From: pharrington@nalcorenergy.com
Sent: Tuesday, August 9, 2011 9:11 AM
To: gbennett@nalcorenergy.com; jasonkean@nalcorenergy.com
Subject: Re: DG 2 Risk Report
Attachments: Strategic Risk Exposure Assessment PH.docx

Pls find my comments, I do not wish to sweep all of these strategic risks away, some do still exist and it is only reasonable to acknowledge these, but some of the big cost hits are indeed mitigated so they can be considered either significantly reduced or erased.

I have tried to convey that sentiment in the text. Pls review

Paul

Strategic Risk Exposure Assessment PH.docx

Paul Harrington
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Gilbert Bennett---08/08/2011 10:36:22 PM---Jason, I've been speaking with Ed on this, and I think I'd like to focus attention on the Westney re

From: Gilbert Bennett/NLHydro

To: Jason Kean/NLHydro@NLHydro

Cc: Paul Harrington/NLHydro@NLHydro, Ed Martin/NLHydro@NLHydro

Date: 08/08/2011 10:36 PM

Subject: Re: DG 2 Risk Report

Jason,

I've been speaking with Ed on this, and I think I'd like to focus attention on the Westney reports and then provide our perspective on strategic risk - something along the lines of this draft technical note.

[attachment "Strategic Risk Exposure Assessment.docx" deleted by Paul Harrington/NLHydro]

My objective here is to build on the strategic risk frames outlined in the the summer of 2010, and then offer a perspective on what's happened since then. Give this a look-over, and we can discuss further. I found out subsequently that my strategic frames weren't aligned with the summer Westney deck - I think I was working with the Gull strategic package, but you should see where it's going...

G

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LOWER CHURCHILL PROJECT

Gilbert J. Bennett, P. Eng.
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Jason Kean---08/01/2011 10:54:31 AM---Gilbert, As discussed, here is the subject report.

From: Jason Kean/NLHydro

To: Gilbert Bennett/NLHydro@NLHydro

Cc: Paul Harrington/NLHydro@NLHydro

Date: 08/01/2011 10:54 AM

Subject: DG 2 Risk Report

Gilbert,

As discussed, here is the subject report.

Note that the information contained within this report is extremely confidential and written for internal, limited distribution.

As for Westney, they have agreed with us issuing their material to the PUB.

Also attached is a short memo from Westney explaining their process.

Jason

[attachment "LCP-PT-ED-0000-RI-RP-0001-01.pdf" deleted by Gilbert Bennett/NLHydro] [attachment "memo explaining Risk REsolution process for LCP (2).pdf" deleted by Gilbert Bennett/NLHydro]

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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?

Strategic Risk Exposure Assessment

This technical note provides Nalcor's views of the Strategic Risk Assessment undertaken over the summer of 2010 by the Lower Churchill Project team in conjunction with Westney Consultants.

Risk analysis is a tool which provides a framework to assist project managers in identifying and prioritizing key project schedule and cost risks/opportunities early enough to effectively mitigate risks and to take advantage of opportunities.

In assessing risk, it is important to differentiate between tactical and strategic risk. These terms are defined below as follows:

Tactical Risks:

Definition Risks	These risks are associated with the degree of design development and planning definition for the given project scope reflected in key project controlled documents (e.g. basis of design, basis of estimate, project execution plan), including such items as quantities, location-driven factors, etc.
Performance Risks	These risks are associated with normal/reasonably expected variations in owner and contractor performance, including such items as construction productivity risk, weather delays, material pricing, etc.

Strategic Risks:

Background Risks	These are typically associated with changes in: scope,market conditions, location factors, commercial or partner requirements and behaviours.
Organization Risks	These risks are typically associated with an asymmetry between size, complexity, and difficulty of projects and the organization's ability to deliver.

Within Nalcor's management framework, responsibility for tactical risk management lies within the Lower Churchill Project team, however, responsibility for strategic risk management lies with the Nalcor leadership team, and more specifically with the President and Chief Executive Officer. It should also be noted that all the project contingency associated with tactical risk is expected to be spent whereas the management reserve associated with strategic risk is not.

Financially, Nalcor has assigned control of the project contingency with the Project team ~~team~~ for tactical risks, but the President/CEO (who is the Project's Gatekeeper) has the authority to determine the most appropriate course of action in respect of strategic risks. While the risk framing exercise completed over the summer of 2010 has identified potential financial exposures to strategic risks associated with the Project, the Project Gatekeeper has required that certain material strategic risks be mitigated (or resolved) to his satisfaction prior to the Project proceeding at specific decision points or gates. This note considers strategic risks in that light, and also offers comments on progress to resolve these risks between the evaluation during the summer of 2010 and Decision Gate 2 in late 2010.

