From:	jamesmeaney@lowerchurchillproject.ca
To:	koneill@nlh.nl.ca
Subject:	my comments to crawley on management response
Date:	Monday, March 14, 2016 10:18:54 AM
Attachments:	_.png ey management response 13 march 2016 (JM Comments).docx

James Meaney
General Manager, Finance
PROJECT DELIVERY TEAM
Lower Churchill Project
t. **709 737-4860** c. **709 727-5283** f. **709 737-1901**
e. **JamesMeaney@lowerchurchillproject.ca**
w. **muskratfalls.nalcorenergy.com**

You owe it to yourself, and your family, to make it home safely every day. What have you done today so that nobody gets hurt?

----- Forwarded by James Meaney/NLHydro on 03/14/2016 10:18 AM -----

From: James Meaney/NLHydro

To: Brian Crawley/NLHydro@NLHydro

Date: 03/13/2016 09:51 PM

Subject: Re: CONFIDENTIAL: ey management response 13 march 2016

Hi Brian

Please find attached my comments

Regards

Jim

ey management response 13 march 2016 (JM Comments).docx

James Meaney
General Manager, Finance
PROJECT DELIVERY TEAM
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t. **709 737-4860** c. **709 727-5283** f. **709 737-1901**

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You owe it to yourself, and your family, to make it home safely every day. What have you done today so that nobody gets hurt?

Brian Crawley---03/13/2016 05:56:58 PM---Here is our latest draft. Please review and provide comments in track changes by 1100 on Monday.

From: Brian Crawley/NLHydro

To: Paul Harrington/NLHydro@NLHydro, Jason Kean/NLHydro@NLHydro, Lance Clarke/NLHydro@NLHydro, Steve Pellerin/NLHydro@NLHYDRO, James Meaney/NLHydro@NLHYDRO, Gilbert Bennett/NLHydro@NLHydro, Karen O'Neill/NLHydro@NLHydro, Deanne Fisher/NLHydro@NLHYDRO, Ed Martin/NLHydro@NLHydro, Ron Power/NLHydro@NLHydro

Date: 03/13/2016 05:56 PM

Subject: CONFIDENTIAL: ey management response 13 march 2016

Here is our latest draft. Please review and provide comments in track changes by 1100 on Monday.

Brian

[attachment "ey management response 13 march 2016.docx" deleted by James Meaney/NLHydro]

March 15, 2016

Ms. Julia Mullaley
Clerk of the Executive Council
Cabinet Secretariat
Government of Newfoundland and Labrador
Confederation Building
St. John's, NL A1B 4J6

Dear Ms. Mullaley:

Re: Review of Muskrat Falls Project Cost and Schedule Management Processes and ControlsEY Management Response 12 March 2016

Lower Churchill Management Corporation (LCMC), the Nalcor Energy subsidiary responsible for managing the development of the Muskrat Falls Project, has had an opportunity to review Ernst and Young's (EY's) interim report commissioned by the Oversight Committee to review project cost, schedule, and associated risk for the Project. The Project team was pleased to host EY's international team as part of this review. This is the seventh major review that the Lower Churchill Project (LCP) team has participated in over the last five years. We continue to recognize the value associated with independent analysis and welcome the opportunity to benefit from the views of others. Extensive supporting documentation and hundreds of person hours of briefings were provided to **EY's global team of approximately 35 engineers, finance professionals** and business analysts, and EY were granted unlimited access to LCMC and Nalcor senior staff. They were also provided comprehensive briefings by the Project's major risk management consultant. **(Insert statement that describes proactive disclosure of all issues by the LCMC team to EY noting that EY was provided with all data provided in their report.)**

Nalcor notes that almost exclusively all observations offered by EY reflect the facts, data and information provided to them by the LCMC team, including such detail that has already been published in other reports. Their observations would not have been possible

We would like to use this opportunity to provide context to some of the information contained in EY's report, along with an initial response to the recommendations listed in the interim report. We look forward to continuing to work with EY and the Oversight Committee through to the conclusion of this review.

