

Muskrat Falls Project Oversight Committee

Quarterly Project Update

Period Ending September 2020

April 20, 2021

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1. Q3 2020 Cumulative Costs



Includes September 2020 budget reset

2. Q3 2020 Planed and Incurred Costs



Includes September 2020 budget reset



3.0 Oversight Committee Reporting

- 3.1 Overview
- 3.2 Committee Activities
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- 3.4 Risks and Issues Being Monitored by the Committee
- 3.5 Subsequent Events to Q3 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 Nalcor to obtain more detail and explanation.
- In September 2020, Nalcor revised the project budget and schedule.
- This report covers the July to September 2020 reporting period (Q3).
- 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 Q3 reporting period ending, and up to the date of drafting this report (December 24, 2020). 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 Nalcor for the reporting period ending September 2020 which includes project activity updates to late October 2020.
- The Annexes contain a more detailed accounting of the information provided in this report.
- The next Committee Report will cover the reporting period October 2020 December 2020.

3.2 Committee Activities

- The Committee met on four 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 Industry, Energy and Technology officials participated as an observer in three monthly calls on Nalcor project reporting to the Independent Engineer (IE) and Natural Resources Canada (NRCan) and three calls with the IE and NRCan.
- The Committee Chair and one Independent Committee member participated in a limited site visit to the Soldiers Pond Synchronous Condenser building to observe synchronous condenser commissioning and vibration remediation activities.
- The Committee Chair participated in a call with Nalcor project team members and Newfoundland and Labrador Hydro.
- Planned visits to project sites continued to be placed on hold due to COVID-19 pandemic travel and physical distancing restrictions.

3.3 Independent Engineer Activities

• Project and other site visits have been impacted by COVID-19 travel restrictions. The Independent Engineer (IE) continues to monitor the project remotely and information exchanges are ongoing during this period.

- 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:
 - The Project budget and schedule was revised in September 2020;
 - Litigation and arbitration proceedings continue with Astaldi;
 - Valve Hall remediation is ongoing;
 - Protection and Controls (P&C) software completion for the HVdc system and schedule remains a key project risk; resumption of commissioning activities is pending resolution of the valve hall incident;
 - Soldiers Pond synchronous condenser vibration remediation is ongoing;
 - Powerhouse Unit 1 lower brackets and intake concrete spalling issues have been remediated and commissioning work is continuing;
 - Reservoir rim stability remained consistent over the Quarter; and
 - Nalcor/NLH preparedness for interconnection and operations following transfer of power and final completion of bipole remains a key focus area.

- 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 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;
- Valve hall remediation; and
- P&C software delivery and final commissioning completion to meet future revised project schedule.
- D) Astaldi
 - Astaldi arbitration/litigation outcomes and potential impact on project costs.
- E) Synchronous Condensers
 - Remediation of vibration and other commissioning issues; and potential impact on transmission future revised project schedule.

F) Insurance Claims and Coverage

- Potential coverage: Preservation/re-preservation of Turbine and Generator parts investigations ongoing claim is still active, and resolutions are part of ongoing commercial discussions with Andritz.
- Partial coverage confirmed: Spillway secondary concrete (\$1M and gate guide heater tubulars repairs (\$2 Million) has been submitted – not all funds have been received as of Q3 2020 – further recovery is being pursued.
- Potential coverage: Valve Hall remediation potential claim being pursued.
- G) LITL and Powerhouse Commissioning
 - Commissioning of LITL and powerhouse generation Units 1 through 4 and future revised schedule.
- H) Reservoir Rim Stability
 - Impact of reservoir full supply level on reservoir shoreline/slope stability.
- I) Project Integration and Operations Readiness
 - Nalcor/NLH readiness to connect the Muskrat Falls Project to the Island and North American electricity grid and operate facilities₂ effectively.

- J) Additional Risks (above the September 2020 Project Budget)
 - Second wave of COVID-19 cost and schedule impacts;
 - Astaldi arbitration/litigation;
 - Alternate HVdc P&C software development;
 - 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 2020 Project Budget for these additional risks.

