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April 1, 2024

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

Attention: Jo-Anne Galarneau
Executive Director & Board Secretary

Re: Capital Expenditures and Carryover Report for the Year Ended December 31, 2023

Enclosed please find Newfoundland and Labrador Hydro's ("Hydro") "Capital Expenditures and Carryover Report for the Year Ended December 31, 2023," filed pursuant to correspondence from the Board of Commissioners of Public Utilities on February 13, 2023,[1] Board Order No. P.U. 35(2023),[2] and in compliance with Section 41(4) of the *Public Utilities Act.*[3]

This report provides information on Hydro's capital expenditures for all programs and projects proposed and approved as part of its "2023 Capital Budget Application"[4] and additional supplemental capital budgets approved by the Board. As per the "Capital Budget Application Guidelines (Provisional),"[5] this report provides key performance indicator data as well as details and explanations regarding the reportable variances between budgeted and actual expenditures for programs and projects with expenditures in the 2023 calendar year. This report also provides a listing of budget carried over to future years and specific details regarding the execution of the Remove Safety Hazards (2023) – Various program, the Perform Software Upgrades and Minor Enhancements (2023) program, various In-Service Failures (2023) programs, the Boiler Condition Assessment and Miscellaneous Upgrades (2023) – Holyrood program, and the Major Condition Assessment and Miscellaneous Refurbishments Synchronous Condenser 1 and 2 (2023-2024) – Wabush Terminal Station program.

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[1] "Annual Capital Expenditures Reports – Filing Schedule," Board of Commissioners of Public Utilities, February 13, 2023.
[2] *Public Utilities Act*, RSNL 1990, c P-47, Board Order No. P.U. 35(2023), Board of Commissioners of Public Utilities, December 21, 2023.
[3] *Public Utilities Act*, RSNL 1990, c P-47, s 41(4).
[4] "2023 Capital Budget Application," Newfoundland and Labrador Hydro, July 13, 2022. http://pub.nl.ca/applications/NLH2023Capital/index.php
[5] "Capital Budget Application Guidelines (Provisional)," Board of Commissioners of Public Utilities, January 2022.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

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Encl.

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Capital Expenditures and Carryover Report

For the Year Ended December 31, 2023

April 1, 2024

A report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro

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List of Appendices

1.0 Overview

This report is filed pursuant to correspondence from the Board of Commissioners of Public Utilities ("Board") on February 13, 2023,[1] Board Order No. P.U. 35(2023),[2] and in compliance with Section 41(4) of the *Public Utilities Act;*[3] it provides information on Newfoundland and Labrador Hydro's ("Hydro") capital expenditures for all programs and projects proposed and approved as part of the "2023 Capital Budget Application."[4] As noted within this report, information is also provided on capital expenditures related to additional supplemental capital budgets approved by the Board. As per the "Capital Budget Application Guidelines (Provisional)" ("Provisional Guidelines"),[5] this report provides key performance indicator ("KPI") data as well as details and explanations regarding the reportable variances between budgeted and actual expenditures for programs and projects with expenditures in the 2023 calendar year. Appendix A provides the variances by investment classification and Appendix B provides specific details regarding the execution of the following programs:

- Remove Safety Hazards (2023);
- Perform Software Upgrades and Minor Enhancements (2023);
- In-Service Failures (2023) for various asset categories;
- Boiler Condition Assessment and Miscellaneous Upgrades (2023) – Holyrood; and
- Major Condition Assessment and Miscellaneous Refurbishments Synchronous Condensers 1 and 2 (2023-2024) – Wabush Terminal Station.

1.1 Expenditures

Hydro's 2023 capital expenditures totalled $148.9 million. Renewal of existing assets was the largest driver of investment in 2023, accounting for $96.1 million in 2023. Access and General Plant investments

[1] "Annual Capital Expenditures Reports – Filing Schedule," Board of Commissioners of Public Utilities, February 13, 2023.
[2] *Public Utilities Act*, RSNL 1990, c P-47, Board Order No. P.U. 35(2023), Board of Commissioners of Public Utilities, December 21, 2023.
[3] *Public Utilities Act*, RSNL 1990, c P-47, s 41(4).
[4] "2023 Capital Budget Application," Newfoundland and Labrador Hydro, July 13, 2022. http://pub.nl.ca/applications/NLH2023Capital/index.php
[5] "Capital Budget Application Guidelines (Provisional)," Board of Commissioners of Public Utilities, January 2022.

accounted for $13.8 million and $13.2 million, respectively, followed by Service Enhancement ($12.8 million), System Growth ($12.5 million), and Mandatory investments ($0.4 million).[6]

Invested capital for terminal station infrastructure was $38.0 million, including $9.1 million towards the interconnection of Valentine Gold,[7] $8.0 million in upgrades at the Wabush Terminal Station, $6.9 million for the circuit breaker upgrade and renewal programs, and $4.4 million to upgrade the Wabush Substation. The thermal generation equipment and infrastructure at the Holyrood Thermal Generating Station ("Holyrood TGS") required 2023 expenditures totalling $29.2 million, including $9.3 million for the overhaul of the Unit 2 turbine and valves, which will continue into 2024, and $4.4 million for the condition assessment and upgrades of the three boilers. Expenditures to maintain Hydro's hydraulic generation equipment and infrastructure across the province totalled $26.3 million and included $8.4 million to refurbish the generator at the Upper Salmon Hydroelectric Generating Station ("Upper Salmon"). $14.4 million was invested in Hydro's transmission lines,[8] including $5.1 million for the Wood Pole Line Management Program, and $13.8 million in distribution systems in 2023.

Hydro's total capital expenditures of $148.9 million included unplanned additional work totalling approximately $21.9 million. Expenditures included $3.6 million completed under the scope of supplemental projects approved in 2023 and a net $18.3 million increase in work to address in-service failures and unforeseen levels of required refurbishment identified during planned condition assessments in 2023.[9]

1.2 Expenditures Compared to Approved Budget

Actual expenditures in Hydro's overall capital campaign for 2023 were over budget by $2.5 million (1.7%). Projects and programs that exceeded their individual 2023 approved budgets ($32.5 million cumulatively) were mostly offset by projects and programs that underspent their individual 2023 approved budgets ($30.0 million cumulatively). Hydro completed an analysis of 2023 capital expenditures to determine the categories and main drivers of under- and over-expenditure variances

[6] Numbers may not add due to rounding.
[7] This project includes expenditures associated with an expansion of Star Lake Terminal Station and construction of TL271.
[8] This does not include expenditures related to the construction of TL271, which were part of the Valentine Gold interconnection and reported under the Terminal Stations asset category.
[9] Includes expenditures completed under the Distribution System In-Service Failures, Miscellaneous Upgrades, and Street Lights (2023) program.

from the approved capital budget. Overexpenditures were primarily associated with a greater-than-estimated volume of work required to address failures and condition assessments as well as work completed for higher cost than the original budget estimates. Underexpenditures were primarily a result of supply chain challenges and strategic carryover of work to future years. Sections 2.0 and 5.0 of this report provide more details on under- and over-expenditures.

1.3 Carryover

In 2023, Hydro carried over $21.9 million of budget to future years; this includes a carryover of $13.5 million associated with scopes deferred from 2023 to a future year and $8.4 million associated with the reallocation of cost flow within the years of approved projects and programs. Hydro's 2023 carryover was lower than the average for the previous nine-year period ($28.2 million) and was primarily driven by supply chain challenges and strategic carryover of work to future years. Section 7.0 provides the overall carryover amount for the ten years 2014–2023.

1.4 Key Performance Indicators

As set out in the Provisional Guidelines approved by the Board, Hydro has introduced a summary of KPIs for capital expenditures specific to projects and programs in Section 4.0 of this report. The Provisional Guidelines require the inclusion of ten years of data for each KPI. The Provisional Guidelines introduced a new definition for programs and, as Hydro did not track the required metrics for each indicator prior to the approval of the Provisional Guidelines, Hydro has provided this data beginning in 2023 and will continue to add to the same with each subsequent report.

2.0 Capital Budget versus Actual Expenditures 2014–2023

Appendix A provides a summary of capital expenditures related to programs and projects that were active in 2023, with associated expenditures broken out annually for the periods 2020–2023 (actual) and 2024 and beyond (forecast). Table 1 and Chart 1 provide a summary of Hydro's capital budget variances for the years 2014–2023.

Table 1: Capital Budget vs. Actual Expenditures 2014–2023

Year	Approved Budget ($000)	Actual Expenditures ($000)	Variance ($000)	Variance (%)
2023	146,403	148,876	2,473	1.7
2022	138,136	103,408	(34,728)	(25.1)
2021	136,304	113,492	(22,812)	(16.7)
2020	134,752	87,555	(47,197)	(35.0)
2019	164,194	126,575	(37,619)	(22.9)
2018	213,050	156,985	(56,065)	(26.3)
2017	340,501	340,741	240	0.1
2016	350,601	203,941	(146,660)	(41.8)
2015	311,177	125,119	(186,058)	(59.8)
2014	280,601	204,728	(75,873)	(27.0)

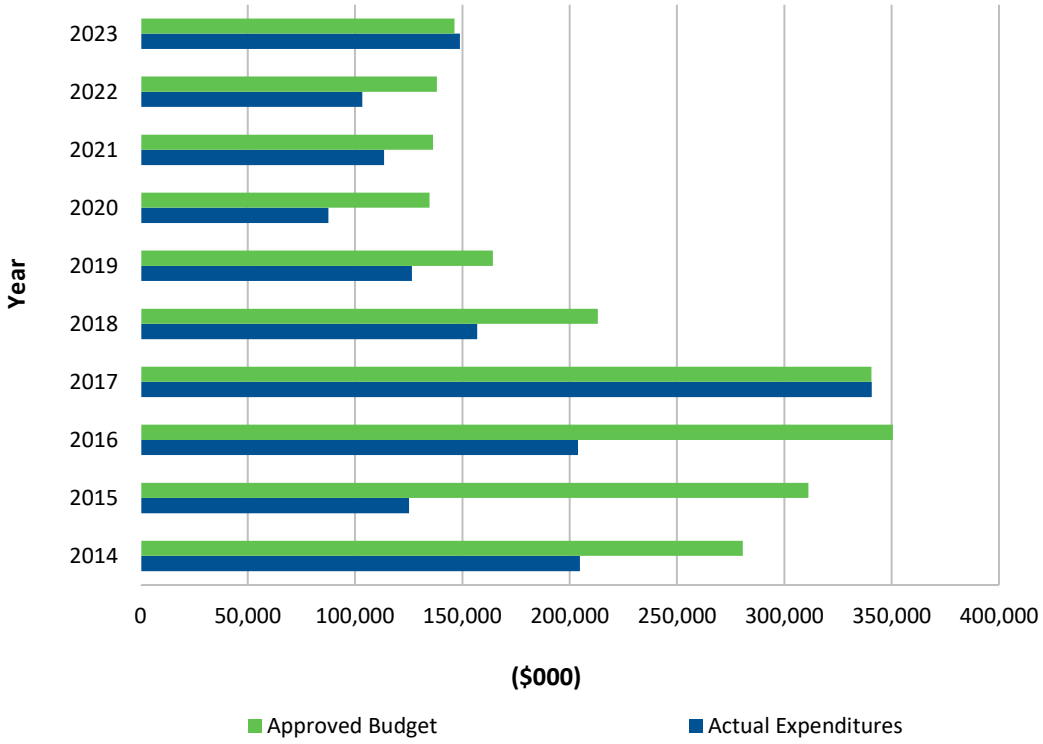

Chart 1: Capital Budgets vs. Actual Expenditures 2014–2023

In 2023, actual expenditures were above budget in Hydro's overall capital campaign by $2.5 million (1.7%), as shown in Table 1 and Chart 1. Projects and programs that exceeded their individual 2023 approved budgets ($32.5 million cumulatively) were mostly offset by projects and programs that

underspent their individual 2023 approved budgets ($30.0 million cumulatively). Hydro completed an analysis of 2023 capital campaign and project expenditures to determine the categories of variances from the approved capital budget.

Two main drivers of 2023 program and project over-expenditures were identified.

1) Greater-than-estimated volume of work required to address failures and condition assessments; and

2) Work completed for a higher cost than the original budget estimates.

Two main drivers of 2023 program and project under-expenditures were identified.

1) Supply chain challenges; and

2) Strategic carryover of work to future years.

The results of Hydro's analysis are summarized in Chart 2 and discussed in more detail herein.[10]

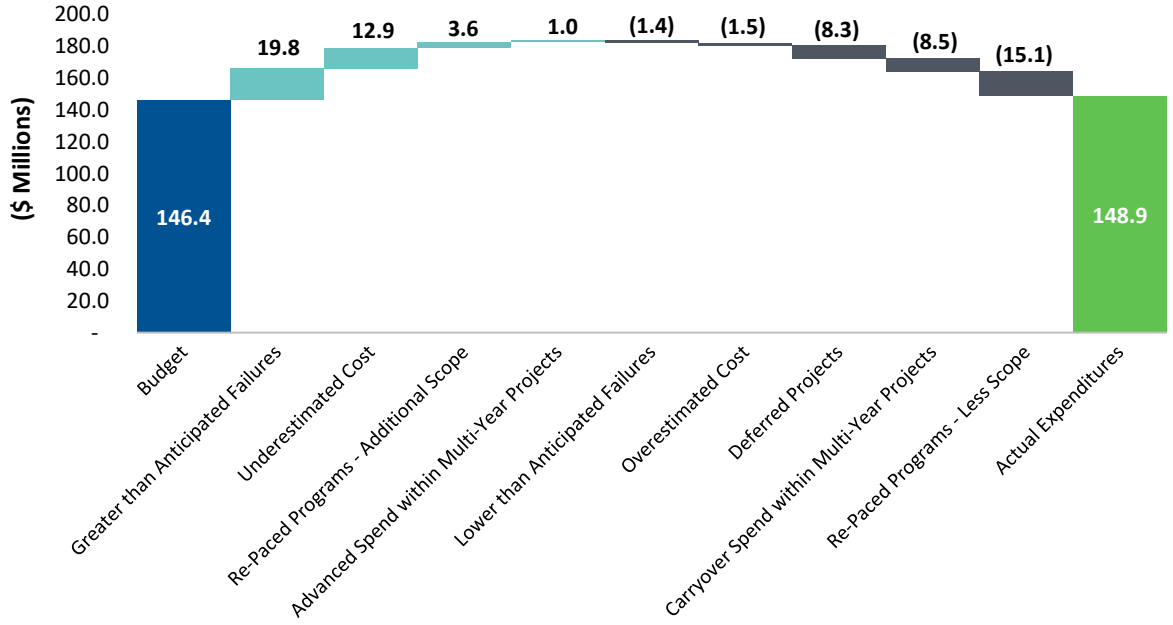

Chart 2: Analysis of 2023 Budget to Actual Capital Expenditures

[10] Projects and programs with a material variance (at least $100,000 and 10%) are listed within their respective sections herein. For projects and programs with a material overspend variance, detailed discussion is provided in Section 5.0 and referenced herein. Per the Provisional Guidelines, variance explanations for underspent projects and programs are not required; however, underspent projects and programs are listed and a brief description of the factors contributing to underspend are provided within this section.

2.1 Work Required to Address Failures and Condition Assessments

Some programs and projects had undefined scopes of work at the time of budget estimate preparation, including:

- In-Service Failures programs for various asset classifications;
- Programs and projects that involve taking assets out-of-service for condition assessment to determine the extent of refurbishment required; and
- Projects that utilize the Allowance for Unforeseen Items Account.[11]

For these programs and projects, estimates are typically based on historical expenditures and engineering judgment. In 2023, as shown in Chart 2, programs and projects required to address failures and condition assessments with expenditures in excess of the estimates accounted for $19.8 million in over-expenditures and programs and projects of this nature with fewer expenditures than estimated accounted for $1.4 million in under-expenditures, for a net over-expenditure of $18.3 million.[12] The most material programs and projects in this category with over-expenditures were:

- Upper Salmon Hydroelectric Generating Station Rotor Rim Shrinking and Stator Recentering (Supplemental);
- Gas Turbine In-Service Failures (2023);
- Hydraulic In-Service Failures (2023);
- Wood Pole Line Management Program (2023);
- Distribution System In-Service Failures, Miscellaneous Upgrades, and Street Lights (2023);

[11] Hydro did not undertake any work under the Allowance for Unforeseen Items Account in 2023.
[12] Numbers may not add due to rounding.

- Holyrood Fuel Tank 1 Inspection and Refurbishment (Supplemental);[13]
- Overhaul Unit 2 Turbine and Valves (2023) – Holyrood;
- Terminal Station In-Service Failures (2023);
- Boiler Condition Assessment and Miscellaneous Upgrades (2023) – Holyrood; and
- Overhaul Pumps (2023) – Holyrood.

2.2 Re-Pacing of Programs

The pace of work within programs impacted Hydro's 2023 capital expenditures. As shown in Chart 2, programs with less work completed in 2023 compared to the budget estimate accounted for an under-expenditure of $15.1 million while programs with more work completed in 2023 compared to the budget estimate accounted for an over-expenditure of $3.6 million, for a net under-expenditure of $11.6 million.[14] Three main drivers of the re-pacing of program work to future years have been identified.

1) **Supply Chain Challenges:** Supply chain challenges resulted in the delayed delivery of some new equipment, which prevented Hydro from completing capital work for some programs in 2023. In particular, Hydro is experiencing long lead times for diesel gensets, heavy-duty vehicles, and

[13] In its application, "Application for Approval of Various Supplemental Capital Projects at the Holyrood Thermal Generating Station," Newfoundland and Labrador Hydro, June 6, 2022, Hydro requested approval for, among other capital works, the refurbishment of Tank 2.
http://pub.nl.ca/applications/NLH2022Capital/NLH2022Capital_SUPP_HolyroodThermal/app/From%20NLH%20-%20Approval%20of%20Various%20Supplemental%20Capital%20Projects%20at%20the%20Holyrood%20Thermal%20Generation%20Station%20-%202022-06-06.PDF
These projects were approved as per *Public Utilities Act*, RSNL 1990, c p-47, Board Order No. P.U. 24(2022), Board of Commissioners of Public Utilities, August 18, 2022. However, in "Request for Change or Modification to Board Order No. P.U. 24(2022) – Approval of Various Supplemental Capital Projects at the Holyrood Thermal Generation Station," Newfoundland and Labrador Hydro, September 26, 2022, Hydro advised it had determined refurbishment and reinstatement of Tank 1 could be completed for substantially less than the amount estimated for the refurbishment of Tank 2.
http://pub.nl.ca/applications/NLH2023RequestChangePU24/app/From%20NLH%20-%20Request%20for%20Change%20or%20Modification%20to%20Board%20Order%20No.%20P.U.%2024(2022)%20-%202022-09-26.PDF
As per *Public Utilities Act*, RSNL 1990, c p-47, Board Order No. P.U. 30(2022), Board of Commissioners of Public Utilities, October 7, 2022, the Board approved Hydro's request to modify Order No. P.U. 24(2022) to approve the refurbishment of Tank 1 rather than Tank 2.

