Q. Further to IIC-NLH-024, please explain what is the basis for this adjustment, including if it was approved by the Board (and in which proceeding), and how were the values are determined. Please provide the calculations behind the adjustment.

A. The "revised service lives" references the impact on accelerated depreciation expense of revising the estimated useful life based upon the revised end-of-service date of the Holyrood Thermal Generating Station as a generating facility. The revisions resulted in a reallocation by year rather than a total change as illustrated in Table 1.

Table 1: Holyrood Accelerated Depreciation ($ millions)[1]

	2019	2020	2021	2022	2023	Total
2019 Test Year Holyrood Assets – Assume March 31, 2021	16.6	16.9	4.2	0.0	0.0	**37.8**
Revision to Depreciation due to Revised Service Lines	0.0	(8.7)	1.5	5.8	1.4	**0.0**
Revised Depreciation for Updated Service Lines	**16.6**	**8.2**	**5.8**	**5.8**	**1.4**	**37.8**

In the 2017 General Rate Application ("GRA") proceeding, Newfoundland and Labrador Hydro ("Hydro") was granted approval to depreciate Holyrood assets that would not be used post steam on an accelerated basis for rate-setting purposes based upon the projected useful life at the time of the GRA which was March 31, 2021. In Board Order P.U. 13(2012) Hydro was ordered to adopt International Financial Reporting Standards ("IFRS") unless otherwise directed by the Board of Commissioners of Public Utilities ("Board"). Based upon IFRS, Hydro is required to depreciate an asset until the end of its useful life.

In correspondence dated February 14, 2020,[2] Hydro updated the Board that the end-of-service life was revised to March 31, 2022 (IIC-NLH-025, Attachment 1). Hydro subsequently updated the Board in a letter dated September 28, 2020[3] advising that the end-of-service life was now

[1] Numbers may not add due to rounding.
[2] "Extension of Holyrood Thermal Generating Station as a Generating Facility," Newfoundland and Labrador Hydro, February 14, 2020.
[3] "The Liberty Consulting Group Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System – Monthly Update," Newfoundland and Labrador Hydro, September 28, 2020.

projected to be March 31, 2023 (IIC-NLH-025, Attachment 2). In addition, the impact to depreciation due to the change in useful life was referenced in Hydro's December 2020 quarterly GRA update[4] (IIC-NLH-025, Attachment 3).

The depreciation calculation is based on the projected end-of-service life. Under IFRS, Hydro is required to update the depreciation calculation on a prospective basis in the period the decision was made.

[4] "Quarterly Update – Items Impacting the Delay of Hydro's Next General Rate Application," Newfoundland and Labrador Hydro, December 17, 2020.

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February 14, 2020

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

Dear Ms. Blundon:

Re: Extension of Holyrood Thermal Generation Station as a Generating Facility

As per Newfoundland and Labrador Hydro's ("Hydro") prior commitment to advise the Board of Commissioners of Public Utilities ("Board") of its decision on the short-term extension of readiness to operate the Holyrood Thermal Generation Station ("Holyrood TGS"),[1] Hydro advises that it will be extending the readiness to operate the Holyrood TGS to March 31, 2022. This decision has been made to ensure reliable service for customers while the Muskrat Falls Generation Facility and the Labrador-Island Link ("LIL") are brought online and proven reliable; this reflects the long-held plan to provide up to two years of overlap of the Holyrood TGS while the new assets are in the early in-service period.

Holyrood Operational Approach

In advance of its planned retirement as a generating facility, the Holyrood TGS continues to be fully operational. Hydro has always intended to maintain up to a two-year period of standby operation of the Holyrood TGS during early operation of the Muskrat Falls Project Assets. During this period of standby the Holyrood TGS units would be fully available for generation, following which Hydro had, up to this point, planned to retire the Holyrood TGS as a generating facility on March 31, 2021.[2]

Extension of the Holyrood Thermal Generating Station to 2022

The schedule for construction and commissioning of the Muskrat Falls project has changed over time for various reasons, as communicated with the Board in prior correspondence. Therefore, the planned transition of Holyrood TGS to post-steam operation on March 31, 2021 is not expected to be possible. In exercising prudence and caution in its planning and preparedness, Hydro is proceeding with extension of the safe and reliable operation of the Holyrood TGS for one year with a new planned transition date to post-steam operation of March 31, 2022.