- On November 14, 2020 a GE Grid worker at the Soldiers Pond Converter Station tested positive for COVID-19.
- On November 19, 2020 Nalcor released it third quarter financial results. Click here
- On December 7, 2020 the Committee Chair participated in a virtual site tour of the Muskrat Falls powerhouse with NRCan and the IE.
- In October, November and December 2020, Nalcor 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 early December 2020, Power Supply advised:
 - Root cause analysis of the valve hall incident confirms that insufficient heat curing during manufacturing of the beams is the cause of the degradation of the fiberglass coating on the beams.
 - Interim Pole 1 beam curing and replacement is complete and dynamic commissioning commenced on November 28, 2020; Pole 2 beam replacement is ongoing; dynamic commissioning of Pole 2 is scheduled to start in mid-January 2021 and trial operations is scheduled to start in mid-February 2021.

- The final remediation plan for permanent beam replacement is under development by GE Grid but is expected in January 2021.
- Current estimate for completion of manufacturing of new beams is by the end of Q1 2021; GE Grid and Nalcor are assessing options for delivery of replacement beams (multiple batches versus on delivery).
- Power transfer on the LITL occurred on December 4, 2020 with power generated from Muskrat Falls Unit 1.

	Interim Software	
GE Grid Milestones	GE Grid Schedule	Nalcor Schedule
Interim software to site	October 29, 2020	October 29, 2020
Dynamic commissioning complete	February 14, 2021	February 14, 2021
Trial operations at low load	February 15, 2021*	February 15, 2021*
	Final Software	
Final software to site	May 20, 2021	May 31, 2021
Dynamic commissioning complete	June 28, 2021	July 31, 2021
Trial operations at available power	June 29, 2021	August 1, 2021*

• Bipole Software Schedule as of December 2020

* Trial operations is complete after 30 consecutive days of power transfer without a system trip

- Synchronous Condensers
 - Dynamic Commissioning
 - Unit 2 has been tested up to 120 MVAR (70% load rejection) and Unit 3 up to 45MVAR (25% load rejection); noise an vibration data being collected units will be tested up to 100% load rejection.
 - Later Vibration Foundation Remediation
 - Engineering design is 100% complete; foundation remediation work on Unit 1 is progressing in parallel with dynamic commissioning of Unit 3 in the event the elliptical bearing is determined not to be a viable solution to the vibration issue.
 - Final decision on foundation remediation is pending receipt of GE Power's final analysis report on elliptical bearing performance but is expected to be made by end of December 2020.

- In early December 2020, Power Development advised:
 - Turbines and Generators
 - Unit 1 commercial power is expected in the coming days and was achieved in December 2020.
 - Unit 2 wet commission was halted in early November following failure of the generator upper cooling air shroud during an over speed test; investigation into root cause is ongoing with repairs under way with commercial power now expected in February 2021.
 - Unit 3 and Unit 4 commercial power is expected in May 2021 and September respectively.
 - Balance of Plant is now at approximately 95% complete.
 - Intakes
 - Commissioning for intakes 1-4 is being completed with commissioning and start up activities for each unit.
 - Spillway
 - Repairs to gate guides, heaters, and secondary concrete are now substantially complete in all Bays.

- In mid/late December 2020, Nalcor advised:
 - A ground fault in powerhouse Unit 1 occurred on December 10, 2020. The resulting investigation confirmed that the short was caused by a tie wire lodged amongst a couple stator bars.
 - An interim repair to bypass the failed bar, and resumption of operations was successfully completed on December 20, 2020 at full rated capacity of 206 megawatts. A permanent repair will involve replacing the failed bar at a time when other Units are available in the powerhouse.
 - Focus on Unit 1 remediation has impacted the Unit 2 overspeed testing schedule which will now be deferred to early January 2021 following the Christmas period.
 - As of end of December 2020, Units 1 and 2 are at 100% construction complete, Unit 3 at 92% and Unit 4 at 72% construction complete.
 - On December 22, 2020 Unit 1 was turned over to Nalcor Operations. At that time approximately 145 MW of power was being transfer to the Island on Pole 1 of the LITL.
 - Synchronous Condensers
 - Based on Nalcor's review of elliptical bearing vibration data for synchronous condenser Unit 3 received from GE Power, Nalcor has advised GE Power that foundation remediation on all Units is the preferred solution. Discussions are ongoing with GE Power.



4.0 Nalcor Reporting

- 4.1 Summary Quarter Ending September 2020
- 4.2 Project Expenditures
- 4.3 Contingency
- 4.4 Earned Progress

*Information in this section was provided for period ending September 2020 project reporting which includes project activity updates to late October 2020. Recent updates to this section can be found in Section 3.5.

September 2020 Summary:

- Overall construction progress is at 99.3% (December 2019);
- \$9,728 Million in incurred costs; and
- \$9,788 Million in committed costs.

