

Nalcor Energy – Lower Churchill Project



Target Milestone Schedule





LCP-PT-ED-0000-EP-SH-0001-01

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**Inter-Departmental / Discipline Approval (where required)**

Department	Department Manager Approval	Date
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    B.1 Target Milestone Schedule

## 1.0 Purpose

This *Target Milestone Schedule* has been developed to define and establish key planning dates for the Project that form the scheduling basis for detailed work schedules required for the Decision Gate 3 approval of Lower Churchill Project (hereafter referred to as LCP or the Project). Additionally, this *Target Milestone Schedule* is a tool to communicate milestones and key dates to be managed throughout the Nalcor Energy - Lower Churchill Project.

This schedule should be read in conjunction with documents [LCP-PT-MD-0000-PM-PL-0001-01 Project Execution Plan \(Scope and Approach\)](#), [LCP-PT-ED-0000-EP-SH-0003-01 Management Summary Schedule](#) and [LCP-PT-ED-0000-EP-SH-0002-01 Integrated Project Schedule](#).

## 2.0 Scope

This *Target Milestone Schedule* provides an overview of the project delivery execution sequence for the NE-LCP as understood at Decision Gate 3 and is applicable during the planning and execution of the Muskrat Falls Generation, Labrador Transmission Asset, and Labrador – Island Transmission Link Projects during Gateway Phase 4, and the Maritime Link Project during Gateway Phase 3. It provides the framework for the Integrated Project Schedule. Excluded from this *Target Milestone Schedule* are project elements such as project financing, marketing, sales, and stakeholder relations.

The scope of the Project as contained within this *Target Milestone Schedule* is for Phase I of the Lower Churchill Project, which includes the following main Project Components, detailed in [LCP-PT-ED-0000-EN-RP-0001-01 Lower Churchill Project – Basis of Design](#):

- Muskrat Falls Generation
- Labrador Transmission Assets
- Labrador-Island Transmission Link
- Maritime Link

For the sake of progress and performance reporting, this *Target Milestone Schedule* will form the execution planning basis for the Project, and will be linked to the Nalcor Integrated Project Schedule and the Project Control Schedules developed by the EPCM Consultant, SNC-Lavalin, and the SOBI Marine Crossings Team consistent with the strategy discussed in [LCP-PT-MD-0000-PC-PL-0001-01 Project Controls Management Plan](#). Along with other planning documents, this *Target Milestone Schedule* will be updated on a periodic basis in order to forecast timelines based upon project activity. This may include a re-baseline of the Project, should it be necessary.

### 3.0 Definitions

[LCP-PT-MD-0000-PM-LS-0001-01 Project Dictionary](#) is the approved dictionary of definitions for the NE-LCP.

**Converter Stations** Converter stations house the specialized equipment necessary to convert power from ac to dc and back again.

**Decision Gate** A Decision Gate is a predefined moment in time where the Gatekeeper has to make appropriate decisions whether to move to the next stage, make a temporary hold or to terminate the project. The option to recycle to the current stage is considered an undesirable option unless caused by changes in business conditions.

**Milestone** A schedule event with zero duration and no effort (there is no work associated with a milestone). It is a flag that signifies the completion of a major goal, a decision point, or a high-level snapshot for senior stakeholders.

**Reservoir Preparation** The process of preparing the reservoir for flooding. This involves clearing timber and deadfalls that may create operational concerns during plant operation.

### 4.0 Abbreviations and Acronyms

ac	Alternating Current
CF	Churchill Falls
CS	Cabot Strait
dc	Direct Current
DG3	Decision Gate 3
EA	Environmental Assessment
HDD	Horizontal Directional Drilling
HVac	High Voltage Alternating Current
HVdc	High Voltage Direct Current
LCP	Lower Churchill Project
LITL	Labrador-Island Transmission Link
LTA	Labrador Transmission Asset
MF	Muskrat Falls
ML	Maritime Link
NE-LCP	Nalcor Energy – Lower Churchill Project
ROW	Right Of Way
SOBI	Strait of Belle Isle
SP	Soldier's Pond
SRI	Subsea Rock Installation

