

NEWFOUNDLAND AND LABRADOR HYDRO

Strategic Plan 2020-2022
Transparency and Accountability

September 2020



Message from the Boards of Directors

I am pleased to provide the Strategic Plan for Newfoundland and Labrador Hydro (Hydro or NLH), on behalf of the Board of Directors.

Hydro is a category one public body under the **Transparency and Accountability Act** and this Strategic Plan was prepared in accordance with the associated guidelines.

This Strategic Plan covers the time period from January 1, 2020 to December 31, 2022. The Plan content addresses the applicable strategic directions of the Provincial Government in relation to Hydro's role in the energy sector as communicated by the Minister of Industry, Energy and Technology.

As the Board of Directors of Hydro, we are accountable for the preparation of this Plan and for the achievement of the specific goals and objectives contained herein.



John Green
Chair
Newfoundland and Labrador Hydro

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Appendix 1 Provincial Electricity Generation and Transmission System

1 INTRODUCTION

In 2016 the regulated utility, Newfoundland and Labrador Hydro (Hydro), was separated from Nalcor Energy's (Nalcor) unregulated business. In keeping with this separation Hydro developed its own strategic plan for the 2017-2019 and 2020-2022 planning periods.

The 2020-2022 Strategic Plan for Hydro takes into account the strategic directions of the Provincial Government. These themes are:

- A Better Economy
- Healthier People
- Better Living
- A Bright Future
- A More Efficient Public Sector

The goals and objectives of Hydro presented in this document support the achievement of the strategic directions relevant to Hydro's mandate - the generation, transmission and distribution of electricity to utility, residential, commercial and industrial customers in Newfoundland and Labrador.¹

The 2020-2022 Strategic Plan for Hydro does not reflect directions that may arise following the Provincial Government's consideration of the Reference to the Board of Commissioners of Public Utilities (PUB) on Rate Mitigation Options and Impacts or from the Commission of Inquiry Respecting the Muskrat Falls Project. Therefore, the Plan may require updates to reflect future direction from Government in relation to these two activities.

¹ The activities of Hydro's subsidiary Churchill Falls and Nalcor's Energy Marketing line of business, that manages the sale of electricity available from the 300 megawatt recall energy block available from Churchill Falls to Hydro, are included in the 2020-2022 Strategic Plan for Nalcor.

2 HYDRO OVERVIEW

As the main generator and transmitter of electricity for use in the province, Newfoundland and Labrador Hydro (Hydro) is focused on providing a safe, reliable and least-cost electricity supply to meet the current and future energy demands of its customers. Hydro is a wholly owned subsidiary of Nalcor.

The majority of Hydro's business is regulated by PUB and its electricity rates are set through periodic general rate applications. The regulated portion of the company includes the generation, transmission and distribution of electrical power and energy to utility, residential and commercial customers, as well as island industrial customers. The non-regulated activities of Hydro include electricity sales to industrial customers in Labrador west. Hydro's electricity production assets include nine hydroelectric plants, one oil-fired plant, four gas turbines, and 24 diesel plants². These assets along with a network of transmission and distribution lines bring electricity to communities throughout Newfoundland and Labrador (see Appendix 1).

Hydro also holds a 65.8 per cent interest in Churchill Falls (Labrador) Corporation Limited (Churchill Falls). The operations of Churchill Falls are managed by Nalcor's Power Supply division and included in the Nalcor Strategic Plan 2020-2022.

At the end of 2019, Hydro employed 925 people³. The location of these employees reflects Hydro's service area and the location of the company's electricity assets, with 66 per cent located in rural areas. The gender composition of Hydro's employee group is 78 per cent male and 22 per cent female. As the largest employer within Nalcor, Hydro continues to play a key role in implementing Nalcor's multi-year action plan to support gender equity, diversity and inclusion.