September 2020 Revised Project Capital Budget

Sub-Project	Existing AFE (\$000)	Updated Forecast (\$000)	Variance (\$000)
MFGen	\$5,500	\$5,560	\$59.9
LITL	\$3,714	\$3,738	\$23.8
LTA	\$889	\$880	-\$9.0
Total	\$10,102	\$10,177	\$74.7

- Does not include Additional Risks as reported on slide 13, which at the end of September 2020 known risks totaled approximately \$750 Million. If these risks are realized, they may become project costs.
- The current forecast contingency budget at September 2020 is \$59.2 Million, a decrease of \$43.8 Million from the previous Quarter. Includes changes realized in the September 2020 project capital budget revision. For further detail see Section 4.3.

September 2020 Revised Key Milestones

Milestone	Previous Forecast (Jan 2020)	Revised Forecast (Sep 2020)
First Power (Grid Synch)	15-Mar-2020	30-Sep-2020
U1 – Commercial Power	15-Apr-2020	31-Oct-2020
U2 – Commercial Power	20-Jun-2020	31-Dec-2020
U3 – Commercial Power	17-Sep-2020	31-May-2021
U4 – Commercial Power	18-Nov-2020	30-Sep-2021
Full Power	18-Nov-2020	30-Sep-2021
Converter Stations Bipole Dynamic Testing Complete	31-Aug-2020	30-Sep-2021
All Synchronous Condensers Ready for Operation	14-Aug-2020	31-Aug-2021 ¹
Commissioning Certificate	1-Sep-20 (Under Review)	TBD ²

- 1. Assumes foundation remediation solution and that all three synchronous condenser units have had their foundations modified
- 2. Based on completing a 675 MW only high power mono-pole overload test to achieve LITL Commissioning Date in October 2021 and pending discussion with Nalcor, the Independent Engineer, Province and Canada

Quarterly Planned vs Incurred Cost Variances:

- The Project Capital Budget was reset in period ending September 2020 reporting documents as noted on slide 20. Planned versus Incurred cost variances reporting by quarter will resume in the December 2020 Quarterly Report.
- See Section 4.2 and Annex B for further detail on September 2020 planned versus incurred costs.

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 Development¹

• <u>Turbines and Generators</u>

Unit	Status
1	 Grid synchronization was achieved on September 22, 2020; First Power milestone achieved Commissioning tests complete, including 72 hour trial run Post trail inspection and punch list clearance is underway Unit 1 release for service is expected for the first week of November 2020; however placement into service is being held to complete preventative maintenance on Unit 1 intake gates Commercial power is expected in mid-November 2020
2	 First turn was achieved on October 20, 2020 Mechanical wet commissioning and electrical static commissioning is underway Unit 2 commercial power is expected in December 2020
3	 Assembly is ongoing, with commercial power expected in May 2021
4	 Rotor piling underway with pole installation to follow Runner assembly has been lowered into the pit Unit 4 commercial power is expected in September 2021

¹ Some activities in this and the following Power Development slides have occurred since September 2020.

Activity	Remaining Scope	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Comments
	Unit 1 - Commissioning and Trial Operations Unit 1 - Commercial Power (Ready for Operation)		*				Ready for Operation - Nov 2020
	Unit 2 - Pre Commissioning Tests Unit 2 - Commissioning and Trial Operations Unit 2 - Commercial Power (Ready for Operation)						Ready for Operation - Dec 2020
Turbines and Generators	Unit 3 - Assembly and Installation Unit 3 - Pre Commissioning Tests Unit 3 - Commissioning and Trial Operations Unit 3 - Commercial Power (Ready for Operation)				*		Ready for Operation - May 2021
	Unit 4 - Assembly and Installation Unit 4 - Pre Commisioning Tests Unit 4 - Commissioning and Trial Operations Unit 4 - Commercial Power (Ready for Operation)						Ready for Operation - Sep 2021

Power Development Summary Schedule (CH0030)

- Balance of Plant
 - Cahill-Ganotec (CG) is completing balance of plant systems; currently at approximately 95% complete.
 - Currently CG is continuing to work on the following systems:
 - HVAC priority systems commissioning
 - HVAC heating systems for north, central and south dams
 - HVAC seismic restraints
 - Electrical in pit 4 (cable trays, cable pulling and grounding)
 - Support for Unit 2 pre-commissioning
 - Punch list clearance
 - Fire proofing
 - Vendor representatives are on site, and progressing commissioning of priority systems.

