

Muskrat Falls Project

Executive Level Internal Briefing

DRAFT CONFIDENTIAL

STRICTLY EY EYES ONLY

29 December 2015

EY Briefing Document –Muskrat Falls Project

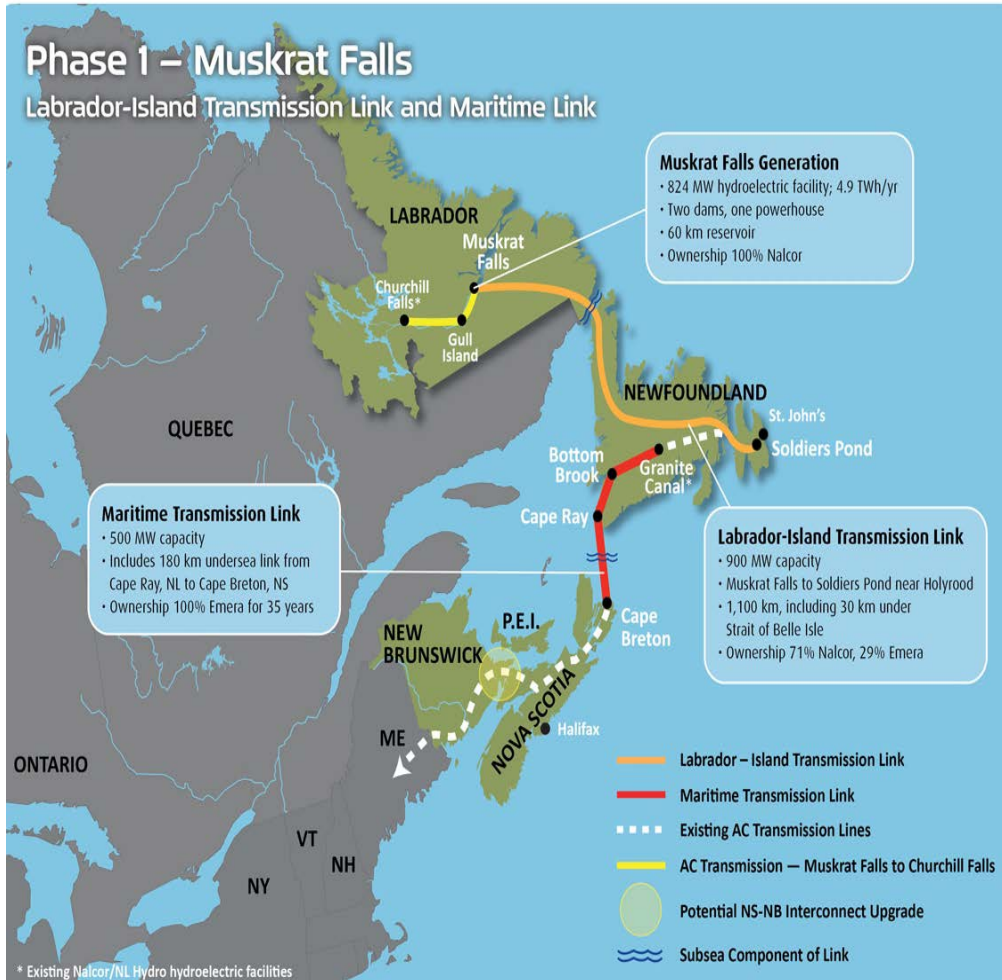
This document is a draft for discussion. The contents have yet to be fully validated and are only intended for the purpose of briefing EY's partners and staff prior to conducting a detailed assessment assignment in Q1 2016. EY makes no representation as to the adequacy or accuracy of the content for use by any third party. The content has also been prepared in contemplation of potential litigation and client solicitor privilege has been claimed.

- ▶ The Project
 - ▶ Overview LCP
 - ▶ Overview MFP
 - ▶ Key Players
 - ▶ Oversight Committee
 - ▶ EY Involvement
- ▶ The EY Report
 - ▶ Scope & Approach
 - ▶ Positives
 - ▶ Cost Findings
 - ▶ Schedule Findings
 - ▶ “Other Observations”
 - ▶ Recommendations
- ▶ Current Assignment with notes
- ▶ Other Information
 - ▶ Other Documents
 - ▶ Other background web-sites