In 2019, Hydro had revenues of \$748 million. The majority of Hydro's revenues are from energy sales to utility, rural and industrial customers with other revenues including preferred dividends from Hydro's subsidiary Churchill Falls. Consolidated energy sales also include CF(L)Co sales to Hydro Quebec as well as sales of recall power. In 2019, Hydro net income of \$63 million consisted of \$30 million from Hydro Regulated, \$35 million from Churchill Falls, \$1 million from

² With the relocation of the Town of Little Bay Islands on December 31, 2019, the diesel plant in the community ceased operations.

³ This is the number of employees on payroll for the last pay period of 2019, it is not full-time equivalents. This approach supports the analysis of employee location and gender required.

Energy Marketing and a loss of \$3 million from non-regulated activities. The following table summarizes the consolidated 2019 revenue and expenses for Hydro.

Table 1: Hydro Consolidated Revenue and Expenses 2019

<i>For the year ended December 31 (millions of dollars)</i>	<i>(\$)</i>	<i>%</i>
Energy sales	720	96.3
Other revenue	28	3.7
Revenue	748	
Fuels	217	30.1
Power purchased	99	13.7
Operating costs	184	25.5
Transmission rental	22	3.0
Depreciation and amortization	103	14.3
Net finance expense	89	12.3
Other expense	8	1.1
Expenses	722	
Profit before regulatory adjustments	26	
Regulatory adjustments	(37)	
Profit for the year	63	

3 MANDATE

The **Hydro Corporation Act, 2007** mandates Hydro to be responsible for:

- Developing and purchasing power and energy on an economic and efficient basis.
- Engaging within the province and elsewhere in the development, generation, production, transmission, distribution, delivery, supply, sale, purchase and use of power from water, steam, gas, coal, oil, wind, hydrogen and other products.
- Supplying power, at rates consistent with sound financial administration, for domestic, commercial, industrial or other uses in the province and subject to the prior approval of the Lieutenant-Governor in Council, outside of the province.

4 LINE OF BUSINESS

Hydro delivers power to utility, industrial, residential and commercial customers in more than 200 communities in the province at the lowest possible cost consistent with reliable service.

Hydro activities can be grouped as follows:

- Electricity production – Hydro has an installed generating capacity of 1,763 megawatts (MW) which includes the operations of nine hydroelectric generating stations, one oil-fired plant, four gas turbines, and 24 diesel plants, including 19 isolated diesel generating and distribution systems.
- Transmission and distribution – Hydro operates and maintains over 4,400 kilometres of transmission lines and 69 terminal stations which connect to generation and delivery points for Newfoundland Power on the island, industrial customers, and Hydro’s rural distribution systems province-wide. Hydro also operates and maintains approximately 2,700 kilometres of distribution lines throughout the province.
- The Newfoundland and Labrador System Operator (NLSO) acts as the independent operator to manage the provincial electricity system in real-time. It also provides Open Access to the provincial transmission network, which means providing transmission service to users like Hydro and other utilities, in an open, non-discriminatory and non-preferential manner.
- Customer service activities address the electricity requirements of Newfoundland Power, industrial customers and over 38,800 direct residential and commercial customers in rural Newfoundland and Labrador.
- Electricity system planning involves forecasting electricity requirements in the province and advancing options to ensure adequate supply of generation resources and transmission and distribution infrastructure to reliably meet forecasted demand.

5 VALUES

Employees of Hydro recognize that electricity is essential to social well-being and economic prosperity in Newfoundland and Labrador. In fulfilling Hydro's mandate, employees are unified by the following core values:

- Safety – relentless commitment to protecting ourselves, our colleagues, and our community.
- Open Communication – fostering an environment where information moves freely in a timely manner.
- Accountability – holding ourselves responsible for our actions and performance.
- Honesty and Trust – being sincere in everything we say and do.
- Teamwork – sharing our ideas in an open and supportive manner to achieve excellence.
- Respect and Dignity – appreciating the individuality of others by our words and actions.
- Leadership – empowering individuals to help guide and inspire others.