Through the course of its review, EY has reviewed cost and schedule updates developed by the LCMC team over the summer of 2015 and released publicly in September 2015.

Commented [JM1]: If this letter goes public many people may not know who LCMC is

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Commented [JM2]: Something got cut off here?

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While it was evident cost and schedule data could potentially change over the following months, LCMC believed it to be prudent to be transparent and share the best information available at that time. This information, as well as updated proxy estimates for cost, was shared with the new Government of Newfoundland and Labrador during the transition and initial briefings with Ministers and Government departments, the Boards of Directors of Nalcor and the LCP subsidiaries, the Government of Canada, and the Project's Independent Engineer.

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Nalcor provided EY with this historical perspective during initial briefings. EY was also advised that subsequent analysis and an improved understanding of the impacts of schedule delays with Astaldi translated to cost estimates that would surpass the latest public update of $7.653 billion.

This forms the foundation for EY's statement that the cost and schedule estimates reported in September of 2015 is not reasonable. At the most basic level, a change in circumstances or additional information that would lead to different calculations or conclusions than those previously drawn would inevitably lead to previous work being outdated and thus 'unreasonable' given a new set of conditions. Following is some additional context and detail surrounding the aforementioned risks:

Based on the passage of time and the availability of new information which now makes the September 2015 cost update outdated, LCMC had taken action independent of the EY review to update the September 2015 capital cost and schedule estimates. Specific actions include a quantitative risk assessment as well as a review of forecasted final cost and schedule for the Projects' work packages. LCMC notes that this was acknowledged by EY in the interim report.

EY summarized the following risks from the Project risk register:

1. The progress of Astaldi, the civil contractor for the Muskrat Falls powerhouse and spillway, is tracking behind the original project schedule.
2. The progress of construction on the HVdc line is challenged by weather and field conditions.
3. Successful completion of commissioning and integration represent future risks at in-service.
4. Some schedule risk is associated with the HVdc converter contract.

These and other types of risks have already been identified, documented, and under active management by the Project team since before Project Sanction.

[further acknowledgement that cost and schedule will be changing]

LCMC offers the following specific comments in relation to the aforementioned risks and EY's observations from the Executive Summary of their Interim Report:

Muskrat Falls Powerhouse

Nalcor and LCMC advised the public and Government in September of 2015 that the target date for first power in late December 2017 would not be achievable. At the time, it was also noted that total project costs were dependent upon the ongoing performance of Astaldi, the primary civil contractor for the powerhouse.

This was acknowledged by the Oversight Committee who noted in its report for the period ending August 2015,

> *"The risk for schedule delays due to powerhouse concrete placement remains high. Contractor performance in the powerhouse and intake remains a key area of focus for the contractor and Nalcor."*

The Oversight Committee also noted in its report that despite improvements in the performance of the civil contractor for the Muskrat Falls Generating Facility, further schedule slippages "could impact costs beyond the Project execution risk contingency that has been established."

The delays to powerhouse construction are primarily attributable to a poor start by the contractor in 2014. Nalcor notes the performance of Astaldi throughout 2015 showed a marked improvement over 2014, with concrete placement volumes meeting industry norms. The contractor also successfully executed a winter construction program which focused on removal of the Integrated Cover System, rebar installation and formwork construction. This has left Astaldi properly positioned to continue concrete placement at acceptable rates in 2016.

Contingency:

Nalcor has consistently maintained an aggressive approach to reporting and managing costs. Every dollar spent on this project has been expended under an approved budget. It is our position and experience that maintaining tight control over budgets (including assignment of an aggressive contingency) is one way to prudently control costs.

At the start of EY's review, Nalcor informed EY of its ongoing mid project checkpoint with work to complete a comprehensive quantitative risk assessment to more accurately identify a range of estimated potential project cost and schedule, as well as the likely probability of achievement. This checkpoint included a project organizational effectiveness review by Independent Project Analysis (IPA), an internationally recognized expert in this field.