## 5.0 Reference Documents and/or Associated Forms

LCP-PT-MD-0000-PM-LS-0001-01	Project Dictionary
LCP-PT-MD-0000-PM-PL-0001-01	Project Execution Plan (Scope and Approach)
LCP-PT-MD-0000-PC-PL-0001-01	Project Controls Management Plan
LCP-PT-ED-0000-EN-RP-0001-01	Lower Churchill Project – Basis of Design
LCP-PT-ED-0000-EP-SH-0002-01	Integrated Project Schedule
LCP-PT-MD-0000-PC-BD-0001-01	Asset Schematic by Project
LCP-SN-CD-0000-PC-SH-0001-01	Project Control Schedule Baseline Document (SLI)
Record No. 203-160641-00017	SOBI Marine Crossing Project Control Schedule and Report

## 6.0 Responsibilities

<b>NE-LCP Project Controls</b>	Responsible for development and communication of this <i>Target Milestone Schedule</i> .
<b>NE-LCP Project Director</b>	Responsible for the approval of this <i>Target Milestone Schedule</i> , and the execution of the project within the timelines of this <i>Target Milestone Schedule</i> .
<b>NE-LCP Project Managers</b>	Use this <i>Target Milestone Schedule</i> as the basis for work planning in order to meet project timeline goals.

## 7.0 Schedule Assumptions

### 7.1 General

The milestones and logic in this *Target Milestone Schedule* have been developed using the results of engineering and project planning completed up to DG3. At the time this document was prepared Muskrat Falls Generation, Labrador Transmission Asset, and Labrador-Island Transmission Link sub-projects were all in Gateway Phase 3, in preparation for Decision Gate 3 approval, while the Maritime Link sub-Project was in Gateway Phase 2, in preparation for Decision Gate 2. The level of detail in this document for the four projects is commensurate with the stage of the applicable sub-project.

**It should be noted that the milestones and milestone dates for the Maritime Link have been extracted from the most recently published monthly report by Emera, and have not been validated by the Nalcor Project Team.**

## 7.2 Key Assumptions

The development of this *Target Milestone Schedule* for Decision Gate 3 (DG3) is predicated on a number of assumptions. These assumptions will change over time and this *Target Milestone Schedule* will need to be revised accordingly. They include:

- The environmental assessment process for the Labrador-Island Transmission Link project will be completed no later than the end of the first quarter of 2013.
- The environmental assessment process for the Maritime Link project will be completed no later than early in the third quarter of 2013.
- Project Sanction will occur at DG3 and is a pre-requisite for financial commitment required to proceed with major construction works, other than Early Works underway pre-DG3.
- The SOBI subsea cables can be installed in a single construction season.
- The Cabot Strait subsea cables can be installed in a single construction season.
- The supply and installation works for subsea cables on both the LITL and ML projects can proceed independently without affecting each other.
- Sufficient construction contractors and construction labour is available to execute the overland transmission works on the three separate projects (LTA, LITL and ML) within the required timeframes.
- Either the Labrador Transmission Assets or the Labrador-Island Transmission Link is required to commission the Muskrat Falls generating facility.
- Full Power from Muskrat Falls can only be delivered to the Island of Newfoundland after completion of the Labrador-Island Transmission Link as well as commissioning of the four (4) generating units at Muskrat Falls.

## 7.3 Schedule Reserve

The dates contained in this *Target Milestone Schedule* reflect the base planning dates as established by Nalcor using the un-risked project schedule developed in Gateway Phase 3, and as-such exclude any schedule reserve for specific risks or changes that may occur.

## 8.0 Milestone Definition

To aid in the clear communication of this *Target Milestone Schedule*, the following table explains the scope, rationale, and logic for each of the milestones.