[14] Numbers may not add due to rounding.

transformer components, impacting program pacing. The programs with the most material under-expenditures due to delayed delivery of equipment were:

- **Diesel Genset Replacement Unit 2012 – L'Anse-Au-Loup:** Delayed delivery of the new genset;
- **Replace Light- and Heavy-Duty Vehicles (2021–2022):** Delayed delivery of the new heavy-duty vehicles;
- **Diesel Genset Replacement Unit 2039 – St. Lewis:** Delayed delivery of the new genset;
- **Terminal Station Refurbishment and Modernization (2022–2023):** Delayed delivery of various transformer components; and
- **Replace Light- and Heavy-Duty Vehicles (2022–2024)**: Delayed delivery of the new heavy-duty vehicles.

2) **Strategic Re-Pacing of Work:** When appropriate, Hydro makes strategic decisions to delay work to future years based on updated asset condition information, updated electrical system planning requirements, or improved execution plans. The programs with the most material under-expenditures due to strategic delays were:

- **Perform Combustor Inspection – Holyrood Gas Turbine**: Delayed as the unit had not reached the number of equivalent unit starts that would necessitate the inspection; and
- **Upgrade Circuit Breakers (2022-2023) – Various**: A circuit breaker replacement associated with Unit 1 at the Bay d'Espoir Hydroelectric Generating Facility ("Bay d'Espoir") was delayed due to the unavailability of a generation outage for this unit, as other generation outages were required for more urgent work.

3) **Expanded Scope:** At times, it is necessary to complete more refurbishment work than originally planned and this may result in the delay of some work to future years. This was the case for one program with a material impact on under-expenditures:

- **Overhaul Unit 2 Turbine and Valves (2023) – Holyrood**: While the turbine was at the original equipment manufacturer's ("OEM") facility for inspection and refurbishment in 2023, cracks were discovered on the low-pressure turbine blades

that required the purchase and installation of a new set of blades, delaying completion of the work to 2024.

2.3 Actual Expenditure Variance from Estimates

As shown in Chart 2, capital program and project work completed in 2023 for more than the original budget estimate accounted for approximately $12.9 million of over-expenditure and work completed in 2023 for less than the original budget estimate accounted for $1.5 million in underexpenditure, for a net overexpenditure of $11.4 million associated with estimates. The most material programs and projects with over-expenditures were:

- Upper Salmon Hydroelectric Generating Station Rotor Rim Shrinking and Stator Recentering (Supplemental);
- Wood Pole Line Management (2023);
- Replace Transformer T7 – Holyrood;
- Wabush Terminal Station Upgrades;
- Replace Underground Firewater Distribution System – Holyrood;
- Upgrades for Future Retirement of Stephenville Gas Turbine; and
- Replace Powerhouse Station Service Panel (2023–2024) – Upper Salmon.

Most of these over-expenditures associated with estimates are attributed to materials and construction contracts that exceeded the budget estimates, which may be indicative of a general shift in market pricing. There were also environmental mitigation costs incurred on the Wood Pole Line Management Program (2023) that were not identified during the budget estimate phase.[15]

[15] Refer to variance explanation 5.1.8.

2.4 Deferred Projects

As shown in Chart 2, several projects planned for completion in 2023 have carried over to 2024, resulting in 2023 under-expenditures of $8.3 million. Two main themes related to these deferrals were identified.

1) **Strategic Deferral of Work**: When appropriate, Hydro makes strategic decisions to defer project completion to future years, based on updated asset condition information, updated electrical system planning requirements, or improved project execution plans. Hydro deferred a project to 2024 that resulted in a material under-expenditure.

    - **Upgrades for Future Retirement of the Stephenville Gas Turbine**: The required timing for this project scope has changed as the planned retirement of the Stephenville Gas Turbine has been deferred to a future year.[16]

2) **Supply Chain Challenges:** Supply chain challenges resulted in delayed delivery of some new equipment that prevented Hydro from completing some capital projects in 2023. In particular, Hydro is experiencing long lead times for diesel gensets and transformers. The projects with the most material under-expenditures due to delayed delivery of equipment were:

    - **Labrador City L22 Voltage Conversion (2022-2023)**: Delayed delivery of the pad-mount transformers; and
    - **Replace Unit 2047 Ramea**:[17] Delayed delivery of the new genset.

2.5 Changes within Continuing Multi-Year Projects

For some multi-year projects, changes are made to the project schedule without affecting the project completion date but impacting the annual cost flow. As shown in Chart 2, expenditures that are now forecast to occur in future years within multi-year contracts accounted for $8.5 million in 2023

[16] As reported in "2023 Near-Term Reliability Report – November Report," Newfoundland and Labrador Hydro, November 15, 2023, sec. 3.3.2, p. 24/1–3, Hydro is continuing operation of the Stephenville Gas Turbine beyond 2024. At this time, a recommended revised retirement date has not been concluded. http://pub.nl.ca/applications/NLH2018ReliabilityAdequacy/reports/From%20NLH%20-%20Near-Term%20Reliability%20Report%20-%20November%20%202023%20-%202023-11-15.PDF

[17] "Application for Purchase of a Diesel Generating Unit – Ramea," Newfoundland and Labrador Hydro, July 28, 2021. http://pub.nl.ca/applications/NLH2021Capital/NLH2021Capital_SUPP_Ramea/app/Approval%20of%20the%20Purchase%20of%20a%20Diesel%20Generating%20Unit%20for%20Use%20in%20Ramea%20-%202021-07-28.pdf

underexpenditures while costs advanced from future years into 2023 accounted for $1.0 million in overexpenditures, for a net underexpenditure of $7.4 million.[18]

Three main drivers of changes within continuing multi-year projects have been identified.

1) **Supply Chain Challenges:** Supply chain challenges resulted in delayed delivery of some new equipment that resulted in expenditures moving to future years within multi-year projects. In particular, Hydro is experiencing long lead times for material handlers and power transformers impacting annual cost flow within projects. The projects with the most material under-expenditures due to delayed delivery of equipment were:

    - **Purchase 85' Material Handler Aerial Device on Track Unit:** Delivery of the unit is delayed from 2023 to 2024;
    - **Purchase 46' Material Handler Aerial Device on Track Unit:** Delivery of the unit is delayed from 2023 to 2024; and
    - **Additions for Load Growth - Upgrade Transformer Capacity (2023–2024) – Jean Lake Terminal Station**: Delivery of a power transformer has been delayed from 2024 to 2025, with initial progress payment delayed from 2023 to 2024.[19]

2) **Strategic Schedule Change:** When appropriate, Hydro makes strategic decisions to reschedule work to future years within continuing multi-year projects, based on updated asset condition information, updated electrical system planning requirements, or improved project execution plans. Hydro changed the project execution plan for a continuing multi-year project in 2023, which resulted in a material under-expenditure:

    - **Purchase and Replace Last Stage Blades for Units 1 and 2 – Holyrood Thermal Generating Station:**[20] The original project plan included the installation of last stage blades on Unit 1 in 2023 and on Unit 2 in 2024. After completing an *in situ*

[18] Numbers may not add due to rounding.
[19] Hydro reforecasted this project within its "2024 Capital Budget Application," Newfoundland and Labrador Hydro, rev. September 21, 2023, resulting in a change in project completion from 2024 to 2025. http://pub.nl.ca/applications/NLH2024Capital/index.php
[20] "Purchase and Replace Last Stage Blades for Units 1 and 2 – Holyrood Thermal Generating Station," Newfoundland and Labrador Hydro, March 29, 2023. http://pub.nl.ca/applications/NLH2023Capital_SUPP_LastStageBlades/app/Approval%20of%20the%20Purchase%20and%20Replacement%20of%20Last%20Stage%20Blades%20for%20Units%201%20and%202%20at%20the%20Holyrood%20Thermal%20Generating%20Station%20-%202023-03-29.pdf

inspection on both units before the 2023 maintenance outages, it was determined that Unit 2 was in worse condition than Unit 1; it was decided to replace the last stage blades for Unit 2 in 2023 and Unit 1 in 2024. The Unit 1 disassembly costs were included in the 2023 budget but are not required until 2024. The Unit 2 disassembly costs in 2023 were already included in the separate Overhaul Unit 2 Turbine and Valves (2023) program, so disassembly costs were not incurred for this project.

3) **Later-than-Anticipated Project Approval:** The approval and commencement of a project in 2023 was later than anticipated when the initial budget estimate was prepared, resulting in some first-year activities carrying over into the subsequent year:

- **Penstock 1 Section Replacement and Weld Refurbishment – Bay d'Espoir (2023–2025):**[21] The initial project budget estimate and associated original cost flow assumed project approval and commencement in January 2023. However, the project was approved in April 2023, resulting in the shifting of some expenditures into 2024. The planned project completion year of 2025 is not impacted by this later start date.

2.6 Cancelled Scopes of Work

Upon approval by the Board, projects may be cancelled in whole, or in part, when new information or conditions impact the original project justification. There were no cancelled scopes of work in 2023.

2.7 Modified Scopes of Work

Upon approval of the Board, projects may be modified if new information or conditions impact the selection of the preferred project alternatives. There were no modified scopes of work in 2023.

[21] "Penstock 1 Section Replacement and Weld Refurbishment – Bay d'Espoir Hydroelectric Generating Facility," Newfoundland and Labrador Hydro, December 7, 2022. http://pub.nl.ca/applications/NLH2022WeldRefurbishment/apps/From%20NLH%20-%20Approval%20of%20Section%20Replacement%20and%20Weld%20Refurbishment%20of%20Penstock%201%20at%20the%20Bay%20d%E2%80%99Espoir%20Hydroelectric%20Generating%20Facility%20-%202022-12-07.pdf

3.0 Capital Expenditures by Investment Classification

Appendix A presents Hydro's capital expenditures by Investment Classification, including:

- Access;
- General Plant;
- Mandatory;
- Renewal;
- Service Enhancement;
- System Growth;
- Allowance for Unforeseen; and
- Contribution in Aid of Construction.

4.0 Key Performance Indicators

As set out in the Provisional Guidelines, this report will now include a summary of KPIs for capital expenditures specific to projects and programs for the last ten years.

The KPIs for projects are:

- The number of projects planned and completed by materiality threshold; and
- The original budget value of projects completed and the final cost of projects completed by materiality threshold.[22]

The KPIs for programs are:

- The number of units planned and completed by materiality threshold; and
- The estimated average unit cost and actual average unit cost.

[22] Does not include ongoing projects.

4.1 Project Key Performance Indicators

4.1.1 Planned versus Completed Projects by Year and Materiality Threshold

In this section, Hydro will provide table and graphical representations, both in aggregate and for each Investment Classification, of the planned versus completed projects by materiality threshold.[23] Hydro completed 35 of 51 projects planned for completion in 2023. The primary contributing factors for projects planned for completion but not completed in 2023 were internal resource challenges, changes in the required timing of some projects, and delayed material delivery. Hydro has assessed the risks associated with delayed completion of these projects and, where necessary, has applied appropriate mitigations. As such, none of the projects carried over into 2024 represent a significant risk to the supply of electricity to customers.

Table 2: Planned vs. Completed Projects – Aggregate

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Projects	Completed Projects	Planned Projects	Completed Projects	Planned Projects	Completed Projects
2023	37	29	12	6	2	0

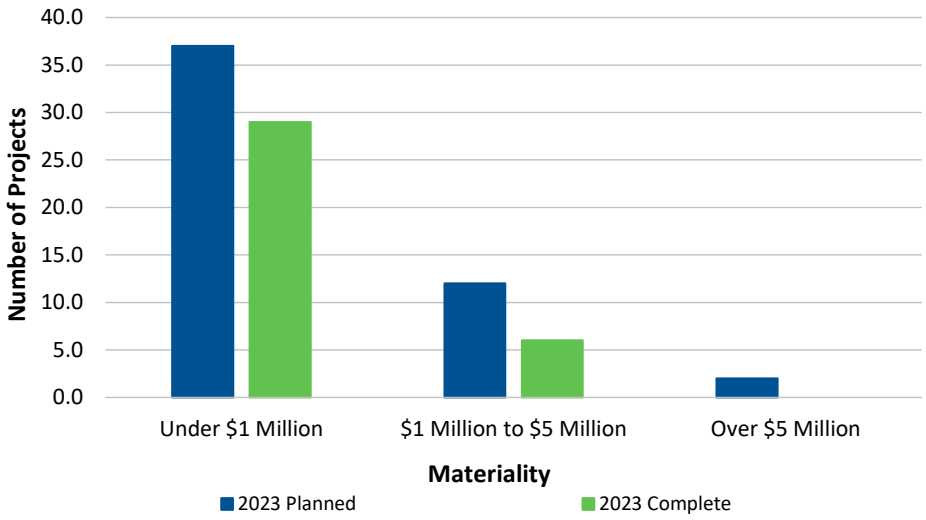

Chart 3: Planned vs. Completed Projects – Aggregate[24]

[23] For the purposes of this metric, a project is deemed complete when the full project scope is complete, all assets are in service, and the project is closed. For projects that have multiple assets planned to go in service, some assets may be in service when planned while others may have carried over. In 2023, there were two projects counted as incomplete in this metric, but had over 90% of the assets placed in service in 2023—Winterize Unit 2102 and Install Mobile – Charlottetown (approved budget of $1,314,700) and Replace Unit 2090/2044 – Charlottetown and Mary's Harbour (approved budget of $401,020).

[24] Does not include projects that were advanced and completed in 2022.

Renewal

Table 3: Planned vs. Completed Projects – Renewal

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Projects	Completed Projects	Planned Projects	Completed Projects	Planned Projects	Completed Projects
2023	23	18	8	5	0	0

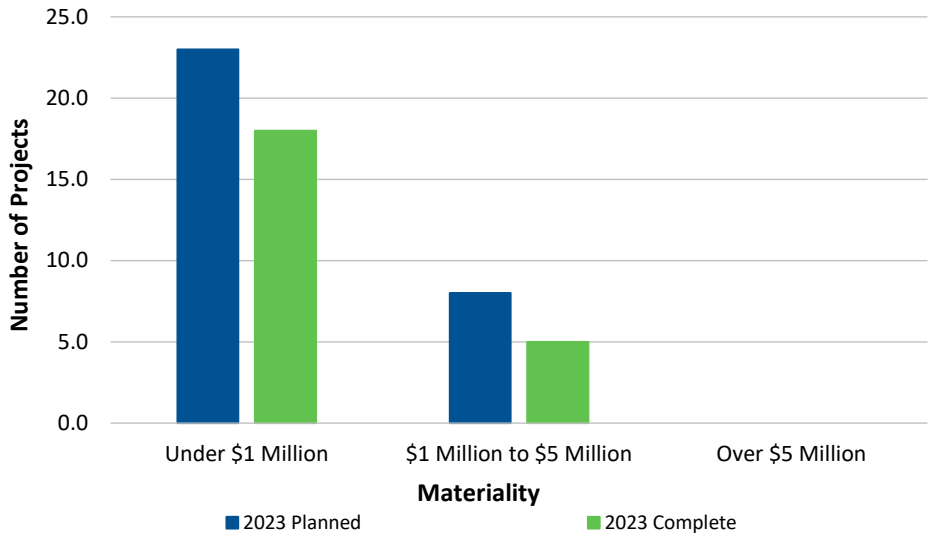

Chart 4: Planned vs. Completed Projects – Renewal

General Plant

Table 4: Planned vs. Completed Projects – General Plant

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Projects	Completed Projects	Planned Projects	Completed Projects	Planned Projects	Completed Projects
2023	5	5	2	1	0	0

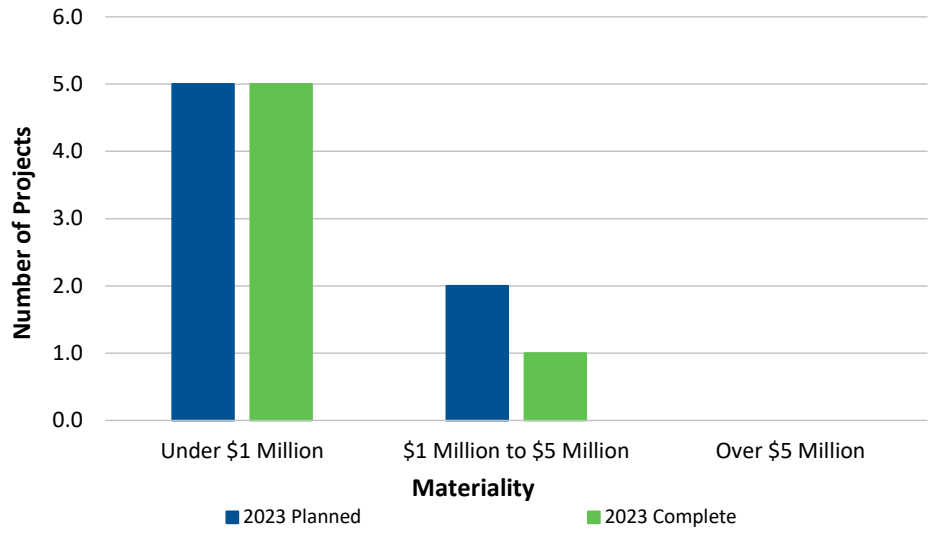

Chart 5: Planned vs. Completed Projects – General Plant

System Growth

Table 5: Planned vs. Completed Projects – System Growth

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Projects	Completed Projects	Planned Projects	Completed Projects	Planned Projects	Completed Projects
2023	1	0	0	0	0	0

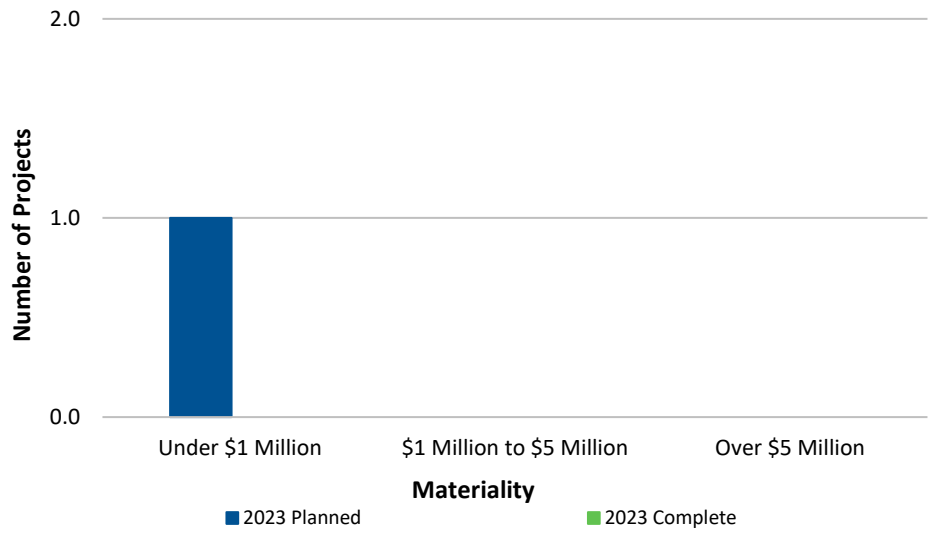

Chart 6: Planned vs. Completed Projects – System Growth

Access

Table 6: Planned vs. Completed Projects – Access

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Projects	Completed Projects	Planned Projects	Completed Projects	Planned Projects	Completed Projects
2023	1	1	0	0	1	0