Consistent with industry best-practice, LCMC conducts such reviews at major decision points and mid-way through project execution. As indicated earlier, and also in LCMC's previous management response to EY, risk identification and mitigation is also an ongoing project activity since Project inception.

EY has recommended to the Oversight Committee that Nalcor adopt a more conservative approach to budget reporting, which will see cost estimates and contingency move from Nalcor's aggressive, low contingency allocation to a much higher contingency allocation. This will result in an increased project capital cost for two reasons:

a) Project entities generally manage to budget, and larger contingency allocations tend to reduce the ability to aggressively manage costs.
b) The communication of large contingency values will reduce LCMC's ability to effectively negotiate with its contractors in the best interests of the people of Newfoundland and Labrador.

Furthermore, EY's recommendation regarding an increased project contingency may also result in funds being allocated for risks that may not materialize at a time when the Province is already challenged to undertake significant borrowings. This increase will also require that additional equity from the Province be pre-funded pursuant to the project finance agreements and Federal Loan Guarantee (FLG) with the Government of Canada.

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Commented [JM3]: We publicly disclose the "pre funded" equity concept in the notes to our financial statements. Emera has a similar obligation for ML under the FLG if that's what is being asked?

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Given Nalcor's commitment to report transparently, LCMC has attempted to balance the interests of stakeholders with respect to the communication of contingency allocations against its commercial interest on behalf of the people of Newfoundland and Labrador.

HVdc Transmission Line Construction

While construction of the Labrador Transmission Asset (LTA) is tracking ahead of schedule, Labrador Island Transmission Link (L-ITL) construction has tracked behind schedule, but recent trends show a positive outlook.

There have been a number of performance challenges faced by the contractor which continue to pressure HVdc construction schedule, such as above seasonal temperatures and unfavorable weather conditions for construction again this winter. LCMC will continue to assess the impact on schedule and concurs delays are possible without effective mitigation strategies. As part of its ongoing management of this work package, the LCMC team will continue to examine options with its construction contractor for minimizing schedule slippage. These include the contractor mobilizing additional resources – including those planned to move from the LTA to the LITL when work on the LTA completes.

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Reporting of Anticipated Material Cost Variances

EY notes some anticipated material cost variances have only been reflected in the forecast cost when they are contractually committed. LCMC believes this to be a prudent approach to cost reporting as it focuses on real variances instead of issues which are either speculative in nature or premature. Many issues are able to be addressed with aggressive mitigation. LCMC has had considerable success in negotiating reductions to initial price proposals through application of value engineering and alternate commercial constructs such that final contract costs were significantly lower than opening proposal amounts.

Reporting such variances prematurely does not add value to the Project and only serves to undermine the credibility of reporting processes. This methodology is also consistent with Nalcor's obligations under the FLG and the agreed approach to final cost forecasting with the Independent Engineer and the Government of Canada.

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Commented [JM4]: This is true, but we probably want to make sure NRCan and the IE have no concerns with us stating this publicly.

Identification and Allocation of Costs for Strategic Risk

EY notes that Nalcor has identified and documented risks associated with all remaining scope and has processes in place to mitigate those risks. These risks are maintained in a Risk Register and regularly reviewed by Project managers.

For clarity, risks that are beyond the ability of any project team to manage or influence should they occur are categorized as strategic. Examples include extreme weather events, global economic trends, or geopolitical events.

For the reasons outlined in the above section on contingency, a decision was taken prior to project sanction not to allocate funds to address strategic risks which had an unknown probability of materializing. The project team's considered approach was to monitor and where possible, actively mitigate these risks to the extent possible. Sensitivity analyses, as further discussed below, were also undertaken to demonstrate the effect on the Project should these risks materialize.

This approach for managing strategic risk was disclosed publicly and discussed as early as during the Public Utilities Board (PUB) Review at DG2.

