

**Date :** 4/16/2016 5:17:37 PM  
**From :** "Bown, Charles W."  
**To :** "Mullaley, Julia" , "Stanley, Todd"  
**Subject :** Fw: Presentation to Caucus  
**Attachment :** Muskrat Falls EY and OC - April 2016.PPTX;

Minister has scheduled a briefing with caucus for 11-12 on Tuesday. The topic is OC and EY reports plus why MF can't be stopped. She has requested both of you attend. I've attached a draft deck for your review.

Charles

Sent from my BlackBerry 10 smartphone on the Bell network.

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**From:** Bown, Charles W. <cbown@gov.nl.ca>  
**Sent:** Saturday, April 16, 2016 10:34 AM  
**To:** Coady, Siobhan  
**Cc:** Sheppard, Megan  
**Subject:** Presentation to Caucus

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Minister;

As discussed, I have attached a draft presentation to Caucus on the OC and EY reports and ive included a couple slides on the implication of stopping MF.

Charles

# **Muskrat Falls Project**

## **Overview of Oversight Committee and EY Reports**

April 2016

# Overview



1. Oversight Committee Report
2. EY Report
3. Implications of Stopping Muskrat Falls



# Oversight Committee Report

# Committee Membership



- Clerk of the Executive Council, Chair
- Deputy Minister, NR
- Associate Deputy Minister, NR
- Assistant Deputy Minister, NR, Energy Policy
- Deputy Minister, FIN
- Assistant Deputy Minister, FIN, Taxation and Fiscal Policy
- Director of Debt Management, FIN
- Deputy Minister, JUS
- Assistant Deputy Minister, TW, Works
- Assistant Secretary to Cabinet for Economic Policy
  
- Supported by a Working Group and consultant with specialized expertise (EY).

# Budget and Incurred Costs



Muskrat Falls Project: Sub-Project	Percentage of Total Project Budget	Project Capital Budget at Sept 2015	Incurred Costs at December 2015	Percentage of Budget Incurred
Muskrat Falls Generating Facility	48.1%	\$3,685,966	\$2,037,712	55.3%
Labrador-Island Transmission Link	40.4%	\$3,089,378	\$1,372,698	44.4%
Labrador Transmission Assets	11.5%	\$877,557	\$593,094	67.6%
<b>Total</b>	100.0%	<b>\$7,652,901</b>	<b>\$4,003,504</b>	52.3%

- Committed Costs - \$6.58 Billion

# Project Performance -Current

## Actual Schedule Progress vs. Planned



<u>December 2015</u>	Weight Factor %	<u>December 2015 Cumulative %</u>		
		<u>Planned</u>	<u>Earned</u>	<u>Variance</u>
Sub-Project	A	B	C	D = C - B
Muskrat Falls Generation (MFGen)	46.7%	56.6%	39.7%	<b>-16.9%</b>
Labrador Island Transmission Link (LITL)	42.2%	37.9%	33.8%	-4.1%
Labrador Transmission Asset (LTA)	11.1%	63.5%	69.0%	5.5%
Muskrat Falls Project - Overall	100.0%	49.5%	40.5%	<b>-9.0</b>

# Manufacturing Activities



- Offsite manufacturing work not included in Construction progress measure
- Six major manufacturing contracts are:
  - Turbines and Generators - Andritz
  - Powerhouse Hydro-Mechanical Equip. - Andritz
  - HVdc Convertors and Transition Comp. - Alstom
  - Submarine Cable Strait of Belle Isle - Nexans
  - AC Substations - Alstom
  - Synchronous Condensers (Soldiers Pond) - Alstom



# Current Project Performance – Manufacturing Activities



<u>December 2015 – Cumulative %</u>			
	<u>Plan</u>	<u>Earned</u>	<u>Variance</u>
<b>Contract</b>	B	C	D = C - B
Turbines and Generator	61.3%	45.8%	-15.5%
Spillway/Powerhouse Hydro-Mechanical Eqp	60.4%	37.0%	-23.4%
HVdc Convertors and Transition Compounds	48.5%	23.6%	-24.9%
Submarine Cable for SOBI	61.7%	60.8%	-0.9%
AC Substations	63.1%	38.0%	-25.1%
Synchronous Condensers	62.6%	30.6%	-32.0%

# Committee



## Committee Observations

- Actual construction progress for the Project at the end of December 2015 is 40.5 per cent compared to planned progress of 49.5 per cent. Variance of 9 per cent behind schedule.
  - Progress on the Muskrat Falls Generating Facility is tracking 17.0 per cent behind schedule – mainly attributable to slippage on Powerhouse and Intake (29 per cent behind plan).
  - Progress on the Labrador-Island Transmission Link is tracking 4.1 per cent behind plan. EY notes that while recent contractor performance has improved and potential mitigation for some of the schedule risk is available, risks remain to future schedule.
  - Progress on the Labrador Transmission Assets is tracking 5.5 per cent ahead of plan.

# Committee Observations Schedule



- Progress on the Muskrat Falls Generating Facility is significantly behind schedule. Schedule recovery will not be possible.
- First Power will not be achieved for December 2017. Other Project Milestone dates are impacted and remain under review.
- Critical Path for River Diversion in 2016 remains achievable.

# Project Performance – Incurred Costs vs Planned Costs



<u>December 2015</u>	<u>December 2015 Cumulative \$000' s</u>		
	<u>Incurred Costs</u>	<u>Planned Costs</u>	<u>Variance</u>
Sub-Project			
Muskrat Falls Generation (MFGen)	\$2,037.7	\$2,092.2	(\$54.5)
Labrador Island Transmission Link (LITL)	\$1,372.7	\$1,510.9	(\$138.2)
Labrador Transmission Asset (LTA)	\$593.1	\$627.8	(\$34.7)
<b>Muskrat Falls Project - Overall</b>	<b>\$4,003.5</b>	<b>\$4,230.9</b>	<b>(\$227.4)</b>

# Committee Observations Costs



- Project capital budget of \$7.65 billion is under review
- Incurred costs at December 31, 2015: \$4.00 billion
- Committed costs at December 31, 2015: \$6.58 billion
- Remaining Contingency at December 2015; \$172.8 million.