- Hydro-Mechanical
 - Intake
 - Commissioning for intakes 1 through 4 is being completed in coordination with commissioning and start up activities for each unit.
 - Spillway
 - Repairs to secondary concrete, guides, and heaters underway in Bays 1 and 5.
 - Work in Bay 2, 3, and 4 is substantially complete.
- Arbitration with Astaldi continues; payment of Astaldi related liens against the project continues; Nalcor intends to recover any costs associated from Astaldi or the contract's securities; witness examination will occur in November 2020. Other project residual contingency, funds are not held within the September 2020 budget should net damages be awarded in Astaldi's favour.
- Focus areas for Q4, 2020 include commissioning of Units 1 and 2. Forecast expenditure for Q4, 2020 is estimated at approximately \$79.3 Million.

Power Supply¹:

- Bipole Status
 - The latest round of Factory Acceptance Tested (FAT) for Release B of the Interim Software was completed in October, 2020.
 - Review of test results confirm that Release B is ready for installation; however resumption of commissioning activities is pending resolution of the converter stations valve hall incident.
 - The GE Grid development team are now focused on final bipole software.
 - GE Grid milestones for final bipole software:
 - FAT complete April 30, 2021
 - Dynamic commissioning complete June 4, 2021
 - Trial operations Start June 5, 2021
 - Nalcor is reviewing GE Grid milestone dates and will update the October 2020 Integrated Project schedule (IPS) based on an assessment of GE Grid's schedule.

¹ Some activities in this and the following Power Supply slides have occurred since September 2020.

<u>Converter Stations Valve Hall Incident Status</u>

- GE Grid continues it's root cause analysis but has communicated that failure of valve hall beams is the result of insufficient heat curing during manufacturing.
- GE Grid has confirmed that all beam supplied by the primary vendor will have to be replaced (348 beams) as part of the final remediation plan. Approximately 10 percent of the beams were provided by a secondary vendor; none of which have failed resistivity tests and will not require replacement.
- Supply of replacement beams is a critical activity for the final remediation plan and an order has been placed with the secondary vendor.
- GE Grid's final remediation plan, including beam replacement procedure and schedule are pending conclusion of the root cause investigation.

LITL Re-Energization - Interim Plan Status

- Based on preliminary results of the root cause investigation, GE Grid has presented an interim solution to allow for commissioning of Pole 1 to recommence.
- The interim plan involved cleaning the Pole 1 beams to remove conductive materials. Post cleaning resistivity testing revealed that this was not sufficient to solve the problem therefore the original interim plan cannot be executed.
- GE Grid is evaluating alternate plans to re-energize the LITL that minimizes risk to equipment and optimize schedule.
- The final remediation plan will require replacing all affected beams regardless of the actions taken for the interim re-energization plan.

<u>Synchronous Condensers Status</u>

Unit	Status
2	 Unit has been offline tested at full speed with hydrogen; vibration and noise data has been collected Testing with hydrogen has indicated a quicker startup time and significant reduction in noise Online testing (grid sync) has commenced The unit will be tested online at various loads up to 100% capacity to test performance and collect vibration data
3	 Dynamic commissioning has commenced Unit has been running at various speeds in order to balance the unit with the new elliptical bearing Hydrogen filling and online testing is scheduled to start in November 2020.
1	 Preparations for foundation remediation work has started Dish heads have been reinstalled Removal of auxiliaries is underway

Lateral Vibration – Foundation Remediation

- Finalization of foundation remediation design is ongoing; construction drawings will be issued in November 2020.
- Remediation of Unit 1 is the priority; preparations for Unit 1remediation work is underway.
- GE Power plans to mobilize equipment and resources to Soldiers Pond by mid-November 2020 to start remediation work.
- The focus for Q4 2020 is on continued completions, commissioning and integration of operations; and the forecast expenditure is estimated at approximately \$28.8 Million.

