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[.png](#)  
[Findings\\_by Focus Area rev5 Friday.xls](#)  
[Findings\\_by Focus Area rev5 Friday.pdf](#)

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Paul

Thanks again for the opportunity to participate in the IPR this week.

As our team was breaking up this afternoon, it was suggested that you might want to have the complete spreadsheet showing our rating, findings, observations and recommendations on all 35 Focus Areas. Your slide deck of course only provides detail on the yellow to red areas.

So here is the spreadsheet. The only change from what you saw is that I have slightly edited the one on governance so as to avoid misperceptions of the wording we took from a risk frame.

I have provided both Excel and PDF files - we noted that the version of Excel you use at Nalcor may not properly display the colors but you should be able to see them correctly in the PDF.

This now gives you a complete work plan for all 35 areas.

Please let me know if you have any questions.

Best

DW

Richard Westney

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<b>IPR Focus Areas and Key Interviewees</b>		
<i>September 11- September 18, 2010</i>		
<b>Interviewee</b>	<b>Items</b>	<b>Proposed Combined Items</b>
Ed Martin	1, 17, 36	1, 17, 18, 36
Gilbert Bennett	1, 17, 18, 19, 36	
Paul Harrington	1, 2, 5, 7, 19, 22, 23, 24, 25, 27, 28, 36	
Derrick Sturge	6, 16, 31, 34	6, 16, 31, 34
Jason Kean	2, 6, 7, 10, 11, 12, 21, 22, 23, 26, 28, 30	
Lance Clarke	2, 7, 8, 9, 22, 23, 26, 28, 32, 33, 35,	2, 7, 22, 23, 28
Bob Barnes	15, 24	
Ron Power	15, 20	
Todd Burlingame	19, 25	19, 25
Leona Barrington	29	
Pat Hussey	8, 9, 20	8,9
Mark Peddle	11	
Charles Cook	12	
Doug Maloney	13	
Dave Pardy	13, 14	13,14, 21
Tony Scott	14	
Judy Ludlow	35	
Maria Moran	32	
Debbie Molloy	33	

		Summary of Findings by Focus Area		
Item	Heat	Focus Area	Findings & <i>Observations</i>	Recommendations
1		That the preparation and planning of the project including those prerequisites identified by the Gatekeeper, which may not all be directly controlled by the Project team but are key enablers of the project, have been cleared or are at an advanced or otherwise acceptable state of completion or readiness. These include but are not limited to: Water Management; New Dawn Agreement; Shareholder support; Technological applications; Demonstrated need for the project based on demand; Appropriate timing for the project to proceed based on external factors ; Global financing market and liquidity; Provincial finances and forecast.	No major concerns noted. All key enablers appear to have been adequately defined for Gate 2. Key milestones such as EA release and the Innu ratification vote are externally driven yet critical to Gate 3. <i>Progress and current level of alignment is well beyond most projects at this stage and provide considerable level of confidence for the Gate 2 and later decisions.</i>	Develop a project-specific deliverables specification for Gate 3 and use this for planning Phase 3 activities.
2		That there are adequate processes, procedures, tools, and systems in place or planned to be developed to proceed to the next phase.	<i>The IPR Team observation of the quality and quantity of project - specific documentation of key processes, and the implementation of state of the art systems and tools, were very good. Most were developed for a GI first strategy and will be readily applied to MF.</i>	none
3		That there is an adequate general understanding by the project team of the processes, procedures, tools, systems and drivers of the project.	<i>The IPR Team's observation is that all these factors are well understood at this stage. For example, the business drivers seem to be well-recognized and in a consistent way by various discipline leads.</i>	1. Ensure that as the NALCOR team expands, and EPCM ramps up, this consistent project-wide understanding of business goals and how they relate to project objectives and trade-offs is maintained.
4		That the quality and completeness of the source data used by Project is suitable.	The LCP project, both GI and MF as well as SOBI, have been under consideration for many years and extensive source data available. In addition, specialist experts were used whenever current or more in-depth information was required. <i>The IPR Team was very favorably impressed with the extensive and intelligent use of expert consultants.</i>	none
5		That the processes and methods used for Risk Analysis, Estimating and Economic analysis comply with appropriate standards, best practices or are equivalent.	<i>The IPR Team observed good alignment between the Economics, Estimating and Finance teams.</i>	none
6		That the development of the Project Charter and Project Execution Plan was carried out correctly.	Charter developed in '07, modified for MF. Ok for Gate 2 purposes. <i>We feel Charter is too generic, too long, and contains assumed performance (e.g., milestones) that may not be met. Should be refined, more concise and project-specific and provide clear communication of business goals and project objectives/KSFs to be met.</i>	Develop a succinct, purpose-built Charter prior to kickoff of EPCM

