

1 Q. **Reference: PUB-NLH-056 and NP-NLH-001**

2 Further to the responses to PUB-NLH-056 and NP-NLH-001, please provide the principal reasons
3 and the contribution of each for the significant carryovers of approved capital expenditures
4 from 2013-2022. In the response specifically explain the role of supply chain issues, adequacy of
5 internal and external resources, impact of Covid 19 and balancing of capital budget priorities
6 and resources in the carryover of approved capital expenditures.

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9 A. Newfoundland and Labrador Hydro (“Hydro”) conducts an annual analysis of capital
10 expenditures to identify the primary drivers and themes of expenditure variances each year,
11 including those associated with carryovers of approved capital expenditures. Detailed analysis of
12 carryover drivers began in 2018 and has been completed for all years from 2018 to 2022. The
13 annual Capital Expenditures and Carryover Reports filed with the Board of Commissioners of
14 Public Utilities (“Board”) for those years include a summary of that analysis. As Hydro began its
15 detailed analysis in 2018, the detailed analysis and themes for expenditure variances prior to
16 2018 are not readily available.¹

17 With respect to under expenditures associated with carryover, themes were identified and
18 discussed in each Capital Expenditures and Carryover Report for the years 2018–2022. Table 1
19 summarizes the themes by year, including their contribution to the overall carryover amount,
20 and provides a reference to the applicable section of the Capital Expenditures and Carryover
21 Report where the themes are discussed.

¹ Analysis of this data would require significant administrative effort, and may not be possible in some cases. Should the Board find the value of this data commensurate with the level of effort required, Hydro will provide this analysis at a later date, at the Board’s request.

Table 1: Carryover Themes

Year	Carryover Theme Identified	Carryover Amount (\$000)	Report Reference
2022 ²	Strategic Deferral of Work	15,310	Section 5.0, pp. 45–46
	Supply Chain Challenges	13,635	Section 5.0, p. 46
	Later Than Anticipated Project Approvals	8,756	Section 5.0, p. 46
	Total 2022	37,701	
2021 ³	Strategic Deferral of Work	13,275	Section 5.0, pp. 36–37
	Pandemic-Related Supply Chain Challenges	7,577	Section 5.0, p. 37
	Later Than Anticipated Project Approvals	5,252	Section 5.0, pp. 37–38
	Total 2021	26,104	
2020 ⁴	Delays Due to the COVID-19 Pandemic	16,991	Section 5.0, pp. 29–30
	Total 2020	16,991	
2019 ⁵	Planned Outages Unavailable or Changed	10,294	Section 5.0, p. 48
	Total 2019	10,294	
2018 ⁶	Planned Outages Unavailable or Changed	8,139	Section 5.0, p. 62
	Human Resource Constraints	7,502	Section 5.0, p. 62
	Underestimated Project Schedule	6,246	Section 5.0, pp. 62–63
	Total 2018	13,748	

² “Capital Expenditures and Carryover Report for the Period Ended December 31, 2022,” Newfoundland and Labrador Hydro, March 31, 2023.

<<http://pub.nl.ca/indexreports/expenditure/From%20NLH%20-%202022%20Capital%20Expenditures%20and%20Carryover%20Report%20-%202023-03-31.PDF>>.

³ “Capital Expenditures and Carryover Report for the Period Ended December 31, 2021,” Newfoundland and Labrador Hydro, rev. March 8, 2022 (originally filed March 1, 2022).

<<http://pub.nl.ca/indexreports/expenditure/From%20NLH%20-%202021%20Capital%20Expenditures%20and%20Carryover%20Report%20-%20Revision%201%20-%202022-03-08.pdf>>.

⁴ “Capital Expenditures and Carryover Report for the Period Ended December 31, 2020,” Newfoundland and Labrador Hydro, March 1, 2021.

<<http://pub.nl.ca/indexreports/expenditure/From%20NLH%20-%202020%20Capital%20Expenditures%20and%20Carryover%20Report%20-%202021-03-01.PDF>>.

⁵ “Capital Expenditures and Carryover Report for the Period Ended December 31, 2019,” Newfoundland and Labrador Hydro, March 2, 2020.

<<http://pub.nl.ca/indexreports/expenditure/From%20NLH%20-%202019%20Capital%20Expenditures%20and%20Carryover%20Report%20-%202020-03-02.PDF>>.

⁶ “Capital Expenditures and Carryover Report for the Period Ended December 31, 2018,” Newfoundland and Labrador Hydro, March 1, 2019.

<<http://pub.nl.ca/indexreports/2019/From%20NLH%20-%202018%20Capital%20Expenditures%20and%20Carryover%20Report%20-%202019-03-01.PDF>>.

1 Please refer to PUB-NLH-076, Attachment 1 for a breakout of this analysis by project for the
2 years 2018–2022, including commentary on the primary driver for each project with significant
3 carryover.

