

Muskrat Falls Project Oversight Committee

Quarterly Project Update

Period Ending June 30, 2018

August 20, 2018

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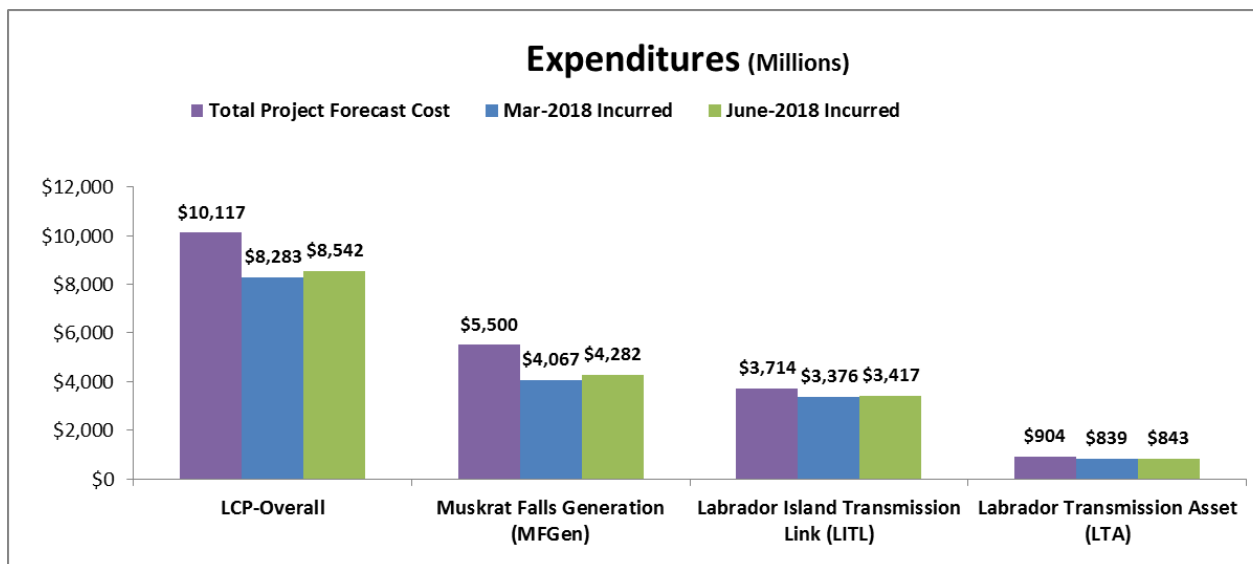
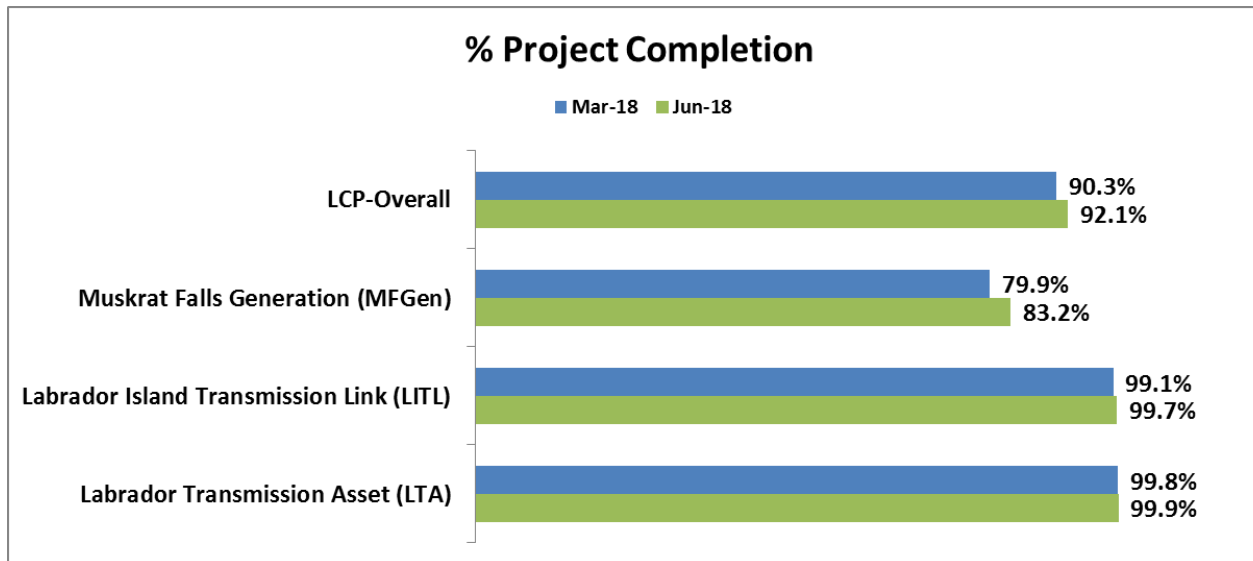
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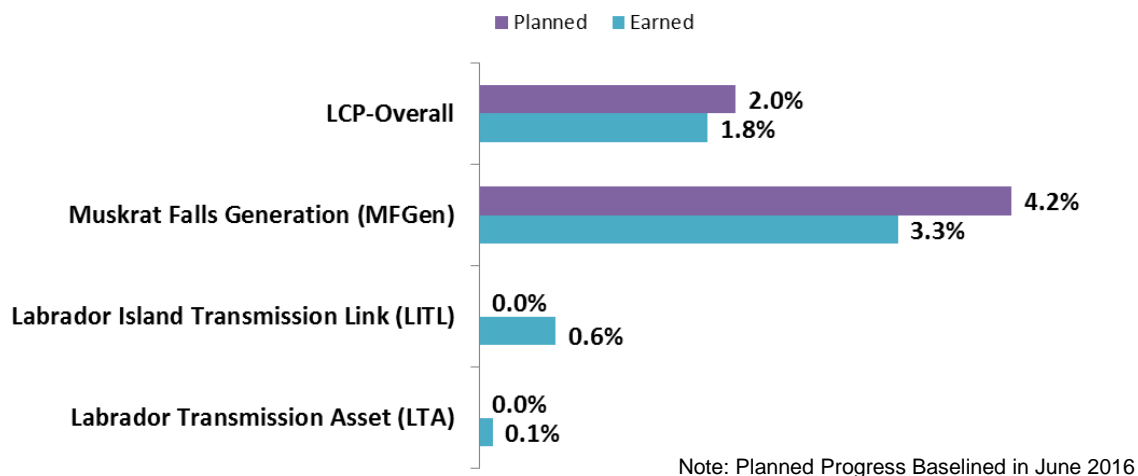
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1. Q2 2018 Cumulative Project Progress

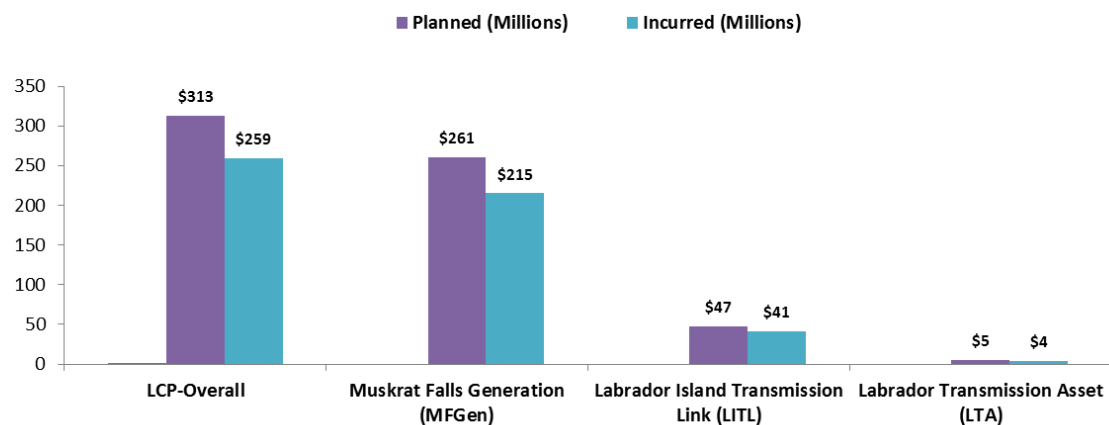


2. Q2 2018 Performance Summary

Q2 2018 Construction Progress



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3.0 Oversight Committee Reporting

3.1 Overview

3.2 Risks / Issues Being Followed by the Committee

3.3 HVdc Transmission System Pole 1 Energization

3.1 Overview

- The Oversight Committee (Committee) receives details on project costs incurred, schedule progress, changes in costs and milestone schedule and the status of construction, manufacturing and installation contracts.
- The Committee identifies risks and issues and follows up with Nalcor to obtain more detail and explanation.
- This report covers the April 2018 to June 2018 period (Q2) and includes information on other key events up to the date of release of this report.
- Section 3 of this report contains information developed by the Committee and includes a section on project HvdC transmission system Pole 1 energization. Section 4 contains project cost and schedule information provided by Nalcor. The Annexes contain a more detailed accounting of the information provided in Section 2.
- The next Committee Report will cover the period July 2018 – September 2018.