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[1] "Reliability and Resource Adequacy Study – Enclosing The Liberty Consulting Group Comments on Hydro's November 15, 2019 Update Response and Request for Comments – Newfoundland and Labrador Hydro's Reply," Newfoundland and Labrador Hydro, December 13, 2019, at pp.5–6.

[2] Post-Steam, Unit 3 will continue to operate as a synchronous condenser.

Hydro has made the determination to extend the Holyrood TGS operations at this time for three key reasons:

1. It is critical that Hydro retain skilled staff focused on the safe and reliable operation of the Holyrood TGS, necessitating provision of notice of extension of employment at the earliest possible opportunity;
2. To ensure sufficient time remains to plan and execute the appropriate maintenance required within the annual system outage and maintenance schedule; and,
3. To ensure sufficient time remains to apply to the Board for necessary capital investment required as a result of this decision.

Balancing Cost and Reliability

Hydro will monitor the performance of the Muskrat Falls assets and, based on the demonstrated reliability of the assets, will determine (i) the degree to which the Holyrood units are required to be operated or maintained in standby mode and (ii) the level of capital investment to be incurred. Where it is technically and economically feasible Hydro will use lower cost alternatives, such as Maritime Link imports and the operation of standby units over peak periods, to offset thermal generation from the Holyrood TGS that would have otherwise been required to secure the power system. Hydro believes that should the successful integration and demonstrated reliability of the Muskrat Falls assets occur prior to March 31, 2022, there may be opportunity to mitigate some portion of operating and capital costs. Hydro's forecast of Holyrood TGS operating and maintenance costs will be detailed in its 2020 General Rate Application.[3]

Hydro believes its decision to extend the short-term operation of the Holyrood TGS to be in the best interests of its customers and the provision of reliable service.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Jennifer Williams
President
JW/sk

cc: **Newfoundland Power**
Mr. Gerard M. Hayes

Consumer Advocate
Mr. Dennis M. Browne, Q.C, Browne Fitzgerald Morgan & Avis

Industrial Customer Group
Mr. Paul L. Coxworthy, Stewart McKelvey
Mr. Denis J. Fleming, Cox & Palmer

[3] As per Board Order No.P.U. 16(2019), to be filed with the Board no later than September 30, 2020.

Praxair Canada Inc.
Ms. Sheryl E. Nisenbaum

ecc: **Board of Commissioners of Public Utilities**
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September 28, 2020

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

Dear Ms. Blundon,

Re: The Liberty Consulting Group Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System – Monthly Update

On November 21, 2019, the Board of Commissioners of Public Utilities ("Board") requested that Newfoundland and Labrador Hydro ("Hydro") provide further information as a result of the findings in The Liberty Consulting Group's ("Liberty") Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System. In its response, Hydro committed to providing Liberty and the Board with a monthly status update regarding the schedule for the Labrador-Island Link ("LIL") software development and testing, updated information in response to the specific requests detailed in the Board's November 21, 2019 correspondence, and other pertinent information with respect to the Muskrat Falls Project ("Project"). Nalcor Energy ("Nalcor") has provided Hydro with the following information on various aspects of the Muskrat Falls Project.

COVID-19 Pandemic Effects on Muskrat Falls Project Execution

Nalcor and its contractors continue to follow all COVID-19 Health and Safety measures as per the established guidelines implemented for the project. Since May, significant emphasis has been placed on returning workers to site while strictly adhering to public health guidelines. The impact of lost time and a reduced workforce have meant impacts to the project cost and schedule.

Earlier today, Nalcor provided an update on the Muskrat Falls Project and COVID-19 pandemic impacts to cost and schedule.[1]

In May 2020, it was anticipated the impact of COVID-19 would require an additional $150–200 million in capital cost. However, the project now requires $75 million in additional capital. The total COVID-19 cost impacts are roughly $150 million; however, the project budget has been managed in a way that approximately half of the COVID-19 impact is covered under the existing capital budget.