At sanction, to demonstrate the Project's ability to accommodate strategic and other unforeseen risks, Nalcor provided a comprehensive sensitivity analysis for a number of variables which could impact the overall economic viability of the project, including changes in capital costs, schedule delays and oil prices. This analysis was validated by external consultants Navigant Consulting and Manitoba Hydro International. It was also shared with the PUB in 2011 and used by Government as part of its due diligence for Project sanction. The sensitivity analysis demonstrated that the preference for the development of Muskrat Falls remained robust under a number of significant deviations to key project variables. Nalcor's internal calculations continue to demonstrate a clear preference for Muskrat Falls using current budget and schedule analysis over other alternatives for meeting the generation requirements of the province.

It is also worth noting that consideration was given to the potential impact of strategic risks as part of the Government making its commitment to provide the base level and contingent equity required to support the Project achieving in-service. This is reflected in the November 2012 FLG Agreement and the November 2013 Intergovernmental Agreement between the Province and the Government of Canada (both of which are available on the Muskrat Falls website), as well as the formal equity guarantee agreements executed by the Province in November 2013 in support of the FLG and $5 billion debt financing.

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Commented [JM5]: Slight nuance to the text, but then current Government can't say they never considered it directly

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Commented [JM6]: This is the term used in the documents noted in the next sentence.

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Project Governance and Reporting

While outside of its scope, EY has provided opinion on the effectiveness of governance and reporting in providing confidence to stakeholders in forecasted cost and schedule.

LCMC is uncertain as to how these conclusions were achieved, as EY did not meet regarding this matter with several primary stakeholders, such as members of the Boards of Directors of Nalcor and relevant subsidiaries, the Independent Engineer, or the Government of Canada. Of equal importance, EY had no information with which to comment on the context or quality of discussions which occurred during meetings and briefings provided by Project officials to the aforementioned entities.

Commented [JM7]: Did any questions relating to this matter come up when they interviewed Nik? I wasn't present.

Nalcor wishes to note it provides comprehensive regular and timely briefings to its 6 LCP subsidiaries, each of which has its own Board of Directors. The composition of these Boards complies with the Energy Corporation Act requirements for independent Directors. Further, under the obligations of the FLG, the LCP subsidiaries involved with the financing arrangements must have an even higher level of board independence.

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Nalcor also reports to the public through the release of quarterly and annual Financial Statements for Nalcor Energy and all its subsidiaries, including those related to the LCP, and an Annual Report which is discussed during a public Annual General Meeting. Nalcor's annual financial statements are reviewed by it's independent auditors, Deloitte.

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We also reiterate our previous comments regarding the need for considering the commercial sensitivity associated with reporting final cost and schedule.

In summary, EY offers the following recommendations:

1. Explicitly include the regular reporting of a fully risk adjusted final forecast of cost and schedule.
2. Make additional allowances for all risks (both tactical and strategic) to provide additional cost certainty.
3. Review project contingency assignments on a quarterly basis to assess whether contingency appropriately covers all risks.
4. Separate project contingency into an amount to be managed by the Project team and an amount to be managed at a higher level of governance.
5. Re-evaluate project governance and oversight.
6. Enhance project reporting.

As indicated in its response to the previous EY report, risks to both cost and schedule are discussed on a regular basis with the Oversight Committee. Given their commercial sensitivity, publication of these numbers is not considered to be a prudent business practice.

In summary, EY advocates an approach where greater allowances in the form of contingency for cost and schedule should be applied to project estimates on a more frequent basis and in anticipation of risks arising. This is in contrast to LCMC's approach of actively managing these issues and then seeking additional funding through well established governance processes when those risks are clearly defined and after mitigations have been applied.

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While such an approach would provide a greater buffer to deal with risks to cost and schedule, the following are disadvantages to this course of action:

1. Reporting of risk-adjusted forecasted costs and schedules would provide valuable and commercially sensitive information to the Project's contractors, who are being managed to their contracted schedule milestones and funding amounts.