Item	Heat	Focus Area	Findings & <i>Observations</i>	Recommendations
7		That the development of the Project Contracting Strategy was carried out in accordance with a defined process and that this complies with the appropriate standards, best practices or equivalent and the contracting plan.	The process by which the EPCM strategy was developed (from the EOI) and has been implemented with regard to the RFP and bid evaluation process is consistent with best practice and very appropriate for a Gate 2 decision. <i>We are concerned about the reality of the schedule: assuming contract award Dec 2010 (which could slip given the number of options to be evaluated), and a mobilization period of Jan - Mar 2011, and the requirement for local office and staffing (consistent with the Benefit Agreement), sanction is scheduled for Oct. 2011 at which time 60 -70% of engineering is to be complete. Experience suggests it is unlikely this can be achieved; if it is not, the implementation of the contract strategy gets off to a bad start based on a pattern of unrealistic objectives.</i>	1. Develop a detailed plan and scope for Phase 3 engineering based on an agreement with the Gatekeeper as to the amount of engineering that must be completed to meet the Gate 3 requirements.
8		That the project contract strategy has incorporated sufficient market intelligence to make it feasible from a legal, insurance and execution perspective.	The information presented to the IPR team indicates that extensive market intelligence and due diligence was performed as part of the contract strategy and selection of bidders that is consistent with best practice and the requirements of the MF project. <i>See note on execution concerns re. phase 3 schedule.</i>	none
9		That the Health, Safety and Environment processes and procedures used comply with the appropriate standards, best practices or equivalent.	1. <u>Environment</u> : NALCOR processes and procedures for compliance are well-established and will be applied to MF. Enviro. is well-integrated with Engineering to ensure regulatory requirements are properly reflected in the design from the start as well as to facilitate permitting. Interaction with regulators has been early and ongoing; expert advisors (e.g. Norway) used when needed. Interaction with NGOs well controlled. <i>We note the importance of continuing this integrated approach during Phase 3 to facilitate a socially &amp; environmentally sound design.</i> 2. <u>Health&amp; Safety</u> : Procedure development has been progressed satisfactorily for Gate 2. Greatest risk to project safety is transient, semi-skilled workers and east-coast safety culture. Project currently has no Safety Manager and this appears to have hindered progress in this function. <i>Filling this position is a high priority and the person holding it must have the competencies and authority NALCOR's commitment to Safety requires. It is not apparent to the IPR team that Safety in Design principles will be incorporated in the Phase 3 engineering.</i>	Environment None - we rate this as GREEN  Safety - we rate this as YELLOW to RED 1. Ensure that a highly qualified Safety Manager is recruited as soon as possible 2. Incorporate Safety in Design principles in the EPCM's Phase 3 work (e.g., include in Coordination Procedure and ensure a member of the Nalcor team has the capability and responsibility to lead this best practice.)
10		That the Quality Assurance processes and procedures used comply with the appropriate standards, best practices or equivalent.	Adequate processes and procedures appear to be in place as appropriate for Gate 2 as well as plans for Phase 3.	none

