

# Muskrat Falls Project Oversight Committee

Quarterly Project Update

Period Ending December 2021

October 24, 2022

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## 1. Q4 2021 Cumulative Costs



#### 2. Q4 2021 Planned and Incurred Costs





# 3.0 Oversight Committee Reporting

- 3.1 Overview
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- 3.4 Risks and Issues Being Monitored by the Committee
- 3.5 Subsequent Events to Q4 and Other Notable Activity

### 3.1 Overview

- The Oversight Committee (Committee) receives details on project costs incurred, schedule progress, changes in costs and milestone schedule, the status of construction, and manufacturing and installation contracts.
- The Committee identifies risks and issues and follows up with Hydro to obtain more detail and explanation.
- This report covers the October to December 2021 reporting period (Q4).
- Section 3 of this report contains information developed by the Committee.
- Section 3.5 of this report includes recent information on notable activity beyond the Q4 reporting period ending, and up to the date of drafting this report (April 15, 2022). Project update information in this section supersedes information as reported in other sections of this report.
- Section 4 contains project cost and schedule information as reported by Hydro for the reporting period ending December 2021 which includes project activity updates to mid-February 2022.
- The Annexes contain a more detailed accounting of the information provided in this report.
- The next Committee Report will cover the reporting period January 2022 March 2022.

### **3.2 Committee Activities**

- The Committee met on three occasions during the Quarter to receive project updates and conduct other Committee business. Committee meeting minutes and reports are available on the Committee website @ <u>Click here</u> and <u>Click</u> <u>here</u>.
- The Committee Chair and/or Industry, Energy and Technology (IET) officials participated as an observer in two monthly calls on Hydro project reporting to the Independent Engineer (IE) and Natural Resources Canada (NRCan) and two calls with the IE and NRCan.
- IET officials participated in one call with Hydro Transition to Operations (TTO) officials to receive project updates.
- The Committee Chair and IET official participated remotely in various meetings during the Independent Engineer site visits and meetings sessions held in October 2021.
- The Committee met with the IE and NRCan on December 3, 2021 for a Quarterly update.

### **3.3 Independent Engineer Activities**

 The Independent Engineer attended project site visits and meetings through October 4-8, 2021. The Independent Engineer's site visit report can be found on the Committee's website @ <u>Click here</u>.

- In its project reporting, Nalcor identifies risks which may impact project cost and schedule. The Committee reviews these and other project information to assess project risks. These risks can be found on pages 10-13 of this report.
- Over the reporting period the Committee notes:
  - LITL bipole final software schedule delivery and commissioning delays and risk continues;
  - Synchronous condenser unit 1 collector bearing has incurred damage;
  - MFGen/LTA Commissioning Certificate has been issued and accepted;
  - Litigation and arbitration proceedings continue with Astaldi; and
  - Nalcor/NLH preparedness for interconnection and operations following transfer of power and final completion of bipole remains a key focus area. Remaining activities of Transition to Operations will be transferred to Hydro Operations after December 31, 2021.

- The project is now largely in the installation, integration and static and dynamic commissioning phases which inherently carry associated risks.
- Risks that are being tracked by the Committee include:
  - A) Safety Performance
    - Risk associated with simultaneous operations across multiple work sites, impact on project delivery particularly in the powerhouse, energized yards and other assets. This risk will continue through construction into operations.
  - B) Contractor Management and Productivity
    - Nalcor ability to manage contractors and contractor ability to meet schedule;
    - Contractor management and performance;
    - Potential commercial negotiations to settle claims; and
    - Potential for new claims as construction/commissioning nears completion.

#### C) Phased Commissioning

- Completion of P&C software to enhance functionality and reliability; associated warranty considerations with early asset handover during commissioning and completion;
- Final completion and testing of HVdc system under low and full power, in-service system reliability, and timing of contractor release and effective warranty period; and
- P&C software delivery and final commissioning completion to meet project schedule; remaining software work beyond dynamic commissioning and long-term system performance.
- D) Astaldi
  - Astaldi arbitration/litigation outcomes and potential impact on project costs.
- E) Synchronous Condensers
  - Remediation of vibration and other commissioning issues; potential impact on project schedule and long term performance.