2. Greater contingency levels have the potential to reduce the Project team's aggressive stance on cost increase avoidance through mitigation activities.

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3. Frequent contingency updates would have no source of funding as the Province operates its budget on an annual basis each fiscal year, with funds assigned on an annual basis.

4. Through the provisions of the project finance agreements and the FLG, unconfirmed contingent amounts would require equity pre-funding from the Province at a time when it is already challenged to undertake significant borrowings.

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We will continue to work with the Oversight Committee to achieve best value from this project to the people of Newfoundland and Labrador, and also to continue to improve reporting to the Oversight Committee to better enable it to discharge its duties.

We have provided further specific comments to the EY report in the appendix to this letter.

Sincerely,

GJB

Response to Recommendations:

Commented [JM8]: Replace Nalcor with LCMC where applicable

1. **Recommendation:** "The 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."
   Nalcor Response: Nalcor commenced a risk adjusted final forecast of cost and schedule prior to the engagement of EY and advised EY accordingly at the outset of their review. Nalcor accepts the intent of this recommendation and will continue to conduct additional risk adjusted forecasts at appropriate times as the project progresses.
2. **Recommendation:** "The Project contingency should make appropriate allowances for all risks (including strategic). EY would recommend that consideration be given to use of a conservative P80 confidence level for setting Project contingency, based on a thorough Quantitative Risk Assessment."
   Nalcor Response: Nalcor commenced a risk adjusted final forecast of cost and schedule prior to the engagement of EY and advised EY accordingly at the outset of their review. Nalcor's approach to cost estimates and contingency has typically been aggressive to protect the interests of rate payers during contractor negotiations as discussed above. The Risk Assessment currently underway will provide a full range of potential cost outcomes, along with the associated probability of achievement. Nalcor is supportive of Government choosing the confidence level it wishes to use in preparing its budgeting estimates for equity contributions.
3. **Recommendation:** The sufficiency of 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 risk crystallizing.
   Nalcor Response: Nalcor currently reports on cost and schedule progress, including contingency, for all components on a monthly basis. These reports are distributed internally and to the Oversight Committee. Overall progress is also reflected in the Oversight Committee Report which is made public though Government's website. Any draw down on contingency must go through Nalcor's internal management of change process and be reported as such. The Project risk register is currently reviewed several times a year on an ad hoc basis. Nalcor agrees with the intent of this recommendation to review on a quarterly basis.
4. **Recommendation:** There should be a separation of the Project contingency into an amount to be managed by the Project team and an amount to be managed at a higher level of governance.
   Nalcor Response: Nalcor supports the intent of this recommendation. Nalcor's current process

Deleted: but notes is requires Government approval for seeking funds that are not within its approved budget is to solicit approval from its Boards of Directors, which includes individuals appointed by Government. Nalcor also looks for full alignment with Government for any change in cost estimates.

5. **Recommendation:** Project governance and independent oversight should be re-evaluated by Government and strengthened at the Project, Nalcor Boar and Government levels.
   Nalcor Response: Nalcor is uncertain as to how EY came to this conclusion based on its scope of work and the information it was provided by the Project Team. However, Nalcor has already enhanced its reporting protocols and is prepared to make further changes to accommodate Government's needs. As a matter of principle Nalcor supports increased governance measures and has made representation to this effect to previous administrations. Nalcor notes that it regularly shares extensive project information with it's Boards of Directors, the Independent Engineer, Oversight Committee (NL), and the Government of Canada.
6. **Recommendation:** Project reporting should be enhanced to support senior management focus on key risk and issues, to communicate more clearly how key risks are reflected in the forecast and to enable more effective Government oversight.
   Nalcor Response: Nalcor accepts the intent this recommendation and has taken steps to further enhance the reporting of risks.

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Commented [JM11]: What about noting Ministers of Government and the Premier as well?

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