- This document is a draft for discussion intended to orient new members of the EY team to the work being performed in support of the Muskrat Falls Project.
- It is high level and introductory. It should be read along side the material listed at the back of the document in order to be more fully informed.
- The contents have not been fully validated, include some informal analysis and are expressly only intended for the purpose of briefing EY’s Partners and staff prior to conducting a more thorough detailed assessment assignment in Q1 2016
- EY makes no representation as to the adequacy or accuracy of the content for use by any third party.
- The content is sensitive and includes material prepared in contemplation of any potential litigation
- Client solicitor privilege is claimed

EY Briefing Document –Muskrat Falls Project

Overall Background



“The development of Muskrat Falls will power homes and businesses across Newfoundland and Labrador with clean, renewable energy for generations. Electricity generated from the 824 megawatt hydroelectric facility at Muskrat Falls will help meet growing energy demands in the province, and will be a valuable power-producing asset for more than 100 years.

The project will also provide significant employment and business opportunities to Newfoundlanders and Labradorians during construction. With the sanction of the project by the Government of Newfoundland and Labrador in late 2012, procurement and employment benefits are already being realized across the province. Construction is underway and will take approximately five years to complete.

Once the project is in operation, the development of Muskrat Falls will mean:

Long-term stable electricity rates for generations of Newfoundlanders and Labradorians

Lowest-cost power for homes and businesses

An end to dependence on oil and unstable electricity prices

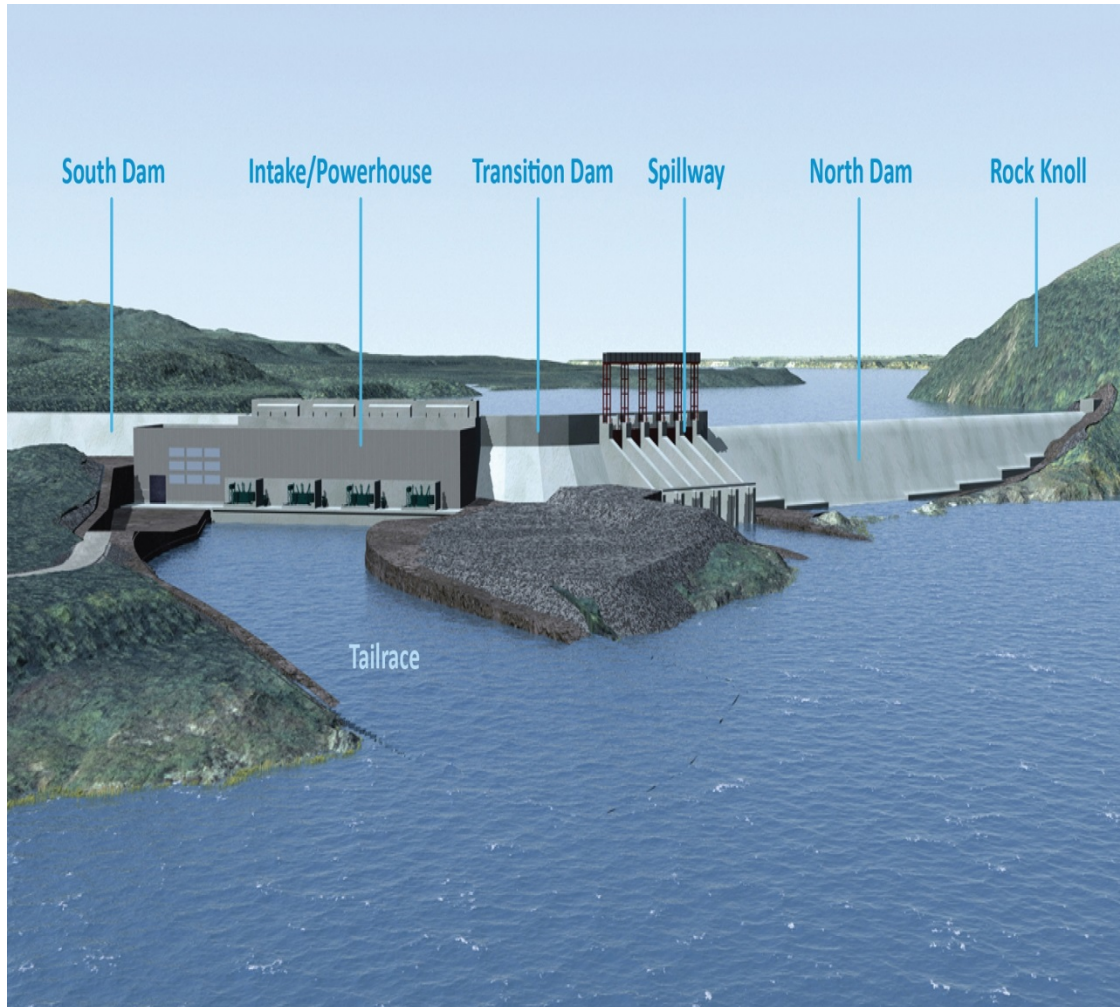
Energy for future mining and industrial development in the province