3.1 Overview

- The Committee met on three occasions during the period to receive project updates and conduct other Committee business. Committee meeting minutes and reports are available on the Committee website @ [Click here](#) and [Click here](#).
- The Committee Executive Director participated as an observer in two monthly calls on Nalcor project reporting to the Independent Engineer (IE) and Natural Resources Canada (NRCan).
- The Committee Executive Director and Chair participated in two calls with the IE and NRCan to review Nalcor monthly project reporting and follow up on the IE's technical visits during the quarter.
- In May 2018, the IE visited the Phoenix Electric Corporation (PEC) facility in Norwood, MA USA to review status and quality of generator circuit breakers (GCBs) manufactured by ABB and local control cabinets (LCC) for the GCBs manufactured by Phoenix Electric Corporation. The IE reported that ABB and PEC staff were suitably qualified for acceptance testing of the MFA GCB LCC's. The full IE report can be found on the Committee's website @ [Click here](#).

3.1 Overview

- In June 2018, the Committee Executive Director participated in the IE and NRCan Muskrat Falls Project site visits and related meetings during the week of June 25, 2018.
- The IE and NRCan also met with the Committee on June 28, 2018 and provided a project update and summary of the June 2018 project site visit and technical meetings. This update will be incorporated in the IE's site visit report which will be posted to the Committee's website once received.
- The IE will be visiting the MFGen transformer factory acceptance testing (FAT) facility in Montreal and the Stafford Protection and Controls (P&C) software development site in September 2018 to review progress.
- On April 10, 2018, the Independent Expert Advisory Committee (IEAC) issued a set recommendations on the monitoring, management and mitigation of potential methylmercury impacts of the Lower Churchill Project to the Minister of Municipal Affairs and Environment (MAE). The full recommendations can be found @ [Click here](#).

3.1 Overview

- On May 11, 2018, Nalcor released its Q1 financial results which are available on the Nalcor website @ [Click here](#). A Nalcor Q2 financial results conference call is scheduled for August 22, 2018. Details for the call can be found @ [Click here](#).
- First Power Transfer for Pole 1 of the Hvdc transmission system occurred on June 11, 2017 marking the first flow of electricity from the existing Churchill Falls Generating Plant in Labrador to the island.
- In July 2018, Jim Feehan, Independent Committee Member concluded his time with the Committee. The Committee wishes to thank Mr. Feehan for his volunteer effort and valuable contribution.
- On August 6, 2018, the Committee Executive Director and Chair met with Newfoundland and Labrador Hydro (NLH) regarding project commissioning and integration into NLH operations. NLH reports positive progress in these areas.
- Power Supply and Power Generation Quantitative Risk Assessments (QRA's) are ongoing. Final results are expected in Q3, 2018.
- In this report the Committee has included a section on project HVdc transmission system Pole 1 energization as provided by Nalcor. This overview can be found on page 14.

3.2 Risk and Issues being Monitored by the Committee

- 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.
- Over the period the Committee noted:
 - The risk profile for Major civil construction activities continues to reduce as these activities draw to a close. With the exception of the North Dam construction, mostly secondary concrete is being placed in the powerhouse;
 - Insurance claims and coverage risks for civil construction activities are reducing as claims are being settled;
 - North Dam construction is now at height greater than temporary cofferdams;
 - Reservoir rim stability has been consistent over the quarter;
 - First Power Transfer on Pole 1 has been achieved; P&C software full functionality is not yet final;
 - Nalcor/NLH preparedness for interconnection and operations following Pole 1 transfer of power remains a key focus area for planning groups; reliable power transfer in advance of winter season is a key priority.

3.2 Risk and Issues being Monitored by the Committee

- The Project is now largely in the installation, integration and commissioning phases which inherently carry associated risks. Risks are noted in Nalcor reporting and are being tracked by the Committee.
- During 2018 the Committee will continue to focus on project risks particularly on: Pole 1 power transfer and commissioning, Pole 2 commissioning, North Dam construction, IEAC recommendations outcome, and project integration and operations readiness.

A) Safety Performance

- Risk associated with simultaneous operations across multiple work sites, impact on project delivery particularly in the powerhouse, energized switchyards 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 in the powerhouse;
- Potential commercial negotiations to settle claims; and
- Potential for new claims as construction nears completion.

3.2 Risk and Issues being Monitored by the Committee

C) Phased Commissioning

- Ability to meet aggressive Pole1 completion schedule;
- Completion of Protection and Controls system to enhance functionality; associated warranty considerations with early asset handover during Pole 1 commissioning and completion;
- Testing of HVdc system under partial and full power, in-service system reliability, and timing of contractor release and effective warranty period; and
- Reliability of system in advance of winter period.

D) Insurance Claims and Coverage

- Claims ongoing: MFGGen cofferdam repairs and other powerhouse protection mitigation, Draft Tube 2 formwork failure. Water ingress in section of LITL subsea cable has been settled, but some payments remain pending; and
- Closure of claims: LITL replacement conductor.

E) Cofferdam Performance

- North Dam is now at an elevation higher than temporary cofferdams.

F) Reservoir Rim Stability

- Impact of changing water levels during interim impoundment on reservoir shoreline/slope stability.

3.2 Risk and Issues being Monitored by the Committee

G) IEAC Mitigation Recommendations to the Minister of MAE

- Potential impact on cost and schedule depending on outcomes;

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) Project Delivery Team Retention

- Project Team personnel departures and potential impact on project completion. Departures continued to occur over the Quarter.

J) Astaldi S. p. A Corporate Refinancing

- Potential impact on project budget and schedule.

J) Additional Risks

- Protest unrest;
- Reservoir vegetation and soil removal; and
- Other unforeseen directives from Government.
- Funds are not held within the June 2017 Project Budget for these Additional Risks.

3.3 HVdc Transmission System - Pole 1

- The Committee requested that Nalcor provide an overview of Pole 1 energization activities.
- The HVdc transmission system is currently in the Pole 1 dynamic commissioning

| Phase | Activity | Status |
|-----------------------------|---|---|
| Static Commissioning | <ul style="list-style-type: none"> • Mechanically Complete • Functional tests of individual subsystems prior to the system being tested as a whole with high voltage | <ul style="list-style-type: none"> • Construction Complete • Complete |
| Dynamic Commissioning | <ul style="list-style-type: none"> • Energization of the complete system with high voltage <ul style="list-style-type: none"> • Energization of AC switchyards • Energization of AC portion of the converter station, including AC filters • Energization of transformers, valve hall, and DC yard (Open Converter Test) • Energization of the transmission line, transition compounds and SOBI cables (Open Line Test) • Start low power tests; dynamic commissioning through Q3 and Q4 | <ul style="list-style-type: none"> • Complete • Complete • Complete • Complete • Ongoing |
| Trial Operations | <ul style="list-style-type: none"> • First Commercial Power <ul style="list-style-type: none"> • Newfoundland and Labrador System Operator (NLSO) to grant Release for Service (RFS) for commercial operations • Start trial operations period - 20 consecutive days without a significant issue within a 70 day period • Potential overlap with ongoing dynamic commissioning and improving P&C software functionality. | <ul style="list-style-type: none"> • Q4 |
| Pole 1 - Reliable Operation | | <ul style="list-style-type: none"> • By end of Q4 |

4.0 Nalcor Reporting

- 4.1 Summary - Quarter Ending June 2018
- 4.2 Project Expenditures
- 4.3 Contingency
- 4.4 Earned Progress

4.1 Summary – Quarter Ending June 2018

- June 2018 Summary:
 - Overall construction progress is at 92.1%;
 - \$8,542 Million in incurred costs; and
 - \$9,158 Million in committed costs.
- The project is tracking in compliance with the June 2017 budget and schedule.
- June 2017 budget final forecast cost remains unchanged.
 - While the overall budget and final forecast cost remains unchanged, variances between the project budget and final forecast costs have occurred within and among expenditure categories. Most variances are related to the transfer of budget between allocations from the contingency budget to the procurement and construction budget and movement between contingency allocation of assets.
- The current forecast contingency budget at June 2018 is \$275.4 Million, a decrease of \$28.2 Million from the previous Quarter. For further detail see Section 4.3.