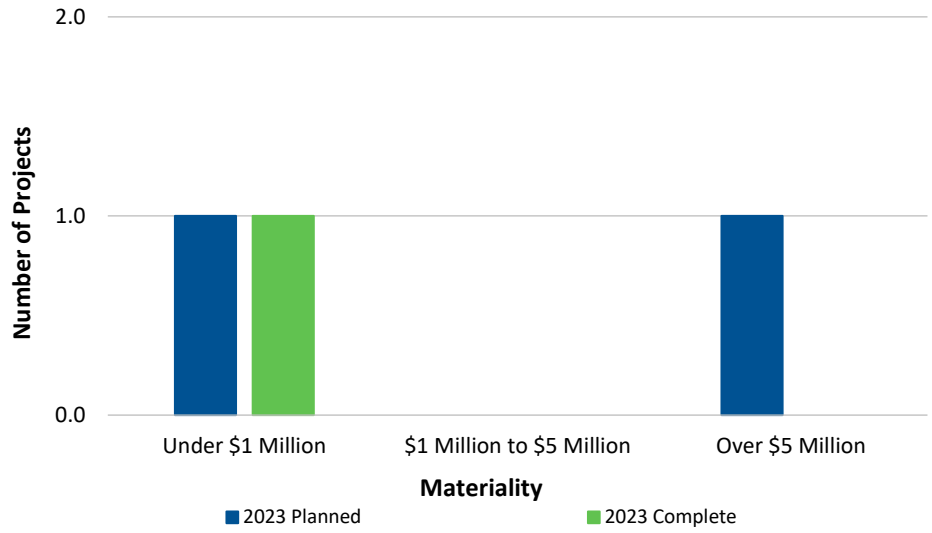

Chart 7: Planned vs. Completed Projects – Access

Service Enhancements

Table 7: Planned vs. Completed Projects – Service Enhancements

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Projects	Completed Projects	Planned Projects	Completed Projects	Planned Projects	Completed Projects
2023	7	5	2	0	1	0

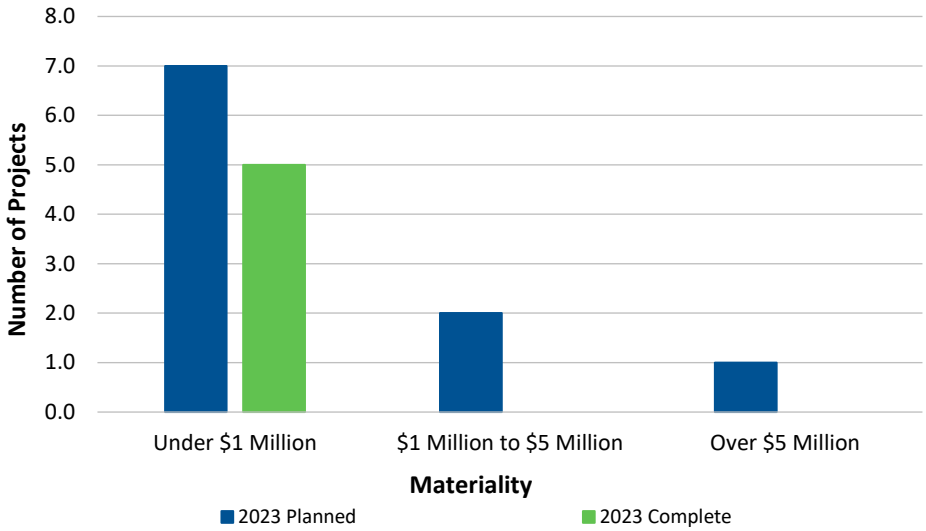

Chart 8: Planned vs. Completed Projects – Service Enhancements

Mandatory

Table 8: Planned vs. Completed Projects – Mandatory[25]

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Projects	Completed Projects	Planned Projects	Completed Projects	Planned Projects	Completed Projects
2023	0	0	0	0	0	0

[25] As there were no projects in the Mandatory Investment Classification for 2023, no corresponding chart has been provided.

4.1.2 Budget versus Actual Expenditures by Year and Materiality Threshold

In this section, Hydro will provide tables and graphical representations, both in aggregate and for each Investment Classification, of the planned budget versus actual expenditure for completed projects by materiality threshold. The actual expenditures for projects in these tables include total expenditures across all years of the projects. Major drivers of project variances are discussed in Section 2.0 and detailed discussion of variances exceeding $100,000 and 10% are provided in Section 5.0.

Table 9: Budget vs. Actual Expenditures – Completed Projects – Aggregate ($000)[26]

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures
2023	9,406	10,470	12,816	17,834	0	0

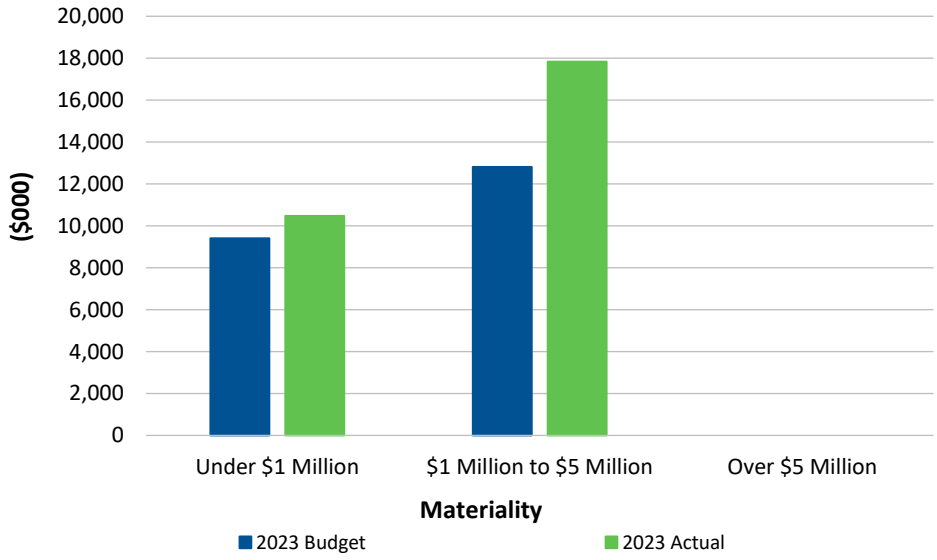

Chart 9: Budget vs. Actual Expenditures – Completed Projects – Aggregate

[26] Numbers may not add due to rounding.

Renewal

Table 10: Budget vs. Actual Expenditures – Completed Projects – Renewal

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures
2023	6,875	7,480	11,680	16,349	0	0

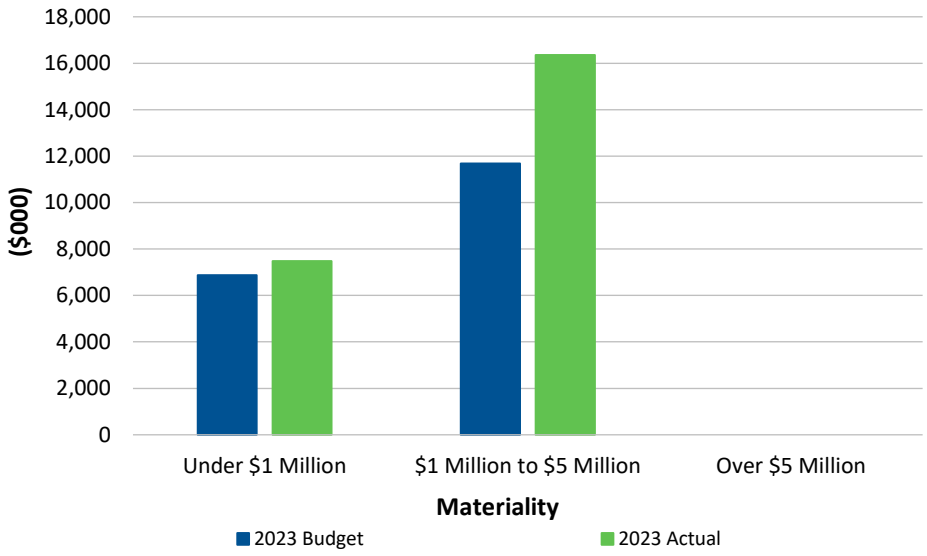

Chart 10: Budget vs. Actual Expenditures – Completed Projects – Renewal

General Plant

Table 11: Budget vs. Actual Expenditures – Completed Projects – General Plant

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures
2023	857	1,166	1,136	1,485	0	0

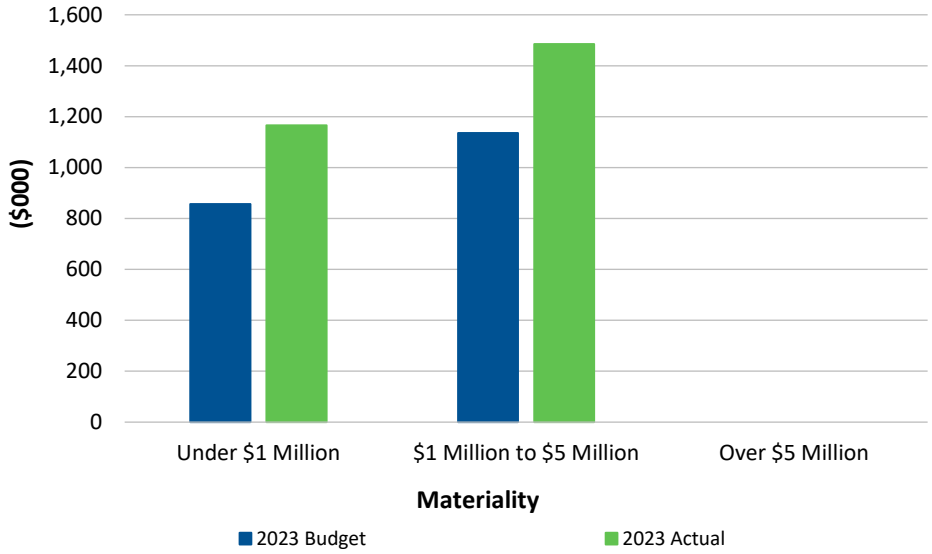

Chart 11: Budget vs. Actual Expenditures – Completed Projects – General Plant

System Growth

Table 12: Budget vs. Actual Expenditures – Completed Projects – System Growth[27]

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures
2023	0	0	0	0	0	0

Access

Table 13: Budget vs. Actual Expenditures – Completed Projects – Access

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures
2023	227	203	0	0	0	0

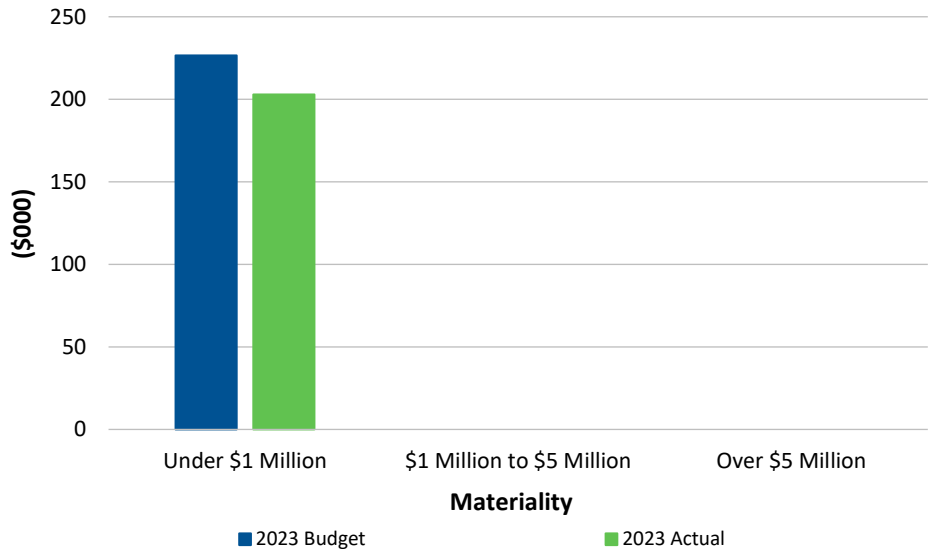

Chart 12: Budgets vs. Actual Expenditures – Completed Projects – Access

[27] As there were no projects completed in 2023 in the System Growth Investment Classification, no corresponding chart has been provided.

Service Enhancements

Table 14: Budget vs. Actual Expenditures – Completed Projects – Service Enhancements

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures
2023	1,448	1,620	0	0	0	0

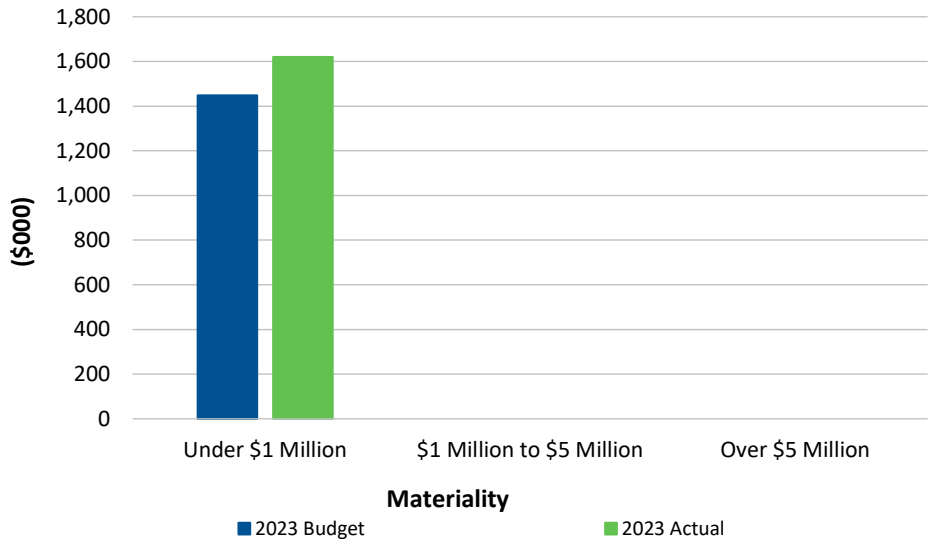

Chart 13: Budget vs. Actual Expenditures – Completed Projects – Service Enhancements

Mandatory

Table 15: Budget vs. Actual Expenditures – Completed Projects – Mandatory[28]

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures	Total Budget	Actual Expenditures
2023	0	0	0	0	0	0

[28] As there were no projects in 2023 in the Mandatory Investment Classification, no corresponding chart has been provided.

4.2 Program Key Performance Indicators

Planned versus completed units and budget versus actual weighted average unit costs for programs beginning in 2023 are presented in Sections 4.2.1 and 4.2.2, respectively.[29] Some programs do not lend themselves to unitization,[30] despite otherwise meeting the definition of a program; therefore they are excluded from the program KPIs herein. These programs are:

- Perform Software Upgrades and Minor Enhancements (2023);
- Upgrade Core OT Infrastructure (2023);
- Update Cyber Security Infrastructure (2023);
- Overhaul Unit 2 Turbine and Valves (2023) – Holyrood;
- Diesel In-Service Failures (2023);
- Gas Turbine In-Service Failures (2023);
- Transmission In-Service Failures (2023);
- Distribution System In-Service Failures, Miscellaneous Upgrades, and Street Lights (2023);
- Boiler Condition Assessment and Miscellaneous Upgrades (2023) – Holyrood;
- Wood Pole Line Management Program (2023);
- Thermal In-Service Failures (2023);
- Hydraulic In-Service Failures (2023);
- Terminal Station In-Service Failures (2023);
- Major Condition Assessment and Miscellaneous Refurbishments Synchronous Condensers 1 and 2 (2023–2024) – Wabush Terminal Station;
- Provide Service Extensions (2023);
- Remove Safety Hazards (2023); and
- Upgrade Worst-Performing Distribution Feeders (2023–2024).

[29] KPI data is not available for programs that were proposed prior to the implementation of the Provisional Guidelines.
[30] Programs that do not lend themselves to unitization include those with undefined scopes, scopes that change materially year to year, or scopes that are not made up of discrete components.

In total, Hydro completed the installation or refurbishment of 503 units, compared to 394 planned units in 2023. The additional units completed are attributed primarily to greater than anticipated replacements for mobile devices and personal computers.

4.2.1 Planned versus Completed Units by Year and Materiality Threshold

In this section, Hydro will provide table and graphical representations, both in aggregate and for each Investment Classification,[31] of the planned number of units versus the actual number of units completed by year and materiality threshold.

Table 16: Planned vs. Completed Program Units – Aggregate

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Units	Completed Units	Planned Units	Completed Units	Planned Units	Completed Units
2023	341	450	53	53	0	0

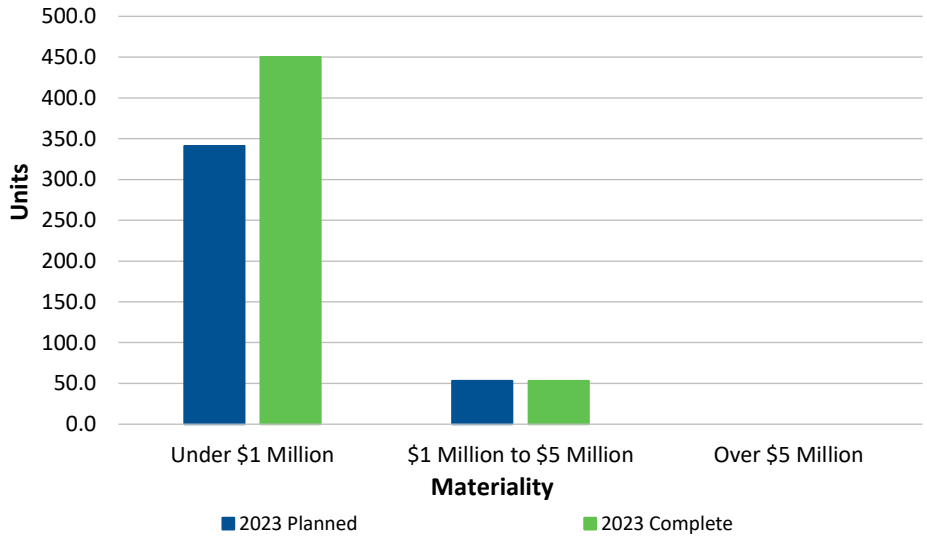

Chart 14: Planned vs. Completed Program Units – Aggregate

[31] As detailed in Section 4.2, some programs do not lend themselves to unitization and have been excluded from the program KPIs herein; as such, no data was available for the System Growth, Access, Service Enhancement, and Mandatory Investment Classifications.