A link to North America’s electricity grid for exports

Clean, renewable power – 98% sustainable energy”

Nalcor Web-site

EY Briefing Document –Muskrat Falls Project



Muskrat Falls Hydroelectric Generating Facility

An 824 megawatt (MW) hydroelectric generating facility is being constructed at Muskrat Falls on the lower Churchill River, approximately 30 km west of Happy Valley-Goose Bay. The facility consists of two dams and a powerhouse, and will be the second-largest hydroelectric facility in the province when complete.

Harnessing the power of Muskrat Falls requires extensive and prudent planning. Consistent with industry best practice, Nalcor Energy used a front-end loading approach in the project's planning and early design stages.

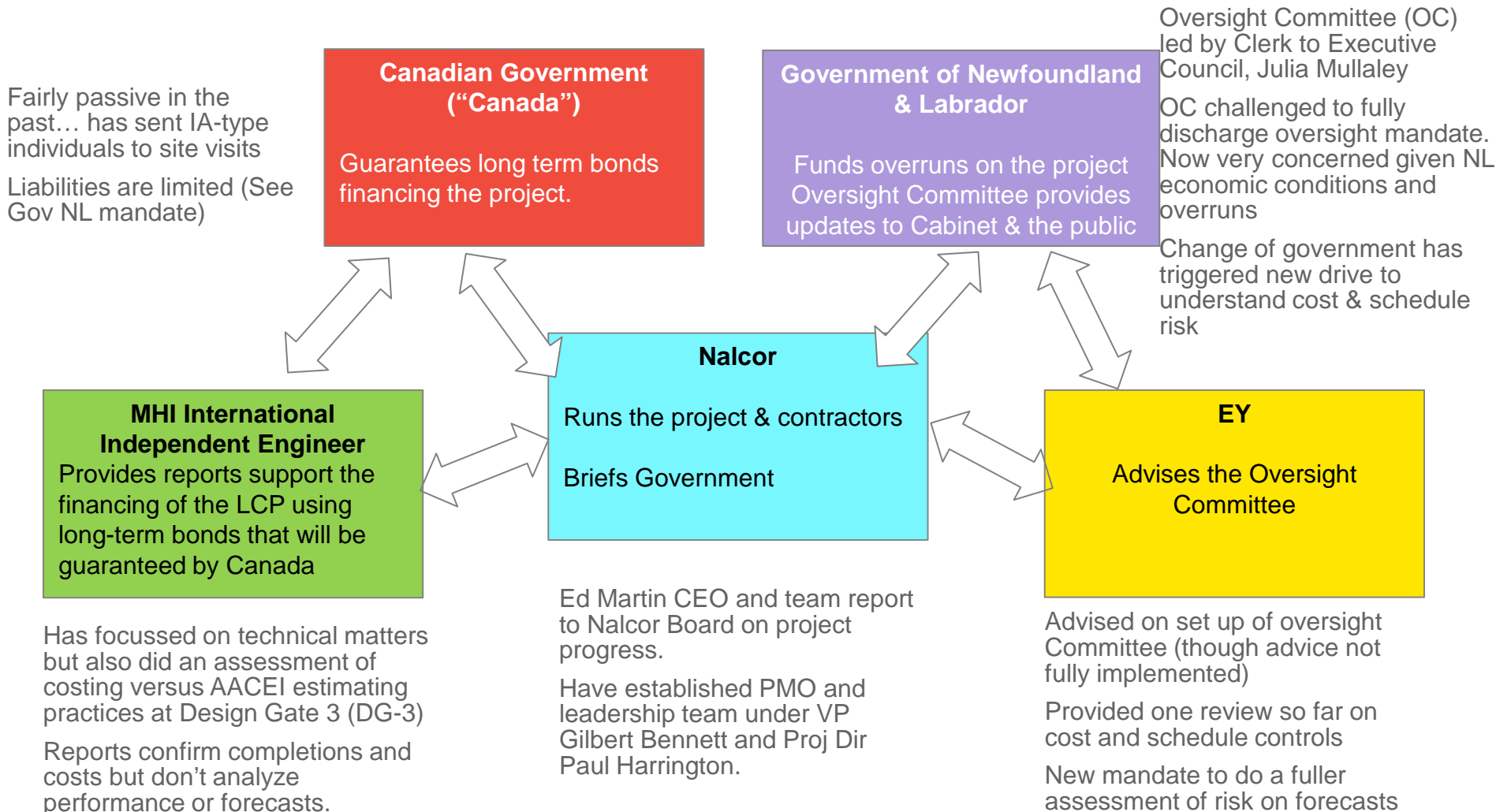
Through early engineering and site preparation work, Nalcor's project team increased the quality and accuracy of the development plans for Muskrat Falls, and mitigated many risks that could arise during construction.