6 PRIMARY CLIENTS

Hydro sells electricity to three primary customer groups:

- Newfoundland Power - an investor-owned utility which distributes electrical power to 268,000 customers on the island portion of the province, with Hydro supplying over 90 per cent of its energy requirements.
- Industrial customers – regulated sales to NARL Refining Limited Partnership, Vale Newfoundland and Labrador, Praxair Canada Inc., Teck Resources Limited, and Corner Brook Pulp and Paper Limited and unregulated sales to the Iron Ore Company of Canada and Tacora Resources Inc..
- Over 38,800 residential and commercial customers in rural Newfoundland and Labrador.

7 VISION

Providing electricity to enable social well-being and economic prosperity for the people of Newfoundland and Labrador.

8 ISSUES

The strategic issues outlined below will be addressed by Hydro in order to realize its mandate and vision. Consistent with the underlying philosophy of the multi-year performance-based planning required under the provisions of **Transparency and Accountability Act**, these issues are at a governance level and reflect the priorities of the Hydro board and support the Provincial Government's strategic directions for the energy sector.

Issue 1: Electricity Rate Mitigation

Issue 2: Reliability and Supply Adequacy

Issue 3: Safety, Health and Environment

9 GOALS AND OBJECTIVES

Issue 1: Electricity Rate Mitigation

As the primary generator of electricity in the province, Hydro has a significant impact on social well-being and economic prosperity in the province. This section of the plan outlines the goals, objectives and indicators that Hydro will pursue related to the affordability of electricity rates.

Hydro recognizes that rates are a concern for electricity customers and is committed to ensuring the right balance between reliability and cost for customers. Electricity rates are impacted by a number of factors including capital investments in the electricity system, power purchases, fuel costs and the overall cost of operations. During the planning period, Hydro will continue its efforts to balance electricity rates and customer reliability. This commitment is reflected in Hydro's prudent approach to capital investment and completing the required maintenance of assets while managing costs.

The Newfoundland and Labrador Board of Commissioners of Public Utilities (PUB) holds full authority to deal with regulatory matters concerning Hydro, including approval of its capital, long-term borrowings, and customer rates. The PUB is responsible for the regulation of the electric utilities in the province to ensure that the rates charged are just and reasonable, and that the service provided is safe and reliable.

A key driver of future electricity rates is the cost of the Muskrat Falls Project. On September 5, 2018, the Government of Newfoundland and Labrador released the terms of reference for Rate Mitigation Options and Impacts Related to the Muskrat Falls Project Costs and requested the PUB consider a series of questions. In September 2019 as part of the PUB reference questions process, Hydro identified areas of strategic focus through which cost savings and efficiency improvements will be pursued over the planning period and beyond. The immediate areas of focus Hydro is pursuing in its Efficiency and Effectiveness Plan are:

1. Work management and execution;
2. Operational technology advances; and
3. Efficiency of Exploits operations.

In addition to these three priorities, other initial targeted areas for improvement include:

4. Capital planning;
5. Contracting and procurement; and,
6. Human resource management.

Hydro commits to achieve savings in the range of \$2 million through efficiencies and productivity gains. Hydro also commits to undertaking a multi-year review of the Exploits operations, targeting annual savings of \$2.5 million.

In April 2019, the Government of Newfoundland and Labrador released **Protecting You from the Cost Impacts of Muskrat Falls** outlining a series of cost savings and revenue opportunities. Over the planning period, Hydro will work with the Government and Nalcor to assess cost savings and revenue measures to mitigate the impacts of the Muskrat Falls project on electricity rates. Revenue measures being pursued include adding value to surplus energy from the Muskrat Falls Project and performance credits for greenhouse gas reductions. Hydro will also identify and advance the commercial, legal, financial and regulatory processes required to implement rate mitigation outcomes.