Renewal

Table 17: Planned vs. Completed Program Units – Renewal

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Units	Completed Units	Planned Units	Completed Units	Planned Units	Completed Units
2023	31	34	14	15	0	0

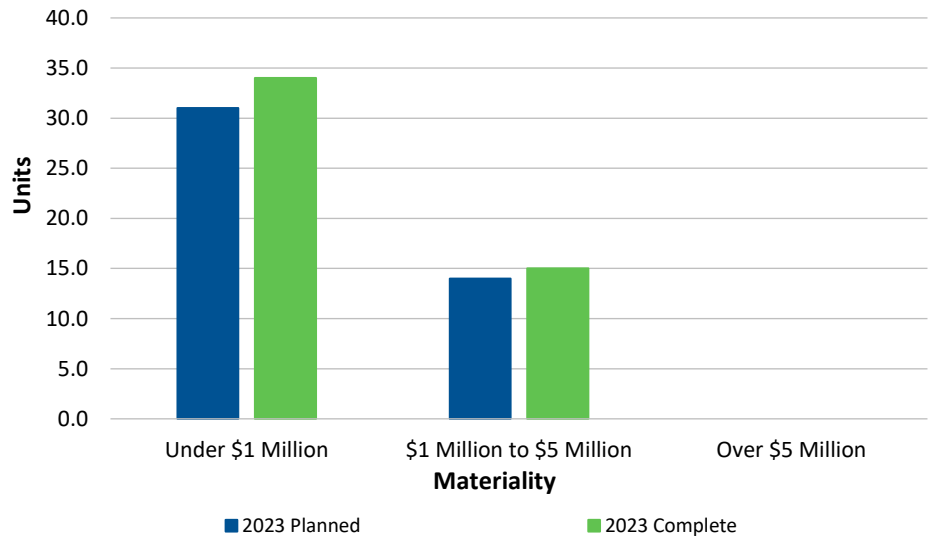

Chart 15: Planned vs. Completed Program Units – Renewal

General Plant

Table 18: Planned vs. Completed Program Units – General Plant

	Under $1 Million		$1 Million to $5 Million		Over $5 Million	
Year	Planned Units	Completed Units	Planned Units	Completed Units	Planned Units	Completed Units
2023	310	416	39	38	0	0

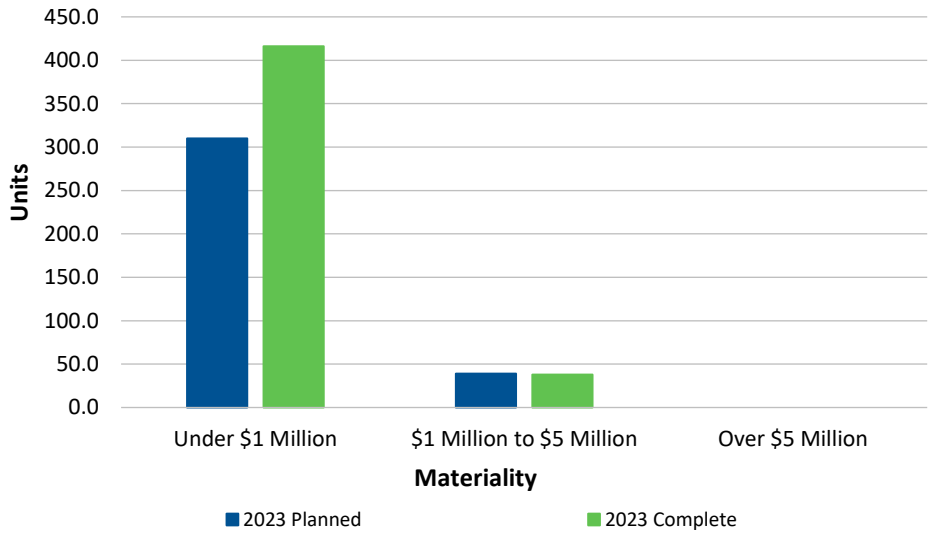

Chart 16: Planned vs. Completed Program Units – General Plant

4.2.2 Estimated versus Actual Weighted Average Unit Cost

In this section, Hydro will provide table and graphical representations, both in aggregate and for each Investment Classification,[32] of the estimated weighted average unit cost versus the actual weighted average unit cost by year. The primary drivers of lower weighted average unit costs were lower than anticipated unit costs for personal computers, peripheral infrastructure, and instrument transformers.

Table 19: Estimated vs. Actual Weighted Average Unit Cost – Aggregate ($000)

Year	Estimated Weighted Average Unit Cost	Actual Weighted Average Unit Cost
2023	24.1	21.0

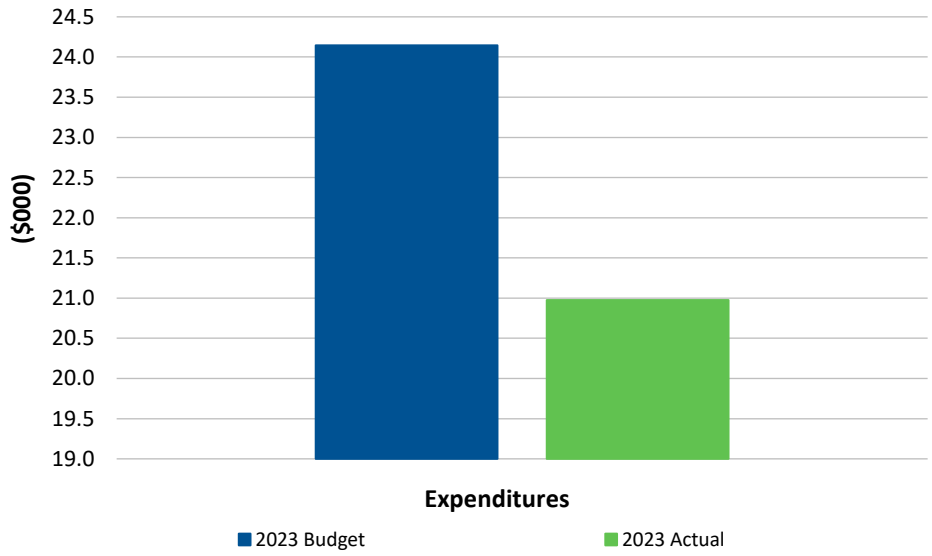

Chart 17: Estimated vs. Actual Weighted Average Unit Cost – Aggregate

[32] As detailed in Section 4.2, some programs do not lend themselves to unitization and have been excluded from the program KPIs herein; as such, no data was available for System Growth, Access, Service Enhancement, and Mandatory Investment Classifications.

Renewal

Table 20: Estimated vs. Actual Weighted Average Unit Cost – Renewal ($000)

Year	Estimated Weighted Average Unit Cost	Actual Weighted Average Unit Cost
2023	123.3	134.5

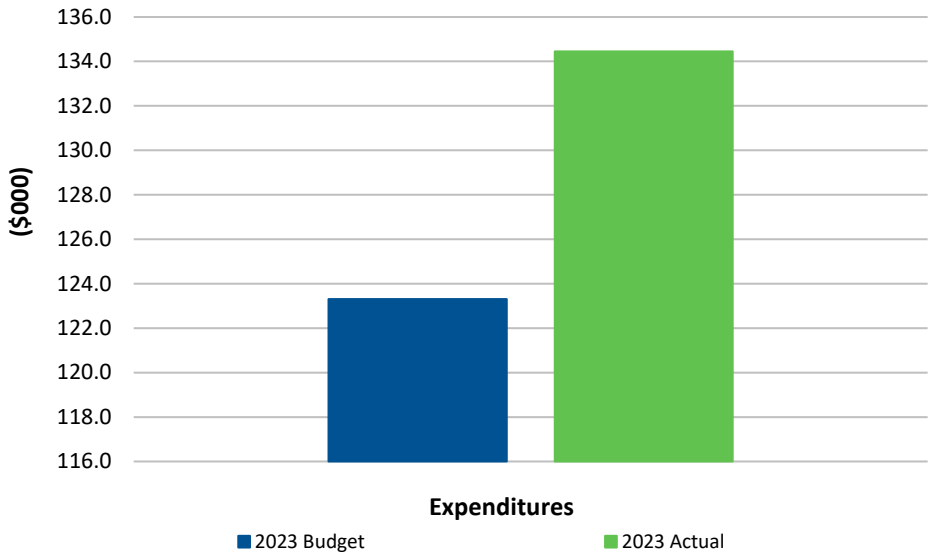

Chart 18: Estimated vs. Actual Weighted Average Unit Cost – Renewal

General Plant

Table 21: Estimated vs. Actual Weighted Average Unit Cost – General Plant ($000)

Year	Estimated Weighted Average Unit Cost	Actual Weighted Average Unit Cost
2023	11.4	8.7

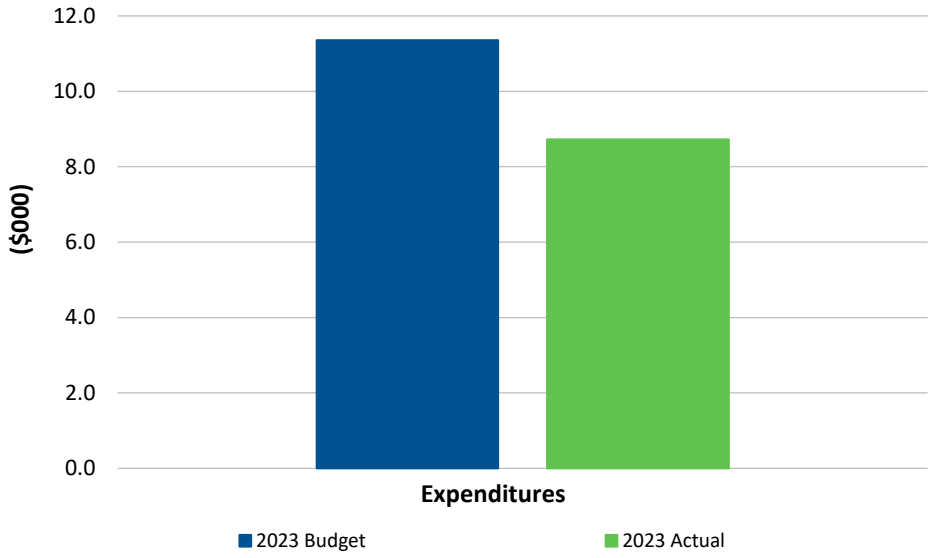

Chart 19: Estimated vs. Actual Weighted Average Unit Cost – General Plant

5.0 Variance Explanations

As per the Provisional Guidelines set forth by the Board, Hydro is required to report on actual capital expenditure variances that exceed the approved total program or project budget by more than 10% and $100,000. Hydro has also included variance explanations for projects or programs continuing beyond 2023 with forecast variances exceeding the threshold, and for 2023 programs or projects where expenditures exceeded the approved 2023 budget by more than 10% and $100,000. For multi-year projects and programs, annual and overall variances are reported.[33] For programs and projects budgeted under $750,000, Hydro has included variance explanations if the actual expenditures

[33] In cases where actual expenditures of only one of the annual and overall project/program budgets meets the reporting thresholds (exceeding the budget by 10% and 100,000), only the applicable variance includes an explanation. Numbers may not add due to rounding.

exceeded $750,000. The programs and projects are ordered in the sections below based on the order they appear in the tables found in Appendix A.

5.1 Renewal

5.1.1 In-Service Failures (2023)[34]

Program	Budget ($000)	Expenditures ($000)	Variance ($000)
Gas Turbine	344.2	3,606.8	3,262.6
Hydraulic	1,500.0	4,081.1	2,581.1
Thermal	3,300.0	2,887.8	(412.2)
Diesel	480.4	727.2	246.8
Terminal Station	1,300.0	2,846.7	1,546.7
Distribution	3,986.0	6,029.1	2,043.1
Transmission	151.7	193.6	41.9
Total	**11,062.3**	**20,372.3**	**9,310.0**

In-Service Failures are one-year programs (2023) that closed in 2023. The scope of these programs includes refurbishment and replacement work due to the occurrence of actual failures, the identification of incipient failures, or the determination of faster-than-anticipated equipment deterioration for Hydro's assets, and included the procurement of capital spares required to support such work.[35] Budget estimates for In-Service Failure programs are based on historical averages, along with Hydro's experience and engineering judgement. As many of these programs are new or have been introduced in recent years and have limited historical data, Hydro expects that it may take several years of implementation to determine an appropriate baseline estimate for annual in-service failure expenditures. The variances in 2023 and expenditures are primarily attributed to more scopes of work required in 2023 than anticipated at the time of the original budget estimates and the nature of failures in 2023 requiring more material expenditure to address. Hydro experienced a number of failures necessitating material investment in 2023; further detail on material expenditures for In-Service Failure programs is provided in Appendix B.

[34] While some individual In-Service Failure programs did not meet the threshold for reportable variance, all 2023 In-Service Failures programs are listed herein for completeness.
[35] The Distribution System In-Service Failures, Miscellaneous Upgrades, and Street Lights program also includes distribution system upgrades and the installation of LED street lights in addition to in-service failures.

5.1.2 Replace Powerhouse Station Service Panel (2023–2024) – Upper Salmon

Variance Type	Budget ($000)	Expenditures and Forecast ($000)	Variance ($000)
Annual	591.8	883.3	291.5
Project	1,568.5	2,111.5	543.0

This is a two-year project (2023–2024) that commenced in 2023. The project scope includes the replacement of the Upper Salmon 600 V station service panel due to obsolescence. The variance in 2023 and overall project expenditures is attributed to contract pricing to procure the replacement station service panel that was higher than the original budget estimate.

5.1.3 Overhaul Pumps (2023) – Holyrood

Variance Type	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	742.4	1,429.9	687.5
Program	742.4	1,429.9	687.5

This was a one-year program (2023) that closed in 2023. The program scope was to overhaul the Unit 2 West Cooling Water Pump and the Unit 2 West Boiler Feed Pump. The variance in 2023 and overall program expenditures is attributed to the extent of the required pump refurbishment work. The original program budget was based on historical pump overhaul expenditures. The extent of the pump overhauls can only be determined after the pumps are removed from service and disassembled for inspection during the program execution. In this case, the extent of refurbishment following the disassembly of the pumps was greater than originally estimated.

5.1.4 Overhaul Unit 2 Turbine and Valves (2023) – Holyrood

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Program	9,701.8	11,368.4	1,666.6

This is a one-year program (2023) that has carried over into 2024. The program scope is to overhaul the Unit 2 turbine and valves and complete electrical testing on the generator. The variance in the overall program forecast is attributed to the extent of the turbine rotor refurbishment work that was required

following unit disassembly and inspection of the rotor at the OEM's facility. The inspection revealed cracks on the low-pressure turbine blades that required the purchase and installation of a new set of blades. The original program budget was based on historical turbine and valve overhaul expenditures. The extent of the turbine and valve overhaul costs can only be determined after the unit is removed from service and disassembled for inspection, during the program execution. In this case, the extent of the required refurbishment was greater than originally estimated. The turbine rotor was overhauled at the OEM facility and returned to the Holyrood TGS in 2023. The remainder of the program scope is expected to be completed in the second quarter of 2024.

5.1.5 Boiler Condition Assessment and Miscellaneous Upgrades (2023) – Holyrood

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	2,926.6	4,336.4	1,409.8
Program	2,926.6	4,336.4	1,409.8

This was a one-year program (2023) that closed in 2023. The program scope was to perform a Level 2 Condition Assessment on the internal components of the boilers and associated high-energy piping and to complete refurbishment and replacement work required prior to the 2023–2024 winter operating season. The variance in 2023 and overall program expenditures is attributed to the extent of the required boiler refurbishment work. Upon disassembly and assessment of the boilers, the level of necessary refurbishment was greater than anticipated at the time of the original budget estimate.[36]

5.1.6 Circuit Breakers Renewal Program (2023–2024)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	216.9	633.8	416.9

[36] A summary of work executed that was not originally anticipated in the program scope is included in Appendix B.

This is a two-year program (2023–2024) that commenced in 2023. The program scope includes circuit breaker replacements and refurbishments at a number of terminal stations. The variance in 2023 expenditures is attributed to:

- An unplanned circuit breaker refurbishment that was required to be completed at the Howley Terminal Station, due to its deteriorated condition; and
- Early procurement of one of the circuit breakers required for Bay d'Espoir, which was originally planned to be received in 2024.

5.1.7 Major Condition Assessment and Miscellaneous Refurbishments Synchronous Condenser 1 and 2 (2023–2024) – Wabush Terminal Station

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	577.2	692.3	115.1

This is a two-year program (2023–2024) that commenced in 2023. The program scope is to complete a level II condition assessment on the internal components of Synchronous Condensers 1 and 2 at the Wabush Terminal Station and to complete refurbishment activities identified from the condition assessments that are deemed necessary to support continued safe and reliable operation. The variance in 2023 expenditures is attributed to additional refurbishment activities that were recommended by the OEM and completed in 2023.[37]

5.1.8 Wood Pole Line Management Program (2023)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	2,824.4	5,085.8	2,261.4
Program	2,824.4	5,085.8	2,261.4

This was a one-year program (2023) that closed in 2023; it is part of the annual program for the inspection, refurbishment, or replacement of wood pole transmission line components, including poles, structures, hardware, and conductors. The variance in 2023 and overall program expenditures is

[37] A summary of work executed that was not originally anticipated in the program scope is included in Appendix B.

primarily attributed to environmental mitigation activities that were required for access to TL234 and TL233 to complete the planned scope of work. The amount and depth of bog and wetlands requiring mitigation were significantly higher than originally anticipated. Also contributing to the variance, more components on TL201 and L1303 required immediate replacement than anticipated at the time of the original budget estimate.

5.1.9 Upper Salmon Hydroelectric Generating Station Rotor Rim Shrinking and Stator Recentering (Supplemental)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	3,276.9	8,423.8	5,146.8
Project	3,999.8	9,146.6	5,146.8

This is a two-year supplemental project (2022–2023) that was completed in 2023. The project scope was to complete a rotor rim shrinking and stator recentering of the Upper Salmon unit generator stator and rotor assemblies. The variance in 2023 and overall project expenditures is attributed to:

- Complexities in completing the engineering and planning work, compounded by performance issues with the Owner's Engineer that Hydro had initially contracted for this project, resulting in more effort required and greater use of external technical resources;[38]
- Greater-than-originally-estimated construction and materials costs to complete the planned generator refurbishment work;
- Greater-than-originally-estimated level of inspection, refurbishment, testing, and recertification of the powerhouse crane and lifting device, required for the lift of the generator rotor;
- Addition of generating unit overhaul activities to the project scope that were originally scheduled for 2024 but advanced to take advantage of the unit disassembly for this project in 2023;[39] and

[38] Further discussion of this issue was provided in Hydro's response to request for information PUB-NLH-026, as part of the "2024 Capital Budget Application," Newfoundland and Labrador Hydro, rev. September 21, 2023. http://pub.nl.ca/applications/NLH2024Capital/responses/PUB-NLH-026.PDF

[39] This allows Hydro to avoid disassembling the unit twice in consecutive years, reducing overall expenditures.

- Additional scopes of work that were identified following disassembly and inspection of the unit, including rotor refurbishment, rotor pole removal and cleaning, stator refurbishment, and generating unit re-alignment.

5.1.10 Holyrood Inspect and Refurbish Day Tank (Supplemental)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	757.4	902.3	144.9
Program	797.2	942.1	144.9

This was a two-year supplemental program (2022–2023) that closed in 2023. The program scope was to clean, inspect, and refurbish the fuel oil day tank at the Holyrood TGS. The variance in 2023 and overall program expenditures is attributed to additional inspections that were completed on the day tank prior to returning the tank to service. The additional inspections were undertaken to further mitigate risk, following lessons learned from a leak that occurred in 2023 on a different fuel oil storage tank.