Nalcor also worked with three of North America's largest turbine generator engineering firms to design, model and test the four turbines for the generating facility. According to these companies, the turbine efficiency at Muskrat Falls will be the highest ever obtained in North America.

Nalcor Web-site

EY Briefing Document –Muskrat Falls Project

Key Players

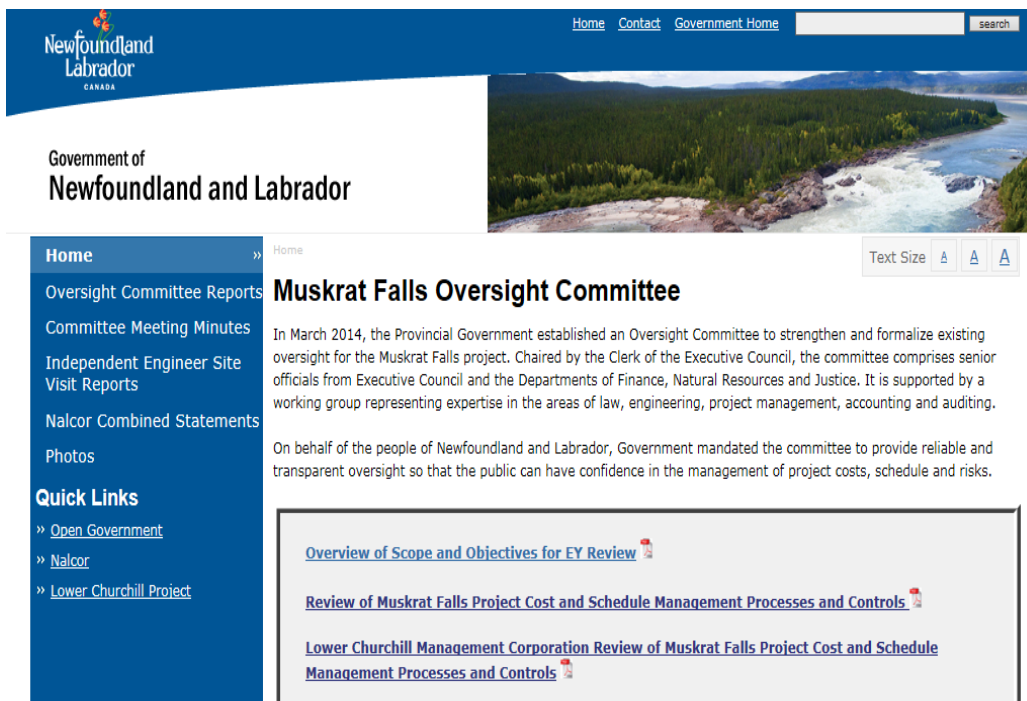


EY Briefing Document –Muskrat Falls Project

The project at approximately \$7 Billion CAD project, is intended to supply power to Newfoundland and Labrador making it energy independent and also allow surplus to be sold in the open market piped via a Maritime Link through Nova Scotia and on into the US market. Given concerns raised at the program's scale, inherent risk but also Government transparency, the previous Government of Newfoundland's (Gov NL or "the Government") then Premier announced that he would strike an Oversight Committee to provide "best in-class oversight" of the program.

EY was initially engaged to provide advice on the mandate of the Oversight Committee. Then in a subsequent competitive bid, EY were selected to provide independent advice and spot reviews as input to the Oversight Committee to assist in meeting their mandate.