<b>Project: MUSKRAT FALLS GENERATION</b>	
<b>Milestone:</b>	<b>MF Access Road Ready for Use</b>
This Milestone indicates the point in time at which the south side access road to the Muskrat Falls construction site will be completed and opened for general use to allow starting of mobilization and construction works at the main Muskrat Falls site.	
<b>Milestone:</b>	<b>Project Sanction</b>
The approval of Decision Gate 3 by the Gatekeeper as defined in <a href="#">Gateway Process</a> , reference document <a href="#">LCP-PT-MD-0000-PM-PR-0001-01</a> .	
<b>Milestone:</b>	<b>Site Mobilization of Bulk Excavation Contractor</b>
The beginning of work at the Muskrat Falls site by the Bulk Excavation contractor (Commitment Package CH0006). This milestone indicates when the contractor will start the onsite setup works, and does not necessarily indicate when the actual bulk excavation of material will start.	
<b>Milestone:</b>	<b>Commence North Spur Stabilization Works</b>
This milestone represents the point when the contractor who will be performing the North Spur stabilization works (Commitment Package CH0008) is mobilized to site and ready to start execution of the stabilization scope. This does not include works being done on the North Spur by other contractors which is not required for stabilization works (such as transmission line works, geotechnical investigations, etc.)	
<b>Milestone:</b>	<b>North Spur Works Ready For Diversion</b>
All North Spur stabilization works necessary to permit the intermediate raising of the river water level that will accompany river diversion. This includes, but is not limited to, upstream excavation and embankment works below elevation 28m, the upstream cut-off wall, and downstream excavation and embankment works below elevation 25m.	
<b>Milestone:</b>	<b>North Spur Stabilization Complete</b>
All works associated with the North Spur Stabilization scope are completed, and the contractor is able to demobilize.	
<b>Milestone:</b>	<b>North RCC Dam Completed</b>
The completion of the North (in-water) dam in order to provide an impermeable structure to aid in the retention of water in the reservoir. It is necessary to have this dam completed in order to impound the reservoir.	
<b>Milestone:</b>	<b>Award Powerhouse/Intake/Spillway Contract</b>
This milestone represents the award of the contract for the construction of the main civil structures at the Muskrat Falls site. This includes the Powerhouse, Intake, Spillway, and Transition Dams.	



<b>Milestone:</b>	<b>Commence Powerhouse Construction</b>
<p>This milestone represents when the Powerhouse construction contractor (Commitment Package CH0007) starts foundation preparation works on the Powerhouse. This milestone is not meant to represent the mobilization and setup activities of the construction contractor, but rather the beginning of physical construction works for the powerhouse.</p>	
<b>Milestone:</b>	<b>Powerhouse Crane Commissioned</b>
<p>The powerhouse crane delivered, installed and commissioned in order to support the assembly of the turbine/generator units. The crane will be installed and commissioned in the assembly hall portion of the powerhouse initially, and will have subsequent additional installations and commissioning as the powerhouse structural concrete and superstructure is completed for each turbine unit in sequence.</p>	
<b>Milestone:</b>	<b>T/G Unit 1 Pit Free</b>
<p>Pit Free for the first turbine/generator unit under construction. This is the point in the schedule where the assembly of the turbine unit truly begins. Prior to Pit Free, the turbine work is generally a civil construction activity, with the structure that will house the turbine being built. Post Pit Free, the work is generally the assembly and erection of turbine and generator components.</p>	
<b>Milestone:</b>	<b>T/G Unit 4 Pit Free</b>
<p>Pit Free for the last turbine/generator unit under construction. This is the point in the schedule where the assembly of the turbine unit truly begins. Prior to Pit Free, the turbine work is generally a civil construction activity, with the structure that will house the turbine being built. Post Pit Free, the work is generally the assembly and erection of turbine and generator components.</p>	
<b>Milestone:</b>	<b>T/G Unit 1 Ready to Turn</b>
<p>The point when the first turbine/generator unit is mechanically complete and ready for wet testing.</p>	
<b>Milestone:</b>	<b>T/G Unit 1 Power</b>
<p>The targeted date when first commercial power is generated from the Muskrat Falls generating station. This is not necessarily the first time that the plant generates power, as power will be generated during unit commissioning. However, the uncertainty and unreliability of supply during the commissioning means that this power is (generally) not considered as commercial power. The period of time between first power generated during commissioning, and first commercial power generation, should be very short.</p>	
<b>Milestone:</b>	<b>T/G Unit 4 Power</b>
<p>The date when the fourth turbine/generator unit (meaning that all four units) are fully commissioned, operational and delivering power.</p>	