5.1.11 Holyrood Fuel Tank 1 Inspection and Refurbishment (Supplemental)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	1,021.5	2,628.6	1,607.1
Program	2,052.1	3,850.0	1,797.9

This is a two-year supplemental program (2022–2023) that has carried over into 2024. The program scope is to clean, inspect, and refurbish a fuel oil storage, Tank 1, at the Holyrood TGS. The variance in 2023 and the overall program forecast is attributed to more cleaning, inspection, and refurbishment work required than was anticipated at the time of the original budget estimate. A leak was identified in Tank 1 during the initial filling following the planned cleaning, inspection, and refurbishment work. This required the removal of fuel from the tank and additional cleaning, inspection, and refurbishment work. Soil remediation was also required as a result of the leak. Additional tank inspections have been completed and refurbishment work is expected to be completed in the second quarter of 2024.

5.1.12 Refurbish Ebbegunbaeg Control Structure

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	3,447.2	3,923.6	476.4

This is a four-year project (2021–2024) that commenced in 2021. The project scope is to refurbish the three water control gates and associated equipment at the Ebbegunbaeg Control Structure. The variance in 2023 expenditures is attributed to higher-than-originally-estimated contractor pricing for construction work completed in 2023 for one of the three gates and associated equipment.

5.1.13 Upgrade Distributed Control System Hardware – Holyrood

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	205.2	340.2	135.0
Project	728.6	863.6	135.0

This was a two-year project (2021–2022) that carried over and was completed in 2023. The project scope was to replace the distributed control system hardware, including processors, servers, computer stations, and network communications equipment for the Unit 3 Synchronous Condenser, Station Service, and the Wastewater Treatment Plant systems at the Holyrood TGS. The variance in 2023 and overall project expenditures is attributed to the additional engineering and construction effort required to replace the network communications equipment for the upgrades of the Unit 3 Synchronous Condenser and Station Service systems. The original estimate assumed that the network communications equipment could be replaced *in situ* but an alternative centralized location was required to ensure accessibility of the equipment for future maintenance.

5.1.14 Diesel Genset Replacements (2021–2022)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	131.7	382.2	250.5

This is a two-year program (2021–2022) that has carried over into 2024. The program scope is to replace a diesel genset and upgrade associated mechanical, electrical, and protection and control equipment at the Nain Diesel Generating Station. The program is substantially complete with most planned assets in service. A portion of the plant automation work carried over to 2024 due to internal protection and control resources in 2022 and 2023 being dedicated to higher-priority work. The variance in 2023 expenditures is attributed to the costs associated with carrying the program an additional year and delays associated with resource constraints and program team turnover.

5.1.15 Upgrade Circuit Breakers (2021–2023) – Various[40]

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	280.7	777.0	496.3

This was a three-year program (2021–2023) that closed in 2023. The program scope included circuit breaker replacements and refurbishments at a number of terminal stations. The variance in 2023 expenditures is attributed to an engineering and construction effort that was greater than anticipated to complete the remaining program scope. Although 2023 expenditures were greater than the 2023 budget, the overall program was completed for less than the approved budget.

5.1.16 Replace Elevator Motors and Control Equipment – Hydro Place

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Project	736.7	964.6	227.9

[40] This program was originally proposed as a two-year program (2021–2022) as part of the "2021 Capital Budget Application," Newfoundland and Labrador Hydro, rev. November 2, 2020 (originally filed August 2, 2020), vol. II, Tab 10. http://pub.nl.ca/applications/NLH2021Capital/applications/From%20NLH%20-%202021%20Capital%20Budget%20Application%20-%20Volume%20II%20-%20Revision%202%20-%202020-11-02.PDF The schedule was then updated as a three-year program (2021–2023) as part of the "2022 Capital Budget Application," Newfoundland and Labrador Hydro, rev. September 17, 2021, vol. II, Tab 18. http://pub.nl.ca/applications/NLH2022Capital/applications/From%20NLH%20-%202022%20Capital%20Budget%20Application%20-%20Volume%20II%20-%20Revision%201%20-%202021-09-17.PDF The three-year program was approved as per *Public Utilities Act*, RSNL 1990, c P-47, Board Order No. P.U. 37(2021), Board of Commissioners of Public Utilities, December 20, 2021.

This was a two-year project (2021–2022) that carried over and was completed in 2023. The project scope was to replace motors and control equipment for the two elevators at Hydro Place. The variance in overall project expenditures is attributed to additional required upgrades to the elevator equipment, necessitated by updated building code requirements.

5.1.17 Hydraulic Unit Overhauls Program (2023)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	975.7	1,289.4	313.7
Program	975.7	1,289.4	313.7

This is a one-year program (2023) that closed in 2023. The scope of this program was to partially dismantle Bay d'Espoir Unit 3 and Unit 1 at the Cat Arm Hydroelectric Generating Station ("Cat Arm") to inspect, test, clean, refurbish, and replace defective components of the generating units, as required based on information from the maintenance records for the units. The variance in 2023 and overall program expenditures is attributed to:

- Higher–than-budgeted internal labour costs to complete the overhaul activities on Unit 3 at the Bay d'Espoir Hydroelectric Generating Facility; and,
- A requirement to replace the Cat Arm Unit 1 draft tube access platform, which was not identified at the time of the original budget estimate.

5.1.18 Replace Transformer T7 – Holyrood

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	2,244.0	3,016.5	772.5
Project	2,678.1	4,450.7	1,772.6

This is a one-year project (2020) that has extended into 2024. The project scope is to replace a transformer at the Holyrood TGS, T7, with a transformer to be removed from the Churchill Falls Switchyard, T31, and complete associated civil and protection and control upgrades. The removal of the

old T7 and its foundation and the installation of a new concrete pad and oil containment system were completed in 2020.

As a result of Hydro's decision to maintain L1301 as a backup for the Muskrat Falls to Happy Valley Interconnection for the winter of 2020–2021, T31 was not available in 2020 to replace T7, as planned by Hydro and approved by the Board. In 2020, Hydro performed an analysis of the resulting risk and confirmed that there would be low risk to customers as a result of this deferral. Hydro advised Newfoundland Power Inc. ("Newfoundland Power") of this decision. In 2021, as a consequence of the further deferral of the Muskrat Falls to Happy Valley Interconnection, T31 again was not available to replace T7. As Hydro intended to continue to maintain L1301 as a backup supply for the 2021–2022 winter season, T31 remained in Churchill Falls. In 2022, the transport of the transformer from Churchill Falls to Holyrood could not proceed due to logistical issues related to the size of the transformer and its transportation route. After investigating several other options for transporting the transformer in the fall of 2022, it was decided to delay to a more favourable time of year in 2023 and allow further investigation of more economical options. The transportation route was finalized and transport of T31 to Holyrood was completed in 2023.

Hydro suffered a tragic incident at the Holyrood Terminal Station in August 2023, resulting in a workplace fatality; as a result, some remaining construction and commissioning activities at the Holyrood TGS have carried over into 2024.

The variances in 2023 and overall project expenditures are attributed to higher-than-originally estimated transformer transportation costs.

5.2 General Plant

5.2.1 Replace Light- and Heavy-Duty Vehicles (2023-2025)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	1,308.1	2,573.2	1,265.1

This is a three-year program (2023–2025) that commenced in 2023. The program scope is to procure 39 light-duty vehicles and 6 heavy-duty vehicles. The variance in 2023 annual expenditures is attributed to the unexpected early receipt of light-duty vehicles, which were originally expected in 2024.

5.2.2 Replace Underground Firewater Distribution System – Holyrood

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Project	1,706.3	3,066.8	1,360.5

This is a two-year project (2022–2023) that has carried over into 2024. The project scope is to replace the underground firewater distribution system that protects the buildings and terminal station at the Holyrood TGS. The variance in the overall project forecast is attributed to higher-than-originally-estimated contract pricing to replace the system. As there are no viable alternatives for this project, Hydro is proceeding with execution. The project carried over into 2024, as the design took longer than originally anticipated.

5.2.3 Replace Transfer Switches and Associated Hardware – Hydro Place

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	1,099.0	1,298.5	199.5
Project	1,135.9	1,485.3	349.5

This was a two-year project (2021–2022) that carried over and was completed in 2023. The project scope was to replace automatic transfer switches and associated hardware required for the provision of backup power to the Energy Control Centre and other critical loads within Hydro Place. The variances in 2023 and overall project expenditures are attributed to project management, engineering, procurement, and construction costs that exceeded the original budget estimate, primarily due to unforeseen complexities of the project scope and schedule. Specifically, the following contributed to additional expenditures:

- An arc-flash energy review of the detailed design identified a requirement to upgrade four circuit breakers, that was not anticipated at the time of the original budget estimate;
- Construction and commissioning were scheduled over several weekend and evening outages, to minimize disruption and risk to critical information and operational technology systems; and
- A price escalation of industrial goods due to global supply chain challenges since the preparation of the original budget estimate.

5.2.4 Replace Light- and Heavy-Duty Vehicles (2020-2021) – Various

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Program	3,208.9	4,055.1	846.2

This was a two-year program (2020–2021) that carried over and closed in 2023. The program scope was to procure 29 light-duty vehicles and 10 heavy-duty vehicles. The variance in overall program expenditures is attributed to cost escalations from vehicle manufacturers due to global supply chain impacts.

5.3 System Growth

5.3.1 Wabush Terminal Station Upgrades

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	6,232.9	7,992.3	1,759.4

This is a four-year project (2021–2024)[41] that commenced in 2021. The project scope includes the replacement of Transformers T4 and T5 and the addition of a new capacitor bank to support Hydro's ability to provide firm supply for customers in accordance with the criteria established for the transmission system in Western Labrador. The variance in 2023 expenditures is attributed to the civil and electrical construction contract and the T5 replacement construction contract costs exceeding the original budget estimate.

5.4 Access

5.4.1 Provide Service Extensions (2023)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	3,964.0	4,573.7	609.7
Program	3,964.0	4,573.7	609.7

[41] This project was originally proposed as a three-year project (2021–2023) as part of the 2021 Capital Budget Application. The project schedule was then updated and approved as a four-year project (2021–2024) as part of the 2022 Capital Budget Application.

This is an annual project to provide service extensions to customers. The budget is based on historical data from each region. The variance in 2023 was primarily the result of higher market pricing for materials, per service extension completed.

5.5 Service Enhancement

5.5.1 Upgrade Public Safety Around Dams and Waterways (2023)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	482.1	795.5	313.4
Program	482.1	795.5	313.4

This was a one-year program (2023) that closed in 2023. The variance in the 2023 and overall program expenditures is attributed to increased contractor costs associated with installing safety boom anchors at the Granite Canal Hydroelectric Generating Station ("Granite Canal"). The original budget estimate assumed that boom anchors could be installed in bedrock. During the detailed engineering design, it was determined that there was inadequate bedrock and that concrete block anchors were required. The increased cost was primarily associated with the placement of the concrete anchors, which included the cost of a crane rental and road upgrades that were necessary for the crane to gain site access.

5.5.2 Upgrade of Worst-Performing Distribution Feeders (2023–2024)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	73.4	671.7	598.3

This is a two-year program (2023–2024) that commenced in 2023. The program scope is to upgrade a distribution feeder and relocate a section of distribution line in the Farewell Head Distribution System. The variance in 2023 expenditures is attributed to a change in the program execution strategy. Installation of the poles and anchors was advanced from 2024 to 2023 and was completed by a contractor. By executing this work in 2023, Hydro has more schedule flexibility to complete the remaining scope in 2024 with internal forces.

5.5.3 Upgrade of Worst-Performing Distribution Feeders (2022–2023)

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	1,911.1	2,190.7	279.6
Program	2,772.9	3,052.5	279.6

This was a two-year program (2022–2023) that closed in 2023. The program scope was to upgrade distribution feeders and widen right-of-ways located in the Bottom Waters Distribution System. The variance in 2023 and overall program expenditures is attributed to more poles and crossarms requiring replacement than anticipated at the time of the original budget estimate.

5.5.4 Winterize Unit 2102 and Install Mobile – Charlottetown (Supplemental)[42]

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Annual	1,109.1	1,390.0	280.9
Project	1,314.7	1,639.7	325.0

This is a supplemental project that commenced in 2022 and has carried over to 2024. The project scope is to perform upgrades to improve reliability of service for the communities of Charlottetown and Pinsent's Arm in Labrador. The variances in 2023 and the overall project forecast are attributed to:

- More extensive refurbishment is required than originally anticipated for the mobile genset purchased from the Lower Churchill Project (Unit 2108);
- A requirement to purchase and install a new silencer for Unit 2108, to ensure that the unit operates properly with the required exhaust stack height, was not anticipated at the time of the budget estimate;
- Unanticipated environmental assessment costs, which included multiple iterations of emissions modelling to meet environmental permitting requirements;

[42] "Application for Approval of Capital Expenditures Necessary to Address Supply in Charlottetown and Pinsent's Arm, Labrador," Newfoundland and Labrador Hydro, October 7, 2022. http://pub.nl.ca/applications/NLH2022Capital/NLH2022Capital_SUPP_SupplyCharlottetown/app/From%20NLH%20-%20Approval%20of%20Capital%20Expenditures%20Necessary%20to%20Address%20Supply%20in%20Charlottetown%20and%20Pinsent%E2%80%99s%20Arm,%20Labrador%20-%202022-10-07.PDF

- Additional engineering and project management costs are required to source a suitable new transformer for Unit 2108; and
- Inefficiencies related to multiple unit failures on site and requirements to change project plans to accommodate repairs and response work.

The project construction was completed in 2023 with the exception of the replacement of the transformer for Unit 2108. Delivery of the new transformer was delayed and its installation is now planned for 2024. The change will not impact reliability of service, as a rental transformer installed on site will remain until the new transformer is installed and placed in service.

5.5.5 Upgrades for Future Retirement of Stephenville Gas Turbine

Variance Type	Budget ($000)	Actual Expenditures ($000)	Variance ($000)
Project	6,874.9	7,661.4	786.5

This is a two-year project (2021–2022) that commenced in 2021 and has carried over into 2024. The project scope includes a number of upgrades to the Bottom Brook and Stephenville Terminal Stations to minimize the risk of customer outages due to a transformer or transmission line failure, following the decommissioning of Stephenville Gas Turbine. The variance in the overall project forecast is attributed to higher-than-originally budgeted costs for the civil and electrical construction contracts. However, Hydro is expecting to finalize a decision in 2024 to cancel most of the remaining scope of this project, as the planned retirement of Stephenville Gas Turbine has been deferred beyond 2024. If any of the cancelled scope is deemed to be required in future years, it will be included in a future capital budget application.

5.6 Mandatory

There are no reportable variances for projects and programs in the Mandatory Investment Classification.

5.7 Allowance for Unforeseen

Hydro did not identify any work in 2023 that necessitated the use of the Allowance for Unforeseen Items Account.

6.0 Lease/Purchase Approval Approach

Hydro did not execute any capital leases in 2023.

7.0 Carryover Report

In 2023, Hydro carried over $21.9 million of budget to future years; this includes a carryover of $13.5 million associated with the deferred completion of scopes planned for completion in 2023 to a future year and $8.4 million associated with reallocation of cost-flow within the years of approved projects and programs. Chart 20 shows Hydro's capital carryover for the years 2014–2023. For comparison, the average carryover amount for the previous nine years 2014–2022 was $28.2 million.

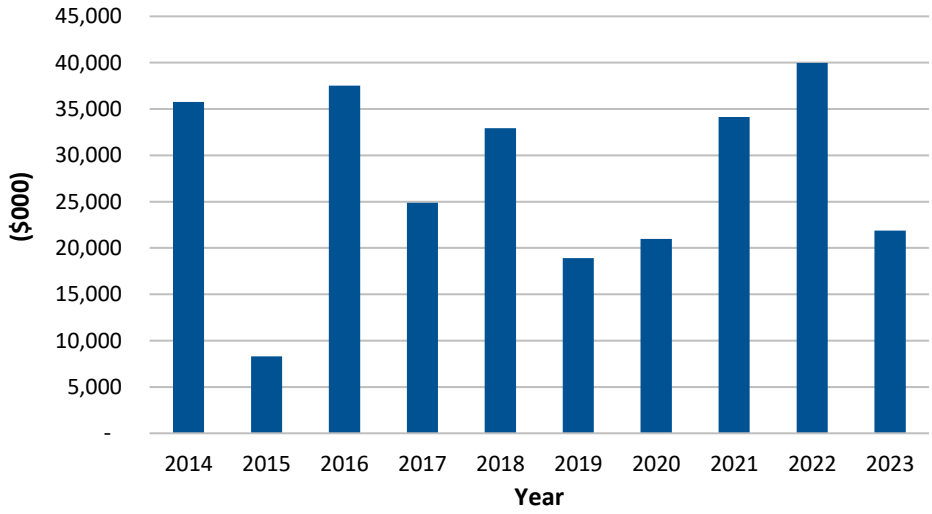

Chart 20: Carryover by Year (2014–2023)

Hydro's 2023 carryover was primarily driven by deferral of project scopes and re-pacing of programs, which were primarily driven by supply chain challenges and strategic carryover of work to future years, as detailed in Section 2.0.

8.0 Conclusion

Hydro's 2023 capital expenditures totalled $148.9 million. Actual expenditures in Hydro's overall capital campaign for 2023 were over budget by 1.7%, or $2.5 million. Projects and programs that exceeded their individual 2023 approved budgets were largely offset by projects and programs that underspent

their individual 2023 approved budgets. The primary driver of over-expenditure in 2023 was replacement or refurbishment associated with a greater-than-anticipated asset failure.

Hydro proposes projects and programs required to maintain safe, reliable, least-cost service to its customers, in an environmentally responsible manner. Hydro strives to execute all approved scopes of work when they are required and inevitably experiences some carryover of work each year. Hydro utilizes established project management practices and procedures to monitor, control, and manage this carryover. These practices and procedures incorporate continual improvement methodologies to ensure that lessons learned are captured and leveraged.

In 2023, Hydro carried over $21.9 million of budget to future years, 22% lower than the previous nine-year carryover average of $28.2 million. As detailed in this report, Hydro completed an analysis of 2023 capital expenditures and concluded that the carryover of work to future years was the primary driver of 2023 under-expenditure. Two main themes related to carryover were identified:

1) Strategic deferral of work; and

2) Supply chain challenges resulting in delays in receiving equipment.

As part of its annual work planning cycle, in the early part of the calendar year, Hydro determines the risk associated with a one-year delay in completing each capital program and project work scope. This allows Hydro to minimize the risk of carryover if constraints prevent Hydro from executing all planned work. Hydro utilizes an established project change management process to identify the impacts of carryover and to develop temporary mitigation plans to reduce the impact where possible until the work can be completed. As such, none of the projects or programs carried over into 2024 represent a significant risk to the supply of electricity to customers. Hydro continues to review its capital budget planning and execution methodologies and use its expenditures analysis to identify opportunities that may contribute to reduced capital expenditure variances in future years.