Since 2017, the Muskrat Falls total capital budget has moved from $10.1 billion to $10.2 billion in September 2020.

[1] "Nalcor Achieves First Power Despite COVID-19," Nalcor Energy, September 28, 2020, <https://muskratfalls.nalcorenergy.com/newsroom/news-releases/>.

As a result of the delay in completion of the project, there are payments due on the bonds issued to finance the project, as well as interest payments due of roughly $360 million which would now need to be funded.

As outlined in May 2020, as a result of COVID-19 and some issues with software delays on the LIL, the project is experiencing a delay in final completion. The following chart details the updated key milestones for the Muskrat Falls Project. An update of the Integrated Project Schedule and any Authorization for Expenditure updates has been completed as of September 2020.

Table 1: Muskrat Falls Project Key Milestones Update

Scope of Work	Previous Forecast (Jan 2020)	Revised Forecast (Aug 2020)[2]
First Power (Grid Synch)	15-Mar-2020	30-Sep-2020
Unit 1: Commercial Power	15-Apr-2020	31-Oct-2020
Unit 2: Commercial Power	20-Jun-2020	31-Dec-2020
Unit 3: Commerical Power	17-Sep-2020	31-May-2021
Unit 4: Commercial Power	18-Nov-2020	30-Sep-2021
Full Power	18-Nov-2020	30-Sep-2021
Converter Stations Bipole Dynamic Testing Complete	31-Aug-2020	30-Sep-2021
All Synchronous Condensers Ready for Operation	14-Aug-2020	31-Aug-2021[3]
Commissioning Certificate	TBD[4]	

Labrador-Island Link Software Development and Testing Schedule (Board Request #2)

The Board requested the schedule for LIL software development and testing and for Hydro to advise the Board on any future changes to this schedule, the reason for the change, and the implications of any delay for delivery of power and energy to the Island Interconnected System over the LIL.

On August 13, 2020, during dynamic commissioning of LIL, a flashover incident in the Soldiers Pond Pole 2 valve hall resulted in damage to a fiberglass beam that triggered a trip of LIL. The beam is one of a set of beams that supports the valve assemblies of the HVdc converter. Subsequently, on August 22, 2020, a similar incident occurred in the Muskrat Falls Pole 1 valve hall resulting in damage to another beam that again triggered a trip of LIL. GE Grid has brought in valve experts from Europe to lead the investigation and testing at both sites. The focus of the investigation is on a residue that has been observed on some of the beams located inside the valve halls in both converter stations. The presence of this residue correlates with a measured decrease in beam resistivity to an unacceptable level and is believed to be the cause of the flashover. To assist with the Root Cause Analysis, GE Grid has shipped one beam to the manufacturer in Germany and the other beam, upon removal, will be shipped to their laboratory in New York for inspection and chemical analysis. While the origin of the residue is unknown at this time, GE Grid's preliminary Root Cause Analysis indicates that a potential manufacturing defect is the cause of

[2] While impacts from COVID-19 have been included in the updated costs and schedule, there are still other emerging risks being closely monitored including the outcome of any additional work that might be required on LIL valve hall equipment, remediation work on the synchronous condensers, the outcome of the Astaldi arbitration, and any additional impacts due to COVID-19.
[3] Assumes foundation remediation solution.
[4] Pending discussion with Nalcor, the Independent Engineer, the Government of Newfoundland and Labrador, and the Government of Canada

the residue and the affected beams will have to be replaced. It is currently anticipated that approximately 90% (approximately 350) of the beams installed will have to be replaced. A schedule and plan for this replacement is being developed.

GE Grid has presented Nalcor with an interim solution that will allow dynamic commissioning of LIL to recommence while the final remediation solution is determined. Replacement of the damaged beam at Muskrat Falls is complete. Replacement of the Soldiers Pond beam is in progress; once complete, GE Grid will prepare the valve halls for recommencement of dynamic commissioning, which is currently expected by early November 2020.