4.2 Project Expenditures

	Project Revised	Cumulative \$			Cumulative %		
September 2020 (\$000)	Budget September 2020	Plan	Incurred	Variance	Plan	Incurred	Variance
Description	A	В	С	С-В	D=B/A	E=C/A	E-D
NE-LCP Owners Team, Admin and EPCM Services	\$1,165,768	\$1,088,066	\$1,088,066	\$0	93.3%	93.3%	0.0%
Feasibility Engineering	\$35,847	\$35,847	\$35,847	\$0	100.0%	100.0%	0.0%
Environmental & Regulatory Compliance	\$40,706	\$39,709	\$39,709	\$0	97.6%	97.6%	0.0%
Aboriginal Affairs	\$52,301	\$47,698	\$47,698	\$0	91.2%	91.2%	0.0%
Procurement & Construction	\$8,703,799	\$8,424,616	\$8,424,616	\$0	96.8%	96.8%	0.0%
Commercial & Legal	\$119,345	\$92,495	\$92,495	\$0	77.5%	77.5%	0.0%
Contingency	\$59,205	\$0	\$0	\$0	0.0%	0.0%	0.0%
TOTAL	\$10,176,970	\$9,728,431	\$9,728,431	\$0	95.6%	95.6%	0.0%

	Project Revised Budget September	Incurred Cumulative Costs	Project Final Forecast Cost	
September 2020 (\$000)	2020	September 2020	September 2020	Variance PFC from Budget
Description	A	В	С	D=A-C
NE-LCP Owners Team, Admin and EPCM Services	\$1,165,768	\$1,088,066	\$1,165,768	\$0
Feasibility Engineering	\$35,847	\$35,847	\$35,847	\$0
Environmental & Regulatory Compliance	\$40,706	\$39,709	\$40,706	\$0
Aboriginal Affairs	\$52,301	\$47,698	\$52,301	\$0
Procurement & Construction	\$8,703,799	\$8,424,616	\$8,703,799	\$0
Commercial & Legal	\$119,345	\$92,495	\$119,345	\$0
Contingency	\$59,205	\$0	\$59,205	\$0
TOTAL	\$10,176,970	\$9,728,431	\$10,176,971	\$0

4.3 Contingency

September 2020 (\$000)	Project Revised Budget September 2020	Project Forecast Cost June 2020	Project Forecast Cost September 2020	Change from Previous Quarter	Variance PFC from Budget
	A	В	С	C - B	C - A
Total Project	\$59,205	\$103,002	\$59,205	(\$43,797)	\$0

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

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	\$4,703,31
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	\$62
Procurement & Construction	\$3,266,059
Commercial & Legal	\$29,350
Contingency	\$13,54
Labrador-Island Transmission Link Total	\$3,737,48
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	\$1,41
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

II. Project Milestone Schedule

Muskrat Falls	Sep 2020
Generating Facility	Planned Dates
North Spur Works Ready	
for Diversion	Oct-16
River Diversion Complete	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	Planned Dates
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

I. Muskrat Falls Generation

	Project Revised		Cumulative \$		Cı	umulative %	5
September 2020 (\$000)	Budget September 2020	Planned	Incurred	Variance	Planned	Incurred	Variance
Description	A	В	С	С-В	D=B/A	E=C/A	E-D
NE-LCP Owners Team, Admin and EPCM Services	\$634,838	\$589,026	\$589 <i>,</i> 026	\$0	92.8%	92.8%	0.0%
Feasibility Engineering	\$16,865	\$16,865	\$16,865	\$0	100.0%	100.0%	0.0%
Environmental & Regulatory Compliance	\$28,230	\$27,333	\$27 <i>,</i> 333	\$0	96.8%	96.8%	0.0%
Aboriginal Affairs	\$51 <i>,</i> 508	\$46,990	\$46,990	\$0	91.2%	91.2%	0.0%
Procurement & Construction	\$4,703,316	\$4,527,824	\$4,527,824	\$0	96.3%	96.3%	0.0%
Commercial & Legal	\$80,978	\$60,575	\$60,575	\$0	74.8%	74.8%	0.0%
Contingency	\$44,240	\$0	\$0	\$0	0.0%	0.0%	0.0%
TOTAL	\$5,559,974	\$5,268,613	\$5,268,613	\$0	94.8%	94.8%	0.0%

	Project Revised	Incurred Cumulative
September 2020 (\$000)	2020	September 2020
Description	А	В
NE-LCP Owners Team, Admin and EPCM Services	\$634,838	\$589,026
Feasibility Engineering	\$16,865	\$16,865
Environmental & Regulatory Compliance	\$28,230	\$27,333
Aboriginal Affairs	\$51,508	\$46,990
Procurement & Construction	\$4,703,316	\$4,527,824
Commercial & Legal	\$80,978	\$60,575
Contingency	\$44,240	\$0
TOTAL	\$5,559,974	\$5,268,613