4.1 Summary – Quarter Ending June 2018

- Quarterly Planned vs Incurred Cost Variances:

| MFGGen | |
|-------------------------------|--------------------------|
| Cumulative Planned: \$4,330M | Q2 2018 Planned: \$261M |
| Cumulative Incurred: \$4,282M | Q2 2018 Incurred: \$215M |
| Variance: -\$48M (-1.1%) | Variance: -46M (-17.6%) |

- Planned expenditure by month was set in June 2017.
- During Q2 2018, contingency and package growth allowance was utilized at a slower rate than estimated which accounts for approximately 50% of the variance for Q2. The remaining variance is due to lower expenditures related to Nalcor project team costs and slower than planned expenditures related to both the Supply and Installation of Mechanical and Electrical Auxiliaries and Supply and Installation of Hydro-mechanical Equipment scopes of work.
- The lower expenditures are reflective of the slower than planned progress noted in the following slides within the Powerhouse.
- See Section 4.2 and Appendix B for further detail.

4.1 Summary – Quarter Ending June 2018

- Quarterly Planned vs Incurred Cost Variances:

| LITL | |
|-------------------------------|---------------------------------|
| Cumulative Planned: \$3,603M | Q2 2018 Planned Incurred: \$47M |
| Cumulative Incurred: \$3,417M | Q2 2018 Actual Incurred: \$41M |
| Variance: -\$186M (-5.2%) | Variance: -6M (-12.8%) |
| LTA | |
| Cumulative Planned: \$894M | Q1 2018 Planned Incurred: \$5M |
| Cumulative Incurred: \$843M | Q1 2018 Actual Incurred: \$4M |
| Variance: -\$51M (-5.7%) | Variance: -1M (-20%) |

- The planned expenditure by month was set in June 2017. During Q2, 2018, contingency and package growth allowance has been utilized at slower rate than estimated and resolution of claims from the civil works contractors continues to progress favorably.
 - The project does not consider the lower than anticipated incurred as a concern/risk. Westney Consulting, Nalcor's third party risk assessment consultant has validated that the conservative approach taken is prudent in the context of proactive risk mitigation and risk management.
- See Section 4.2 and Appendix B for further detail.

4.1 Summary – Quarter Ending June 2018

- Planned vs Earned Progress:
 - MFGen
 - Cumulative progress as of end Q2 2018 was 83.2% vs. a plan of 85.9% (variance of 2.7%). Quarterly progress for Q2 2017 was 3.3% vs. a plan of 4.2% (variance of 0.9%).
 - The majority of the cumulative variance is within the work area of Spillway & Gates (1.7% of the 2.7%); remaining scope is the installation of the 5 rollways.
 - As indicated in the March 2018 Q1 Committee report, the planned curve was re-baselined in July 2016.
 - Over the past 2 years, the planned timing of installation of the rollways has changed to ensure that water levels could be controlled to reduce risk to the powerhouse. The first 2 rollways will be installed in 2018 (work commenced in June 2018) and the last 3 in 2019. Due to this change, it is expected that the Spillway & Gates will continue to trend behind the baseline progress set in mid-2016 until the scope is complete.
 - LTA/LITL
 - > 99% complete.

4.1 Summary – Quarter Ending June 2018

Power Development:

- The project remains on budget and on schedule with the June 2017 budget;
- Spillway and gates are 86% complete;
- Powerhouse is 78% complete;
 - Three main contractors working in the powerhouse;
 - Hydro-mechanical and turbine and generator embedment and installation and Balance of Plant work ongoing;
 - Powerhouse Concrete Placement

| | |
|--------|---|
| Unit 1 | All concrete lifts are complete up to turbine floor and formwork installation for the generator pit walls has commenced |
|--------|---|

| | |
|------------------|-------------------|
| Units 2, 3 and 4 | Placement ongoing |
|------------------|-------------------|

- Turbines and Generator (T&G) preservation work is 91% complete;
- Balance of Plant progressing well; and
- Stator bar and protection and control panel manufacturing ongoing.

4.1 Summary – Quarter Ending June 2018

- North Dam 75% complete;
 - North dam concrete placement ongoing;
 - Approximately 48000 m³ placed in June;
 - As of mid-July approximately 30 meters in elevation reached with approximately 100,000 m³ placed in 2018; and
 - North Dam concrete coring program complete; no issues identified to date; lab testing ongoing.
- Focus areas for Q3, 2018 include: schedule optimization and execution of 2018 powerhouse and North Dam construction activities; and
- The forecast expenditure for the Q3, 2018 is estimated at approximately \$295 Million.

4.1 Summary – Quarter Ending June 2018

Power Supply:

- The project remains on budget and on schedule with the June 2017 budget;
- Strait of Belle Isle (SOBI)
 - Handover and Turnover has been achieved.
- Labrador Transmission Asset (LTA)
 - Handover and Turnover of the HVac overhead transmission line is complete.
- Labrador Island Transmission Link (LITL)
 - Overhead Transmission Line
 - Handover from contractor completed in April; Turnover to Operations completed in May.
 - HVdc Specialties;
 - First power transfer was achieved in June 2018; Completion of 45 megawatt heat run;
 - Commissioning and energization activities ongoing; early in-service planned for end of Q4, 2018
 - Synchronous Condensers mechanical completion greater than 90%; Static commissioning greater than 80% complete.

4.1 Summary – Quarter Ending June 2018

- Protection and Controls (P&C)
 - Pole 1 HVdc protection and control (P&C) system remains on the critical path for winter reliability;
 - Work to support dynamic commissioning/power transfer is ongoing at site;
 - Software development for Pole 1 is focused on winter reliability;
 - Increased project team presence at the P&C software development site providing technical support and oversight;
- Synchronous Condensers
 - Planned to be energized by end of Q4, 2018;
- Pole 2
 - Final construction and commissioning ongoing.
- The focus for Q3, 2018 remains on continued completions, commissioning and integration of operations; and
- The forecast expenditure for Q3, 2018 is estimated at approximately \$85 Million.