Nalcor, the government agency in charge of power generation and distribution was resistant to the independent oversight function and the use of EY. They cited their existing reporting to the OC, the use by the Federal Government of an Independent Engineer (to which the OC also has access) as well as their own Internal Audit function as providing sufficient oversight on the project.



However, the Government of NL is specifically responsible for paying for any cost overruns on the project and insisted that the oversight function be put in place.

Led by the Clerk to the Executive Council and comprising Assistant Deputy Ministers of relevant departments, the Oversight Committee produces quarterly reports that are made public.

EY Briefing Document –Muskrat Falls Project

The broad timeline and key events since EY's involvement are shown right. The execution of EY's role has been challenging throughout. This has primarily been due to difficulties in Gov NL resolving agreements with Nalcor concerning the mandate of the OC and the scope of EY review and assessment work to be performed.

In summary, EY initially proposed that the Government

- Review of the PMO/Project Controls & Reporting as a foundation
- Perform on-going monthly review of cost and schedule progress, reporting, risks and issues
- Conduct detailed reviews of critical risks/issues at schedule intervals and at key milestones

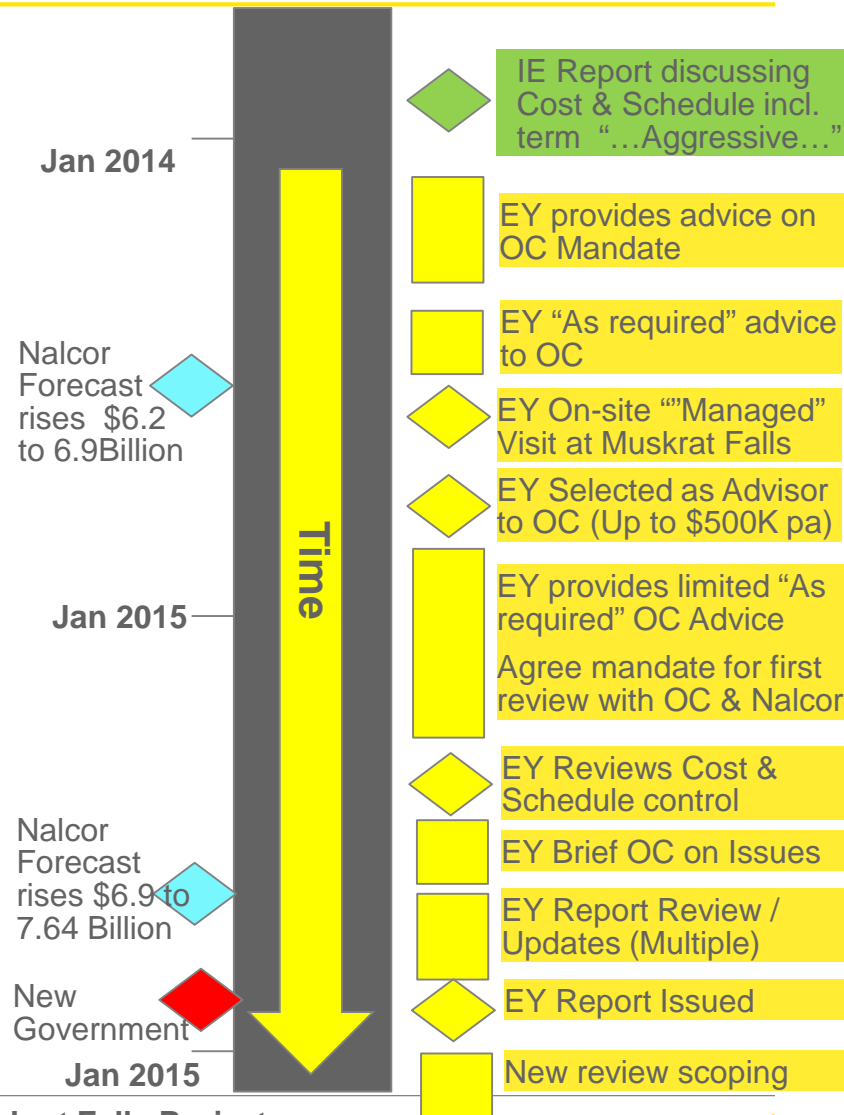
This was to be accompanied by annual assurance planning as well as an emphasis on establishing an early working agreement with Nalcor to support the execution of this mandate. The Government noted its budgets were constrained and coupled with difficulty in managing Nalcor in this regard, did not commission the full body of work EY recommended.