Issue 1: Electricity Rate Affordability	
Goal	
By December 31, 2022, Hydro will have progressed efficiency and effectiveness commitments to achieve savings and advanced the processes required to implement rate mitigation outcomes.	
Indicators	<ul style="list-style-type: none"> ▪ Progressed efficiency and effectiveness commitments necessary to achieve cost savings. ▪ Supported assessment of measures to mitigate the impact of the Muskrat Falls costs on rates and progressed Hydro implementation activities as required. ▪ Identified and advanced the commercial, legal, financial and regulatory processes required to implement rate mitigation outcomes.
Objective	
By December 31, 2020, Hydro will have completed planned efficiency and effectiveness deliverables and identified processes required to implement rate mitigation outcomes.	
Indicators	<ul style="list-style-type: none"> ▪ Completed planned deliverables related to 2020 areas of focus for efficiency and efficiency savings. ▪ Supported efforts of the Government of Newfoundland and Labrador and Nalcor, as required, to assess measures to mitigate the impact of Muskrat Falls costs on rates.

Issue 1: Electricity Rate Affordability

- Advanced potential revenue generation opportunities including adding value to surplus energy and performance credits for greenhouse gas reductions.
- Progressed Hydro activities related to Muskrat Falls rate mitigation measures including adding value to surplus energy from the Muskrat Falls Project and performance credits for greenhouse gas reductions.
- Assessed the requirement for new or updated commercial, legal, financial and regulatory processes to implement rate mitigation outcomes and where possible, implemented required activities.

Objective

By December 31, 2021, Hydro will have further progressed efficiency and effectiveness initiatives and updated processes to implement rate mitigation.

Objective

By December 31, 2022, Hydro will have implemented additional efficiency and effectiveness measures to manage costs and completed required updates to processes to implement rate mitigation.

Issue 2: Reliability and Supply Adequacy

Hydro ensures there is a safe, reliable and least-cost electricity supply available to meet the needs of customers now and in the future. This section of the plan outlines the goals, objectives and indicators that Hydro will advance to maintain and renew existing assets, add new resources if required, work with Nalcor to integrate Muskrat Falls, and reliably meet customers electricity requirements.

The provision of safe, reliable, least-cost supply of electricity requires that Hydro continuously maintain, refurbish, renew and expand its generation, transmission and distribution assets and the other infrastructure that supports those assets. Hydro must also address changing environmental and regulatory requirements and challenges that may require the development and integration of new assets or improvements to existing. Over the planning period and beyond, Hydro must consider the following key drivers:

- The interconnection between Labrador and the Island via the high-voltage direct current (HVdc⁴) link (Labrador-Island Link);
- The interconnection of the Island with the Nova Scotia electricity system via the Maritime Link;
- Reliable supply to the Avalon Peninsula due to changing supply mix;
- Consideration of the impact of electricity rates on customer demand; and,
- Growth of electricity sales in Labrador.

The majority of Hydro's electricity system assets, including the hydroelectric installation in Bay d'Espoir, the Holyrood Thermal Generating Station, the Stephenville Gas Turbine, the Hardwoods Gas Turbine, and much of Hydro's transmission and distribution systems, are more than 40-50 years old. Maintaining the electricity system in reliable operating condition is accomplished through a combination of planned maintenance, rehabilitation of existing assets, and replacement of assets that have reached the end of their useful lives. Replacement of assets may also occur to lower lifecycle costs, improve operational characteristics, or increase capacity for load growth. From 2005-2019, Hydro invested over \$1.5 billion to upgrade or replace its assets. For 2020, Hydro received regulatory approval for capital expenditures of

⁴ A high-voltage, direct current (HVdc) electric power transmission system uses direct current for the bulk transmission of electrical power over long distances.

\$108.5 million. This 2020 funding level reflects realignment of projects through increased use of quantifiable data and condition based assessments such that, in some instances, projects are included at later times than previously assessed, thus better balancing capital investment with customer expectations for cost management and reliability. Additional capital investment of over \$220 million is currently budgeted for the balance of the planning period and will be updated annually with the PUB through the capital budget approval process.