4.2 Project Expenditures

| June 2018 (\$000) | Project Budget June 2017 AFE | Cumulative \$ | | | Cumulative % | | |
|--|------------------------------------|---------------|-------------|-------------|--------------|--------------|------------|
| | | Plan | Incurred | Variance | Plan | Incurred | Variance |
| <i>Description</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>C-B</i> | <i>D=B/A</i> | <i>E=C/A</i> | <i>E-D</i> |
| NE-LCP Owners Team, Admin and EPCM Services | \$1,115,235 | \$927,988 | \$897,288 | (\$30,700) | 83.2% | 80.5% | -2.8% |
| Feasibility Engineering | \$37,072 | \$37,073 | \$35,894 | (\$1,179) | 100.0% | 96.8% | -3.2% |
| Environmental & Regulatory Compliance | \$42,699 | \$39,526 | \$37,999 | (\$1,527) | 92.6% | 89.0% | -3.6% |
| Aboriginal Affairs | \$17,478 | \$13,245 | \$15,197 | \$1,952 | 75.8% | 86.9% | 11.2% |
| Procurement & Construction | \$8,475,290 | \$7,749,509 | \$7,496,725 | (\$252,784) | 91.4% | 88.5% | -3.0% |
| Commercial & Legal | \$90,423 | \$59,763 | \$59,320 | (\$443) | 66.1% | 65.6% | -0.5% |
| Contingency | \$339,162 | \$0 | \$0 | \$0 | 0.0% | 0.0% | 0.0% |
| TOTAL | \$10,117,328 | \$8,827,104 | \$8,542,423 | (\$284,681) | 87.2% | 84.4% | -2.8% |

| June 2018 (\$000) | Project Budget June 2017 AFE | Incurred Cumulative Costs June 2018 | Project Final Forecast Cost June 2018 | Variance PFC from Budget |
|--|------------------------------------|--|---|-----------------------------|
| <i>Description</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>D=A-C</i> |
| NE-LCP Owners Team, Admin and EPCM Services | \$1,115,235 | \$897,288 | \$1,130,150 | (\$14,915) |
| Feasibility Engineering | \$37,072 | \$35,894 | \$35,894 | \$1,178 |
| Environmental & Regulatory Compliance | \$42,699 | \$37,999 | \$43,408 | (\$709) |
| Aboriginal Affairs | \$17,478 | \$15,197 | \$31,451 | (\$13,973) |
| Procurement & Construction | \$8,475,290 | \$7,496,725 | \$8,500,795 | (\$25,505) |
| Commercial & Legal | \$90,423 | \$59,320 | \$100,228 | (\$9,805) |
| Contingency | \$339,162 | \$0 | \$275,402 | \$63,760 |
| TOTAL | \$10,117,328 | \$8,542,423 | \$10,117,328 | \$0 |

Columns in tables may not total due to rounding

4.3 Contingency

| Q2 June 2018 (\$000) | Project Budget June 2017 AFE | March 2018 AFE Adjustment | Project Forecast Cost March 2018 | Project Forecast Cost June 2018 | Change from Previous Quarter | Variance PFC from Budget |
|-----------------------------------|------------------------------------|---------------------------------|--|---|---------------------------------|-----------------------------|
| Sub-Project: | <i>A</i> | - | <i>B</i> | <i>C</i> | <i>C - B</i> | <i>C - A</i> |
| Muskrat Falls Generating Facility | \$226,400 | \$226,400 | \$173,982 | \$152,725 | (\$21,257) | (\$73,675) |
| Labrador-Island Transmission Link | \$102,750 | \$92,750 | \$97,000 | \$101,688 | \$4,688 | \$8,938 |
| Labrador Transmission Assets | \$10,012 | \$20,012 | \$19,206 | \$20,989 | \$1,783 | \$977 |
| Total Project | \$339,162 | \$339,162 | \$290,188 | \$275,402 | (\$14,786) | (\$63,760) |

4.4 Earned Progress

| <u>Cumulative to end of June 2018</u> | <u>Weight Factor %</u> | <u>June 2018 Cumulative %</u> | | | <u>March 2018 Variance</u> |
|--|------------------------|-------------------------------|---------------|-----------------|----------------------------|
| | | <u>Planned</u> | <u>Earned</u> | <u>Variance</u> | |
| <i>Sub-Project</i> | A | B | C | D = C - B | E |
| Muskrat Falls Generation (MFGGen) | 46.3% | 85.9% | 83.2% | -2.7% | -1.8% |
| Labrador Island Transmission Link (LITL) | 43.9% | 100.0% | 99.7% | -0.3% | -0.9% |
| Labrador Transmission Asset (LTA) | 9.8% | 100.0% | 99.9% | -0.1% | -0.2% |
| Muskrat Falls Project - Overall | 100.0% | 93.5% | 92.1% | -1.4% | -1.2% |

| <u>June 2018 Period</u> | <u>Weight Factor %</u> | <u>Period %</u> | | |
|--|------------------------|-----------------|---------------|-----------------|
| | | <u>Planned</u> | <u>Earned</u> | <u>Variance</u> |
| <i>Sub-Project</i> | A | B | C | D = C - B |
| Muskrat Falls Generation (MFGGen) | 46.3% | 1.5% | 1.7% | 0.2% |
| Labrador Island Transmission Link (LITL) | 43.9% | 0.0% | 0.2% | 0.2% |
| Labrador Transmission Asset (LTA) | 9.8% | 0.0% | 0.0% | 0.0% |
| Muskrat Falls Project - Overall | 100.0% | 0.8% | 0.9% | 0.1% |

Annex A

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

Columns in tables may not total due to rounding

I. Project Capital Budget

| Muskkrat Falls Generating Facility (in \$ thousands) | June 2017 AFE |
|--|---------------------|
| <i>Expenditure Category</i> | |
| NE-LCP Owners Team, Admin and EPCM Services | \$655,850 |
| Feasibility Engineering | \$17,543 |
| Environmental & Regulatory Compliance | \$27,125 |
| Aboriginal Affairs | \$16,395 |
| Procurement & Construction | \$4,501,984 |
| Commercial & Legal | \$54,760 |
| Contingency | \$226,400 |
| Muskkrat Falls Generation Total | \$5,500,056 |
| Labrador-Island Transmission Link (in \$ thousands) | March 2018 AFE |
| <i>Expenditure Category</i> | |
| NE-LCP Owners Team, Admin and EPCM Services | \$322,101 |
| Feasibility Engineering | \$19,167 |
| Environmental & Regulatory Compliance | \$14,726 |
| Aboriginal Affairs | \$1,003 |
| Procurement & Construction | \$3,233,690 |
| Commercial & Legal | \$30,280 |
| Contingency | \$92,750 |
| Labrador-Island Transmission Link Total | \$3,723,716 |
| Labrador-Transmission Assets (in \$ thousands) | March 2018 AFE |
| <i>Expenditure Category</i> | |
| NE-LCP Owners Team, Admin and EPCM Services | \$137,284 |
| Feasibility Engineering | \$363 |
| Environmental & Regulatory Compliance | \$817 |
| Aboriginal Affairs | \$80 |
| Procurement & Construction | \$739,617 |
| Commercial & Legal | \$5,383 |
| Contingency | \$20,012 |
| Labrador Transmission Assets Total | \$893,556 |
| Muskkrat Falls Capital Cost Budget Total | \$10,117,328 |

| Contingency Budget (in \$ thousands) | March 2018 AFE |
|---|------------------|
| Sub-Project: | |
| Muskkrat Falls Generating Facility | \$226,400 |
| Labrador-Island Transmission Link | \$92,750 |
| Labrador Transmission Assets | \$20,012 |
| Total Project | \$339,162 |

II. Project Milestone Schedule

| Muskrat Falls Generating Facility | June 2017 Planned Dates |
|---|-------------------------|
| North Spur Works Ready for Diversion | Oct-16 |
| River Diversion Complete | Feb-17 |
| Reservoir Impoundment Complete | Nov-19 |
| Powerhouse Unit 1 Commissioned - Ready for Operation | Dec-19 |
| First Power from Muskrat Falls | Nov-19 |
| Powerhouse Unit 2 Commissioned - Ready for Operation | Mar-20 |
| Powerhouse Unit 3 Commissioned - Ready for Operation | Jun-20 |
| Powerhouse Unit 4 Commissioned - Ready for Operation | Aug-20 |
| Full Power from Muskrat Falls | Aug-20 |
| Commissioning Complete - Commissioning Certificate Issued | Sep-20 |

| Labrador-Island Transmission Link | June 2017 Planned Dates |
|--|-------------------------|
| SOBI Cable Systems Ready | Dec-16 |
| Soldiers Pond Switchyard Ready to Energize | Aug-17 |
| Ready for Power Transmission (LTA) | Dec-17 |
| Muskrat Falls Converter Station Ready to Energize (Pole 1) | Jun-18 |
| HVdc Transmission Line Construction Complete | Dec-17 |
| Soldier's Pond Converter Station Ready to Energize (Pole 1) | Jun-18 |
| 1ST Power Transfer (Pole 1) | Jul-18 |
| Soldiers Pond Synchronous Condenser Ready for Operation | Jun-18 |
| Ready for Power Transmission (Low Load Testing Complete Pole 1) | Dec-18 |
| Muskrat Falls and Soldiers Pond Converter Stations - Bipole Dynamic Testing Complete | Mar-19 |
| Commissioning Complete - Commissioning Certificate Issued | Sep-20 |

| Labrador Transmission Assets | June 2017 Planned Dates |
|---|-------------------------|
| HVac Transmission Line Construction Complete | May-17 |
| Churchill Falls Switchyard Ready to Energize | Nov-17 |
| Muskrat Falls Switchyard Ready to Energize | Nov-17 |
| Ready for Power Transmission | Dec-17 |
| Commissioning Complete - Commissioning Certificate Issued | Sep-20 |