EY has been consulted on review of the OC's published quarterly reports which largely recast NALCOR's own reporting with cautionary statements. EY was careful to limit any statement of its role in their review of OC reports. EY was also requested to attend heavily "managed" site reviews (e.g. with Nalcor refusal to provide detailed schedule reference material)

EY first concerted review was limited (with EY expressing concern) to the review of cost and schedule processes and controls in April/ May 2015. Significant findings were identified and communicated to government in May, June and July of 2015 (discussed later in this document).

The publication of EY's first full report was then delayed with additional rounds of review, until December 2015. ~Six months after first draft.

A new Liberal Government was elected and a thorough review was requested by the Premier in line with EY's report recommendations.



EY Briefing Document –Muskrat Falls Project

Recent EY Review Summary

(Excerpts with annotation from a briefing presentation delivered to the Government in May 2015)

Scope

- Assessment of:
 - Adequacy of Nalcor's cost and schedule management processes and controls as it manages and reports on the execution of the Project
 - Consistency of Nalcor's use of those processes and controls in key areas of the Project
 - Extent of reliance the Oversight Committee could place on Nalcor's management reporting for cost and schedule forecasts
- Project reporting period covered by this engagement: Dec 2014 to Feb 2015
- A sample of five key contracts were selected, aggregate value exceeds \$2.3 billion

Approach

- Field work was performed April and May 2015 and included:
 - Review of 70 project data / documentation items
 - 17 Structured interviews with Nalcor personnel
 - Workshops to review and validate findings
- Exchange of feedback still in progress

Review limitations (Exclusions per SOW and draft report)

- The estimating and cost baseline processes
- The accuracy of the forecasted costs or schedule for the contractors & the Project
- Scope/Change Management and Risk Management processes
- (Also EY's regular coverage for project/program management)

There were indeed some positives:

- Key project control processes have been developed including an Integrated Project Schedule, Project Execution Plan and basic Coordination Procedures
- Project reporting summarizes some of the key information (if not all) on construction cost and schedule that we would expect to see
- Nalcor's continued efforts to work with contractors on maintaining a disciplined approach to project management, control and reporting
- Proactive measures taken to manage potential claims
- Active formalized management of cost and schedule issues and risks arising during the Project
- A matrix organizational structure has been established staffed with some resources experienced in cost and schedule management
- Nalcor has defined many reasonable (if not all) conventional cost and schedule management processes and controls for the Project.

Key findings – Schedule management & compliance

- For three of five of the Samples selected, contractor Control Schedule Baselines Documents (CSBD) and Schedule Development and Control Plans (SDCP) were incomplete and/or did not meet the criteria defined in Nalcor's processes.
- A majority of contractors' schedule updates included in the Sample were not systematically rolled up into the Nalcor Integrated Project Schedule used in reporting
- A completion date has not been established for finalizing an integrated baseline of contractor and IPS schedules to correct the issues noted in above.
- The IPS development and maintenance process is not fully documented.
- Some manual adjustments made to reports... so not fully systematic.

Until such time as the noted management process and controls risks and issues are addressed, the completeness and accuracy of Project schedule status reporting to the Oversight Committee cannot be fully verified.

Key findings – Cost management & compliance

- The conditions and processes for rebaselining cost and schedule are not defined in the Project's control processes and procedures.
- Nalcor uses a relatively basic approach to its updating of forecasted contingency requirements which in our experience is not consistent with the expected practices for a project of this scale and complexity.
- The Project does not define thresholds for variance management, reporting, and escalation purposes.
- A fully quantified risk or trend has not been documented for the most significant challenges related to work performed by a key contractor included in the Sample. The scale of potential challenges is not quantified in the summary reporting made available to the Oversight Committee.

Until such time as the noted management process and controls risks and issues are addressed, the completeness and accuracy of Project cost forecasting status reporting to the Oversight Committee cannot be fully verified.