2018 Carryovers

2018 Carryover Theme	Project or Program Title	Carryover Amount (\$000)	Specific Driver	Reference to Variance Explanation
Planned Outages Unavailable or Changed	Terminal Station Refurbishment and Modernization (2017-2018)	3,140.5	Various terminal station project scope items were carried over due to system constraints preventing the ability to schedule the planned outages required for the work.	4.4.38
	Terminal Station Refurbishment and Modernization (2018-2019)	3,085.4	Various terminal station project scope items, originally planned for the first year of this multi-year project, were carried over due to system constraints preventing the ability to schedule the planned outages required for the work.	4.4.33
	Hydraulic Generation Refurbishment and Modernization (2018-2019)	1,913.2	A portion of the refurbishment of a surge tank at Bay d'Espoir Hydroelectric Generating facility, originally planned for the first year of this multi-year project, carried over due to system constraints preventing the ability to schedule the planned outage required for the work.	4.1.4
	Subtotal	8,139.1		
Human Resource Constraints	Upgrade Circuit Breakers	3,524.9	Circuit breaker replacements at Western Avalon and Bay d'Espoir Terminal Stations were rescheduled to subsequent years in this multi-year project due to the impacts of other major system upgrade projects on both resources and overall site congestion.	4.4.39
	Refurbish Powerhouse Station Services - Bay d'Espoir	1,840.1	The engineering for this project was delayed in 2017 due to human resource constraints and partially recovered in 2018; however, the long lead time to procure materials did not align with the 2018 planned generation outages, resulting in the construction originally planned for the second year carrying over to the third year of this three-year project.	4.1.7
	Gas Turbine Equipment Replacement and Refurbishment - Hardwoods and Stephenville	626.7	The air intake refurbishment work originally planned for the first year of this multi-year project was rescheduled to the second year to allow project management and engineering resources to focus on higher priority gas turbine work, including the separate project to inspect and overhaul the hot gas path for Holyrood Gas Turbine, which was required to be advanced from 2019 to 2018.	4.3.24
	Terminal Station Refurbishment and Modernization (2018-2019)	534.1	A portion of the project scope was rescheduled from the first year to the second year of this multi-year project due to human resource constraints.	4.4.33
	Subtotal	976.6		
	Other Projects and Programs	7,502.3		
Underestimated Project Schedule	Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine	6,246.1	The fuel tank construction originally planned for the first year of this multi-year project was carried over to the second year as the time required to complete the engineering, procure the steel, construct a new tank dyke, relocate the road and construct the tank required two years.	4.3.25
	Subtotal	6,246.1		
Other	Other Projects and Programs	11,053.1		
	Total 2018 Carryover	32,940.6 ¹		

¹ Numbers may not add due to rounding.

2019 Carryovers

2019 Carryover Theme	Project or Program Title	Carryover Amount (\$000)	Specific Driver	Reference to Variance Explanation
Planned Outages Unavailable or Changed	Terminal Station Refurbishment and Modernization (2018-2019)	3,085.3	Protection system upgrades in Bay d'Espoir, Holyrood, and Wabush Terminal Stations were carried over due to system constraints preventing the ability to schedule the planned outages required for the work.	4.4.26
	Hydraulic Generation Refurbishment and Modernization (2018-2019)	3,160.5	Refurbishment of an intake gate and a surge tank at Bay d'Espoir Hydroelectric Generating facility carried over due to system constraints preventing the ability to schedule the planned outages required for the work.	4.1.5
	Hydraulic Generation Refurbishment and Modernization (2019-2020)	1,876.0	Refurbishment of an intake gate at Bay d'Espoir Hydroelectric Generating facility carried over due to system constraints preventing the ability to schedule the planned outage required for the work in the first year of this multi-year project.	4.1.2
	Other Projects and Programs	2,172.0		
		Subtotal	10,293.8	
Other	Other Projects and Programs	8,616.5		
		Total 2019 Carryover	18,910.3 ¹	

¹ Numbers may not add due to rounding.

2020 Carryovers

2020 Carryover Theme	Project or Program Title	Carryover Amount (\$'000)	Specific Driver	Reference to Variance Explanation
Delays Due to the COVID-19 Pandemic	Diesel Genset Replacements (2019-2020)	2,834.6	Installation of the new genset at Cartwright was carried over to allow engineering and construction resources to focus on higher priority work during the COVID-19 pandemic.	4.7.32
	Upgrade Circuit Breakers - Various Sites	2,698.9	Replacement of three of nine circuit breakers was carried over to subsequent years in this multi-year project due to a shortened construction season resulting from the COVID-19 pandemic.	4.4.23
	Terminal Station Refurbishment and Modernization - Various Sites (2019-2020)	2,515.5	A portion of the planned upgrades at Wabush Terminal Station were carried over to allow engineering and construction resources to focus on higher priority work during the COVID-19 pandemic. Transformer upgrades at various sites were also carried over, as the out-of-province technical resources required for the work could not be secured during the COVID-19 pandemic.	4.4.20
	Replace Light and Heavy Duty Vehicles (2020-2021)	1,621.6	Delay in the delivery of a portion of the vehicles, originally expected in the first year of this multi-year program, as a result of the COVID-19 pandemic.	4.13.39
	Generator Assessment - Happy Valley Gas Turbine	1,021.6	The generator assessment was carried over due to a decision by the original equipment manufacturer to furlough their employees in the United Kingdom in the early stages of the COVID-19 pandemic, and complications securing the out-of-country technical resources required for the work during the COVID-19 pandemic.	4.3.12
	Muskrat Falls to Happy Valley Interconnection	930.1	A portion of the planned upgrades at Happy Valley Terminal Station were carried over due to schedule disruptions from the COVID-19 pandemic associated with detailed planning required to manage COVID-19 safety risks.	4.5.24
	Additions for Load - Distribution System - Makkovik and Hopedale	711.1	Distribution upgrades in Makkovik and Hopedale were carried over as a result of access restrictions to these Labrador communities during the COVID-19 pandemic.	4.6.25
	Replace Light Duty Mobile Equipment	453.7	Delay in the delivery of a portion of the vehicles as a result of the COVID-19 pandemic.	4.10.35
	Construction and Installation of an Electric Vehicle Fast Track Network	435.9	Installation of an electric vehicle fast track network was carried over due to delays in equipment manufacturing as a result of the COVID-19 pandemic.	4.16.43
	Other Projects and Programs	3,767.9		
	Subtotal	16,990.9		
Other	Other Projects and Programs	3,996.3		
	Total 2020 Carryover	20,987.2 ¹		