Annex B

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

| June 2018 (\$000) | Project Budget June 2017 AFE | Cumulative \$ | | | Cumulative % | | |
|---|---------------------------------|--------------------|--------------------|-------------------|--------------|--------------|--------------|
| | | Planned | Incurred | Variance | Planned | Incurred | Variance |
| <i>Description</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>C-B</i> | <i>D=B/A</i> | <i>E=C/A</i> | <i>E-D</i> |
| NE-LCP Owners Team, Admin and EPCM Services | \$655,850 | \$489,888 | \$468,077 | (\$21,811) | 74.7% | 71.4% | -3.3% |
| Feasibility Engineering | \$17,543 | \$17,543 | \$16,874 | (\$669) | 100.0% | 96.2% | -3.8% |
| Environmental & Regulatory Compliance | \$27,125 | \$25,592 | \$25,699 | \$107 | 94.3% | 94.7% | 0.4% |
| Aboriginal Affairs | \$16,395 | \$12,358 | \$14,412 | \$2,054 | 75.4% | 87.9% | 12.5% |
| Procurement & Construction | \$4,501,984 | \$3,753,062 | \$3,722,353 | (\$30,709) | 83.4% | 82.7% | -0.7% |
| Commercial & Legal | \$54,760 | \$31,547 | \$34,526 | \$2,979 | 57.6% | 63.0% | 5.4% |
| Contingency | \$226,400 | \$0 | \$0 | \$0 | 0.0% | 0.0% | 0.0% |
| TOTAL | \$5,500,056 | \$4,329,989 | \$4,281,942 | (\$48,047) | 78.7% | 77.9% | -0.9% |

| June 2018 (\$000) | Project Budget June 2017 AFE | Incurred Cumulative Costs June 2018 | Project Final Forecast Cost June 2018 | Variance PFC from Budget |
|---|---------------------------------|---|---|-----------------------------|
| <i>Description</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>D=A-C</i> |
| NE-LCP Owners Team, Admin and EPCM Services | \$655,850 | \$468,077 | \$657,722 | (\$1,872) |
| Feasibility Engineering | \$17,543 | \$16,874 | \$16,874 | \$669 |
| Environmental & Regulatory Compliance | \$27,125 | \$25,699 | \$27,865 | (\$740) |
| Aboriginal Affairs | \$16,395 | \$14,412 | \$30,167 | (\$13,772) |
| Procurement & Construction | \$4,501,984 | \$3,722,353 | \$4,553,911 | (\$51,927) |
| Commercial & Legal | \$54,760 | \$34,526 | \$60,792 | (\$6,032) |
| Contingency | \$226,400 | \$0 | \$152,725 | \$73,675 |
| TOTAL | \$5,500,056 | \$4,281,942 | \$5,500,056 | \$0 |

II. Labrador Island Transmission Link

| June 2018 (\$000) | Project Budget March 2018 AFE | Cumulative \$ | | | Cumulative % | | |
|---|----------------------------------|--------------------|--------------------|--------------------|--------------|--------------|--------------|
| | | Plan | Incurred | Variance | Plan | Incurred | Variance |
| <i>Description</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>C-B</i> | <i>D=B/A</i> | <i>E=C/A</i> | <i>E-D</i> |
| NE-LCP Owners Team, Admin and EPCM Services | \$322,101 | \$299,066 | \$299,012 | (\$54) | 92.8% | 92.8% | 0.0% |
| Feasibility Engineering | \$19,167 | \$19,167 | \$18,717 | (\$450) | 100.0% | 97.7% | -2.3% |
| Environmental & Regulatory Compliance | \$14,726 | \$13,117 | \$11,488 | (\$1,629) | 89.1% | 78.0% | -11.1% |
| Aboriginal Affairs | \$1,003 | \$807 | \$618 | (\$189) | 80.5% | 61.6% | -18.8% |
| Procurement & Construction | \$3,233,690 | \$3,248,368 | \$3,067,808 | (\$180,560) | 100.5% | 94.9% | -5.6% |
| Commercial & Legal | \$30,280 | \$22,833 | \$19,506 | (\$3,327) | 75.4% | 64.4% | -11.0% |
| Contingency | \$92,750 | \$0 | \$0 | \$0 | 0.0% | 0.0% | 0.0% |
| TOTAL | \$3,713,716 | \$3,603,359 | \$3,417,149 | (\$186,210) | 97.0% | 92.0% | -5.0% |

| June 2018 (\$000) | Project Budget March 2018 AFE | Incurred Costs Cumulative June 2018 | Project Final Forecast Cost | Variance PFC from Budget |
|---|----------------------------------|---|--------------------------------|-----------------------------|
| | | | June 2018 | |
| <i>Description</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>D=A-C</i> |
| NE-LCP Owners Team, Admin and EPCM Services | \$322,101 | \$299,012 | \$338,371 | (\$16,270) |
| Feasibility Engineering | \$19,167 | \$18,717 | \$18,717 | \$450 |
| Environmental & Regulatory Compliance | \$14,726 | \$11,488 | \$14,726 | \$0 |
| Aboriginal Affairs | \$1,003 | \$618 | \$1,038 | (\$35) |
| Procurement & Construction | \$3,233,690 | \$3,067,808 | \$3,208,515 | \$25,175 |
| Commercial & Legal | \$30,280 | \$19,506 | \$30,662 | (\$382) |
| Contingency | \$92,750 | \$0 | \$101,688 | (\$8,938) |
| TOTAL | \$3,713,716 | \$3,417,149 | \$3,713,716 | \$0 |

III. Labrador Transmission Assets

| June 2018 (\$000) | Project Budget March 2018 AFE | Cumulative \$ | | | Cumulative % | | |
|---|-------------------------------------|------------------|------------------|-------------------|--------------|--------------|--------------|
| | | Plan | Incurred | Variance | Plan | Incurred | Variance |
| <i>Description</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>C-B</i> | <i>D=B/A</i> | <i>E=C/A</i> | <i>E-D</i> |
| NE-LCP Owners Team, Admin and EPCM Services | \$137,284 | \$139,034 | \$130,199 | (\$8,835) | 101.3% | 94.8% | -6.4% |
| Feasibility Engineering | \$363 | \$363 | \$303 | (\$60) | 100.0% | 83.5% | -16.5% |
| Environmental & Regulatory Compliance | \$817 | \$817 | \$812 | (\$5) | 100.0% | 99.4% | -0.6% |
| Aboriginal Affairs | \$80 | \$80 | \$167 | \$87 | 100.0% | 208.8% | 108.8% |
| Procurement & Construction | \$739,617 | \$748,079 | \$706,564 | (\$41,515) | 101.1% | 95.5% | -5.6% |
| Commercial & Legal | \$5,383 | \$5,383 | \$5,288 | (\$95) | 100.0% | 98.2% | -1.8% |
| Contingency | \$20,012 | \$0 | \$0 | \$0 | 0.0% | 0.0% | 0.0% |
| TOTAL | \$903,556 | \$893,756 | \$843,333 | (\$50,423) | 98.9% | 93.3% | -5.6% |

| June 2018 (\$000) | Project Budget March 2018 AFE | Incurred Costs Cumulative June 2018 | Project Final Forecast Cost June 2018 | Variance PFC from Budget |
|---|----------------------------------|---|---|-----------------------------|
| <i>Description</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>D=A-C</i> |
| NE-LCP Owners Team, Admin and EPCM Services | \$137,284 | \$130,199 | \$134,057 | \$3,227 |
| Feasibility Engineering | \$363 | \$303 | \$303 | \$60 |
| Environmental & Regulatory Compliance | \$817 | \$812 | \$817 | \$0 |
| Aboriginal Affairs | \$80 | \$167 | \$246 | (\$166) |
| Procurement & Construction | \$739,617 | \$706,564 | \$738,369 | \$1,248 |
| Commercial & Legal | \$5,383 | \$5,288 | \$8,774 | (\$3,391) |
| Contingency | \$20,012 | \$0 | \$20,989 | (\$977) |
| TOTAL | \$903,556 | \$843,333 | \$903,556 | \$0 |