Appendix A

Financial Schedules

2023 Capital Expenditures By Year
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Year	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
2023	-	-	-	(0.00)	51,941.82	51,941.82	96,958.42	**148,900.24**	(0.00)	0.00	(0.00)	57,770.44	96,958.42	2,138.38	2,034.60	**158,901.84**	10,001.60	6.72%	5,828.62	11.22%
2022	-	-	17,805.11	2,403.15	47,842.24	50,245.39	3,631.00	**69,278.35**	(0.00)	0.00	12,788.77	52,367.80	3,631.00	4,127.31	6,915.38	**79,830.26**	10,551.90	15.23%	2,122.41	4.22%
2021	-	31,462.31	40,966.60	21,908.84	6,041.60	27,950.44	14,796.20	**93,266.71**	-	15,691.73	31,260.21	24,871.03	14,796.20	4,152.38	(599.54)	**90,172.01**	(3,094.71)	-3.32%	(3,079.40)	-11.02%
2020	5,064.18	9,406.15	14,709.10	15,678.79	586.36	16,265.15	-	**29,765.78**	885.50	2,475.75	12,288.37	13,866.88	-	3,110.79	-	**32,627.28**	2,861.50	9.61%	(2,398.27)	-14.74%
Total	**5,064.18**	**40,868.46**	**73,480.81**	**39,990.78**	**106,412.02**	**146,402.80**	**115,385.62**	**341,211.09**	**885.50**	**18,167.48**	**56,337.34**	**148,876.15**	**115,385.62**	**13,528.86**	**8,350.43**	**361,531.38**	**20,320.29**		**2,473.35**	

2023 Capital Expenditures By Asset Category
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Asset Category	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
Hydraulic Plant	-	9,806.36	12,173.90	1,405.86	17,533.50	18,939.36	60,945.40	**100,459.16**	-	5,836.64	14,256.45	26,307.47	60,945.40	300.93	1,132.50	**108,779.40**	8,320.24	8.28%	7,368.11	38.90%
Thermal Plant	-	360.40	2,271.56	357.11	27,685.64	28,042.75	2,812.20	**33,129.80**	-	171.64	2,090.39	29,225.74	2,812.20	4,285.12	1,567.26	**40,152.34**	7,022.54	21.20%	1,182.98	4.22%
Gas Turbines	546.14	2,500.00	2,613.00	3,129.24	706.20	3,835.44	262.10	**6,627.44**	35.03	39.28	2,455.58	4,115.66	262.10	2,890.29	99.94	**9,897.89**	3,270.44	49.35%	280.22	7.31%
Terminal Stations	2,678.14	16,609.12	33,017.70	18,482.39	21,146.00	39,628.39	31,648.40	**105,099.36**	660.58	7,997.62	20,298.33	37,973.92	31,648.40	2,954.07	240.04	**101,772.96**	(3,326.39)	-3.16%	(1,654.47)	-4.17%
Transmission	-	3,479.25	12,281.70	8,756.04	3,610.16	12,366.20	-	**19,371.11**	-	826.07	6,178.94	14,384.21	-	272.23	-	**21,661.46**	2,290.35	11.82%	2,018.01	16.32%
Distribution	-	-	1,511.40	412.68	11,099.80	11,512.48	1,372.60	**13,983.80**	(0.00)	0.00	998.72	13,822.53	1,372.60	1,210.71	(598.28)	**16,806.28**	2,822.48	20.18%	2,310.05	20.07%
Generation	125.35	4,064.11	4,879.02	3,666.34	10,199.02	13,865.37	3,669.70	**22,937.20**	121.63	1,658.59	3,125.43	8,766.58	3,669.70	1,548.26	3,951.59	**22,841.78**	(95.42)	-0.42%	(5,098.78)	-36.77%
Properties	-	-	-	-	565.10	565.10	5,159.35	**5,724.45**	-	-	-	578.08	5,159.35	-	(12.98)	**5,724.45**	-	0.00%	12.98	2.30%
Metering	-	-	515.60	(1,748.84)	4,592.20	2,843.36	994.60	**6,102.40**	-	-	2,264.44	2,196.31	994.60	-	623.41	**6,078.76**	(23.64)	-0.39%	(647.05)	-22.76%
Tools and Equipment	-	-	735.80	85.50	3,514.60	3,600.10	293.90	**4,544.30**	-	-	650.30	1,761.45	293.90	-	1,752.32	**4,457.98**	(86.32)	-1.90%	(1,838.65)	-51.07%
Information Systems	-	-	369.00	104.92	1,264.00	1,368.92	-	**1,633.00**	-	-	264.08	1,432.21	-	42.78	-	**1,739.07**	106.07	6.50%	63.29	4.62%
Telecontrol	-	-	221.22	145.95	1,258.20	1,404.15	852.40	**2,331.82**	-	-	75.27	1,500.52	852.40	24.47	49.52	**2,502.18**	170.36	7.31%	96.37	6.86%
Transportation	1,625.40	3,204.25	1,952.41	4,050.11	1,963.80	6,013.91	7,374.97	**16,120.83**	4.01	934.24	3,343.91	5,201.89	7,374.97	-	(454.90)	**16,404.12**	283.29	1.76%	(812.03)	-13.50%
Administration	89.14	844.97	938.50	1,143.47	273.80	1,417.27	-	**2,146.42**	64.24	703.40	335.50	1,609.57	-	-	-	**2,712.72**	566.30	26.38%	192.30	13.57%
Allowance for Unforeseen Items	-	-	-	-	1,000.00	1,000.00	-	**1,000.00**	-	-	-	-	-	-	-	-	(1,000.00)	-100.00%	(1,000.00)	-100.00%
Total	**5,064.18**	**40,868.46**	**73,480.81**	**39,990.78**	**106,412.02**	**146,402.80**	**115,385.62**	**341,211.09**	**885.50**	**18,167.48**	**56,337.34**	**148,876.15**	**115,385.62**	**13,528.86**	**8,350.43**	**361,531.38**	**20,320.29**		**2,473.35**	

2023 Capital Expenditures By Investment Classification
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Investment Classification	**2020**	**2021**	**2022**	**Carryover to 2023**	**Original 2023**	**Revised 2023**	**2024 and Beyond**	**Total**	**2020**	**2021**	**2022**	**2023**	**2024 and Beyond**	**Project Carryover**	**Multi-Year Cash Flow Reallocation**	**Total**	**Project**		**Annual**	
Access	-	3,479.25	12,281.70	8,756.04	4,776.96	13,533.00	-	**20,537.91**	(0.00)	826.07	6,178.94	13,846.83	-	272.23	-	**21,124.07**	586.16	2.85%	313.83	2.32%
General Plant	1,625.40	3,401.63	4,317.01	5,472.27	10,334.30	15,806.57	14,427.12	**34,105.46**	4.01	1,041.90	4,526.06	13,183.33	14,427.12	1,976.38	1,395.56	**36,554.37**	2,448.92	7.18%	(2,623.24)	-16.60%
Mandatory	-	-	-	-	323.30	323.30	594.10	**917.40**	-	-	-	388.68	594.10	-	(65.38)	**917.40**	-	0.00%	65.38	20.22%
Renewal	3,438.78	28,868.67	36,643.98	9,889.18	77,969.94	87,859.12	77,644.50	**224,565.87**	881.48	15,023.93	36,661.81	96,149.93	77,644.50	7,877.71	6,513.66	**240,753.03**	16,187.16	7.21%	8,290.81	9.44%
Service Enhancement	-	1,630.50	8,741.82	5,036.48	9,743.32	14,779.80	10,221.40	**30,337.04**	-	180.97	4,704.99	12,839.94	10,221.40	3,353.13	101.91	**31,402.34**	1,065.30	3.51%	(1,939.86)	-13.13%
System Growth	-	3,488.42	11,496.30	10,836.81	2,264.20	13,101.01	12,498.50	**29,747.42**	-	1,094.61	4,265.54	12,467.43	12,498.50	49.41	404.68	**30,780.17**	1,032.75	3.47%	(633.57)	-4.84%
Allowance for Unforeseen	-	-	-	(0.00)	1,000.00	1,000.00	-	**1,000.00**	-	-	-	-	-	-	-	-	(1,000.00)	-100.00%	(1,000.00)	-100.00%
Total	**5,064.18**	**40,868.46**	**73,480.81**	**39,990.78**	**106,412.02**	**146,402.80**	**115,385.62**	**341,211.09**	**885.50**	**18,167.48**	**56,337.34**	**148,876.15**	**115,385.62**	**13,528.86**	**8,350.43**	**361,531.38**	**20,320.29**		**2,473.35**	

2023 Capital Expenditures By Investment Classification
Renewal
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Project	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
Replace Remote Terminal Units (2023)	-	-	-	-	179.70	179.70	-	**179.70**	-	-	-	234.43	-	-	-	**234.43**	54.73	30.46%	54.73	30.46%
Replace Power Line Carrier (2023–2024) - TL223 and TL224	-	-	-	-	105.30	105.30	852.40	**957.70**	-	-	-	55.78	852.40	-	49.52	**957.70**	-	0.00%	(49.52)	-47.03%
Replace 48 V Battery Banks and Chargers (2023)	-	-	-	-	439.70	439.70	-	**439.70**	-	-	-	418.96	-	-	-	**418.96**	(20.74)	-4.72%	(20.74)	-4.72%
Replace Human Machine Interface (2023) - Happy Valley Gas Turbine	-	-	-	-	138.60	138.60	-	**138.60**	-	-	-	137.69	-	17.31	-	**155.00**	16.40	11.83%	(0.91)	-0.66%
Replace Oil Mist Separator (2023-2024) - Happy Valley Gas Turbine	-	-	-	-	138.50	138.50	262.10	**400.60**	-	-	-	38.56	262.10	-	99.94	**400.60**	-	0.00%	(99.94)	-72.16%
Gas Turbine In-Service Failures (2023)	-	-	-	-	344.20	344.20	-	**344.20**	-	-	-	3,606.75	-	-	-	**3,606.75**	3,262.55	947.86%	3,262.55	947.86%
Penstock Life Extension - Phase 1 (2023-2025) - Supplemental	-	-	-	-	2,105.00	2,105.00	48,501.70	**50,606.70**	-	-	-	1,132.36	48,501.70	-	972.64	**50,606.70**	-	0.00%	(972.64)	-46.21%
Replace Powerhouse Station Service Panel (2023-2024) - Upper Salmon	-	-	-	-	591.80	591.80	976.70	**1,568.50**	-	-	-	883.28	976.70	-	251.52	**2,111.50**	543.00	34.62%	291.48	49.25%
Replace Emergency Lift (2023) - Salmon River Spillway	-	-	-	-	49.80	49.80	-	**49.80**	-	-	-	90.74	-	-	-	**90.74**	40.94	82.21%	40.94	82.21%
Replace Diesel Genset 1 (2023-2024) - Ebbegunbaeg	-	-	-	-	298.00	298.00	728.30	**1,026.30**	-	-	-	132.55	728.30	-	165.45	**1,026.30**	-	0.00%	(165.45)	-55.52%
Hydraulic In-Service Failures (2023)	-	-	-	-	1,500.00	1,500.00	-	**1,500.00**	-	-	-	4,081.09	-	-	-	**4,081.09**	2,581.09	172.07%	2,581.09	172.07%
Refurbish Superstructure (2023-2024) - Salmon River Spillway	-	-	-	-	328.30	328.30	2,500.00	**2,828.30**	-	-	-	179.00	2,500.00	-	149.30	**2,828.30**	-	0.00%	(149.30)	-45.48%
Unit 7 Condition Assessment (2023) - Bay d'Espoir	-	-	-	-	597.50	597.50	-	**597.50**	-	-	-	379.41	-	-	-	**379.41**	(218.09)	-36.50%	(218.09)	-36.50%
Holyrood Thermal Generating Station Unit 1 and Unit 2 Turbine Last Stage Blades	-	-	-	-	3,596.50	3,596.50	2,812.20	**6,408.70**	-	-	-	2,029.24	2,812.20	-	1,567.26	**6,408.70**	-	0.00%	(1,567.26)	-43.58%
Thermal In-Service Failures (2023)	-	-	-	-	3,300.00	3,300.00	-	**3,300.00**	-	-	-	2,887.83	-	-	-	**2,887.83**	(412.17)	-12.49%	(412.17)	-12.49%
Overhaul Pumps (2023) - Holyrood	-	-	-	-	742.40	742.40	-	**742.40**	-	-	-	1,429.89	-	-	-	**1,429.89**	687.49	92.60%	687.49	92.60%
Overhaul Unit 2 Turbine and Valves (2023) - Holyrood	-	-	-	-	9,701.80	9,701.80	-	**9,701.80**	-	-	-	9,276.35	-	2,092.02	-	**11,368.37**	1,666.57	17.18%	(425.45)	-4.39%
Refurbish Workshop Roof (2023) - Holyrood	-	-	-	-	243.70	243.70	-	**243.70**	-	-	-	237.75	-	-	-	**237.75**	(5.95)	-2.44%	(5.95)	-2.44%
Boiler Condition Assessment and Miscellaneous Upgrades (2023) - Holyrood	-	-	-	-	2,926.60	2,926.60	-	**2,926.60**	-	-	-	4,336.36	-	-	-	**4,336.36**	1,409.76	48.17%	1,409.76	48.17%
Diesel In-Service Failures (2023)	-	-	-	-	480.40	480.40	-	**480.40**	-	-	-	727.18	-	-	-	**727.18**	246.78	51.37%	246.78	51.37%
Overhaul Diesel Units (2023)	-	-	-	-	1,502.00	1,502.00	-	**1,502.00**	-	-	-	1,347.26	-	-	-	**1,347.26**	(154.74)	-10.30%	(154.74)	-10.30%
Replace Intermediate Fuel Storage Tanks (2023-2024) - Nain	-	-	-	-	127.40	127.40	593.70	**721.10**	-	-	-	71.83	593.70	-	55.57	**721.10**	-	0.00%	(55.57)	-43.62%
Terminal Station In-Service Failures (2023)	-	-	-	-	1,300.00	1,300.00	-	**1,300.00**	-	-	-	2,846.69	-	-	-	**2,846.69**	1,546.69	118.98%	1,546.69	118.98%
Circuit Breakers Renewal Program (2023-2024)	-	-	-	-	216.90	216.90	3,595.10	**3,812.00**	-	-	-	633.78	3,595.10	-	(416.88)	**3,812.00**	-	0.00%	416.88	192.20%
Install Breaker Failure Protection (2023-2024) - Sunnyside	-	-	-	-	73.50	73.50	216.20	**289.70**	-	-	-	467.17	216.20	-	(9.96)	**673.40**	383.70	132.45%	393.67	535.60%
Replace Data Alarm System Annunciators (2023) - Buchans	-	-	-	-	61.20	61.20	104.80	**166.00**	-	-	-	77.85	104.80	-	(16.65)	**166.00**	-	0.00%	16.65	27.21%
Replace Circuit Breaker Reclosing Controllers (2023-2024) - Hardwoods	-	-	-	-	81.60	81.60	149.60	**231.20**	-	-	-	43.84	149.60	-	37.76	**231.20**	-	0.00%	(37.76)	-46.27%
Major Condition Assessment and Miscellaneous Refurbishments Synchronous Condenser 1 and 2 (2023-2024) - Wabush Terminal Station	-	-	-	-	577.20	577.20	516.10	**1,093.30**	-	-	-	692.33	516.10	-	(115.13)	**1,093.30**	-	0.00%	115.13	19.95%
Wood Pole Line Management Program (2023)	-	-	-	-	2,824.40	2,824.40	-	**2,824.40**	-	-	-	5,085.84	-	-	-	**5,085.84**	2,261.44	80.07%	2,261.44	80.07%
Transmission In-Service Failures (2023)	-	-	-	-	151.70	151.70	-	**151.70**	-	-	-	193.59	-	-	-	**193.59**	41.89	27.61%	41.89	27.61%
Control System Replacement - Holyrood Gas Turbine	-	-	146.00	75.17	41.00	116.17	-	**187.00**	-	-	70.83	121.48	-	-	-	**192.31**	5.31	2.84%	5.31	4.57%
Upper Salmon Hydroelectric Generating Station Rotor Rim Shrink and Stator Recentering - Supplemental	-	-	959.40	236.53	3,040.40	3,276.93	-	**3,999.80**	-	-	722.87	8,423.77	-	-	-	**9,146.64**	5,146.84	128.68%	5,146.84	157.06%
Purchase Turbine Last Stage Blades - Holyrood	-	-	18.26	(146.28)	1,560.64	1,414.36	-	**1,578.90**	-	-	164.54	1,435.04	-	-	-	**1,599.57**	20.67	1.31%	20.67	1.46%
Holyrood Upgrade Turbine Control System Unit 2	-	-	235.90	85.22	490.10	575.32	-	**726.00**	-	-	150.68	506.61	-	68.71	-	**726.00**	-	0.00%	(68.71)	-11.94%
Holyrood Tank Farm Underground Firewater System Replacement	-	-	83.50	55.63	1,330.50	1,386.13	-	**1,414.00**	-	-	27.87	1,235.04	-	-	-	**1,262.91**	(151.09)	-10.69%	(151.09)	-10.90%
Holyrood Inspect and Refurbish Day Tank	-	-	89.40	49.57	707.80	757.37	-	**797.20**	-	-	39.83	902.32	-	-	-	**942.14**	144.94	18.18%	144.94	19.14%
Holyrood Fuel Tank #1 Fuel Inspection And Refurbishment	-	-	1,195.00	164.37	857.10	1,021.47	-	**2,052.10**	-	-	1,030.63	2,628.58	-	190.79	-	**3,850.00**	1,797.90	87.61%	1,607.11	157.33%
Unit 3 Generator Components Condition Assessment and Miscellaneous Upgrades	-	-	153.00	(69.78)	338.80	269.02	-	**491.80**	-	-	209.95	334.74	-	-	-	**544.70**	52.90	10.76%	65.72	24.43%
Labrador City L22 Voltage Conversion (2022-2023)	-	-	486.80	387.69	1,004.40	1,392.09	-	**1,491.20**	-	-	99.11	181.39	-	1,210.71	-	**1,491.20**	-	0.00%	(1,210.71)	-86.97%
Makkovik Diesel Generating Station Roof Replacement	-	-	176.82	257.60	457.20	714.80	-	**634.02**	-	-	95.68	638.21	-	-	-	**733.89**	99.87	15.75%	(76.59)	-10.71%
Mary's Harbour Diesel Engine Replacement	-	-	-	-	137.70	137.70	-	**137.70**	-	-	-	124.64	-	-	-	**124.64**	(13.06)	-9.48%	(13.06)	-9.48%
Diesel Genset Replacement Unit 2039 - St. Lewis	-	-	397.00	158.30	1,583.80	1,742.10	-	**1,980.80**	-	-	238.70	361.75	-	-	1,365.25	**1,965.70**	(15.10)	-0.76%	(1,380.35)	-79.24%
Diesel Genset Replacement Unit 2012 - L'Anse-Au-Loup	-	-	339.90	169.64	2,513.20	2,682.84	210.20	**3,063.30**	-	-	170.26	214.69	210.20	-	2,468.15	**3,063.30**	-	0.00%	(2,468.15)	-92.00%
Upgrade Circuit Breakers (2022-2023) - Various	-	-	2,121.90	(1,081.18)	7,361.80	6,280.62	-	**9,483.70**	-	-	117.38	5,525.97	-	-	-	**5,643.35**	(3,840.35)	-40.49%	(754.65)	-12.02%
Refurbish Ebbegunbaeg Control Structure	-	3,236.82	3,238.30	(22.86)	3,470.10	3,447.24	7,733.80	**17,679.02**	-	2,196.44	4,301.54	3,923.59	7,733.80	-	(476.25)	**17,679.13**	0.11	0.00%	476.36	13.82%
Upgrade Distributed Control System Hardware - Holyrood	-	360.40	368.20	205.25	-	205.25	-	**728.60**	-	171.64	351.72	340.24	-	-	-	**863.59**	134.99	18.53%	134.99	65.77%
Replace Unit 2047 - Ramea	-	307.71	2,010.80	2,053.42	118.30	2,171.72	-	**2,436.81**	-	49.04	216.05	1,096.33	-	1,075.39	-	**2,436.81**	-	0.00%	(1,075.39)	-49.52%
Diesel Genset Replacements (2021-2022)	-	2,560.60	286.20	131.73	-	131.73	-	**2,846.80**	-	1,503.79	1,036.26	382.20	-	49.53	-	**2,971.77**	124.97	4.39%	250.47	190.15%
Upgrade Circuit Breakers (2021-2022) - Various	-	5,418.76	4,293.60	(539.64)	820.30	280.66	-	**10,532.66**	-	2,597.72	4,818.60	777.00	-	-	-	**8,193.32**	(2,339.34)	-22.21%	496.34	176.85%
Replace Elevator Motors and Controls Equipment - Hydro Place	89.14	647.60	-	44.45	-	44.45	-	**736.74**	64.24	595.74	256.31	48.36	-	-	-	**964.65**	227.91	30.94%	3.91	8.80%
Perform Combustor Inspection - Holyrood Gas Turbine	546.14	2,500.00	2,427.40	3,031.71	-	3,031.71	-	**5,473.54**	35.03	39.28	2,367.51	158.73	-	2,872.98	-	**5,473.53**	(0.01)	0.00%	(2,872.98)	-94.76%
Replace Diesel Plant Roof - L'anse Aux Loup and St. Anthony	125.35	1,195.80	-	130.93	-	130.93	-	**1,321.15**	121.63	105.76	963.02	145.49	-	-	-	**1,335.90**	14.75	1.12%	14.57	11.13%
Diesel Genset Replacement Program (2023-2025)	-	-	-	-	819.10	819.10	2,307.10	**3,126.20**	-	-	-	683.62	2,307.10	-	67.08	**3,057.80**	(68.40)	-2.19%	(135.48)	-16.54%
Hydraulic Unit Overhauls Program (2023)	-	-	-	-	975.70	975.70	-	**975.70**	-	-	-	1,289.41	-	-	-	**1,289.41**	313.71	32.15%	313.71	32.15%
Distribution System In-Service Failures, Miscellaneous Upgrades, and Street Lights (2023)	-	-	-	-	3,986.00	3,986.00	-	**3,986.00**	(0.00)	0.00	(0.00)	6,029.09	-	-	-	**6,029.09**	2,043.09	51.26%	2,043.09	51.26%
Hydraulic Generation R&M	-	6,569.54	7,976.20	1,192.20	3,788.90	4,981.10	-	**18,334.64**	-	3,640.20	9,232.04	4,755.67	-	300.93	-	**17,928.84**	(405.80)	-2.21%	(225.43)	-4.53%
Terminal Station R&M	-	6,071.45	9,640.40	1,075.52	6,109.70	7,185.22	-	**21,821.55**	-	3,874.12	9,422.58	5,679.46	-	33.78	-	**19,009.95**	(2,811.60)	-12.88%	(1,505.76)	-20.96%
Terminal Station Renewal Program (2023-2024)	-	-	-	-	1,733.70	1,733.70	5,584.50	**7,318.20**	-	-	-	1,434.59	5,584.50	-	299.11	**7,318.20**	-	0.00%	(299.11)	-17.25%
Replace Transformer T7 - Holyrood	2,678.14	-	-	2,243.99	-	2,243.99	-	**2,678.14**	660.58	250.21	557.86	3,016.51	-	(34.42)	-	**4,450.73**	1,772.59	66.19%	772.51	34.43%
Total	**3,438.78**	**28,868.67**	**36,643.98**	**9,889.18**	**77,969.94**	**87,859.12**	**77,644.50**	**224,565.87**	**881.48**	**15,023.93**	**36,661.81**	**96,149.93**	**77,644.50**	**7,877.71**	**6,513.66**	**240,753.03**	**16,187.16**		**8,290.81**	