¹ Numbers may not add due to rounding.

2021 Carryovers

2021 Carryover Theme	Project or Program Title	Carryover Amount (\$000)	Specific Driver	Reference to Variance Explanation	
Strategic Deferral of Work	Perform Combustor Inspection - Holyrood Gas Turbine	2,971.8	Rescheduled construction activity due to the threshold not being reached for the number of generating unit equivalent starts.	4.3.3	
	Upgrade Circuit Breakers	2,055.7	Shift in the timing of some progress payments for new circuit breakers and the planned deferral of the construction activity for one circuit breaker replacement into the last year of this multi-year program.	4.4.2	
	Replace Transformer T7 - Holyrood Terminal Station	1,767.3	Rescheduled construction activity due to change in the timing of the interconnection of Muskrat Falls and Happy Valley, which delayed the availability of a transformer in Churchill Falls to be repurposed at Holyrood.	4.4.7	
	Upgrade Wastewater Equalization System - Holyrood	1,645.2	Adjusted the project execution plan following the completion of detailed project planning, resulting in all construction being scheduled in the second year of this multi-year project, minimizing construction resource mobilization costs.	4.2.6	
	Wabush Terminal Station Upgrades	1,507.7	Adjusted the project execution plan following the completion of surveying, geotechnical work and engineering design, resulting in rescheduling of construction activity to the later years of this multi-year project.	4.4.5	
	Upgrades for Future Retirement of Stephenville Gas Turbine	1,378.5	Paused activities in the first year of this multi-year project to optimize and confirm the project scope, which resulted in the cancellation of several project scope items.	4.4.3	
	Additions for Load - Wabush Substation Upgrades	886.1	Adjusted the project execution plan following the completion of surveying, geotechnical work and engineering design, resulting in rescheduling of construction activity to the later years of this multi-year project.	4.4.4	
	Other Projects and Programs	1,062.9			
		Subtotal	13,275.2		
	Pandemic Related Supply Chain Challenges	Replace Light- and Heavy-Duty Vehicles (2020-2021)	2,546.4	Delay in the delivery of a portion of the vehicles.	4.13.3
Replace Light- and Heavy-Duty Vehicles (2021-2022)		1,239.5	Delay in the delivery of a portion of the vehicles originally expected in the first year of this multi-year program.	4.13.1	
Refurbish Ebbegumbaeg Control Structure		1,040.4	Delay in the delivery of the electric monorail hoist resulted in the construction activity originally planned for the first year of this multi-year project being rescheduled to the following year.	4.1.1	
Replacement Powerhouse Roofing System - L'Anse-au-Loup and St. Anthony Diesel Plant		857.6	Delay in the delivery of roof panels resulted in the construction activity being rescheduled.	4.7.7	
Replace Hydro Personal Computers (2021)		446.6	Delay in the delivery of a portion of the personal computers.	4.11.1	
Replace Light-Duty Mobile Equipment		413.5	Delay in the delivery of a portion of the vehicles.	4.10.1	
Other Projects and Programs		1,033.0			
		Subtotal	7,577.0		
Later than Anticipated Project Approvals		Valentine Gold Interconnection	2,885.2	Longer than anticipated environmental assessment process resulted in a delay in the start of construction activities for this fully contributed project.	4.15.2
		Phase 2 - Electric Vehicle Charging Network	1,351.1	Later than anticipated regulatory approval of the project resulted in a portion of the procurement and construction activities being rescheduled to the second year of this multi-year project.	4.15.4
Diesel Genset Replacements (2021-2022)		756.8	Later than anticipated regulatory approval of the project resulted in a portion of the procurement and construction activities being rescheduled to the second year of this multi-year project.	4.7.2	
	Other Projects and Programs	258.7			
	Subtotal	5,251.7			
Other		8,027.9			
	Total 2021 Carryover	34,131.8 ¹			

¹ Numbers may not add due to rounding.