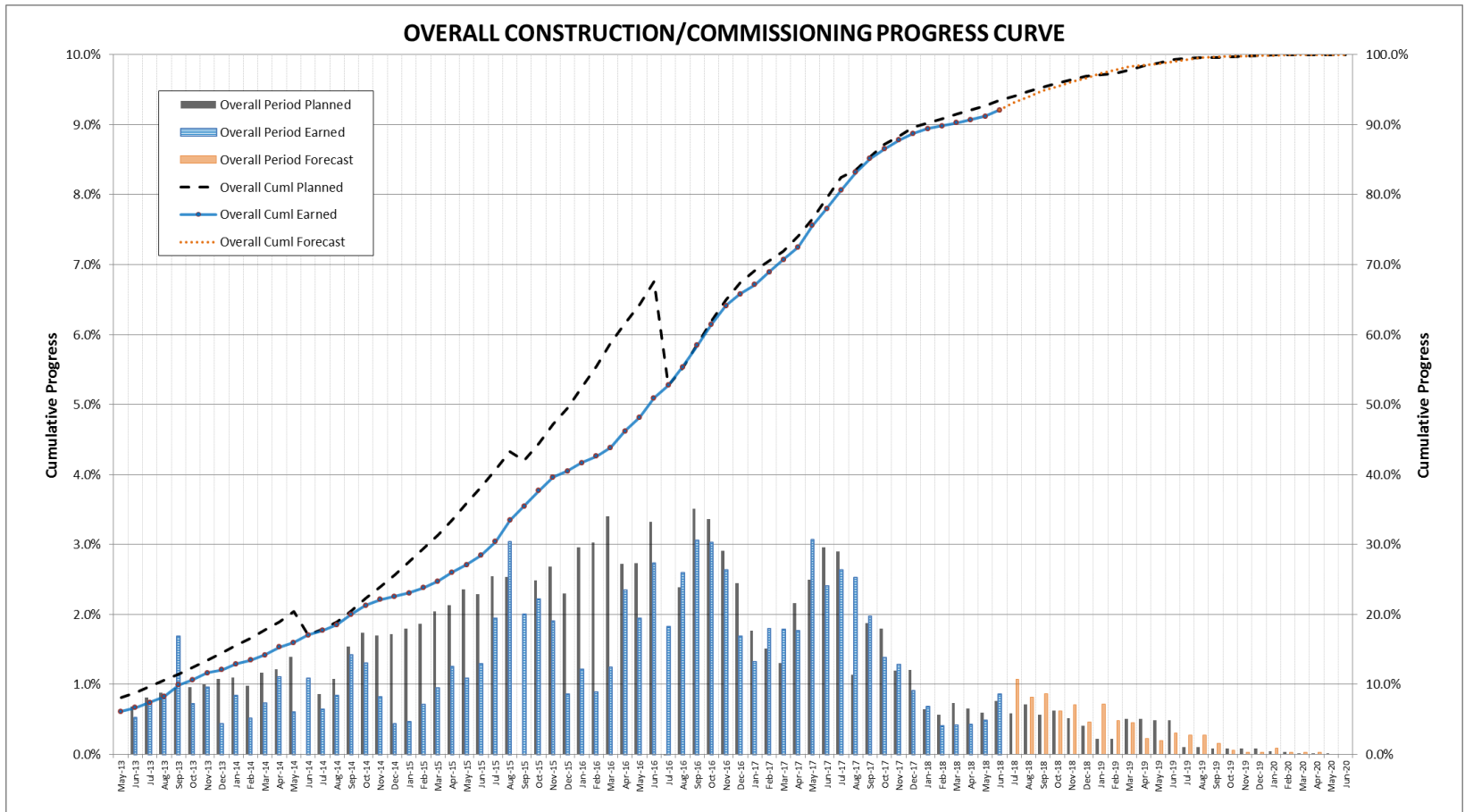
Annex C

Earned Progress

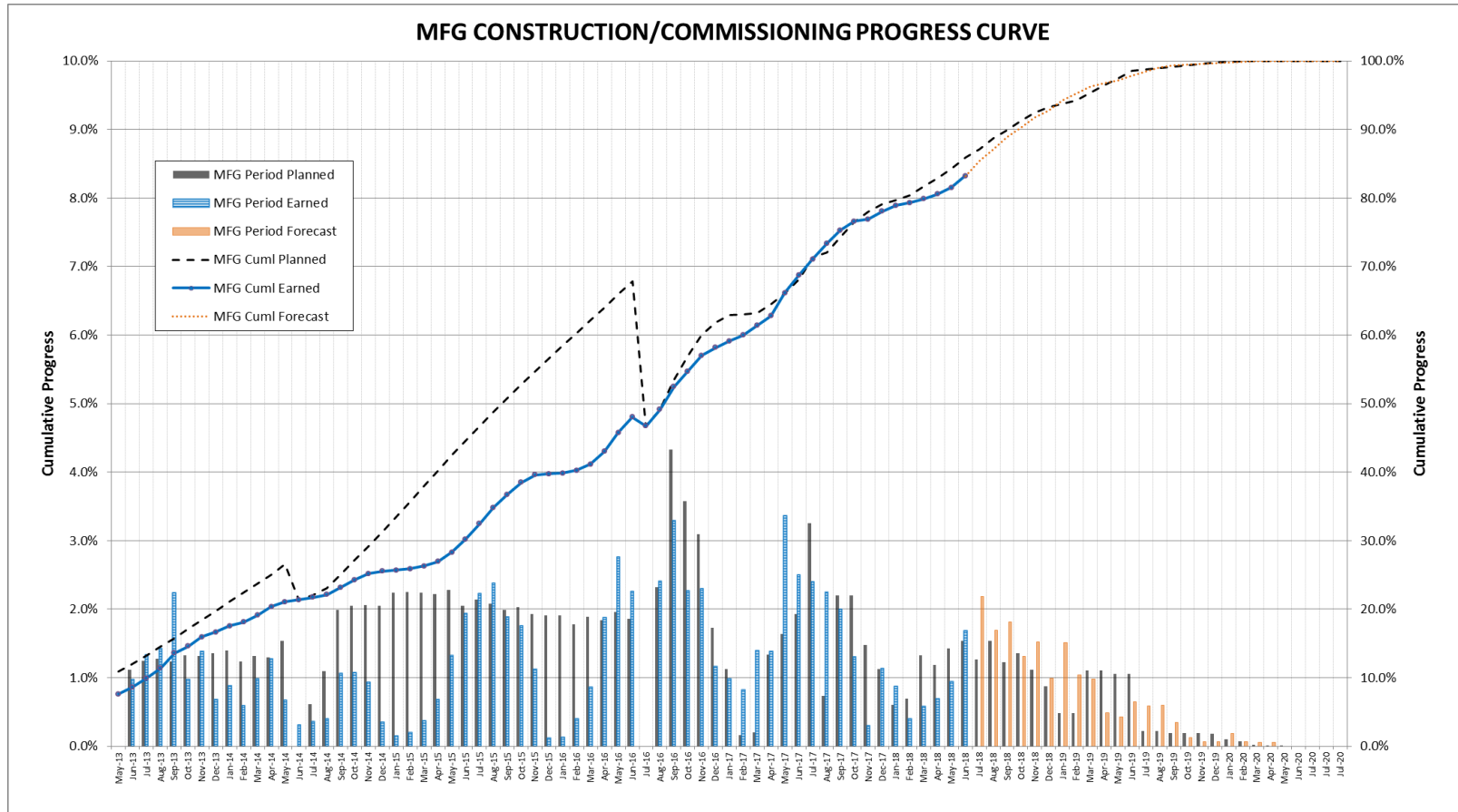
- I. Overall Construction
- II. Muskrat Falls Generation
- III. Powerhouse Concrete Placement
- IV. Labrador Island Transmission Link
- V. Labrador Transmission Assets