#### F) Insurance Claims and Coverage

- No coverage: Preservation/re-preservation of Turbine and Generator parts

   insurance will not cover re-preservation. Costs incurred by LCP part of
   commercial resolution with Contractor. Insurance claim closed.
- Coverage confirmed: Spillway secondary concrete LCP cost recovery confirmed as ~ \$1.1M. Payment expected in Q2 2022. Final payment to Andritz also confirmed. Insurance claim closure pending receipt of final payments.
- Potential Coverage: Intake concrete repairs LCP submission of costs incurred in Q1 2022. Awaiting confirmation of recovery from loss adjustor; expected in Q2 2022.
- No coverage: Valve Hall remediation insurance only covers costs related to beam damage not defect. Incurred costs are lower than deductible. Insurance claim to be closed.
- G) LITL and Powerhouse Commissioning
  - Commissioning of LITL and completion of powerhouse punchlist clearance.
- H) Project Integration and Operations Readiness
  - Nalcor/NLH readiness to connect the Muskrat Falls Project to the Island and North American electricity grid and operate facilities effectively.

- I) Additional Risks (above the September 2021 Project Budget)
  - COVID-19 cost and schedule impacts;
  - Astaldi arbitration/litigation;
  - Failure to meet revised schedule milestones (unknown); and
  - Any significant legal costs due to new disputes with contractors (unknown).
- Funds are not held within the September 2021 Project Budget for these additional risks.

- In January, February, March and April 2022, Hydro provided the Newfoundland and Labrador Board of Commissioners of Public Utilities (PUB) with monthly updates in response findings of the Liberty Consulting Group Eight Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System.
- In March 2022, the PUB released the Liberty Consulting Group Fourteenth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System.
- In March 2022, Hydro announced a financial restructuring agreement for the third federal loan guarantee and LITL investment. Further information is available on the Hydro website @ <u>Click here</u>.

- In March 2022, Power Supply advised:
  - Full Function Bipole Software Completion Status
    - GE is continuing to resolve and verify punch list resolution in order to release the next version of software for trial operations and final commissioning
    - GE has advised that they require an additional five weeks for punch list closure before releasing the next version
    - The GE amending agreement 10, Q1, 2022 milestone date has now slipped to Q2, 2022
    - This schedule delay will have a knock-on effect on subsequent milestones shifting dynamic commissioning complete and start of trial operations
    - Due to further delays by GE, completion of trial operations, which triggers the issuance of the LITL commissioning certificate, is now at high risk of not being achieved by Date Certain (May 31, 2022)
    - LCP continues to monitor software development and testing on a daily basis and is working with GE at all management levels to ensure that the next version of software to be released is suitable for trial operations and commissioning
    - Risk remains high that milestones may not be met

#### LITL Operation

- The LITL operated at various levels throughout February 2022, with a peak power transfer of approximately 320MW
- On February 20, 2022 the fire alarm in Pole 1 at Muskrat Falls was activated, which caused a pole trip. LITL pole compensation operated properly and the load was transferred to Pole 2. Upon investigation it was discovered to be a false alarm due to a sensor malfunction
- On February 25, 2022, after the fire alarm investigation, Operations were preparing to re-energize Pole 1, going from monopole back to bipole, when a procedural step was missed, causing Pole 1 to trip
- Operations attempted to ramp down the LITL following the pole trip but an issue with the P&C software prevented the correct operation. Operations de-energized the LITL to investigate
- The LITL will remain offline while these incidents are investigated
- As a result, the remaining Maritime Link runback tests were not complete on February 26, as planned. The test will be reschedule when LITL is returned to service

#### • <u>Synchronous Condensers</u>

- SC2 and SC3 are in service
- GE Power is continuing their collector bearing replacement work on SC1 and is on schedule to be complete by June 2022

- In April 2022, Power Supply advised:
  - <u>Full Function Bipole Software Completion Status</u>
    - On March 11, 2022, GE confirmed that all punch list items that required resolution for this version of software, which is intended to be used for trial operations, were closed and regression testing was underway
    - Regression testing was complete on March 25, 2022, and was witnessed by the Independent Third Party (ITP)
    - The ITP, LCP, and Hydro reviewed the test report and agreed that the Factory Acceptance Testing (FAT) could proceed
    - LCP, Hydro, and GE finalized the FAT plan on April 8, 2022; full alignment on the scope of the FAT has been reached
    - The FAT is scheduled from April 13 25, 2022. LCP and Hydro resources will witness the FAT at PES in Stafford. ITP will witness remotely
    - Risk remains high that milestones may not be met

