

From: pharrington@lowerchurchillproject.ca
To: jamesmeaney@nalcoreenergy.com
Subject: Fw: Updated analysis - IE Report dated Dec 2013
Date: Wednesday, February 26, 2014 5:19:08 PM
Attachments: [.png](#)
[IE_Report.pptx](#)

Jim

do you have anything to add to the deck ?- now is the time

Paul Harrington

Project Director

PROJECT DELIVERY TEAM

Lower Churchill Project

t. 709 737-1907 c. 709 682-1460 f. 709 737-1985

e. PHarrington@lowerchurchillproject.ca

w. muskratfalls.nalcoreenergy.com

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----- Forwarded by Paul Harrington/NLHydro on 02/26/2014 05:18 PM -----

From: Paul Harrington/NLHydro

To: Ed Martin/NLHydro@NLHydro,

Cc: Gilbert Bennett/NLHydro@NLHydro, James Meaney/NLHydro@NLHYDRO, Karen O'Neill/NLHydro@NLHydro, Dawn Dalley/NLHydro@NLHydro

Date: 02/26/2014 04:06 PM

Subject: Updated analysis - IE Report dated Dec 2013

The comments I made earlier still stand- here is a deck that provides a summary of the latest version of the IE report



IE Report.pptx

Just as a reminder here is what I said after a review of the November 2013 version of the IE report

I have reviewed the report there are many positive statements plus some less so, however on balance the positive comments outnumber the other. - here is an overview. There are also

some actual dollar values that the IE has included that may need to be redacted for commercial reasons

Section 1- Introduction - No positive or negative statements

Section 2 - Site Visit - Generally contains positive statements - Comments regarding North Spur were complimentary regarding the "high Standard" of work performed by the Project Team. The review of the excavation work and coffer dams was also positive " The Blasting quality exceeds normal practice" and " work on the RCC and Fill Cofferdams as viewed during the visit show satisfactory work by the contractor and supervisory staff that appears to exceeds usual practice". Other comments by the IE regarding the quality of the roads, the camps and infrastructure were also positive

Section 3 - Project design and performance. The integrated team approach was endorsed and the IE stated " in our opinion the expected project performance will be achieved, assuming the Integrated Project Team will continue to closely manage the projects". Hydrology was reviewed and the IE comments were generally positive. Expected performance of major systems were considered satisfactory by the IE and the Project team's contracting philosophy and approach was endorsed by the IE. The experience and capability of the Project Team and major contractors was reviewed and the comments were positive and complimentary

Section 4 - Construction Plan and Schedule - The IE stated that the transition to the Integrated Project Team approach was a significant positive move. " The organizational model shift is viewed as a key enabler of team effectiveness, which is considered imperative for delivery of this mega project" The IE also stated " the IE has evaluated the qualifications of Astaldi in terms of their capability to perform according to the terms of the contract with respect to quality, schedule and budget and finds they have the capacity to perform adequately". All other contracts reviewed by the IE resulted in either a "satisfactory opinion" or "no opinion" because of a future deliverable requirement. The project schedule was reviewed with the IE range of 5 to 7 years for similar projects as a yard stick and the IE commented that " Nalcor's estimated 5.25 year build out and commissioning period is observed as within that range" - however the IE also stated that the schedule will be under pressure as field work proceeds and challenges are faced. The IE stated that the use of the mega dome by Astaldi is a positive mitigation against weather risk.

Section 5 - Capital Budget - The IE reviewed the Project teams cost estimating process to develop the DG 3 estimate and stated " IE's review of the above noted cost estimating documentation indicates that Good Utility Practice (GUP) was followed" Also reviewed was the risk analysis carried out by the Project team and the IE stated " As well the methodology applied to the risk analysis is considered to meet GUP expectations" The IE did comment extensively on the level of contingency and categorized the level at DG3 as "aggressive" and recommends an increased contingent equity to be assigned using the CH0007 award costs as the rational behind this statement. Nalcor's approach to escalation was endorsed and the IE stated " In our opinion, the strategy adopted by Nalcor provides a realistic estimate of escalation". Other than the contingency statements the IE provides positive commentary e.g

" In our opinion , the approach and the comprehensiveness of the technical estimates is consistent, and even better than those normally seen in projects of this type". The IE also notes that there was a 5% increase in DG3 cap cost estimate with two-thirds of the Project at Class 1 estimate.