2023 Capital Expenditures By Investment Classification
General Plant
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Project	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
Purchase Office Equipment Less Than $50,000 (2023)	-	-	-	-	75.60	75.60	-	**75.60**	-	-	-	55.69	-	-	-	**55.69**	(19.91)	-26.33%	(19.91)	-26%
Purchase Personal Computers (2023)	-	-	-	-	221.60	221.60	-	**221.60**	-	-	-	239.11	-	-	-	**239.11**	17.51	7.90%	17.51	8%
Replace Peripheral Infrastructure (2023)	-	-	-	-	187.40	187.40	-	**187.40**	-	-	-	114.62	-	42.78	-	**157.40**	(30.00)	-16.01%	(72.78)	-39%
Upgrade Core OT Infrastructure (2023)	-	-	-	-	171.70	171.70	-	**171.70**	-	-	-	255.26	-	-	-	**255.26**	83.56	48.67%	83.56	49%
Update Cyber Security Infrastructure (2023)	-	-	-	-	232.10	232.10	-	**232.10**	-	-	-	230.53	-	-	-	**230.53**	(1.57)	-0.68%	(1.57)	-1%
Perform Software Upgrades and Minor Enhancements (2023)	-	-	-	-	451.20	451.20	-	**451.20**	-	-	-	357.32	-	-	-	**357.32**	(93.88)	-20.81%	(93.88)	-21%
Replace Network Communications Equipment (2023)	-	-	-	-	189.00	189.00	-	**189.00**	-	-	-	238.69	-	-	-	**238.69**	49.69	26.29%	49.69	26%
Upgrade Site Facilities (2023)	-	-	-	-	45.20	45.20	-	**45.20**	-	-	-	47.11	-	-	-	**47.11**	1.91	4.23%	1.91	4%
Purchase Tools and Equipment Less than $50,000 (2023) - Telecontrol	-	-	-	-	40.40	40.40	-	**40.40**	-	-	-	47.40	-	-	-	**47.40**	7.00	17.33%	7.00	17%
Replace Standalone PBX Phone Systems (2023)	-	-	-	-	175.50	175.50	-	**175.50**	-	-	-	208.97	-	-	-	**208.97**	33.47	19.07%	33.47	19%
Purchase Mobile Devices (2023)	-	-	-	-	83.40	83.40	-	**83.40**	-	-	-	116.35	-	-	-	**116.35**	32.95	39.51%	32.95	40%
Replace Light- and Heavy-Duty Vehicles (2023-2025)	-	-	-	-	1,308.10	1,308.10	3,058.07	**4,366.17**	-	-	-	2,573.20	3,058.07	-	(1,065.10)	**4,566.17**	200.00	4.58%	1,265.10	97%
Water System Condition Assessment and Upgrades (2023) - Bay d'Espoir	-	-	-	-	161.00	161.00	504.90	**665.90**	-	-	-	91.16	504.90	-	69.84	**665.90**	-	0.00%	(69.84)	-43%
Refurbish BioGreen Sewage System (2023) - Holyrood	-	-	-	-	256.60	256.60	-	**256.60**	-	-	-	504.94	-	-	-	**504.94**	248.34	96.78%	248.34	97%
Purchase Tools and Equipment Less than $50,000 (2023) - Hydraulic Plants	-	-	-	-	144.90	144.90	-	**144.90**	-	-	-	149.98	-	-	-	**149.98**	5.08	3.51%	5.08	4%
Purchase Tools and Equipment Less than $50,000 (2023) - Thermal Plants	-	-	-	-	55.10	55.10	-	**55.10**	-	-	-	122.78	-	-	-	**122.78**	67.68	122.83%	67.68	123%
Purchase Tools and Equipment Less than $50,000 (2023) - Gas Turbine	-	-	-	-	18.30	18.30	-	**18.30**	-	-	-	16.66	-	-	-	**16.66**	(1.64)	-8.97%	(1.64)	-9%
Replace Building Exterior (2023-2024) - Postville	-	-	-	-	124.60	124.60	558.70	**683.30**	-	-	-	129.05	558.70	-	(4.45)	**683.30**	-	0.00%	4.45	4%
Upgrade Water and Fire Suppression Systems (2023-2024) - Bishop's Falls	-	-	-	-	353.70	353.70	2,886.30	**3,240.00**	-	-	-	316.19	2,886.30	-	37.51	**3,240.00**	-	0.00%	(37.51)	-11%
Replace Diesel Shop Building (2023-2025) - Bishop's Falls	-	-	-	-	168.00	168.00	2,144.25	**2,312.25**	-	-	-	198.65	2,144.25	-	(30.65)	**2,312.25**	-	0.00%	30.65	18%
Replace HVAC System (2023-2024) - Bishop's Falls	-	-	-	-	43.40	43.40	128.80	**172.20**	-	-	-	63.24	128.80	-	(19.84)	**172.20**	-	0.00%	19.84	46%
Install Fire Protection in 230 kV Stations (2023-2024) - Deer Lake	-	-	-	-	79.20	79.20	535.30	**614.50**	-	-	-	33.47	535.30	-	45.73	**614.50**	-	0.00%	(45.73)	-58%
Replace Mobile Equipment (2023-2024)	-	-	-	-	541.20	541.20	187.30	**728.50**	-	-	-	688.51	187.30	-	(147.31)	**728.50**	-	0.00%	147.31	27%
Upgrade Energy Management System (2022) - Hydro Place	-	-	292.60	42.97	-	42.97	-	**292.60**	-	-	249.63	199.69	-	-	-	**449.33**	156.73	53.56%	156.73	365%
Hydro Command Centre Upgrade (2022) - Hydro Place	-	-	76.40	61.95	-	61.95	-	**76.40**	-	-	14.45	35.67	-	-	-	**50.12**	(26.28)	-34.39%	(26.28)	-42%
Replace Network Communications Equipment (2022)	-	-	193.00	119.60	-	119.60	-	**193.00**	-	-	73.40	130.94	-	-	-	**204.34**	11.34	5.88%	11.34	9%
Replace Tracks - V7271 - Supplemental	-	-	48.31	48.31	-	48.31	-	**48.31**	-	-	-	45.00	-	-	-	**45.00**	(3.31)	-6.85%	(3.31)	-7%
Replace Light- and Heavy-Duty Vehicles (2022-2024)	-	-	569.00	443.44	593.20	1,036.64	2,319.60	**3,481.80**	-	-	125.56	477.70	2,319.60	-	558.93	**3,481.80**	-	0.00%	(558.93)	-54%
Replace Underground Fire Water Distribution System - Holyrood	-	-	128.30	13.13	1,578.00	1,591.13	-	**1,706.30**	-	-	115.17	1,018.02	-	1,933.60	-	**3,066.80**	1,360.50	79.73%	(573.11)	-36%
Purchase 46' Material Handler Aerial Device on Track Unit	-	-	20.40	7.21	698.80	706.01	38.80	**758.00**	-	-	13.19	36.52	38.80	-	669.50	**758.00**	-	0.00%	(669.50)	-95%
Purchase 85' Material Handler Aerial Device on Track Unit	-	-	20.40	(2.00)	1,265.70	1,263.70	67.80	**1,353.90**	-	-	22.40	33.56	67.80	-	1,230.14	**1,353.90**	-	0.00%	(1,230.14)	-97%
Replace Light-Duty Mobile Equipment (2022) - Various	-	-	695.00	80.29	-	80.29	-	**695.00**	-	-	614.71	90.69	-	-	-	**705.41**	10.41	1.50%	10.41	13%
Replace Transfer Switches and Associated Hardware - Hydro Place	-	197.38	938.50	1,099.02	-	1,099.02	-	**1,135.88**	-	107.67	79.19	1,298.48	-	-	-	**1,485.34**	349.46	30.77%	199.46	18%
Replace Light- and Heavy-Duty Vehicles (2021-2022)	-	1,320.95	1,335.10	2,014.17	-	2,014.17	-	**2,656.05**	-	81.42	1,220.47	537.11	-	-	-	**1,839.00**	(817.05)	-30.76%	(1,477.05)	-73%
Purchase Tools and Equipment Less than $50,000 (2023) - Central Region	-	-	-	-	281.40	281.40	-	**281.40**	-	-	-	333.86	-	-	-	**333.86**	52.46	18.64%	52.46	19%
Purchase Tools and Equipment Less than $50,000 (2023) - Labrador Region	-	-	-	-	372.30	372.30	-	**372.30**	-	-	-	298.99	-	-	-	**298.99**	(73.31)	-19.69%	(73.31)	-20%
Purchase Tools and Equipment Less than $50,000 (2023) - Northern Region	-	-	-	-	355.20	355.20	-	**355.20**	-	-	-	279.31	-	-	-	**279.31**	(75.89)	-21.37%	(75.89)	-21%
Install Ultra-Fast DC Electric Vehicle Chargers - Supplemental	-	-	-	-	62.50	62.50	1,997.30	**2,059.80**	-	-	-	11.24	1,997.30	-	51.26	**2,059.80**	-	0.00%	(51.26)	-82%
Level 2 Chargers for Electric Vehicles	-	299.80	-	72.53	-	72.53	-	**299.80**	-	194.13	33.14	130.02	-	-	-	**357.29**	57.49	19.18%	57.49	79%
Replace Light and Heavy Duty Vehicles (2020-2021) - Various	1,625.40	1,583.50	-	1,471.67	-	1,471.67	-	**3,208.90**	4.01	658.70	1,964.73	1,427.61	-	-	-	**4,055.06**	846.16	26.37%	(44.06)	-3%
Total	**1,625.40**	**3,401.63**	**4,317.01**	**5,472.27**	**10,334.30**	**15,806.57**	**14,427.12**	**34,105.46**	**4.01**	**1,041.90**	**4,526.06**	**13,183.33**	**14,427.12**	**1,976.38**	**1,395.56**	**36,554.37**	**2,448.92**		**(2,623.24)**	

2023 Capital Expenditures By Investment Classification
System Growth
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Project	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
Additions for Load Growth - Upgrade Transformer Capacity (2023-2024) - Jean Lake Terminal Station	-	-	-	-	580.00	580.00	5,436.10	**6,016.10**	-	-	-	52.02	5,436.10	-	527.98	**6,016.10**	-	0.00%	(527.98)	-91.03%
Additions for Load (2022) - Mary's Harbour Service Conductor	-	-	307.80	36.73	51.30	88.03	-	**359.10**	-	-	122.97	38.62	-	49.41	-	**211.00**	(148.10)	-41.24%	(49.41)	-56.13%
Additions for Load - Wabush Substation Upgrades	-	1,186.70	6,253.00	6,200.06	-	6,200.06	3,254.40	**10,694.10**	-	300.60	2,299.38	4,384.48	3,254.40	-	455.29	**10,694.14**	0.04	0.00%	(1,815.59)	-29.28%
Wabush Terminal Station Upgrades	-	2,301.72	4,935.50	4,600.02	1,632.90	6,232.92	3,808.00	**12,678.12**	-	794.01	1,843.19	7,992.32	3,808.00	-	(578.58)	**13,858.93**	1,180.81	9.31%	1,759.40	28.23%
Total	**-**	**3,488.42**	**11,496.30**	**10,836.81**	**2,264.20**	**13,101.01**	**12,498.50**	**29,747.42**	**-**	**1,094.61**	**4,265.54**	**12,467.43**	**12,498.50**	**49.41**	**404.68**	**30,780.17**	**1,032.75**		**(633.57)**	

2023 Capital Expenditures By Investment Classification
Access
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Project	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
Purchase Meters and Metering Equipment (2023)	-	-	-	-	226.60	226.60	-	**226.60**	-	-	-	202.96	-	-	-	**202.96**	(23.64)	-10.43%	(23.64)	-10.43%
Valentine Gold Interconnection - Supplemental	-	3,479.25	12,281.70	8,756.04	586.36	9,342.40	-	**16,347.31**	-	826.07	6,178.94	9,070.17	-	272.23	-	**16,347.41**	0.10	0.00%	(272.23)	-2.91%
Provide Service Extensions (2023)	-	-	-	-	3,964.00	3,964.00	-	**3,964.00**	(0.00)	0.00	(0.00)	4,573.71	-	-	-	**4,573.71**	609.71	15.38%	609.71	15.38%
Total	**-**	**3,479.25**	**12,281.70**	**8,756.04**	**4,776.96**	**13,533.00**	**-**	**20,537.91**	**(0.00)**	**826.07**	**6,178.94**	**13,846.83**	**-**	**272.23**	**-**	**21,124.07**	**586.16**		**313.83**	

2023 Capital Expenditures By Investment Classification
Service Enhancement
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Project	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
Remove Safety Hazards (2023)	-	-	-	-	198.20	198.20	-	**198.20**	-	-	-	207.03	-	-	-	**207.03**	8.83	4.46%	8.83	4.46%
Upgrade Public Safety Around Dams and Waterways (2023)	-	-	-	-	482.10	482.10	-	**482.10**	-	-	-	795.46	-	-	-	**795.46**	313.36	65.00%	313.36	65.00%
Upgrade of Worst-Performing Distribution Feeders (2023-2024)	-	-	-	-	73.40	73.40	1,372.60	**1,446.00**	-	-	-	671.68	1,372.60	-	(598.28)	**1,446.00**	-	0.00%	598.28	815.09%
Replace Unit 2090/2044 - Charlottetown and Mary's Harbour	-	-	-	-	401.02	401.02	-	**401.02**	-	-	-	414.75	-	(13.73)	-	**401.02**	-	0.00%	13.73	3.42%
Purchase Spare Generator Step-Up Transformer	-	-	-	-	39.60	39.60	7,427.70	**7,467.30**	-	-	-	17.53	7,427.70	-	22.07	**7,467.30**	-	0.00%	(22.07)	-55.73%
Install Oil Spill Containment Transformer T1S (2023-2024) - Cat Arm	-	-	-	-	155.10	155.10	426.50	**581.60**	-	-	-	100.39	426.50	-	54.71	**581.60**	-	0.00%	(54.71)	-35.28%
TL215 Guying Upgrades	-	-	-	-	47.70	47.70	-	**47.70**	-	-	-	34.62	-	-	-	**34.62**	(13.08)	-27.42%	(13.08)	-27.42%
IOC SCADA Data Link	-	-	28.22	26.35	-	26.35	-	**28.22**	-	-	1.87	1.88	-	24.47	-	**28.22**	-	0.00%	(24.47)	-92.87%
Install Infrared Scanning Ports - Happy Valley Gas Turbine	-	-	39.60	22.36	25.60	47.96	-	**65.20**	-	-	17.24	35.80	-	-	-	**53.04**	(12.16)	-18.65%	(12.16)	-25.35%
Install Recloser Remote Control (2021-2022) - Various	-	-	174.60	36.78	149.10	185.88	-	**323.70**	-	-	37.82	175.95	-	-	-	**213.76**	(109.94)	-33.96%	(9.94)	-5.35%
Upgrade of Worst-Performing Distribution Feeders (2022-2023)	-	-	850.00	(11.80)	1,922.90	1,911.10	-	**2,772.90**	-	-	861.80	2,190.72	-	-	-	**3,052.52**	279.62	10.08%	279.62	14.63%
CHT Winterize Unit 2102 and Install Mobile - Supplemental	-	-	1,269.80	1,064.18	44.90	1,109.08	-	**1,314.70**	-	-	205.62	1,389.98	-	44.10	-	**1,639.70**	325.00	24.72%	280.90	25.33%
Install Fire Protection in Diesel Plants (2022-2023) - Ramea	-	-	90.70	(336.17)	1,838.10	1,501.93	-	**1,928.80**	-	-	76.87	1,000.97	-	343.57	-	**1,421.41**	(507.39)	-26.31%	(500.96)	-33.35%
Replace Metering System	-	-	515.60	(1,748.84)	4,365.60	2,616.76	994.60	**5,875.80**	-	-	2,264.44	1,993.35	994.60	-	623.41	**5,875.80**	0.00	0.00%	(623.41)	-23.82%
Upgrades for Future Retirement of Stephenville Gas Turbine	-	1,530.35	5,344.50	5,662.17	-	5,662.17	-	**6,874.85**	-	151.77	1,060.87	3,493.98	-	2,954.72	-	**7,661.35**	786.50	11.44%	(2,168.19)	-38.29%
Install Fire Protection in 230 kV Stations - Massey Drive	-	100.15	428.80	321.44	-	321.44	-	**528.95**	-	29.20	178.46	315.85	-	-	-	**523.50**	(5.45)	-1.03%	(5.60)	-1.74%
Total	**-**	**1,630.50**	**8,741.82**	**5,036.48**	**9,743.32**	**14,779.80**	**10,221.40**	**30,337.04**	**-**	**180.97**	**4,704.99**	**12,839.94**	**10,221.40**	**3,353.13**	**101.91**	**31,402.34**	**1,065.30**		**(1,939.86)**	