With respect to bipole software development, GE Grid is continuing their work on the Interim Bipole Software. The current Factory Acceptance Testing ("FAT") schedule for Release B of the Interim software has a planned start date of September 30, 2020. After successful completion of FAT, Release B will be sent to site for installation and testing; however, resumption of dynamic commissioning activities is pending resolution of the valve hall incident. Once Release B is issued for dynamic commissioning, GE Grid will be fully focused on completing Final Bipole Software development.

Synchronous Condenser Binding/Vibration (Board Request #4)

The Board referenced Liberty's discussion of binding/vibration issues with the Soldiers Pond Synchronous Condensers ("SC"). The Board required Hydro to report on these two issues, including details of the problems and the investigation into their root causes, as well as a plan and schedule to address them.

At the Soldiers Pond Synchronous Condenser Site, the Hydrogen detection system modifications on SC Unit 2 are complete. Dynamic commissioning of SC Unit 2 recommenced on September 28, 2020. Dynamic commissioning will involve running the unit at various loads up to 100% capacity to test the unit and to capture vibration data.

The SC Unit 3 elliptical bearings have been installed. All auxiliary systems have been reconnected internally. Manual rotation testing of the Unit is ongoing. The elliptical bearings may address the observed lateral vibration and eliminate the requirement for the foundation remediation work discussed below. Dynamic commissioning to determine whether this is the case is scheduled to start in early November 2020. If the elliptical bearings resolve the lateral vibration for SC Unit 3, then the bearings for the other units will undergo the same redesign. Installation of SC Unit 1 bearings and housings are pending the outcome of SC Unit 3 dynamic commissioning, as well as a decision on possible foundation remediation work.

With respect to the foundation remediation work intended to address the lateral vibration issue, the 60% design review is complete. Based on the current design phase progress, the earliest construction start date is early November 2020. GE Power and Nalcor are working on priorities and logistics for a construction schedule and mobilization. If the foundation remediation work is required, the priority will be to start construction on SC Unit 1.

Muskrat Falls Unit 1 Update

Andritz Hydro ("Andritz") is responsible for the turbines and generator contract. Andritz is progressing its work scope under the contract in accordance with its 2020 work plan which was developed to respect COVID-19 conditions. Andritz has advanced commissioning of Unit 1, pre-commissioning of Unit 2, and assembly of Units 3 and 4.

Unit 1

On September 22, 2020, the first unit at Muskrat Falls was successfully synconized to the electricity grid in Labrador. Testing on the first generating unit will continue over the next few weeks prior to putting the unit in service which is anticipated in October. Through this testing period, the unit will be put on and off the electricity grid until it is ready for turn over to Operations.

Units 2, 3, and 4

Unit 2 commissioning activities are ongoing with preparation for mechanical runs and transformer/line commissioning identified as priorities. Cleanup of the oil release from the Unit 2 guide bearing has been completed. Completion of Unit 2 commissioning and Ready for Operation is forecast for December 2020.

Assembly of Unit 3 is ongoing. The Unit 3 rotor has been moved from the south service bay to the Unit 3 pit. Assembly of Unit 4 is ongoing.

The schedules for Unit 3 and 4 have been incorporated in the Integrated Project Schedule for September 2020.

Extension of Holyrood Thermal Generating Station as a Generating Facility

As previously committed to the Board, [5] Hydro is providing an update on the proposed retirement date for the Holyrood Thermal Generating Station ("Holyrood TGS"). [6] In light of the update to the Muskrat Falls Project schedule included above, Hydro is extending the readiness to operate the Holyrood TGS to March 31, 2023. This is an extension of one year of a previously committed ready to operate schedule.

Hydro has always intended to maintain up to a two-year period of standby operation of the Holyrood TGS during early operation of the Muskrat Falls Project Assets. The decision to extend until March 31, 2023 is being made at this time as there is a need to retain skilled staff at this facility and to allow for appropriate time to plan for completion of operating maintanence and required capital.

The Holyrood TGS is currently a critical part of the Island Interconnected System and is required to provide safe and reliable electricity. In exercising prudence and caution in its planning and preparedness, Hydro is proceeding with the extension. This decision has been made to ensure reliable service for customers while the Muskrat Falls Project Assets and the LIL are brought online and proven reliable.