Section 6 - Operations and maintenance - IE observed that O&M costs are below the normal annual costs experienced for other large hydro- electric plants that MWH is aware of however regarding staffing requirements the IE stated " the assumptions listed in Table 6.2 (staffing Requirements) are reasonable and many are generally assumed by utilities for large projects like Churchill falls". The IE also reviewed NLH historical Reliability stats 2006 to 2010 and stated " the generating equipment operated by Newfoundland and Labrador Hydro performs very well compared to the other Canadian Utilities...the IE concurs with this observation". Furthermore the IE stated " Based on the above data, the IE is of the opinion that the expected performance of Nalcor, and the companies it has established to operate and maintain the LCP assets, is expected to be at least as reliable as the CEA average and is satisfactory"

Section 7 - Project Agreements - the WMA and Water lease Agreement were included in the IE review - comments were positive

Section 8 - Permits and Licences - Just a lot of data in this section - nothing of particular concern either way

Section 9 Financial - Some commentary on the accuracy and degree of precision of cap costs and contingencies which are characterized as "unknown features" in the financial analysis. Also there is a reference to increase in cap costs which result in a change in percentage of guaranteed debt financing. This change in percentage could be then used to calculate the cap costs increase that the IE referred to.

Section 10 -Conclusions - The IE made a positive statement regarding the qualifications of the participants " in our opinion and based on past experience, the Integrated Project Team consisting of SNC-L and Nalcor are qualified to design, contract, manage, commission , operate and maintain the three projects currently under design and construction for the LCP". The IE also reiterated the positive North Spur comments previously provided in Section 2. The IE makes an incorrect reference to AACEI and the estimate accuracy range at a Class 3 estimate as being -20 to +30% however in the main body of the report in section 5 the IE also refers to cap costs positive estimating variance for the awarded and soon to awarded contracts as being 12% and expected to trend downwards for the remainder of the unawarded work- thereby suggesting that Nalcor is well within the accuracy ranges they have incorrectly referred to in the conclusion.

Regards Paul

Paul Harrington

Project Director

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t. 709 737-1907 c. 709 682-1460 f. 709 737-1985

e. PHarrington@lowerchurchillproject.ca

w. muskratfalls.nalcorenergy.com

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Lower Churchill Project Analysis of IE Report Dated December 2013 February 2014

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General Comments

General Comments - positive

- Taking on balance the IE Report has many positive statements, specifically
 - North Spur design is of a high standard
 - Experience and capability of the Project Team , Consultants and major contractors is viewed as positive
 - The Integrated Project team model is considered a key enabler to project success
 - The DG3 estimate and escalation were developed following good utility practice
 - The Project team’s management of interfaces was viewed as positive
 - The Site visit and the work performed was considered of high standard
 - Nalcor’s financial planning pro forma models are comprehensive
 - The NLH reliability statistics for the period 2006 to 2010 were commented on as positive and compared well to other Canadian Utilities and better than NEARC averages

General Comments - other

- There are some errors, inaccurate statements and potential commercially/politically sensitive sections that will need to be addressed appropriately the main items being:
 - DG3 capital cost contingency is considered “not conservative’ and “somewhat optimistic”
 - The IE typically sees tactical risk contingency of 8 to 12 % at DG3 (the Nalcor P50 contingency was 6%)- the IE’s interpretation of the AACEI standard indicates an accuracy range of -5% to +20%, giving a worst case of ~\$7.44B (however this number is not explicitly stated)
 - The IE notes that with two thirds of total project value awarded there is a 5% cap cost increase, which points to the \$6.5B number.
 - The IE also states that to date there has been a 16% increase on contract awards versus budget with an overall 12% positive variance forecast by the IE
 - The IE recommends assigning a Management Reserve amount to cover strategic risk contingencies
 - The project schedule and target dates for key milestones will “remain under pressure” and that a range of schedule outcomes is possible
 - O&M estimate costs are considered lower than other hydro plants
 - Statements and values in Financial Section 9 point to the \$6.5B number

Redactions required

- The following redactions should be considered to protect commercially sensitive data:
 - Table 3.1 Average Energy and Power table – redact all values
 - Section 4.1.3 all dollar values should be redacted
 - Section 4.2 – reference to a claim to be redacted
 - Table 5.3.1 – redact dollar values at the WBS level- leave totals as is
 - Table 8.1,8.2, 8.3, 8.4, 8.5 – remove dollar values
 - Appendix F – redact detailed diagrams (potential security issue)
 - Appendix H redact SLD's and powerhouse drawings (potential security issue)
 - Appendix J – Redact Liquidated damages calculations

Sharing our ideas in an open and supportive manner to achieve excellence.

Teamwork

Open Communication

Fostering an environment where information moves freely in a timely manner.

Honesty and Trust

Being sincere in everything we say and do.

Relentless commitment to protecting ourselves, our colleagues, and our community.

Safety

Respect and Dignity

Appreciating the individuality of others by our words and actions.

Leadership

Empowering individuals to help, guide and inspire others.

Holding ourselves responsible for our actions and performance.

Accountability