2023 Capital Expenditures By Investment Classification
Mandatory
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Project	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
Replace Terminal Station Lighting (2023-2024)	-	-	-	-	323.30	323.30	594.10	**917.40**	-	-	-	388.68	594.10	-	(65.38)	**917.40**	-	0.00%	65.38	20.22%
Total	-	-	-	-	**323.30**	**323.30**	**594.10**	**917.40**	**-**	**-**	**-**	**388.68**	**594.10**	-	**(65.38)**	**917.40**	**-**		**65.38**	

2023 Capital Expenditures By Investment Classification
Contribution in Aid of Construction ("CIAC")
($000)

	Capital Budget								Actual Expenditure and Forecast								Variance			
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J		K (G+H+I+J)	K-F		H-D	
														Carryover to 2024 and Beyond						
Project	2020	2021	2022	Carryover to 2023	Original 2023	Revised 2023	2024 and Beyond	Total	2020	2021	2022	2023	2024 and Beyond	Project Carryover	Multi-Year Cash Flow Reallocation	Total	Project		Annual	
Braya Renewable (CIAC)	-	-	-	-	(28.00)	(28.00)	(391.60)	**(419.60)**	-	-	-	-	(391.60)	-	(28.00)	**(419.60)**	-	0.00%	28.00	-100.00%
IOC - 13252202 Refurb WAB Circ	-	-	-	-	(770.00)	(770.00)	(30.40)	**(800.40)**	-	-	-	(624.34)	(30.40)	-	-	**(654.74)**	145.66	-18.20%	145.66	-18.92%
WAB Airport Upstream Cap (CIAC)	-	-	-	-	(290.63)	(290.63)	-	**(290.63)**	-	-	-	(290.63)	-	-	-	**(290.63)**	-	0.00%	-	0.00%
IOC SCADA Data Link (CIAC)	-	-	(28.22)	(28.22)	-	(28.22)	-	**(28.22)**	-	-	-	-	-	-	(28.22)	**(28.22)**	-	0.00%	28.22	-100.00%
Valentine Gold Interconnection (CIAC)	-	(3,730.00)	(12,085.00)	(3,069.27)	-	(3,069.27)	-	**(15,815.00)**	-	(3,730.00)	(9,015.73)	(2,571.00)	-	-	(498.27)	**(15,815.00)**	(0.00)	0.00%	498.27	-16.23%
Provide Service Extenstions - All Areas (CIAC)	-	-	-	-	-	-	-	-	-	-	-	(78.50)	-	-	-	**(78.50)**	(78.50)	N/A	(78.50)	N/A
Upgrade Disribution Systems - All Areas (CIAC)	-	-	-	-	-	-	-	-	-	-	-	(4.72)	-	-	-	**(4.72)**	(4.72)	N/A	(4.72)	N/A
Total	**-**	**(3,730.00)**	**(12,113.22)**	**(3,097.49)**	**(1,088.63)**	**(4,186.11)**	**(422.00)**	**(17,353.84)**	**-**	**(3,730.00)**	**(9,015.73)**	**(3,569.19)**	**(422.00)**	**-**	**(554.49)**	**(17,291.41)**	**62.44**		**700.15**	

Appendix B

Program Scope Details 2023

Remove Safety Hazards

In Board Order No. P.U. 38(2010) related to Hydro's 2011 Capital Budget Application, the Board directed Hydro to include in its annual report on capital expenditures an explanation of each scope of work that was undertaken for the Remove Safety Hazards program, setting out the safety hazard that was identified, the location, the steps taken to address the issue, and the amount of the expenditure. Table C-1 outlines the work scopes undertaken in 2023.

Total Approved Budget: **$198,200**

Total Expenditure: **$207,034**

Table C-1: Remove Safety Hazards[1]

Program Work Scope	Expenditure[2] ($000)	Safety Hazard Identified	Work Scope Detail
Replace Parking Lot Lights and Poles – Hydro Place	131.0	A condition assessment of the parking lot poles and lighting identified that 18 poles and their associated lighting systems should be replaced due to corrosion and wear on the poles and defective lighting systems.	New poles and LED lighting systems were purchased in 2023. Construction is planned as part of the Remove Safety Hazards (2024) program.
Upgrade Ventilation Systems for Chemical Storage Areas – Holyrood TGS	45.0[3]	The ventilation systems for chemical storage areas in the Chemical Storage Building and Pipe Shop Building were determined to be inadequate for reliable expulsion of airborne contaminants, which can irritate mucus membranes and the respiratory tract.	New ventilation systems were designed and materials were ordered as part of the Remove Safety Hazards Program (2022). Construction was completed in 2023.
Work Scopes Under $50,000	31.0		

[1] Details are provided for program scopes greater than $50,000.
[2] Numbers may not add due to rounding.
[3] This work scope incurred $38.0 in 2022 for a total 2022–2023 cost of $83.0 ($000).

Perform Software Upgrades and Minor Enhancements

In its 2023 Capital Budget Application, Hydro committed to providing a summary of unforeseen work executed under the Perform Software Upgrades and Minor Enhancements (2023) program in this report. Table C-2 provides a summary of such work.

Total Approved Budget: **$451,200**

Total Expenditure: **$357,316**

Table C-2: Unforeseen Software Upgrades and Minor Enhancement Scope

Program Work Scope	Expenditure ($000)	Scope Detail and Justification[4]
Upgrade Server Operating Systems	51.2	The operating systems for 16 servers were required to be upgraded, as vendor support ended in the fourth quarter of 2023. The upgrades ensured that these products could continue to receive security updates, non-security updates, bug fixes, technical support, and online technical content updates. The upgrades were completed in 2023.
Work Scopes Under $50,000	29.0	

Terminal Station In-Service Failures

Hydro will provide a summary of scopes of work undertaken under the Terminal Station In-Service Failures program that exceed $750,000. Table C-3 outlines 2023 expenditures under this program.

Total Approved Budget: **$1,300,000**

Total Expenditure: **$2,846,695**

[4] Details are provided for program scopes greater than $50,000.

Table C-3: Terminal Station In-Service Failures

Program Work Scope	Expenditure[5] ($000)	Failure Identified	Scope Description
Bay d'Espoir Transformer T6 Replacement – Bay d'Espoir Terminal Station 1	1,218.4	One of the bushings on Bay d'Espoir Power Transformer T6 failed catastrophically on July 25, 2023. This failure removed Generating Unit 6 (85 MVA of generation capability) from Hydro's electrical system. This loss of generation capacity was an unacceptable reliability risk to customers on the Island Interconnected System and immediate replacement of Bay d'Espoir T6 was required.	Bay d'Espoir T6 was replaced with the available on-site spare power transformer.
Restore Power Transformer Capital Spare for Hydraulic Generating Unit Transformers – Bay d'Espoir Terminal Station 1	613.7[6]	The spare transformer used to replace Bay d'Espoir Transformer T6 in 2023[7] was serving as a spare for nine power transformers—Bay d'Espoir T1 to T7, Granite Canal T1, and Upper Salmon T1. Two alternatives were considered to restore availability of a spare—procurement of a new transformer; and refurbishment of the failed Bay d'Espoir T6. The alternative to procure a new transformer was rejected as the risk of being without a spare while waiting for fabrication and delivery of a new transformer (24 to 30 months) was deemed unacceptable. Refurbishment of the failed Transformer T6 was established as the best solution to restore the availability of a spare.	The failed Bay d'Espoir Transformer T6 was refurbished, to restore the availability of a capital spare generation transformer. This work commenced in 2023 and was completed as part of the Terminals In-Service Failure (2024) program.
Work Scopes Under $750,000	1,014.6		

[5] Numbers may not add due to rounding.
[6] This work scope is expected to exceed $750,000 when 2023 and 2024 expenditures are final.
[7] Refer to the first entry in this table.

Hydraulic In-Service Failures

Hydro will provide a summary of scopes of work undertaken under the Hydraulic Generation In-Service Failures program that exceed $750,000. Table C-4 outlines 2023 expenditures under this program.

Total Approved Budget: **$1,500,000**

Total Expenditure: **$4,081,091**

Table C-4: Hydraulic In-Service Failures

Program Work Scope	Expenditure[8] ($000)	Failure Identified	Scope Description
Refurbish Penstock 1 Defects – Bay d'Espoir	1,432.1	Penstock 1 supplies water from Intake 1 to Bay d'Espoir Units 1 and 2, and is approximately 1,000 metres in length and is a steel fabrication. Inspection and testing of Penstock 1 during the planned outage in 2023 revealed a higher-than-normal percentage of defects in the longitudinal weld seams. A more extensive test and refurbishment program was recommended, to reduce the risk of penstock failure during operation.	Non-destructive testing of the Penstock 1 longitudinal seam welds was completed. Identified defects were refurbished and the penstock was returned to service.
Work Scopes Under $750,000	2,649.0		

Thermal In-Service Failures

Hydro will provide a summary of scopes of work undertaken under the Thermal Generation In-Service Failures program that exceed $750,000. All program scopes of work undertaken in the 2023 program were under $750,000.

Total Approved Budget: **$3,300,000**

Total Expenditure: **$2,887,828**

[8] Numbers may not add due to rounding.

Gas Turbine In-Service Failures

Hydro will provide a summary of scopes of work undertaken under the Gas Turbine Generation In-Service Failures program that exceed $750,000. Table C-5 outlines 2023 expenditures under this program.

Total Approved Budget: **$344,200**

Total Expenditure: **$3,606,746**

Table C-5: Gas Turbine Generation In-Service Failures

Program Work Scope	Expenditure ($000)	Failure Identified	Scope Description
Generator Refurbishment – Stephenville Gas Turbine	3,436.1	In August 2023, generator rotor blades were damaged, which also caused secondary damage to the stator end windings.	The generator stator and rotor were removed for refurbishment. The stator was refurbished on site in 2023. The rotor was shipped to Hydro's service provider for refurbishment, which commenced in November 2023. The remaining work is expected to be completed in the second quarter of 2024, as part of the 2024 Gas Turbine In-Service Failures Program.
Overhaul Engine 202205 – Hardwoods Gas Turbine	77.0[9]	During a borescope inspection of Engine 202205, material loss was discovered on a nozzle guide vane. Hydro's service provider recommended that the engine be removed and overhauled.	Engine 202205 was removed from service and sent for overhaul to the service provider's facility in 2023. An available spare engine was installed and placed in service in 2023 to restore full generation capacity for the Hardwoods Gas Turbine. The engine being overhauled is expected to be returned to Hydro in the Second Quarter of 2024, as part of the 2024 Gas Turbine In-Service Failures Program.
Work Scopes Under $750,000	93.6		

[9] This work scope is expected to exceed $750,000 when 2023 and 2024 expenditures are final.

Diesel In-Service Failures

Hydro will provide a summary of scopes of work undertaken under the Diesel In-Service Failures program that exceed $750,000. All program scopes of work undertaken in the 2023 program were under $750,000.

Total Approved Budget: **$480,400**

Total Expenditure: **$727,177**

Transmission In-Service Failures

Hydro will provide a summary of scopes of work undertaken under the Transmission In-Service Failures program that exceed $750,000. All program scopes of work undertaken in the 2023 program were under $750,000.

Total Approved Budget: **$151,700**

Total Expenditure: **$193,589**

Distribution System In-Service Failures and Miscellaneous Upgrades, and Street Lights

Hydro will provide a summary of scopes of work undertaken under the Distribution System In-Service Failures, Miscellaneous Upgrades, and Street Lights program that exceed $750,000. All program scopes of work undertaken in the 2023 program were under $750,000.

Total Approved Budget: **$3,986,000**

Total Expenditure: **$6,029,094**

Boiler Condition Assessment and Miscellaneous Upgrades (2023) – Holyrood

In the capital budget application for the Holyrood Boiler Condition Assessment and Miscellaneous Upgrades (2023) program, Hydro listed all known components requiring replacement or refurbishment prior to the 2023–2024 winter operating season and indicated that it was possible that additional components may be identified as requiring replacement or refurbishment during the 2022 and 2023 condition assessment. For those additional components that were material in dollar value and met

capitalization criteria, Hydro proposed to communicate these items to the Board in this report. The condition assessments were completed on Units 1, 2, and 3 in 2023. Table C-6 provides a summary of the additional components that required replacement or refurbishment prior to the 2023–2024 winter operating season.

Total Approved Budget: **$2,926,600**

Total Expenditure: **$4,336,361**

Table C-6: Boiler Condition Assessment and Miscellaneous Upgrades (2023) – Holyrood

Scope Title	Expenditure ($000)	Scope of Work and Justification[10]
Units 1 and 2 Economizer Inlet/Outlet Header Attachment Inspection and Refurbishment	619.2	In 2022, the boiler service contractor recommended an inspection of the Units 1 and 2 economizer inlet and outlet header attachments during the scheduled unit outages in 2023. In 2023, the headers were cleaned on both units and inspected for leaking boiler tubes and any other issues present. The inspections on the Unit 1 inlet and outlet headers identified deterioration on: • Two boiler tubes that were then replaced; • Header supports that were then refurbished; and • Boiler tube-to-header welds that were then refurbished. The Unit 2 economizer inlet and outlet header attachments were also cleaned and inspected but no issues were identified.
Unit 3 Air Heater Cold End Basket Replacement	550.2	In 2022, the boiler service contractor recommended replacement of the Unit 3 air heater cold end baskets. The cold end baskets in boiler air heaters help improve the overall boiler efficiency by preheating the combustion air before it enters the furnace. Preheating the air reduces the energy required to bring it up to combustion temperature, leading to fuel savings and increased efficiency. The existing cold end baskets and support structure had extensive corrosion and were replaced in 2023 during the annual unit outage.

[10] Details are provided for program scopes greater than $50,000.

Scope Title	Expenditure ($000)	Scope of Work and Justification[10]
Unit 3 Lower Waterwall Slope Tube Inspection and Refurbishment	258.5	In 2022, the boiler service contractor recommended an inspection of the Unit 3 lower water wall slope tubes to check for tube thinning. Boiler tube thinning leads to inadequate thickness for pressure requirements and can result in a forced outage. Work in 2023 included boiler cleaning, thickness measurements on the lower water wall slope tubing, and a visual inspection for any signs of damage. Following the inspection, welding repairs were completed on tubes that were measured to be below the minimum wall thickness.
Unit 3 Gas Outlet Duct Plate Inspection and Refurbishment	147.3	The Unit 3 gas outlet duct conveys flue gas from the boiler to the breeching and stack. In 2023, scaffolding was erected, the ducting was cleaned internally, and plate thickness measurements were completed to determine the areas of the gas outlet duct that required refurbishment. Duct plate refurbishment was then completed and internal insulation was replaced where required to prevent condensation on the steel plate where corrosion would occur.
Unit 2 Front Wall Downcomer/ Header Expansion Joint Refurbishment	139.1	Boiler downcomers and headers are subjected to significant temperature differentials, causing them to expand and contract during operation. Expansion joints accommodate this thermal movement and prevent stress buildup in the downcomers, boiler headers, and associated piping. Expansion joints help maintain a seal between sections of the downcomers/headers and the boiler, preventing leakage of boiler gas. Proper sealing is essential for the efficient operation of the boiler and to prevent energy loss. Three expansion joints were cleaned and inspected in 2023; one expansion joint was replaced, one was refurbished, and all exposed expansion joints were refurbished on the boiler casing to ensure a proper seal between the internals of the boiler and the powerhouse.
Unit 3 Lower Vestibule Casing Replacement	89.3	Boiler casing inspection and refurbishment is necessary for maintaining the structural integrity, thermal efficiency, safety, and environmental compliance of boiler systems. The boiler casing and insulation was replaced in 2023 due to end-of-life condition of the cladding and insulation system.
Work Scopes Under $50,000	1.8	

Major Condition Assessment and Miscellaneous Refurbishments Synchronous Condensers 1 and 2 (2023–2024) - Wabush Terminal Station

The primary scope of work for this program is to perform a Level 2 Condition Assessment on the internal components of Synchronous Condenser 1 ("SC1") and Synchronous Condenser 2 ("SC2") at the Wabush Terminal Station and complete refurbishment activities identified from the condition assessments that are deemed necessary to support the continued safe and reliable operation of SC1 and SC2. For those refurbishments that are material in dollar value and meet capitalization criteria, Hydro proposed in its 2023 Capital Budget Application to complete these activities within this program and communicate these items to the Board in its 2023 and 2024 Capital Expenditures and Carryover Reports. The condition assessment was completed for SC2 in 2023. Table C-7 provides a summary of the additional components that required replacement or refurbishment.

Total Approved Budget: **$1,093,300**

2023 Approved Budget: **$577,200**

2023 Expenditure: **$692,335**

Table C-7: Major Condition Assessment and Miscellaneous Refurbishments Synchronous Condenser 1 and 2 (2023-2024) - Wabush Terminal Station

Scope Title	Expenditure ($000)	Scope of Work and Justification[11]
SC1 and SC2 Oil Rings Procurement	138.5	As part of an inspection in 2022, the OEM recommended that the oil rings be replaced as they are worn and causing secondary oil contamination. New sets of oil rings were procured for both SC1 and SC2, with installation planned for the outages in 2024.
SC2 Stator and Rotor Cleaning and Painting	56.8	As part of an inspection in 2022, the OEM recommended that the SC2 rotor be removed, cleaned, and painted. In 2023, the SC2 rotor was removed. The rotor and stator were found to be coated in an oily residue and both were cleaned with carbon dioxide and painted.
Work Scopes Under $50,000	0	

[11] Details are provided for program scopes greater than $50,000.