<b>Milestone:</b>	<b>Commence South Rockfill Dam Construction</b>
<p>This milestone represents the earliest time at which the foundation works for the South Dam could occur. While the South Dam structure is not required to be completed until impounding the reservoir, part of this structure is integral with the powerhouse and south transition dam, which forms part of the structure required for the construction of the remaining portion of the South Dam.</p>	
<b>Milestone:</b>	<b>South Rockfill Dam Completed</b>
<p>The completion of the South Dam in order to provide an impermeable structure to aid in the retention of the water in the reservoir. It is necessary to have this dam completed in order to fully impound the reservoir. Completion of the South Dam is achieved when the structure is structurally able to retain the reservoir.</p>	
<b>Milestone:</b>	<b>River Diverted</b>
<p>This milestone represents the closing of the river by constructing an upstream cofferdam across the river and forcing the water through the spillway. At this point the spillway construction is not completed, as the rollways are installed later.</p>	
<b>Milestone:</b>	<b>Reservoir Preparation Completed</b>
<p>The necessary clearing of the reservoir (North and South shores) are completed, and decommissioning of access roads and bridges are completed to allow the water level in the reservoir to rise to the Full Supply Level.</p>	
<b>Milestone:</b>	<b>Reservoir Impoundment</b>
<p>Reservoir impoundment can occur once the water retaining structures (north and south dams, Powerhouse, Spillway, Transition Dams and North Spur consolidation works) is completed, as well as having the reservoir prepared for inundation (flooding). Additionally, it is necessary to have the spillway structure and gates completed to a point where the river is under control, and have the powerhouse intake gates completed to prevent unintended water ingress into the powerhouse.</p>	
<b>Milestone:</b>	<b>First Power From Muskrat Falls</b>
<p>The date when first commercial power is generated from the Muskrat Falls generating station. This is not necessarily the first time that the plant generates power, as power will be generated during unit commissioning. However, the uncertainty and unreliability of supply during the commissioning means that this power is (generally) not considered as commercial power. The period of time between first power generated during commissioning, and first commercial power generation, should be very short.</p>	
<b>Milestone:</b>	<b>Full Power From Muskrat Falls</b>
<p>The date when the fourth turbine/generator unit (meaning that all four units) are fully commissioned, operational and delivering power.</p>	

<b>Project: LABRADOR TRANSMISSION ASSETS</b>	
<b>Milestone:</b>	<b>Start AC Transmission ROW Clearing</b>
The start of initial construction works, including right of way clearing and temporary construction camp setup, for the 315kV transmission lines that connect the Muskrat Falls and Churchill Falls switchyards.	
<b>Milestone:</b>	<b>Finish AC Transmission Construction</b>
The completion of the 315kV HVac transmission lines connecting Muskrat Falls and Churchill Falls. This milestone represents completion of the transmission line itself and not the connection of the transmission line within the switchyards, which is included with the switchyard completion milestones.	
<b>Milestone:</b>	<b>MF Switchyard Ready to be Energized</b>
This milestone represents the completion of all switchyard works at Muskrat Falls including the connection of the transmission line and the dynamic commissioning of all components.	
<b>Milestone:</b>	<b>CF Switchyard Ready to be Energized</b>
This milestone represents the completion of all switchyard works at Churchill Falls including the connection of the transmission line and the dynamic commissioning of all components.	
<b>Milestone:</b>	<b>LTA Ready for Power Transmission</b>
All works on the Labrador Transmission Assets, including the 315kV HVac transmission lines, the Muskrat Falls switchyard, and the Churchill Falls switchyard are Ready For Operations.	
<b>Project: LABRADOR-ISLAND TRANSMISSION LINK</b>	
<b>Milestone:</b>	<b>LITL Release From EA</b>
The conclusion of the Environmental Assessment process for the Labrador-Island Transmission Link Project, which results from a decision by the applicable Minister(s) of Environment. This release provides an authorization to proceed with the Project, and allows for the application and approval of permits for specific work activities. This milestone is a key driver for the Labrador-Island Transmission Link Project, as without this release the project cannot proceed.	
<b>Milestone:</b>	<b>Start DC Transmission ROW Clearing</b>
The start of initial construction works, including right of way clearing and temporary construction camp setup, for the HVdc transmission lines.	
<b>Milestone:</b>	<b>Finish DC Transmission Construction</b>
The completion of construction and static commission works for the HVDC transmission lines. This milestone represents completion of the transmission line itself and not the connection of the transmission line to the converter stations, which is included with the converter station completion milestones.	