#### LITL Operation

- Following the February 20, 2022 the fire alarm in Pole 1, and missed step when reenergizing pole 1, GE conducted an investigation of the Muskrat Falls converter station as well as the issue with the software; subsequently GE replaced a surge arrestor and repaired a transformer and a operating restriction was placed on the software as a mitigation with a permanent fix to be included in the next version of software
- Pole 2 was back in service on March 24, 2022, followed by bipole on April 1, 2022. The 450MW power transfer limit is still applied to the current version of software. The Newfoundland and Labrador System Operator (NLSO) determines the power transfer level on a daily basis
- The Maritime Link runback tests were performed on April 8, 2022. Four of the five remaining tests were completed. LCP, Hydro and Emera are reviewing the results before performing the final test
- <u>Synchronous Condensers</u>
  - SC2 and SC3 are in service
  - GE Power has completed the SC1 collector bearing replacement work on SC1; reassembly of the unit is pending further tests
  - It is unknown at this time if the issue is unique to SC1 or if it is common to all three units
  - GE Power's Root Cause Analysis is pending further test results; the results and proposed resolution will be provided to LCP when complete
  - SC1 return to service is now scheduled for July 2022

- In March, Power Development advised:
  - Astaldi Arbitration
    - A partial award has been received and is currently under evaluation
  - Muskrat Falls Plant
    - Is released to NLSO control
    - Software updates / Protection and Control (P&C) hardware replacement work is complete
    - The Unit 2 runner inspection timing is TBD (pending receipt of Andritz inspection plan)

- In April, Power Development advised:
  - Astaldi Arbitration
    - A partial award has been received; both parties are preparing final submission to the arbitration panel for final award
  - <u>Muskrat Falls Plant</u>
    - Is released to NLSO for dispatch
    - All four units are operational
    - Pending Work Unit 2
      - Andritz has identified that one runner blade on unit 2 becomes offset from the others when power on the unit is reduced, producing a vibration. The vibration is reduced when unit power is increased. Unit 2 has been operating at constant power for most of Q1 2022
      - Andritz has recently advised that Unit 2 power can be adjusted downward by undershooting the desired power setting and then increasing it back up to the target setting. Andritz has recommended limiting the number of power setting decreases on Unit 2 to 4 operations per week, and this has not been a problem for plant operations as the other units in service are operating normally
      - Andritz is planning to undertake an internal inspection of the Unit 2 turbine during the upcoming summer shutdown. The exact timing has not been finalized



# 4.0 Hydro Reporting

- 4.1 Summary Quarter Ending December 2021
- 4.2 Project Expenditures
- 4.3 Contingency
- 4.4 Earned Progress

\*Information in this section was provided for period ending December 2021 project reporting which includes project activity updates to mid-February 2022. Recent updates to this section can be found in Section 3.5.

December 2021 Summary:

- Overall construction progress is at 99.3% (December 2019);
- \$10,005 Million in incurred costs; and
- \$10,011 Million in committed costs.
- The project budget does not include funding for Additional Risks as reported on slide 13, which at the end of December 2021, known risks totaled approximately \$450 Million. If these risks are realized, they may become project costs.
- The current forecast contingency budget at December 2021 is \$39.1 Million, a decrease of \$ 2.5 Million from the previous Quarter.
- For further detail see Section 4.2, 4.3 and Annex A
- Due to continued LITL software delays, in November 2021, Date Certain was adjusted to May 31, 2022

#### Quarterly Planned vs Incurred Cost Variances:

MFGen	
Cumulative Planned: \$5,543M	Q4 2021 Planned: \$0M
Cumulative Incurred: \$5,489M	Q4 2021 Incurred: \$28M
Variance: -\$54M (-0.9%)	Variance: \$28M

- Planned expenditure by month was set in September 2020.
- During Q4 2021, the variance in planned vs. incurred cost is due to project schedule delay. Existing project budget is being incurred later than planned.
- See Section 4.2 and Annex B for further detail.