The provincial electricity system will change significantly with the commissioning of the Muskrat Falls generation project and associated transmission facilities including interconnection to Labrador through the Labrador-Island Link and to the North American electricity grid through the Maritime link. Over the planning period, Hydro will work with Nalcor to complete the activities required for the integration of Muskrat Falls.

In addition to meeting current needs, Hydro has a responsibility to assess electricity requirements in the province and identify options to meet future customer growth. In 2018, Hydro completed a Reliability and Resource Adequacy Study and filed it with the PUB. The Study addressed Hydro’s long-term approach to providing continued least-cost reliable service for customers. In 2019, the Study was updated to incorporate changes to key assumptions including electricity demand.

In 2020, Hydro will participate in PUB proceedings to review the conclusions and recommendations of the Study, develop an implementation plan, and complete required actions based on the direction received. A component of the Study will require that Hydro continue to study system risks and mitigating measures to ensure the corporation can reliably meet the needs of customers through the transition to fully reliable service from Muskrat Falls.

Over the planning period, Hydro will also monitor and respond to the power requirements in isolated diesel communities and the needs of potential new industrial customers, including mining developments and data centre growth in Labrador.

Issue 2: Reliability and Supply Adequacy	
Goal By December 31, 2022, Hydro will have advanced initiatives to support electricity system reliability and adequate supply.	
Indicators	<ul style="list-style-type: none"> ▪ Developed reliability improvement plans for key generating and transmission assets and supporting infrastructure.

Issue 2: Reliability and Supply Adequacy	
	<ul style="list-style-type: none"> ▪ Completed required maintenance work and capital investments to support reliability. ▪ Advanced preparations for interconnection of electricity systems and integration of Muskrat Falls power and assets. ▪ Assessed electricity supply requirements and identified options to address needs.
<p>Objective By December 31, 2020, Hydro will have developed and executed plans to reliably meet customers' electricity requirements and advanced activities to integrate Muskrat Falls.</p>	
Indicators	<ul style="list-style-type: none"> ▪ Completed priority maintenance work and capital projects. ▪ Finalized Hydro's 2021 plan for capital investments balancing reliability and cost of investments for customers. ▪ Participated in PUB proceedings to review the conclusions and recommendations of Reliability and Resource Adequacy Study, developed an implementation plan, and completed required actions based on the direction received. ▪ Supported the PUB review of initiatives relating to transmission system expansion in western Labrador and advanced any related orders from the regulator. ▪ Completed required activities to prepare for integration of Muskrat Falls power and assets.
<p>Objective By December 31, 2021, Hydro will have progressed electricity system investments and developed and executed plans to reliably meet customers' electricity requirements.</p>	
<p>Objective By December 31, 2022, Hydro will have further advanced electricity system investments, and updated and executed plans to reliably meet customers' electricity requirements.</p>	

Issue 3: Safety, Health and Environment

The safety of employees, customers and the public and being environmentally responsible are key commitments of Hydro. Achieving excellence in safety is Hydro's number one priority and safety is a shared core value. For Hydro, safety excellence is more than a way of operating; it is an integral part of Hydro's identity and strategy for the planning period and into the future.

Achieving and maintaining excellent safety performance in all areas of the company is an ongoing challenge. During the planning period, Hydro will continue to implement initiatives to move the company forward on its journey to safety excellence. Consistent with its multi-year safety plans, these initiatives involve procedures for completing high-risk work, electrical safety training to maintain employee competence, and employee injury prevention communication

To identify opportunities for improvement, Hydro will also continue to complete investigations of all safety incidents and analyse safety performance to identify areas for improving the design and delivery of its safety programs over the planning period.