# EY Report

# Objective of Review



- Government announced the engagement of EY in December 2015 to independently:
  - Assess the reasonableness of the Muskrat Falls Project's cost and schedule forecast; and
  - Identify opportunities to address any material/critical risks
- Interim Report issued April 12
  - Nalcor currently completing a Quantitative Risk Assessment that will adjust Project Cost and Schedule

# Key Findings

## Cost and Schedule



- Contract for civil construction on the Generating Facility is significantly behind schedule in the Powerhouse and Intake areas.
- Delay expected to have material impacts on cost and schedule that are not reflected in the September 2015 Forecast.
- Current contingency level representing 4.7% of the cost to complete is low for the current stage of completion of the Project.
- Risk of multiple-month delay to completion of the HVdc transmission line contract due to delivery challenges; full mitigation may not be possible.
- Risks defined by Nalcor as strategic and outside of the controllable scope of the Project team are not allowed for in the financial forecast.
- Potential cost and schedule impacts of all individual risks are recorded in the Project's risk register but are not systemically reflected in the overall reported forecasts for cost and schedule.



# Key Findings

## Cost and Schedule



- Some anticipated material cost variances have only been reflected in the forecast cost when they are contractually committed.
- Potential impacts of these risks on cost and schedule are not adequately reflected in the September 2015 Forecast
  - Nalcor currently undertaking risk assessment to evaluate impacts of all Project risks
- Governance and reporting arrangements to date have not been effective in giving stakeholder confidence on forecast Project cost and schedule.
  - Need to strengthen Project governance and reporting to provide more effective oversight and constructive challenge to Project performance and execution, key decisions and forecasting.

# Recommendations



- Project should revise its planning and forecasting processes to explicitly include the regular reporting of a fully risk-adjusted final forecast of cost and schedule.
- Project contingency should make appropriate allowances for all risks, including strategic, at a confidence level reflecting stakeholders' required cost certainty.
- Project contingency should be reviewed quarterly to assess whether it appropriately covers all risks, taking account of the effectiveness of mitigation plans and the likelihood of risks crystallizing.
- Project contingency should be separated into an amount to be managed by the Project team and an amount to be managed at a higher level of governance.

# Recommendations



- Project governance and independent oversight should be re-evaluated by Government and strengthened at the Project, Nalcor Board and Government levels.
- Project reporting should be enhanced to support senior management focus on key risks and issues, to communicate more clearly how key risks are reflected in the forecast and to enable more effective Government oversight.



# Implications of Stopping Muskrat Falls

# Financial Commitments



- Over 50% of work on the Project has been completed.
- A total of \$4.4 billion in facilities capital and interest/financing costs has been incurred, and \$6.6 billion has been committed for construction and procurement contracts.
- Almost all of the contracts are awarded, goods are procured and many components, such as the turbines and generators or subsea cable, are advancing through or completed manufacturing
- Any delay or cancellation related to the Project will add to the overall cost, including costs associated with cancellation or delay penalties for committed contracts.

# Federal Loan Guarantee & Financing Agreements



- \$5 billion borrowed under a Federal Loan Guarantee at a very favorable interest rate.
- These funds were secured in December 2013 and have to be repaid with interest.
- As part of the loan guarantee, NL guaranteed to provide whatever funding is required above the \$5 billion to ensure the full Project achieves in-service.
- If NL cancels or delays all or a component of the Project, default provisions under the loan guarantee and financing agreements are triggered.
- Customers would still have to pay for the electricity through power supply and transmission agreements with NL Hydro; associated dividends and Muskrat Falls export revenues will be paid to the Federal government instead of NL.
- If Canada chose not act on default, the repayment of the \$5 billion debt plus interest would still be required, incremental Project costs would still accumulate, a new source of generation would still be required and all these costs would still be passed onto ratepayers in the Province.

# Nalcor/Emera Agreements



- Emera is investing \$1.5 billion plus interest/financing costs to build the Maritime Transmission Link (ML)
- Emera will receive 20% of Muskrat Falls' power over 35 years. The ML reverts back to Nalcor for \$1 at the end of that period.
- If the Project was cancelled, Emera is entitled to recover its costs plus damages
- Nalcor would also have to deliver power or provide financial compensation.
- Emera also has an equity investment in the LIL. If the project is cancelled, Emera can recover its costs plus damages.

# Economic Value



- \$9 Million invested weekly; over \$1 billion has been spent with NL businesses since the start of the Project.
- At peak in 2015 over 4,500 NL residents were working on the Project, which equates to over \$1 billion in wages to NL residents. Similar employment in 2016 expected.
- The Province's total equity investment in the Project is currently estimated at \$3.1 billion. Guaranteed equity return of greater than 8% over a 50 year period.
- Development will result in approximately \$60 billion in benefits and cost savings to Newfoundlanders and Labradorians over 50 years.
- Lays the groundwork for development of other energy projects in the Province such as small hydro, wind and Gull Island.



# Need for Power



- Demand for power will exceed current supply by 2018/19
- New generation source is required to meet Island customer requirements.
- Holyrood is past end of life, is experiencing operational issues and in need of significant repairs.
- Holyrood will be retired after MF Interconnection.
- If the Project is cancelled or delayed, continued reliance on Holyrood will have a significant negative impact on the reliability of the Province's electricity system.