#### **Quarterly Planned vs Incurred Cost Variances:**

LITL	
Cumulative Planned: \$3,721M	Q4 2021 Planned: \$0M
Cumulative Incurred: \$3,647M	Q4 2021 Incurred: \$9M
Variance: -\$74M (-2.0%)	Variance: \$9M
LTA	
LTA Cumulative Planned: \$873M	Q4 2021 Planned: \$0M
LTA Cumulative Planned: \$873M Cumulative Incurred: \$869M	Q4 2021 Planned: \$0M Q4 2021 Incurred: \$1M

- The planned expenditure by month was set in June of 2020.
- During Q4 2021, the variance in planned vs. incurred cost is due to project schedule delay. Existing project budget is being incurred later than planned.
- See Section 4.2 and Annex B for further detail.

#### Earned Progress: (As of December 2019)

- MFGen
  - >98.5 complete
- LITL
  - >99% complete
- LTA
  - Complete
- See Section 4.2 and Annex C for further detail.

- Power Supply <sup>1</sup>:
  - Full Function Bipole (FFB) Software
    - GE continues to resolve and verify punch lists in order to release the next version of software for trial operations and final commissioning
    - GE has communicated that it intends to freeze the software on February 11, 2022 and start regression testing on February 12, 2022 followed by Factory Acceptance Testing (FAT) on March 3, 2022 shifting subsequent dynamic commissioning and start of trial operations milestone dates respectively by one week
    - Risk remains high that milestone dates will not be achieved
  - LITL Operation
    - The LITL has operated at various throughout January 2022 with peak power transfer of 424 MW
    - GE continues to perform dynamic commissioning testing to identify any issues that will require fixing in advance of the next version of software is released
    - During Maritime Link runback tests, GE identified an issue that could increase the risk of a bipole trip. Tests were paused while the issue was investigated. Subsequently a 450 MW transfer limit was applied
    - The LITL is currently in operation
    - Remaining Maritime Link runback tests will be completed during the last week of February 2022

<sup>1</sup> Some activities in this and the following Power Supply slides have occurred since December 2021

#### • <u>Synchronous Condensers</u>

- 100% Load test for SC2 and SC3 were successfully completed as planned in late January 2022
- SC3 has been returned to service. SC2 is schedule to be back in service in on February 11, 2022
- GE are continuing their collector bearing replacement work on SC1 and remain on schedule to complete in June 2022
- Load Tests for SC1 are planned to be completed during winter 2022/23

#### Power Development<sup>1</sup>

• With commissioning having occurred in November 2021, the Muskrat Falls Power Plant and LTA has been released to the NLSO

#### Pending Work

- Software Updates/ Protection and Control hardware replacements ongoing (1 Week)
- Unit 2 runner inspection timing is to be determined pending receipt of Andritz inspection plan in relation to the observed vibration issue
- Punch list clearance ongoing
- Arbitration with Astaldi continues; a decision from arbitration panel is still pending. Other than project residual contingency, funds are not held within the September 2021 budget should net damages be awarded in Astaldi's favour

## **4.2 Project Expenditures**

	Project Revised Cumulative \$			Cumulative %			
December 2021 (\$000)	Budget September 2021	Dlan	Incurred	Variance	Plan	Incurred	Variance
Description	Δ	B	C	C-B	D=R/A	E=C/A	F-D
NE-LCP Owners Team, Admin and EPCM Services	\$1,162,016	\$1,158,877	\$1,150,256	(\$8,621)	99.7%	99.0%	-0.7%
Feasibility Engineering	\$35,843	\$35,847	\$35,552	(\$295)	100.0%	99.2%	-0.8%
Environmental & Regulatory Compliance	\$40,566	\$40,706	\$39,713	(\$993)	100.3%	97.9%	-2.4%
Aboriginal Affairs	\$52,301	\$52,301	\$53,796	\$1,495	100.0%	102.9%	2.9%
Procurement & Construction	\$8,680,933	\$8,732,457	\$8,610,191	(\$122,265)	100.6%	99.2%	-1.4%
Commercial & Legal	\$119,731	\$116,245	\$115,525	(\$720)	97.1%	96.5%	-0.6%
Contingency	\$45,044	\$0	\$0	\$0	0.0%	0.0%	0.0%
ΤΟΤΑΙ	\$10,136,431	\$10,136,431	\$10,005,033	(\$131,399)	100.0%	98.7%	-1.3%