Hydro recognizes that employee safety considers not only physical safety but also employee mental well-being. Over the planning period, Hydro will continue to participate in the Nalcor-wide Mental Health Strategy and Psychological Health and Safety Policy. The Mental Health Strategy promotes a workplace where employees can be healthy, productive and successful by creating a comfortable environment that encourages employees to talk about mental health and to reach out if they need assistance. In addition to mental health initiatives, over the planning period, Hydro employees will continue to be able to access tools and services to support health and wellness including reimbursement of costs associated with physical activities, smoking cessation and flu shot clinics.

Customer safety and public safety around electrical equipment are also key elements of Hydro's safety commitment. Over the planning period, power line safety, power outage safety and winter preparedness along with safety around hydroelectric dams and other electrical equipment are key themes for Hydro's safety communications to customer and the public.

Hydro is also focused on managing risk and minimizing the impact of operations on the

environment. The company maintains a high level of environmental responsibility and compliance through our ISO 14001:2015 registered Environmental Management System. Over the planning period, this system will continue to support Hydro’s focus on continuous improvement. As well, Hydro will continue to promote conservation and demand management by residential, commercial and industrial customers. Hydro will also support Government of Newfoundland and Labrador environmental initiatives related to electric vehicle infrastructure, electrification opportunities, and the integration of renewables in communities that rely on diesel for electricity generation.

Issue 3: Safety, Health and Environment	
Goal 1	
By December 31, 2022, Hydro will have continued progress towards sustained safety excellence, enhanced employee health and wellness and environmental stewardship and sustainability.	
Indicators	<ul style="list-style-type: none"> ▪ Completed employee electrical safety training and communications. ▪ Planned and delivered employee mental health and wellness initiatives. ▪ Delivered safety-related communications initiatives to customers and the general public. ▪ Advanced initiatives to support environmental sustainability and electrification.
Objective	
By December 31, 2020, Hydro will have completed planned training, communication and other initiatives to support safety, employee health and well-being and environmental excellence.	
Indicators	<ul style="list-style-type: none"> ▪ Delivered safety training for new employees, employees taking on new roles and refresher training for existing employees. ▪ Completed employee safety communication activities for the 2020 injury prevention campaign. ▪ Identified 2020 employee health and wellness initiatives and complete as planned. ▪ Completed safety-related communication activities for customers and the general public. ▪ Delivered energy conservation programs to residential, commercial and industrial customers and advanced planning for future programs. ▪ Advanced initiatives to increase electrification on the interconnected electricity system and the integration of renewable generation in rural, off-grid communities. ▪ Supported Government of Newfoundland and Labrador initiative to install electric vehicle charging stations on the island.

Objective

By December 31, 2021, Hydro will have further advanced its commitment to safety and environmental excellence, sustainability and employee well-being through completion of planned training, communications and related initiatives.

Objective

By December 31, 2022, Hydro will have progressed its commitment to safety and environmental excellence, sustainability, and employee health and well-being through the completion of planned training, communications and related initiatives.

Appendix 1
Provincial Electricity Generation and Transmission System

LEGEND

- 735 kV
- 315 kV
- 230 kV
- 138 kV
- 69 kV
- LOW VOLTAGE
- - - 138kV CUSTOMER OWNED
- - - 69kV CUSTOMER OWNED
- HYDRO PLANT
- THERMAL PLANT
- TERMINAL STATION
- TERMINAL STATION & CONVERTER STATION
- ⊗ FREQ. CONVERTOR
- ⊕ NF. POWER
- ⊗ CORNER BROOK PULP AND PAPER
- ALGONQUIN POWER
- △ MUSHUAU 1st NATION
- ⊗ WIND GENERATION
- ⊙ OPERATED BY NALCOR
- GAS TURBINE
- ▲ DIESEL PLANT

DC LEGEND

- ± 350 / ± 200kV HVdc
- - - SUBMARINE CABLE
- ⋯ ELECTRODE LINE
- ⊕ ELECTRODE STATION



Provincial Generation and Transmission Grid