Columns in tables may not total due to rounding

I. Overall Construction



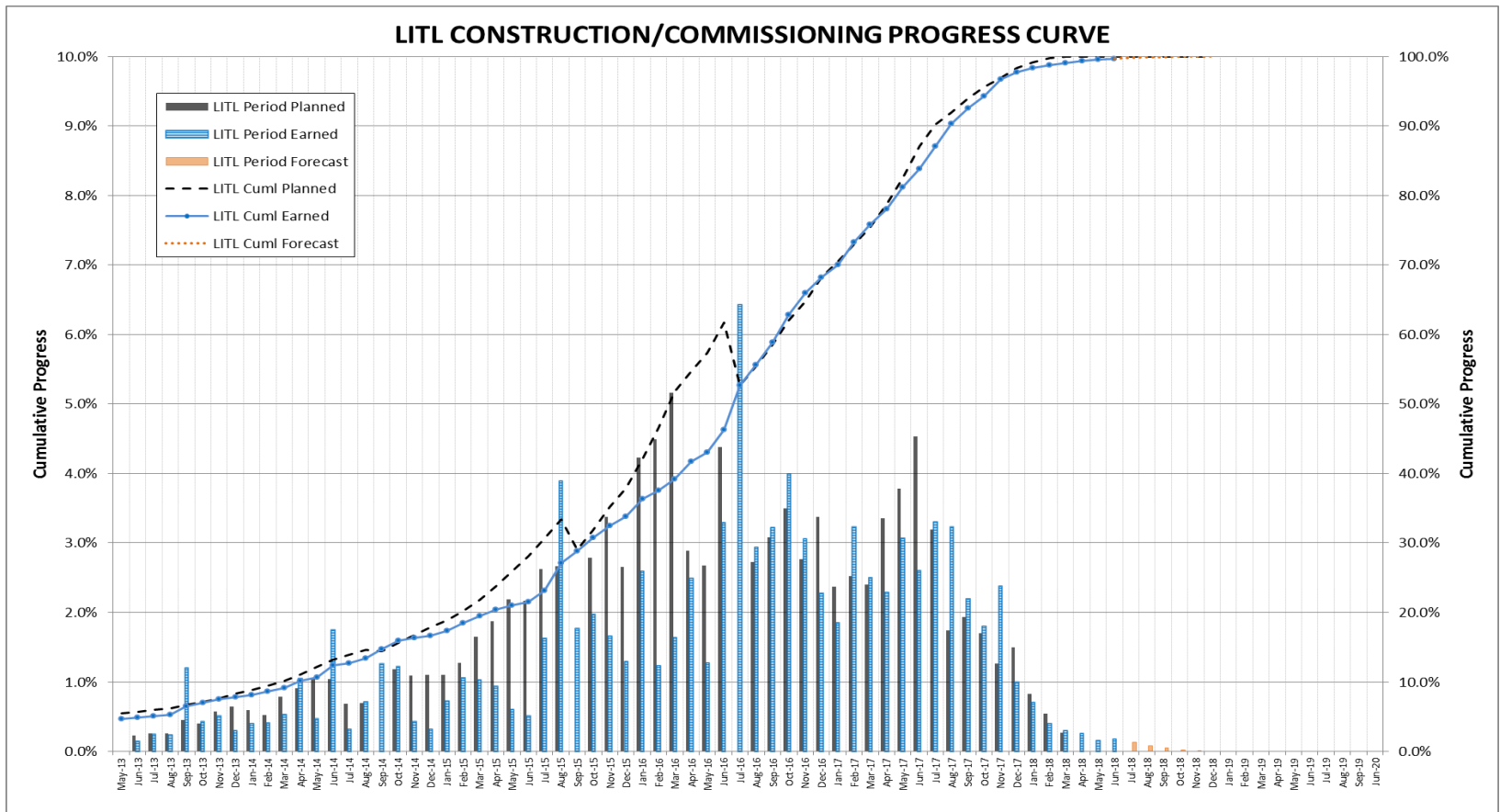
II. Muskrat Falls Generation



II. Muskrat Falls Generation

| June 2018 | Weight Factor % | June 2018 Cumulative % | | | March 2018 Variance |
|---|-----------------|------------------------|--------|-----------|---------------------|
| | | Plan | Earned | Variance | |
| <i>Sub-Project</i> | A | B | C | D = C - B | E |
| MFG Road/Camp/Constr. Power | 8.9% | 100.0% | 100.0% | 0.0% | 0.0% |
| MFG Reservoir Preparation | 5.8% | 100.0% | 100.0% | 0.0% | 0.0% |
| MFG Spillway & Gates | 12.2% | 99.5% | 85.6% | -13.9% | -11.4% |
| MFG North Spur Stabilization | 3.9% | 100.0% | 100.0% | 0.0% | 0.0% |
| MFG North Dam | 5.7% | 80.9% | 74.7% | -6.2% | -7.3% |
| MFG Powerhouse & Intake | 61.3% | 79.2% | 78.3% | -0.9% | 0.0% |
| MFG South Dam | 1.1% | 100.0% | 99.2% | -0.8% | -0.8% |
| MFG Misc:Eng/ 315kV/Site Rest./logistic | 1.1% | 82.1% | 75.5% | -6.6% | -2.5% |
| MFGGen - Overall | 100.0% | 85.9% | 83.2% | -2.7% | -1.8% |
| * Adjusted for MFGGen rollway installation schedule | | *84.2% | *83.2% | *-1.0% | |

