure (2021)	217.5	
TOTAL SOFTWARE APPLICATIONS		589.6
COMPUTER OPERATIONS		
Upgrade Core IT/OT Infrastructure (2021)	262.8	
Replace Peripheral Equipment (2021)	256.4	
Upgrade Hydro Energy Control Centre Wall Infrastructure	188.5	
TOTAL COMPUTER OPERATIONS		707.7
NETWORK SERVICES		
Replace Battery Banks and Chargers	327.2	
Replace Radomes (2021) - Various	240.4	
Replace Network Communications Equipment	194.0	
Upgrade Remote Terminal Units	183.4	
TOTAL NETWORK SERVICES		945.0
ADMINISTRATION		
Remove Safety Hazards - Various (2021)	199.1	
Purchase Office Equipment Less than $50,000 (2021)	62.3	
TOTAL ADMINISTRATION		261.4
TRANSPORTATION		
Level 2 Chargers for Electric Vehicles	299.8	
TOTAL TRANSPORTATION		299.8
TOTAL GENERAL PROPERTIES		2,803.5
TOTAL SINGLE YEAR PROJECTS OVER $50,000		**39,090.3**

Schedule B
Order No. P.U. 2(2021)
Multi-Year Projects over $50,000
Issued: January 15, 2021

NEWFOUNDLAND AND LABRADOR HYDRO
2021 CAPITAL BUDGET
PROJECTS OVER $50,000
MULTI-YEAR PROJECTS
($000)

Multi-year Projects Commencing in 2021

PROJECT DESCRIPTION	2021	2022	2023	2024	2025	Total
Hydraulic Generation Refurbishment and Modernization (2021-2022)	6,569.6	6,505.5	-	-	-	13,075.1
Terminal Station Refurbishment and Modernization (2021-2022)	6,171.6	7,182.0	-	-	-	13,353.6
Upgrade Circuit Breakers - Various (2021-2022)	5,418.8	6,113.9	-	-	-	11,532.7
Refurbish Ebbegunbaeg Control Structure	3,236.8	3,238.3	3,470.1	3,674.7	-	13,619.9
Wabush Terminal Station Upgrades	2,301.7	4,935.5	4,335.7	-	-	11,572.9
Upgrade Waste Water Equalization System - Holyrood	1,813.4	547.7	-	-	-	2,361.1
Replace Light- and Heavy-Duty Vehicles (2021-2022)	1,320.9	1,335.1	-	-	-	2,656.0
Additions for Load - Wabush Substation Upgrades	1,186.7	6,365.1	2,941.6	-	-	10,493.4
Upgrade Distributed Control System Hardware - Holyrood	360.4	368.2	-	-	-	728.6
Upgrade of Worst Performing Distribution Feeders (2021-2022)	318.9	805.6	-	-	-	1,124.5
Replace Transfer Switches and Associated Hardware - Hydro Place	197.3	938.5	-	-	-	1,135.8
Total Multi-Year Projects over $50,000 commencing in 2021	28,896.1	38,335.4	10,747.4	3,674.7	0.0	81,653.6

NEWFOUNDLAND AND LABRADOR HYDRO
2021 CAPITAL BUDGET
PROJECTS OVER $50,000
MULTI-YEAR PROJECTS
($000)

Multi-year Projects Commencing in 2020

PROJECT DESCRIPTION	Expended to 2020	2021	2022	2023	2024	2025	Total
Hydraulic Generation Refurbishment and Modernization (2020-2021)	6,580.2	10,249.8	-	-	-	-	16,830.0
Terminal Station Refurbishment and Modernization (2020-2021)	3,712.0	5,684.9	-	-	-	-	9,396.9
Replace Light- and Heavy-Duty Vehicles (2020-2021)	1,625.5	1,583.5	-	-	-	-	3,209.0
Rewind Unit 3 Stator - Holyrood	1,281.4	5,664.2	-	-	-	-	6,945.6
Perform Combustor Inspection - Holyrood Gas Turbine	546.1	2,500.0	2,400.0	-	-	-	5,446.1
Replace Fire Suppression System - Happy Valley Gas Turbine	264.6	2,377.9	-	-	-	-	2,642.5
Diesel Plant Ventilation Upgrade - Nain	162.7	690.4	-	-	-	-	853.1
Replace Powerhouse Roofing System - L'Anse Au Loup and St. Anthony Diesel Plant	125.3	1,195.8	-	-	-	-	1,321.1
Upgrade of Worst Performing Distribution Feeders (2020–2021)	102.7	3,155.1	-	-	-	-	3,257.8
Upgrade Fire Suppression System - Bishop's Falls	91.6	292.6	-	-	-	-	384.2
Replace Elevator Motors and Controls Equipment - Hydro Place	89.1	647.6	-	-	-	-	736.7
Install Recloser Remote Control - Hampden and Upper Salmon (2020-2021)	71.3	185.3					256.6
Install Partial Discharge Monitoring - Holyrood Gas Turbine	37.8	575.0	-	-	-	-	612.8
Total Multi-Year Projects over $50,000 commencing in 2020	14,690.3	34,802.1	2,400.0	0.0	0.0	0.0	51,892.4

Schedule C
Order No. P.U. 2(2021)
2021 Capital Budget
Issued: January 15, 2021

NEWFOUNDLAND AND LABRADOR HYDRO
2021 CAPITAL BUDGET

Projects Over $50,000 to be completed in 2021	$	39,090,300
Multi-Year Projects over $50,000 commencing in 2021		28,896,100
Multi-Year Project over $50,000 commencing prior to 2021 (previously approved)		34,802,100
Projects under $50,000[1]		197,900
Allowance for Unforeseen Items		1,000,000
Approved 2021 Capital Budget	**$**	**103,986,400**

[1] Approval of projects under $50,000 is not required but these expenditures are part of the total 2021 Capital Budget

Newfoundland & Labrador
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES
120 TORBAY ROAD, ST. JOHN'S, NL

Website: **www.pub.nl.ca** **Telephone: 1-709-726-8600**
E-mail: **ito@pub.nl.ca** **Toll free: 1-866-782-0006**