December 2021 (\$000)	Project Revised Budget September 2021	Incurred Cumulative Costs December 2021	Project Final Forecast Cost December 2021	Variance PFC from Budget
Description	A	В	С	D=A-C
NE-LCP Owners Team, Admin and EPCM Services	\$1,162,016	\$1,150,256	\$1,162,170	(\$154)
Feasibility Engineering	\$35 <i>,</i> 843	\$35,552	\$35,552	\$291
Environmental & Regulatory Compliance	\$40,566	\$39,713	\$40,566	\$0
Aboriginal Affairs	\$52,301	\$53,796	\$53,918	(\$1,617)
Procurement & Construction	\$8,680,933	\$8,610,191	\$8,684,618	(\$3 <i>,</i> 685)
Commercial & Legal	\$119,731	\$115,525	\$120,512	(\$781)
Contingency	\$45,044	\$0	\$39,097	\$5,947
TOTAL	\$10,136,431	\$10,005,033	\$10,136,431	\$0

## **4.3 Contingency**

December 2021 (\$000)	Project Revised Budget September 2021	Project Forecast Cost September 2021	Project Forecast Cost December 2021	Change from Previous Quarter	Variance PFC from Budget
	A	В	С	С - В	C - A
Total Project	\$45,044	\$41,587	\$39,097	(\$2,490)	(\$5,947)

## 4.4 Earned Progress (December 2019)

		December 2019 Cumulative %
Cumulative to end of December 2019	Weight Factor %	<u>Earned</u>
Sub-Project	А	С
Muskrat Falls Generation (MFGen)	46.3%	98.5%
Labrador Island Transmission Link (LITL)	43.9%	99.97%
Labrador Transmission Asset (LTA)	9.8%	100.0%
Muskrat Falls Project - Overall	100.0%	99.3%



# Annex A

- I. Project Capital Budget
- II. Project Milestone Schedule

Columns in tables may not total due to rounding

## I. Project Capital Budget - September 2020

Muskrat Falls Generating Facility (in \$ thousands)	September 2020
Expenditure Category	
NE-LCP Owners Team, Admin and EPCM Services	\$634,838
Feasibility Engineering	\$16,865
Environmental & Regulatory Compliance	\$28,230
Aboriginal Affairs	\$51,508
Procurement & Construction	\$4,703,316
Commercial & Legal	\$80,978
Contingency	\$44,240
Muskrat Falls Generation Total	\$5,559,974
Labrador-Island Transmission Link (in \$ thousands)	September 2020
Expenditure Category	
NE-LCP Owners Team, Admin and EPCM Services	\$397,56
Feasibility Engineering	\$18,679
Environmental & Regulatory Compliance	\$11,664
Aboriginal Affairs	\$625
Procurement & Construction	\$3,266,059
Commercial & Legal	\$29,350
Contingency	\$13,546
Labrador-Island Transmission Link Total	\$3,737,488
Labrador-Transmission Assets (in \$ thousands)	September 2020
Expenditure Category	
NE-LCP Owners Team, Admin and EPCM Services	\$133,36
Feasibility Engineering	\$303
Environmental & Regulatory Compliance	\$812
Aboriginal Affairs	\$168
Procurement & Construction	\$734,424
Commercial & Legal	\$9,01
Contingency	\$1,419
Labrador Transmission Assets Total	\$879,508
Muskrat Falls Capital Cost Budget Total	\$10,176,970

Contingency Budget (in \$ thousands)	September 2020
Sub-Project:	
Muskrat Falls Generating Facility	\$44,240
Labrador-Island Transmission Link	\$13,546
Labrador Transmission Assets	\$1,419
Total Project	\$59,205