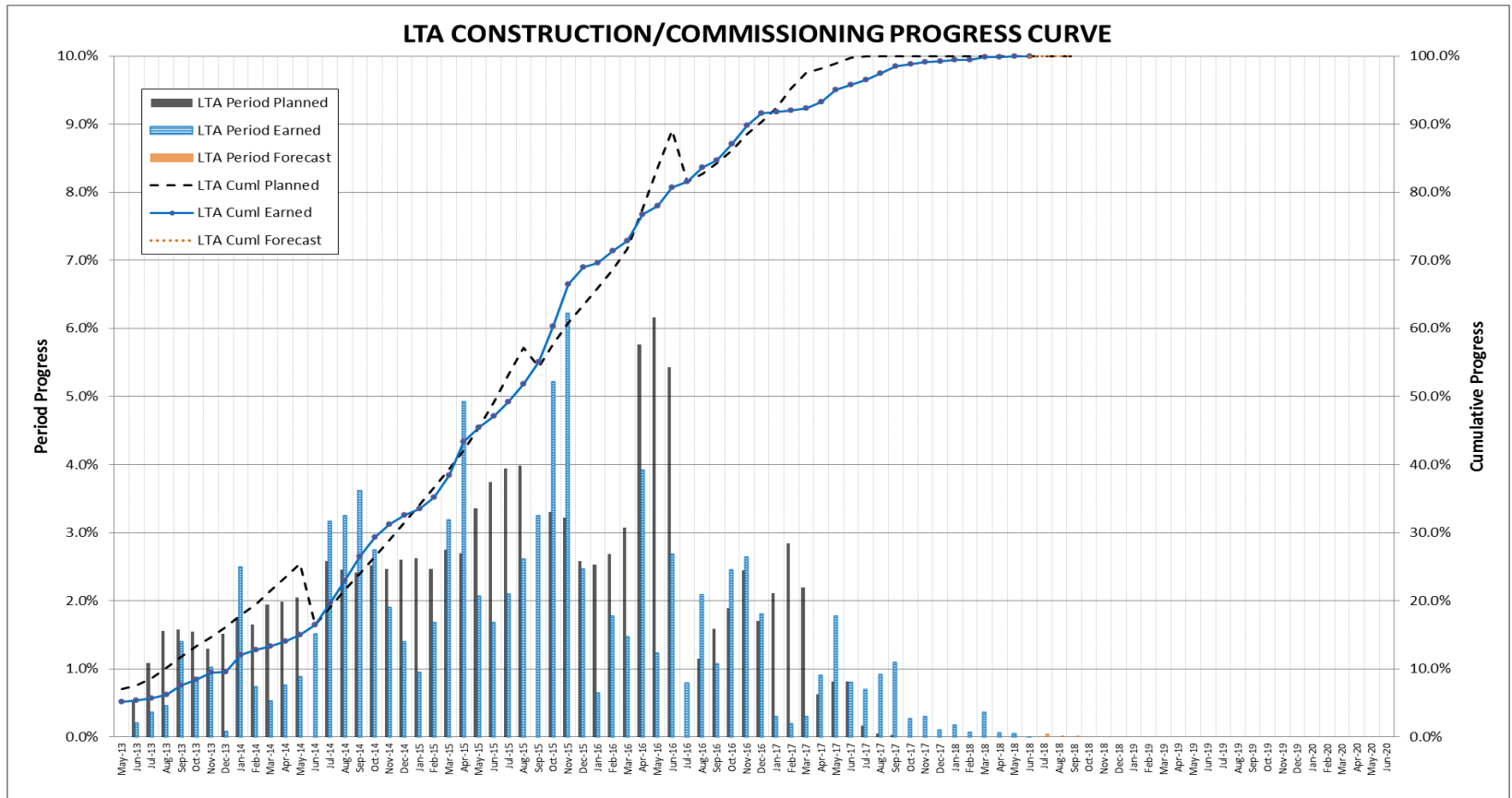
IV. Labrador Island Transmission Link



IV. Labrador Island Transmission Link

| June 2018 | Weight | June 2018 Cumulative % | | | March 2018 |
|---------------------------------------|----------|------------------------|--------|-----------|------------|
| | Factor % | Plan | Earned | Variance | Variance |
| <i>Sub-Project</i> | A | B | C | D = C - B | E |
| LITL Muskrat Falls Converter | 6.1% | 100.0% | 98.4% | -1.6% | -5.4% |
| LITL Soldiers Pond Converter | 5.5% | 100.0% | 99.0% | -1.0% | -2.7% |
| LITL HVdc Transmission Line Seg 1/2 | 26.8% | 100.0% | 100.0% | 0.0% | 0.0% |
| LITL HVdc Transmission Line Seg 3/4/5 | 34.2% | 100.0% | 100.0% | 0.0% | 0.0% |
| LITL Electrode Sites | 0.8% | 100.0% | 100.0% | 0.0% | -0.7% |
| LITL Transition Compounds | 1.7% | 100.0% | 100.0% | 0.0% | -1.8% |
| LITL SOBI Cable Crossing | 17.7% | 100.0% | 100.0% | 0.0% | 0.0% |
| LITL Soldiers Pond Switchyard | 2.7% | 100.0% | 100.0% | 0.0% | 0.0% |
| LITL Soldiers Pond Sync. Condensors | 3.1% | 100.0% | 97.5% | -2.5% | -8.2% |
| LITL Misc | 1.4% | 100.0% | 93.6% | -6.4% | -11.4% |
| LITL- Overall | 100.0% | 100.0% | 99.7% | -0.3% | -0.9% |

V. Labrador Transmission Assets



V. Labrador Transmission Assets

| June 2018 | Weight | June 2018 Cumulative % | | | March 2018 |
|--|----------|------------------------|--------|-----------|------------|
| | Factor % | Plan | Earned | Variance | Variance |
| Sub-Project | A | B | C | D = C - B | E |
| LTA HVac Transmission Line Seg1/2 - MF to CF | 62.8% | 100.0% | 100.0% | 0.0% | 0.0% |
| LTA Churchill Falls Switchyard | 21.7% | 100.0% | 100.0% | 0.0% | -0.1% |
| LTA Muskrat Falls Switchyard | 13.4% | 100.0% | 99.9% | -0.1% | -0.4% |
| LTA Misc | 2.1% | 100.0% | 97.4% | -2.6% | -5.5% |
| LTA - Overall | 100.0% | 100.0% | 99.9% | -0.1% | -0.2% |

Annex D

Project Milestone Schedule

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

I. Muskrat Falls Generation

| June 2018 | Planned Date June 2017 | June 2018 Actual/Forecast |
|---|---------------------------|------------------------------|
| Project Sanction | 17-Dec-12 | Complete |
| North Spur Works Ready for Diversion | 31-Oct-16 | Complete |
| River Diversion Complete | 15-Feb-17 | Complete |
| Reservoir Impoundment Complete | 1-Nov-19 | 14-Oct-19 |
| Powerhouse Unit 1 Commissioned - Ready for Operation | 19-Dec-19 | 9-Dec-19 |
| First Power from Muskrat Falls | 2-Nov-19 | 15-Oct-19 |
| Powerhouse Unit 2 Commissioned - Ready for Operation | 3-Mar-20 | 21-Feb-19 |
| Powerhouse Unit 3 Commissioned - Ready for Operation | 9-Jun-20 | 6-May-20 |
| Powerhouse Unit 4 Commissioned - Ready for Operation | 14-Aug-20 | 20-Jul-20 |
| Full Power from Muskrat Falls | 14-Aug-20 | 20-Jul-20 |
| Commissioning Complete - Commissioning Certificate Issued | 1-Sep-20 | 1-Sep-20 |

II. Labrador Island Transmission Link

| June 2018 | Planned Date June 2017 | June 2018 Actual/forecast |
|--|---------------------------|--|
| Project Sanction | 17-Dec-12 | Complete |
| SOBI Cable Systems Ready | 9-Dec-16 | Complete |
| Soldiers Pond Switchyard Ready to Energize | 31-Aug-17 | Complete |
| Ready for Power Transmission (LTA) | 31-Dec-17 | Complete |
| Muskrat Falls Converter Station Ready to Energize (Pole 1) | 1-Jun-18 | Complete |
| HVdc Transmission Line Construction Complete | 31-Dec-17 | Complete |
| Soldier's Pond Converter Station Ready to Energize (Pole 1) | 1-Jun-18 | Complete |
| 1ST Power Transfer (Pole 1) | 1-Jul-18 | Completion of 45 megawatt heat run |
| Soldiers Pond Synchronous Condenser Ready for Operation | 1-Jun-18 | 20-Dec-18 |
| Ready for Power Transmission (Low Load Testing Complete Pole 1) | 1-Dec-18 | 29-Oct-18 |
| Muskrat Falls and Soldiers Pond Converter Stations - Bipole Dynamic Testing Complete | 31-Mar-19 | Forecast date to be determined based on load reduction in Labrador Q2 2019, and system operators authorization to proceed (post winter 2019) |
| Commissioning Complete - Commissioning Certificate Issued | 1-Sep-20 | 1-Sep-20 |

III. Labrador Transmission Assets

| June 2018 | June 2017 Budget Planned Date | June 2018 Actual/Forecast |
|---|----------------------------------|--|
| Project Sanction | 17-Dec-12 | Complete |
| HVac Transmission Line Construction Complete | 31-May-17 | Complete: Turnover of HVac TL and all subsystems complete |
| Churchill Falls Switchyard Ready to Energize | 30-Nov-17 | Complete |
| Muskrat Falls Switchyard Ready to Energize | 30-Nov-17 | Complete |
| Ready for Power Transmission | 31-Dec-17 | Complete |
| Commissioning Complete - Commissioning Certificate Issued | 1-Sep-20 | 1-Sep-20 |

End of Report