<b>Milestone:</b>	<b>Award Contract for Converter Stations</b>
This milestone represents the award of Commitment Package CD0501 for the supply and install of the converter stations at Muskrat Falls and Soldier’s Pond.	
<b>Milestone:</b>	<b>Muskrat Falls Converter Station Ready for Use</b>
This milestone represents the completion of dynamic completion of the converter station at Muskrat Falls. This means that this converter station itself is ready for operations, not that the entire HVdc system is ready for operations.	
<b>Milestone:</b>	<b>Soldier’s Pond Converter and AC Switchyard Ready for Use</b>
This milestone represents the completion of dynamic completion of the converter station at Soldier Ponds. This means that this converter station itself is ready for operations, not that the entire HVdc system is ready for operations.	
<b>Milestone:</b>	<b>Start Landfall Protection (HDD)</b>
The on-site start of the Horizontal Directional Drilling works in the Strait of Belle Isle. The scope includes drilling three (3) boreholes on each side of the Strait of Belle Isle (six (6) boreholes in total). This milestone represents the first work on the first of these boreholes.	
<b>Milestone:</b>	<b>Complete Landfall Protection (HDD)</b>
The completion of the Horizontal Directional Drilling works in the Strait of Belle Isle. The scope includes drilling three (3) boreholes on each side of the Strait of Belle Isle (six (6) boreholes in total). This milestone represents the completion of these boreholes to allow installation of the subsea cables.	
<b>Milestone:</b>	<b>Submarine Cable Installed</b>
The completion of the full installation of the SOBI subsea cables (i.e. the three (3) cable systems). At this point the cable systems will be electrically completed from surge arrestor to surge arrestor in both Transition Compounds.	
<b>Milestone:</b>	<b>Subsea Protection Completed</b>
The completion of the Subsea Rock Installation (SRI) workscope for the placement of the protective rock berm on top of the submarine cables.	
<b>Milestone:</b>	<b>LITL Completion Stretch Target</b>
A potential strategic advantage exists in the ability to complete the Labrador-Island Transmission Link in order to provide the ability to supply power to the island of Newfoundland prior to the winter of 2016-17, and thus defer the reliance on power generated from thermal sources during that period. This advantage necessitates the completion of dc transmission works prior to the winter period. Work during this winter period is in the current planning basis for completion of the dc overhead transmission line, however planning continues to assess whether this Stretch Target can be achieved.	

<b>Milestone:</b>	<b>SOBI Ready for Power Transmission (Post SRI)</b>
<p>The SOBI cables have been fully function tested after subsea rock installation works is completed, and are ready for handover for power transmission purposes.</p>	
<b>Milestone:</b>	<b>LITL Ready For Power Transmission</b>
<p>The Labrador-Island Transmission Link is fully built and Ready For Operations. This means that all components have been constructed and independently commissioned, as well as a full transmission system commissioning (or system integration testing) has been completed. The components to be completed are:</p> <ul style="list-style-type: none"> <li>• Muskrat Falls Converter Station;</li> <li>• SOBI electrode;</li> <li>• Labrador overhead electrode transmission line between the converter station and electrode;</li> <li>• Labrador HVdc overhead transmission line (MF – SOBI);</li> <li>• Transition compounds at each shoreline of the SOBI;</li> <li>• SOBI subsea cable;</li> <li>• Island HVdc overhead transmission line (SOBI-Soldier’s Pond);</li> <li>• Soldier’s Pond Converter Station;</li> <li>• Avalon electrode;</li> <li>• Avalon electrode overhead transmission line between the converter station and electrode;</li> <li>• Soldier’s Pond switchyard;</li> <li>• Synchronous Condensers at Soldier’s Pond;</li> <li>• Integrated operations communications system; and</li> <li>• Island system transmission and distribution upgrades.</li> </ul> <p>At time of completion and handover, the LITL system may not have been fully tested to full transmission capacity. An island power load must be matched to the transmission system capacity in order to fully test the LITL at full capacity. This may only be possible at peak demand load period within the island system.</p>	
<b>Project: MARITIME LINK</b>	
<b>Milestone:</b>	<b>ML Release From EA</b>
<p>The conclusion of the Environmental Assessment process for the Maritime Link Project, which results from a decision by the applicable Minister(s) of Environment. This release provides an authorization to proceed with the Project, and allows for the application and approval of permits for specific work activities. This milestone is a key driver for the Maritime Link Project, as without this release the project cannot proceed.</p>	
<b>Milestone:</b>	<b>Start Landfall Protection (HDD)</b>
<p>The on-site start of the Horizontal Directional Drilling works in the Cabot Strait.</p>	