Strategic Risk Framing and Discussion

The Strategic Risk Evaluation identified and evaluated the following strategic risks associated with Muskrat Falls and the Labrador-Island Transmission Link:

Strategic Risk	Summer 2010 View of Mitigated Risk Exposure	Year End 2010 View of Mitigated Risk Exposure
1. Organizational experience and resources for a project of this size	-$50 to $175 million	Led to Engineering Contractor EOI and RFP, with selection of SNC-Lavalin as EPCM Contractor. This risk has been largely mitigated with an experienced EPCM contractor.
2. Time required under Crown Corporation rules to gain approval	$9 to $24 million	Gatekeeper has maintained regular engagement with shareholder to maintain alignment. VP-LCP has regular engagement at DM level with key government departments to communicate issues and to streamline decision making.
3. Changes in financial markets	$0 to $330 million	Interest rates used in financial modelling based on advice from LCP financial advisors and close engagement with financial markets. Risk is significantly mitigated with federal loan guarantee
4. Foreign currency exchange risk	$0	Project team has used appropriate $US/$CAN exchange rate ($1CAN=$0.95US) Currency purchases will be hedged to the degree possible.
5. Risk Premium for obtaining lump sum	$0 to $100 million	Province has fiscal capacity to invest significant equity into

contracts		the project.
6. Extra time required to secure long-term PPA's	$0 to $24 million	This risk has been eliminated based on decision to advance domestic solution that does not require external long-term PPA's
7. Federal government support for generation and transmission projects	Not quantified by summer of 2010 analysis	Federal loan guarantee has potential to reduce borrowing costs by $700 million -$700 to $0
8. Changing power market portfolio requires changes in scope	-$300 to $400 million	This risk has not materialized, and the basis of design has been confirmed.
9. Good HSE record is critical for project success	$5 to $25 million	Committed to mitigation approaches as outlined in summer of 2010. HSE continues to be the highest priority
10. Availability of resources to achieve a quality design	-$10 to $10 million	Largely ~~M~~mitigated with engagement of SNC Lavalin who have considerable access to~~and confirmation of~~ project engineering resources.
11. Submarine cable crossing	$0 to $100 million	Feasibility of shore approach, crossing methods, protection scheme, as well as iceberg risk assessment has confirmed the feasibility of the sea bed crossing option, the residual risk exposure is associated with project execution. ~~confirmed.~~ ~~No longer viewed as a strategic risk.~~
12. Faults in submarine cable during commissioning and post installation	$0 to $50 million	~~Committed to mitigation approaches as outlined in summer of 2010.~~Mitigation measures include the selection of mass impregnated cable type which

		has longer operational track recoprd at the selected operating, the basis of design calls for an installed spare cable and installation methods are tried and tested offshore NL. Although it is not possible to completely mitigate this risk the measures that are being implemented will significantly reduce risk exposure.
13. System reliability during commissioning and startup	$0 to $35 million	~~Committed to risk mitigation approaches as outlined in summer of 2010~~factory acceptance tesing and owner involvement in these tests along with the project philosophy of using proven technology and high quality suppliers has mitigated this risk exposure – further measures will be taken to improve system reliability in subsequent project phases.
14. Securing generation project release from EA	$0	Necessary resources were deployed during the EA, and the hearing process is completed. EA clarity will be obtained prior to sanction- project will not proceed without EA approval by the Ministers.
15. Unanticipated design changes from EA process	$0 to $18 million	Although there were ~~N~~no changes recommended by regulators during EA hearing~~.~~, this remains a potential risk.
16. Schedule impact due to delay in ratification of IBA by Innu Nation	$0	IBA is ratified. This risk has been retired.
17. Lack of support from other aboriginal	$3 to $18 million	Extensive consultation program in compliance with

groups		EA guidelines undertaken, however the possibility of litigation still exists.
18. Non-governmental organization / stakeholder protest	$0 to $10 million	Extensive communications efforts undertaken by Nalcor and the EA process is comprehensive and process driven. There have been some small protests but nothing that would suggest significant disturbances.
19. Limited number of creditworthy hydro turbine suppliers	$0 to $50 million	Turbine modelling with 3 suppliers undertaken as phase II activity to reduce this exposure.
20. De-escalation and hyperinflation risks	$0	Committed to mitigation activities outlined in summer of 2010
21. Availability of experienced high voltage contractors and skilled labour	$50 to $100 million	This risk still exists ~~Committed~~ to mitigation activities outlined in summer of 2010 will continue.
22. Limited number of HVdc specialties suppliers and installers	$0 to $25 million	HVdc converter suppliers using LCC technology are limited 2 bidders likley .HVdc cable RFP will be released in 2011 as a phase II activity, three bidders likely..
23. Island Link and Maritime Link EA's result in late design changes	$25 million to $100 million	Labrador Island Transmission Link community consultation activities undertaken. Community issues (alignment with TLH and relocation of electrode to Strait of Belle Isle) have been addressed in early design.
24. Willingness of shareholder to fund early construction	$0 to $48 million	Value of early start with shareholder funding will be discussed as part of Phase III planning. Shareholder support and Federal support has mitigated this risk significantly

25. Delay in release of Labrador Island Transmission Link	$0	Comprehensive study / EIS announced. Final EA guidelines released. EIS preparation on schedule.
26. Uncertainty on commercial structure for transmission	$0 to $24 million	Commercial structure is established for Labrador Island Transmission Link and Maritime Link.