## I. Project Capital Budget - September 2021

Muskrat Falls Generating Facility (in \$ thousands)	September 2021
Expenditure Category	
NE-LCP Owners Team, Admin and EPCM Services	\$633,767
Feasibility Engineering	\$16,865
Environmental & Regulatory Compliance	\$28,230
Aboriginal Affairs	\$51,508
Procurement & Construction	\$4,694,037
Commercial & Legal	\$81,978
Contingency	\$36,763
Muskrat Falls Generation Total	\$5,543,14
Labrador-Island Transmission Link (in \$ thousands)	September 2021
Expenditure Category	
NE-LCP Owners Team, Admin and EPCM Services	\$396,095
Feasibility Engineering	\$18,679
Environmental & Regulatory Compliance	\$11,664
Aboriginal Affairs	\$625
Procurement & Construction	\$3,256,529
Commercial & Legal	\$29,350
Contingency	\$7,83
Labrador-Island Transmission Link Total	\$3,720,778
Labrador-Transmission Assets (in \$ thousands)	September 2021
Expenditure Category	
NE-LCP Owners Team, Admin and EPCM Services	\$132,154
Feasibility Engineering	\$299
Environmental & Regulatory Compliance	\$672
Aboriginal Affairs	\$168
Procurement & Construction	\$730,36
Commercial & Legal	\$8403
Contingency	\$446
Labrador Transmission Assets Total	\$872,508
Muskrat Falls Capital Cost Budget Total	\$10.136.43

Contingency Budget (in \$ thousands)	September 2021
Sub-Project:	
Muskrat Falls Generating Facility	\$36,761
Labrador-Island Transmission Link	\$7,837
Labrador Transmission Assets	\$446
Total Project	\$45,044

### **II. Project Milestone Schedule**

Muskrat Falls	Sep 2020
Generating Facility	Planned Date
North Spur Works Ready	
for Diversion	Oct-16
<b>River Diversion Complete</b>	Feb-17
Reservoir Impoundment	
Complete	Sep-19
Powerhouse Unit 1	
Commissioned - Ready for	
Operation	Oct-20
First Power from Muskrat	
Falls	Sep-20
Powerhouse Unit 2	
Commissioned - Ready for	
Operation	Dec-20
Powerhouse Unit 3	
Commissioned - Ready for	
Operation	May-21
Powerhouse Unit 4	
Commissioned - Ready for	
Operation	Sep-21
Full Power from Muskrat	
Falls	Sep-21
Commissioning Complete	
- Commissioning	
Certificate Issued	Oct-21

Labrador-Island	Sep 2020
Transmission Link	<b>Planned Dates</b>
SOBI Cable Systems Ready	Dec-16
Soldiers Pond Switchyard	
Ready to Energize	Aug-17
Ready for Power	
Transmission (LTA)	Apr-18
Muskrat Falls Converter	
Station Ready to Energize	
(Pole 1)	May-18
HVdc Transmission Line	
Construction Complete	Nov-17
Soldier's Pond Converter	
Station Ready to Energize	
(Pole 1)	May-18
1ST Power Transfer (Pole 1)	Jun-18
Soldiers Pond Synchronous	
Condenser Ready for	
Operation	Aug-21
Ready for Power	
Transmission (Low Load	
Testing Complete Pole 1)	Jun-19
Muskrat Falls and Soldiers	
Pond Converter Stations -	
Bipole Dynamic Testing	
Complete	Sep-21
Commissioning Complete -	
Commissioning Certificate	
Issued	Oct-21

Labrador Transmission Assets	Sep 2020 Planned Dates
HVac Transmission	
Complete	Jun-17
Churchill Falls	
Switchyard Ready	
to Energize	Feb-18
Muskrat Falls	
Switchyard Ready	
to Energize	Apr-18
Ready for Power	
Transmission	Apr-18
Commissioning	
Complete -	
Commissioning	
Certificate Issued	Oct-21

Date Certain - Nov-2021



# Annex B

**Project Expenditures** 

- I. Muskrat Falls Generation
- II. Labrador Island Transmission Link
- III. Labrador Transmission Assets