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[5] Hydro previously communicated an extension to March 31, 2022 in correspondence "Extension of Holyrood Thermal Generation Station as a Generating Facility," Newfoundland and Labrador Hydro, February 14, 2020.
[6] "Reliability and Resource Adequacy Study Review – Near-Term Reliability Considering the Muskrat Falls Delay," Newfoundland and Labrador Hydor, June 3, 2020.

If you have any questions, please contact the undersigned.

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young, Q.C.
Vice President, General Counsel & Corporate Secretary
GPY/sk

ecc: **Board of Commissioners of Public Utilities**
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December 17, 2020

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

Dear Ms. Blundon:

Re: Quarterly Update – Items Impacting the Delay of Hydro's Next General Rate Application

In Order No. P.U. 15(2020), the Board of Commissioners of Public Utilities ("Board") approved Newfoundland and Labrador Hydro's ("Hydro") request to delay the filing of its next General Rate Application ("GRA").[1,2] The Board directed Hydro to file quarterly updates with respect to the filing of its next GRA beginning on September 30, 2020 and to include the following:

(i) Information related to:

- **a.** The time frame for the commissioning of the Muskrat Falls Project;
- **b.** The financial restructuring of the Muskrat Falls Power Purchase Agreement ("PPA");
- **c.** The completion of Government of Newfoundland and Labrador's ("Government") rate mitigation plan; and

(ii) Projected 2021 cost increases and Hydro's plans to address these increases.

Muskrat Falls Project Schedule

The Muskrat Falls Project remains on schedule for full power to be delivered by the end of September 2021.

Financial Restructuring of Muskrat Falls PPA and Government's Rate Mitigation Plan

At this time, Hydro does not have any updates to provide regarding the status of the financial restructuring of the Muskrat Falls PPA or the completion of Government's rate mitigation plan.

[1] "Application to Delay the Filing of Newfoundland and Labrador Hydro's Next General Rate Application," Newfoundland and Labrador Hydro, April 15, 2020.
[2] Board Order No. P.U. 16(2020) directed Hydro to file its next GRA no later than September 30, 2020 for rates based on a 2021 Test Year.

Projected 2021 Cost Increases

In its September 30, 2020 update to the Board, Hydro advised that it expected previously forecast 2021 cost increases to be partially offset by reduced depreciation expense associated with the extension of the Holyrood Thermal Generating Station ("Holyrood TGS") as a generating facility for an additional year.[3] Since then, Hydro filed an update on its Efficiency and Effectiveness Plan[4] ("EEP") indicating that Hydro expects to achieve additional operating savings of $3.7 million[5] in 2021,[6] further offsetting 2021 forecast cost increases.

In 2021, Hydro anticipates filing an application for approval to defer the net increase in 2021 costs as a result of the commissioning of the Muskrat Falls Project. On the basis that Hydro is permitted to defer these costs, Hydro estimates that its forecast 2021 earnings will be slightly below the lower end of the approved range of return on rate base.[7]

Upon commissioning of the Muskrat Falls Project, the Island Interconnected System marginal energy cost will transition from the Holyrood TGS fuel price to the market value of exports. This change has implications on the operation of Hydro's supply cost deferral accounts. Therefore, Hydro anticipates filing an application in 2021 to propose modifications to its supply cost deferral accounts to address the financial impacts of this change.

Hydro will provide a further update on the preceding matters in its first quarter 2021 update, which is scheduled to be filed on March 31, 2021.

Should you have any questions or comments about any of the enclosed, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

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

ecc: **Board of Commissioners of Public Utilities**
Jacqui Glynn
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[3] "The Liberty Consulting Group Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System – Monthly Update," Newfoundland and Labrador Hydro, September 28, 2020.
[4] "Efficiency and Effectiveness Plan – Fall 2020 Update," Newfoundland and Labrador Hydro, November 12, 2020.
[5] $3.7 million is the total of $3.1 million from regulated operations and $0.6 million from Exploits.
[6] Relative to the 2019 Test Year.
[7] Hydro's 2019 Test Year rate of return on average rate base of 5.43% in a range of 5.23% to 5.63% was approved in Board Order No. P.U. 30(2019).

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