Other observations (Highly Confidential... verbal briefing only delivered but records kept by EY shown in sub-bullet points)

CIMFP Exhibit P-03424

DRAFT CONFIDENTIAL
STRICTLY EY EYES ONLY

Page 14

- **Astaldi status.** (Main group constructing the generation plant)
 - Astaldi reported both Cost and Schedule Performance were only between 25 & 33%.
 - Nalcor assurance that they'd kept OC briefed that they'd used only approved reporting but identified risks. But Government "significantly surprised"
 - Simply doubling batch plant productivity (the planned action in response) would not catch up the performance deficit
 - Some claims/renegotiation of contract likely as no contractor will happily carry growth from \$250Million to \$750+Million on a fixed price basis.
 - Impacts to timeline and the other contracts very very likely
- **Adequacy of Nalcor Internal Audit (IA) Risk & Scope Reviews**
 - EY briefed Government that scope and change controls were not perfect but not bad and IA review had said as much.
 - However, Risk Management review done by Nalcor IA was inadequate... had referenced the minimum standards and omitted quantification which is critical... Nalcor IA not really qualified to assess this
- **Quantitative Risk Status**
 - Quantitative risk had been assessed at DG-2 and DG-3... but Nalcor indicated not subsequently (some indication that a redo on sim work was being planned)
 - Nalcor interviewee responsible for Monte Carlo sim indicated no knowledge of whether a P50 or P80 number was used for cost and schedule forecasts
 - This obviously very key to Gov NL as it bounded the confidence in the forecasts

Implications

- Until such time as the noted management process and controls risks and issues are addressed, the completeness and accuracy of status reporting to the Oversight Committee cannot be fully verified.
- OC may also not be fully informed of the scale and severity of risks / issues.
- This limits the ability of OC to communicate and/or take proactive action.

Recommendations

- Work with Nalcor to obtain management response for each of the findings noted in this report. Timeliness of action is critical so the Oversight Committee should actively monitor status and verify completion of management response to ensure it meets OC’s expectations.
- Conduct detailed assessments of the cost and schedule status of the Project on an ongoing basis until Nalcor’s corrective action addressing key risks and issues noted in this report are complete to the Oversight Committee’s satisfaction.
- Further assessment required on risk management and status.

The current assignment

EY Briefing Document –Muskrat Falls Project

▶ See also attached SOW

- ▶ Nalcor Project has undergone some form of “rebaselining”.
- ▶ The Nalcor process for rebaselining is not defined and the results of the rebaselining have not been confirmed.
- ▶ Indication that full quantitative risk analysis has not been performed.
- ▶ EY Review focus is therefore on cost and schedule performance (implicitly also accuracy of status reporting) and the risks to forecast.
- ▶ Omissions in conventional EY scope continue to include review of governance, processes and broader financial modelling... But...
- ▶ We might expect to trigger these as a result of findings in this first phase of work.
- ▶ Expectations are that the risks/holes identified would be quantified
- ▶ Expectations need to be managed away from “EY providing an independent Forecast @ Completion ”

Other information

EY Briefing Document –Muskrat Falls Project

- ▶ Key Player Profiles
 - ▶ Dwight Ball Premier NL
 - ▶ Julia Mull Clerk to Executive Council Gov NL
 - ▶ Ed Martin CEO Nalcor
 - ▶ Gilbert Bennett Nalcor VP Projects
 - ▶ Paul Harrington. Nalcor Project Director
- ▶ Prior EY Reports
 - ▶ Executive Summary (Made public)
 - ▶ Detailed Findings
 - ▶ Nalcor Management Response
- ▶ Draft EY SOW for current assignment
- ▶ Independent Engineer Report
 - ▶ Design Gate 3 (DG-3) full report (includes technical details as well as cost and schedule assessment)
 - ▶ October 2015 status update
- ▶ Nalcor Project Execution Plan
- ▶ Nalcor Contract Strategy
- ▶ Nalcor Material Contracts

- ▶ Government of Newfoundland & Labrador Oversight Committee
 - ▶ <http://www.gov.nl.ca/MFOversight/>
- ▶ Nalcor's Lower Churchill Project (LCP) web-site
 - ▶ <https://muskratfalls.nalcorenergy.com/>
- ▶ Globe & Mail Analysis (Canadian National newspaper)
 - ▶ <http://www.theglobeandmail.com/report-on-business/rob-commentary/muskrat-falls-becoming-an-over-budget-burden-on-newfoundland/article27809326/>
- ▶ Uncle Gnarly Blog (independent local NL view - significant readership)
 - ▶ <http://unclegnarley.blogspot.ca/2015/12/premier-ball-advice-for-first-100-days.html?m=1>
- ▶ CBC Report
 - ▶ <http://www.cbc.ca/news/canada/newfoundland-labrador/dwight-ball-announces-independent-review-of-muskrat-falls-1.3374917>