Columns in tables may not total due to rounding

### I. Muskrat Falls Generation

	Project Revised		Cumulative \$		C	umulative %	5
December 2021 (\$000)	Budget September 2021	Planned	Incurred	Variance	Planned	Incurred	Variance
Description	А	В	С	C-B	D=B/A	E=C/A	E-D
NE-LCP Owners Team, Admin and EPCM Services	\$633,767	\$630,347	\$629,683	(\$664)	99.5%	99.4%	-0.1%
Feasibility Engineering	\$16,865	\$16,865	\$16,568	(\$297)	100.0%	98.2%	-1.8%
Environmental & Regulatory Compliance	\$28,230	\$28,230	\$27,470	(\$760)	100.0%	97.3%	-2.7%
Aboriginal Affairs	\$51,508	\$51,508	\$53 <i>,</i> 086	\$1,578	100.0%	103.1%	3.1%
Procurement & Construction	\$4,694,037	\$4,737,999	\$4,683,200	(\$54,799)	100.9%	99.8%	-1.2%
Commercial & Legal	\$81,978	\$78,197	\$78,769	\$572	95.4%	96.1%	0.7%
Contingency	\$36,761	\$0	\$0	\$0	0.0%	0.0%	0.0%
TOTAL	\$5,543,145	\$5,543,145	\$5,488,776	(\$54,369)	100.0%	99.0%	-1.0%

December 2021 (\$000)	Project Revised Budget September 2021	Incurred Cumulative Costs December 2021
Description	А	В
NE-LCP Owners Team, Admin and EPCM Services	\$633,767	\$629,683
Feasibility Engineering	\$16,865	\$16,568
Environmental & Regulatory Compliance	\$28,230	\$27,470
Aboriginal Affairs	\$51,508	\$53,086
Procurement & Construction	\$4,694,037	\$4,683,200
Commercial & Legal	\$81,978	\$78,769
Contingency	\$36,761	\$0
TOTAL	\$5,543,145	\$5,488,776

### **II.** Labrador Island Transmission Link

	Project Revised Cumulative \$			Cumulative %			
December 2021 (\$000)	Budget September 2021	Plan	Incurred	Variance	Plan	Incurred	Variance
Description	А	В	С	С-В	D=B/A	E=C/A	E-D
NE-LCP Owners Team, Admin and EPCM Services	\$396,095	\$395,165	\$388,764	(\$6,401)	99.8%	98.1%	-1.6%
Feasibility Engineering	\$18,679	\$18,679	\$18,684	\$5	100.0%	100.0%	0.0%
Environmental & Regulatory Compliance	\$11,664	\$11,664	\$11,571	(\$93)	100.0%	99.2%	-0.8%
Aboriginal Affairs	\$625	\$625	\$542	(\$83)	100.0%	86.7%	-13.3%
Procurement & Construction	\$3,256,529	\$3,265,615	\$3,198,598	(\$67,017)	100.3%	98.2%	-2.1%
Commercial & Legal	\$29,350	\$29,031	\$28,995	(\$36)	98.9%	98.8%	-0.1%
Contingency	\$7,837	\$0	\$0	\$0	0.0%	0.0%	0.0%
TOTAL	\$3,720,778	\$3,720,778	\$3,647,154	(\$73,624)	100.0%	98.0%	-2.0%

December 2021 (\$000)	Project Revised Budget September 2021	Incurred Costs Cumulative December 2021
Description	A	В
NE-LCP Owners Team, Admin and EPCM Services	\$396,095	\$388,764
Feasibility Engineering	\$18,679	\$18,684
Environmental & Regulatory Compliance	\$11,664	\$11,571
Aboriginal Affairs	\$625	\$542
Procurement & Construction	\$3,256,529	\$3,198,598
Commercial & Legal	\$29,350	\$28,995
Contingency	\$7,837	\$0
тот	AL \$3,720,778	\$3,647,154

## III. Labrador Transmission Assets

	<b>Project Revised</b>	roject Revised Cumulative \$			Cumulative %		
December 2021 (\$000)	Budget September 2021	Plan	Incurred	Variance	Plan	Incurred	Variance
Description	А	В	С	C-B	D=B/A	E=C/A	E-D
NE-LCP Owners Team, Admin and EPCM Services	\$132,154	\$133,365	\$131,809	(\$1,556)	100.9%	99.7%	-1.2%
Feasibility Engineering	\$299	\$303	\$300	(\$3)	101.3%	100.3%	-1.0%
Environmental & Regulatory Compliance	\$672	\$812	\$672	(\$140)	120.8%	100.0%	-20.8%
Aboriginal Affairs	\$168	\$168	\$168	\$0	100.0%	100.0%	0.0%
Procurement & Construction	\$730,367	\$728,843	\$728,394	(\$449)	99.8%	99.7%	-0.1%
Commercial & Legal	\$8,403	\$9,017	\$7,761	(\$1,256)	107.3%	92.4%	-14.9%
Contingency	\$446	\$0	\$0	\$0	0.0%	0.0%	0.0%
ΤΟΤΑΙ	\$872,508	\$872,508	\$869,104	(\$3,404)	100.0%	99.6%	-0.4%

