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 Project Director LC Mgmt & Support

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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



Gilbert J. Bennett, P. Eng. Vice President, Lower Churchill Project Nalcor Energy t. 709 737 1836 f. 709 737 1782

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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]



Jason R. Kean, P. Eng., MBA, PMP

Deputy Project Manager, Muskrat Falls & Labrador - Island Transmission Link (Consultant to Nalcor Energy)

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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:

_			
Tac	tical	Ris	ks:

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 <u>control of the</u> project contingency with the Project <u>team team</u> 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 <u>certain</u> material strategic risks be mitigated (or resolved) to his satisfaction prior to the Project proceeding <u>at specific decision points or gates</u>. 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	Year End 2010 View of
	Mitigated Risk Exposure	Mitigated Risk Exposure
 Organizational 	-\$50 to \$175 million	Led to Engineering Contractor
experience and		EOI and RFP, with selection of
resources for a project		SNC-Lavalin as EPCM
of this size		Contractor.
		This risk has been <u>largely</u>
		mitigated with an experienced
		EPCM contractor.
2. Time required under	\$9 to \$24 million	Gatekeeper has maintained
Crown Corporation		regular engagement with
rules to gain approval		shareholder to maintain
		alignment.
		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
		VP-LCP has regular
		engagement at DM level with
		key government departments
		to communicate issues and to
2. Changes in financial	ĆO to Ć220 million	streamline decision making.
Changes in financial markets	\$0 to \$330 million	Interest rates used in financial
markets		modelling based on advice from LCP financial advisors
		and close engagement with financial markets.
		ilitaticiai iliai kets.
		Risk is <u>significantly</u> mitigated
		with federal loan guarantee
4. Foreign currency	\$0	Project team has used
exchange risk		appropriate \$US/\$CAN
		exchange rate
		(\$1CAN=\$0.95US)
		Currency purchases will be
		hedged to the degree
		possible.
5. Risk Premium for	\$0 to \$100 million	Province has fiscal capacity to
obtaining lump sum		invest significant equity into

	T	Ţ
contracts		the project.
6. Extra time required to	\$0 to \$24 million	This risk has been eliminated
secure long-term		based on decision to advance
PPA's		domestic solution that does
		not require external long-
		term PPA's
7. Federal government	Not quantified by summer of	Federal loan guarantee has
support for generation	2010 analysis	potential to reduce borrowing
and transmission		costs by \$700 million
projects		
		-\$700 to \$0
8. Changing power	-\$300 to \$400 million	This risk has not materialized,
market portfolio		and the basis of design has
requires changes in		been confirmed.
scope		
9. Good HSE record is	\$5 to \$25 million	Committed to mitigation
critical for project		approaches as outlined in
success		summer of 2010. HSE
		continues to be the highest
		priority
10. Availability of	-\$10 to \$10 million	<u>Largely Mm</u> itigated with
resources to achieve a		engagement of SNC Lavalin
quality design		who have considerable access
		toand confirmation of project
		engineering resources.
11. Submarine cable	\$0 to \$100 million	Feasibility of shore approach,
crossing		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	\$0 to \$50 million	Committed to mitigation
cable during		approaches as outlined in
commissioning and		summer of 2010. Mitigation
post installation		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 50 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 15. Unanticipated design changes from EA 16. Schedule impact due to delay in ratification of IBA by Innu Nation 17. Lack of support from S3 to \$18 million Extensive consultation		1	<u>, </u>
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15. Unanticipated design changes from EA process regulators during EA hearing. 16. Schedule impact due to delay in ratification of IBA by Innu Nation 17. Lack of support from \$3 to \$18 million Although there were Nno changes recommended by regulators during EA hearing. IBA is ratified. This risk has been retired.			not proceed without EA
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process regulators during EA hearing. this remains a potential risk. 16. Schedule impact due to delay in ratification of IBA by Innu Nation 17. Lack of support from \$3 to \$18 million regulators during EA hearing. IBA is ratified. This risk has been retired.	15. Unanticipated design	\$0 to \$18 million	Although there were Nno
16. Schedule impact due to delay in ratification of IBA by Innu Nation 17. Lack of support from \$3 to \$18 million this remains a potential risk. IBA is ratified. This risk has been retired. Extensive consultation	changes from EA		changes recommended by
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of IBA by Innu Nation 17. Lack of support from \$3 to \$18 million Extensive consultation	16. Schedule impact due	\$0	IBA is ratified. This risk has
of IBA by Innu Nation 17. Lack of support from \$3 to \$18 million Extensive consultation	to delay in ratification		been retired.
17. Lack of support from \$3 to \$18 million Extensive consultation	-		
	-	\$3 to \$18 million	Extensive consultation
other aboriginal program in compliance with	other aboriginal		program in compliance with

groups		EA guidelines undertaken,
		however the possibility of
		<u>litigation still exists</u> .
18. Non-governmental	\$0 to \$10 million	Extensive communications
organization /		efforts undertaken by Nalcor
stakeholder protest		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	\$0 to \$50 million	Turbine modelling with 3
creditworthy hydro		suppliers undertaken as phase
turbine suppliers		II activity to reduce this
		exposure.
20. De-escalation and	\$0	Committed to mitigation
hyperinflation risks		activities outlined in summer
,,		of 2010
21. Availability of	\$50 to \$100 million	This risk still exists Committed
experienced high		to mitigation activities
voltage contractors		outlined in summer of 2010
and skilled labour		will continue.
22. Limited number of	\$0 to \$25 million	HVdc converter suppliers
HVdc specialties	, , , , , , , , , , , , , , , , , , ,	using LCC technology are
suppliers and installers		limited 2 bidders likley .HVdc
		cable RFP will be released in
		2011 as a phase II activity,
		three bidders likely.
23. Island Link and	\$25 million to \$100 million	Labrador Island Transmission
Maritime Link EA's	,	Link community consultation
result in late design		activities undertaken.
changes		detivities dilacitakeii.
Changes		Community issues (alignment
		with TLH and relocation of
		electrode to Strait of Belle
		Isle) have been addressed in
		early design.
24. Willingness of	\$0 to \$48 million	Value of early start with
shareholder to fund		shareholder funding will be
early construction		discussed as part of Phase III
earry construction		·
		planning. Shareholder support
		and Federal support has
		mitigated this risk significantly

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