II. Labrador Island Transmission Link

	Project Revised Cumulative \$			Cumulative %			
September 2020 (\$000)	Budget September 2020	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	\$397,565	\$367,409	\$367,409	\$0	92.4%	92.4%	0.0%
Feasibility Engineering	\$18,679	\$18,679	\$18,679	\$0	100.0%	100.0%	0.0%
Environmental & Regulatory Compliance	\$11,664	\$11,564	\$11,564	\$0	99.1%	99.1%	0.0%
Aboriginal Affairs	\$625	\$542	\$542	\$0	86.7%	86.7%	0.0%
Procurement & Construction	\$3,266,059	\$3,169,745	\$3,169,745	\$0	97.1%	97.1%	0.0%
Commercial & Legal	\$29,350	\$24,779	\$24,779	\$0	84.4%	84.4%	0.0%
Contingency	\$13,546	\$0	\$0	\$0	0.0%	0.0%	0.0%
TOTAL	\$3,737,488	\$3,592,717	\$3,592,717	\$0	96.1%	96.1%	0.0%

September 2020 (\$000)	Project Revised Budget September 2020	Incurred Costs Cumulative September 2020
Description	A	В
NE-LCP Owners Team, Admin and EPCM Services	\$397,565	\$367,409
Feasibility Engineering	\$18,679	\$18,679
Environmental & Regulatory Compliance	\$11,664	\$11,564
Aboriginal Affairs	\$625	\$542
Procurement & Construction	\$3,266,059	\$3,169,745
Commercial & Legal	\$29,350	\$24,779
Contingency	\$13,546	\$0
TOTAL	\$3,737,488	\$3,592,717

III. Labrador Transmission Assets

	Project Revised	Revised Cumulative \$			Cumulative %		: %
September 2020 (\$000)	Budget September 2020	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	\$133,365	\$131,631	\$131,631	\$0	98.7%	98.7%	0.0%
Feasibility Engineering	\$303	\$303	\$303	\$0	100.0%	100.0%	0.0%
Environmental & Regulatory Compliance	\$812	\$812	\$812	\$0	100.0%	100.0%	0.0%
Aboriginal Affairs	\$168	\$166	\$166	\$0	98.8%	98.8%	0.0%
Procurement & Construction	\$734,424	\$727,047	\$727,047	\$0	99.0%	99.0%	0.0%
Commercial & Legal	\$9,017	\$7,141	\$7,141	\$0	79.2%	79.2%	0.0%
Contingency	\$1,419	\$0	\$0	\$0	0.0%	0.0%	0.0%
TOTAL	\$879,508	\$867,100	\$867,100	\$0	98.6%	98.6%	0.0%

	Project Revised Budget	Incurred Costs
September 2020 (\$000)	September 2020	Cumulative September 2020
Description	A	В
NE-LCP Owners Team, Admin and EPCM Services	\$133,365	\$131,631
Feasibility Engineering	\$303	\$303
Environmental & Regulatory Compliance	\$812	\$812
Aboriginal Affairs	\$168	\$166
Procurement & Construction	\$734,424	\$727,047
Commercial & Legal	\$9,017	\$7,141
Contingency	\$1,419	\$0
TOTAL	\$879,508	\$867,100



Annex C

Earned Progress

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

Columns in tables may not total due to rounding

I. Overall Construction (December 2019)

• >99.3% complete

II. Muskrat Falls Generation (December 2019)

• >98.5% complete

III. Labrador Island Transmission Link (December 2019)

• >99.97% complete

IV. Labrador Transmission Assets (December 2019)

• 100% 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	September 2020
September 2020		Actual/FUIecast
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	31-Oct-20
First Power from Muskrat Falls	22-Sep-20	22-Sep-20
Powerhouse Unit 2 Commissioned - Ready for Operation	31-Dec-20	31-Dec-20
Powerhouse Unit 3 Commissioned - Ready for Operation	31-May-21	31-May-21
Powerhouse Unit 4 Commissioned - Ready for Operation	30-Sep-21	30-Sep-21
Full Power from Muskrat Falls	30-Sep-21	30-Sep-21
Commissioning Complete - Commissioning Certificate Issued	1-Oct-21	1-Oct-21
Date Certain	November 2021	November 2021

II. Labrador Island Transmission Link

	Planned Date	
	September	September 2020
September 2020	2020	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	31-Aug-21
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	30-Sep-21
Commissioning Complete - Commissioning Certificate Issued	1-Oct-21	1-Oct-21
Date Certain	November 2021	November 2021

III. Labrador Transmission Assets

September 2020	September 2020 Planned Date	September 2020 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	1-Oct-21
Date Certain	November 2021	November 2021



End of Report