<b>Milestone:</b>	<b>Complete Landfall Protection (HDD)</b>
The completion of the Horizontal Directional Drilling works in the Cabot Strait to allow installation of the subsea cables.	
<b>Milestone:</b>	<b>ML Submarine Cable Installed</b>
The completion of the full installation of the ML subsea cables. This installation includes the seabed laying and the bringing of the cables to an appropriate point on the shoreline. It signifies the end of the marine component of the cable installation.	
<b>Milestone:</b>	<b>Start Overland Transmission Construction</b>
The start of initial construction works, including right of way clearing and temporary construction camp setup, for the ML transmission lines.	
<b>Milestone:</b>	<b>Finish Transmission Construction</b>
The completion of construction and static commission works for the HVac and HVdc transmission lines. This milestone represents completion of the transmission line itself and not the connection of the transmission line to the switchyards or converter stations, which is included with the appropriate completion milestones.	
<b>Milestone:</b>	<b>Start Construction – Switchyards</b>
The start on on-site earth works for the switchyards at Woodbine, Granite Canal and Bottom Brook.	
<b>Milestone:</b>	<b>Start Construction – Converter Stations</b>
The start on on-site earth works for the converter stations at either Woodbine or Bottom Brook.	
<b>Milestone:</b>	<b>Switchyards Complete</b>
This milestone represents the completion of all switchyard works at Woodbine, Granite Canal and Bottom Brook including the connection of the transmission line and the dynamic commissioning of all components.	
<b>Milestone:</b>	<b>Converter Stations Ready</b>
This milestone represents the completion of dynamic completion of the last of the two converter stations for the Maritime Link Project. This means that the converter stations themselves is ready for operations, not that the entire system is ready for operations.	
<b>Milestone:</b>	<b>ML Ready for Power Transmission</b>
The Maritime Link is fully built and Ready For Operations. This means that all components have been constructed and independently commissioned, as well as a full transmission system commissioning (or system integration testing) has been completed. The components to be completed are:	
<ul style="list-style-type: none"> <li>• Bottom Brook Converter Station;</li> <li>• Stephenville electrode;</li> <li>• Overhead electrode transmission line between the Bottom Brook converter station</li> </ul>	

- and Stephenville electrode;
- Newfoundland HVac overhead transmission line (Granite Canal to bottom Brook);
  - Newfoundland HVdc overhead transmission line (Bottom Brook to Cape Ray);
  - Transition compounds at Cape Ray and Point Aconi;
  - Cabot Strait subsea cable;
  - Nova Scotia HVdc overhead transmission line (Point Aconi to Woodbine);
  - Woodbine Converter Station;
  - Sydney electrode;
  - Overhead electrode transmission line between the Woodbine converter station and Sydney electrode;
  - Granite Canal switchyard;
  - Bottom Brook Switchyard;
  - Woodbine Switchyard; and
  - Integrated operations communications system.

## **A.0 Activity Flowchart (Excel Format)**

**A.1. N/A**

## **B.0 Attachments/Appendices**

**B.1 Target Milestone Schedule**

# Lower Churchill Project - Phase I Target Milestone Schedule



Attachment B.1 of Document no. LCP-PT-ED-0000-EP-SH-0001-01 Rev. B2

	2012				2013				2014				2015				2016				2017				2018																							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4												
<b>PROJECT MILESTONES &amp; KEY DATES</b>				Project Sanction Start Bulk Excavation	LITL Release From EA	ML Release From EA													LTA Ready For Power Transmission	LITL Stretch Target ML Ready For Power					LITL Ready For Power Transmission	First Power From Muskrat Falls									Full Power From Muskrat Falls													
<b>MUSKRAT FALLS GENERATION</b>				MF Access Road Ready for Use	Site Mobilization of Bulk Excavation Contractor														North Spur Works Ready for Diversion	North Spur Stabilization Complete					North SCC Dam Completed	First Power From MF	Full Power From MF																					
Access & Bulk Excavation																																																
North Spur																																																
North Dam																																																
Spillway																																																
PowerHouse & Turbines																																																
South Dam																																																
Reservoir																																																
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