December 2021 (\$000)	Project Revised Budget September 2021	Incurred Costs Cumulative December 2021
Description	A	В
NE-LCP Owners Team, Admin and EPCM Services	\$132,154	\$131,809
Feasibility Engineering	\$299	\$300
Environmental & Regulatory Compliance	\$672	\$672
Aboriginal Affairs	\$168	\$168
Procurement & Construction	\$730,367	\$728,394
Commercial & Legal	\$8,403	\$7,761
Contingency	\$446	\$0
TOTAL	\$872,508	\$869,104



# Annex C

#### Earned Progress

- I. Overall Construction
- II. Muskrat Falls Generation
- III. Labrador Island Transmission Link
- IV. Labrador Transmission Assets

No Longer Being Reported (Construction Complete)



# Annex D

Project Milestone Schedule Forecast

- I. Muskrat Falls Generation
- II. Labrador Island Transmission Link
- III. Labrador Transmission Assets

### I. Muskrat Falls Generation

	Planned Date September 2020	December 2021
December 2021		Actual/Forecast
Project Sanction	17-Dec-12	Complete
North Spur Works Ready for Diversion	5-Oct-16	Complete
River Diversion Complete	15-Feb-17	Complete
Reservoir Impoundment Complete	4-Sep-19	Complete
Powerhouse Unit 1 Commissioned - Ready for Operation	31-Oct-20	Complete
First Power from Muskrat Falls	22-Sep-20	Complete
Powerhouse Unit 2 Commissioned - Ready for Operation	31-Dec-20	Complete
Powerhouse Unit 3 Commissioned - Ready for Operation	31-May-21	Complete
Powerhouse Unit 4 Commissioned - Ready for Operation	30-Sep-21	Complete*
Full Power from Muskrat Falls	30-Sep-21	Complete*
Commissioning Complete - Commissioning Certificate Issued	1-Oct-21	Complete*
Date Certain	November 2021	Complete*

\* Updated forecast from last reporting period

#### **II.** Labrador Island Transmission Link

December 2021	Planned Date September 2020	December 2021 Actual/forecast
Project Sanction	17-Dec-12	Complete
SOBI Cable Systems Ready	9-Dec-16	Complete
Soldiers Pond Switchyard Ready to Energize	24-Aug-17	Complete
Ready for Power Transmission (LTA)	27-Apr-18	Complete
Muskrat Falls Converter Station Ready to Energize (Pole 1)	10-May-18	Complete
HVdc Transmission Line Construction Complete	27-Nov-17	Complete
Soldier's Pond Converter Station Ready to Energize (Pole 1)	16-May-18	Complete
		Completion of 45
1ST Power Transfer (Pole 1)	11-Jun-18	megawatt heat run
Soldiers Pond Synchronous Condenser Ready for Operation	31-Aug-21	Complete
Ready for Power Transmission (Low Load Testing Complete Pole 1)	4-Jun-19	Complete
Muskrat Falls and Soldiers Pond Converter Stations - Bipole Dynamic Testing		•
Complete	30-Sep-21	31-May- 2022*
Commissioning Complete - Commissioning Certificate Issued	1-Oct-21	31-May- 2022*
Date Certain	November 2021	31-May- 2022*

\* Updated forecast from last reporting period

### **III.** Labrador Transmission Assets

December 2021	September 2020 Planned Date	December 2021 Actual/Forecast
Project Sanction	17-Dec-12	Complete
HVac Transmission Line Construction Complete	27-Jun-17	Complete: Turnover of HVac TL and all subsystems complete
Churchill Falls Switchyard Ready to Energize	14-Feb-18	Complete
Muskrat Falls Switchyard Ready to Energize	2-Apr-18	Complete
Ready for Power Transmission	27-Apr-18	Complete
Commissioning Complete - Commissioning Certificate Issued	1-Oct-21	Complete*
Date Certain	November 2021	Complete*

\* Updated forecast from last reporting period



# **End of Report**