Item	Heat	Focus Area	Findings & <i>Observations</i>	Recommendations
11		That the Project recommendation and AFE has been prepared in accordance with a defined process and that this process complies with the appropriate standards, best practices or equivalent.	The Capital Budget Process is in progress (this is expected to be challenging) but there is currently no process governing the preparation of the Gate 2 Project Recommendation or AFE. An Appropriation Plan tied to key schedule milestones is due to be complete 9/24. Project will have 2 AFEs - EPCM and summer 2011 early construction. There is no clear plan for how the Gate 3 Project Recommendation and Budget will be prepared so all three projects (GEN, IL, SOBI) are sanction-quality. <i>We believe this is a serious concern that must be addressed as part of the Gate 2 decision process. While it clearly is impractical to have these plans complete by Gate 2, there should be an agreement on the financial discipline principles involved and a plan for developing these, working backward from project-specific Gate 3 sanction requirements for predictability and AFE planning. Without a good understanding of Gate 3 sanction requirements it is impossible to understand scope of Phase 3.</i>	1. Complete preparation of the project's Capital Budget Process 2. Prepare process for developing the Gate 3 Project Recommendation and Budget, based on clear understanding and agreement of the accuracy of the cost estimate and cash-flow projections required for the Final Investment Decision as well as a streamlined AFE process for project execution.
12		That the development of the Project cost estimates was carried out in accordance with a defined process and that this complies with the industry standard or is equivalent.	While there is no defined estimating process for NALCOR mega-projects, the Gate 2 estimate was planned and carried out in accordance with a project-specific process commensurate with the level of definition in Phase 2. <i>It was noted that, while the change to MF first placed time pressures on estimating process documentation, the IPR team's observation is that the methodology used is consistent with best practice for this type of project at Gate 2.</i>	1. There remains considerable work to complete the Gate 2 estimating package (e.g., see discussion of AFE, also incorporate latest decision and cost data for SOBI) as well as to move the current estimate into a format suitable for control of EPCM cost and the total project during Phase 3.
13		That the Project Schedule has been developed in accordance to an agreed process and identifies the critical path and the correct sequence of key events.	The schedule documentation indicates a quality of planning and scheduling appropriate for Gate 2. <i>The IPR Team noted a number of schedule concerns such as the duration of Phase 3, the potential delays in EA release, and the June schedule risk analysis indicated a significant level of time-risk exposure. However, the schedule risk mitigation steps the team has taken, such as early turbine model tests and aggressive early construction program are also likely to be effective.</i>	1. It is recommended that the schedule be reviewed to assess and incorporate the results of the time risk mitigation steps currently in place, as well as updating for latest data and ensuring consistency with the cost estimate and cashflow forecast needed for the Phase 3 AFEs.

Item	Heat	Focus Area	Findings & <i>Observations</i>	Recommendations
14		That the Engineering deliverables required to commence the next phase are available and complete. These include site investigation, model testing and study scope for Gull Island, Muskrat Falls, HVdc and associated HVac transmission.	Engineering progress to date is acceptable for Gate 2. <i>However this validation is with the proviso that the deliverables due by year-end will be completed timely - we have not judged whether this is likely to be the case or not. The collection of engineering baseline data has been well-planned, resulting in timely production professional study reports.High risk areas have been identified and additional data collection programs were initiated to address them. This judicious use of professional expertise to mitigate risk demonstrates a high degree of professionalism and maturity. Our judgment is that, in general, the studies and preliminary engineering completed to date exceeds the requirements for Gate 2 and should assist in accelerating the early Phase 3 engineering work.</i>	1. Set date for completion of data collection for Long Range Mountain xmsn line load studies; after which progress the design based on expert judgment. 2. Clarify engineering deliverables and degree of engineering completion required for Gate 3, and develop detailed plans accordingly.
15		That financing options are advanced to an acceptable state, that no showstoppers are apparent and that there is a plan to finalize the financing required within an acceptable timeframe that is acceptable to the Gatekeeper.	Latest developments indicate that,with the MF first strategy, there are several financing options available to the project and sufficient interest from the financial community to provide a more than adequate level of confidence at Gate 2.	none
16		That arrangements for power sales are advanced to an acceptable state, that no showstoppers are apparent and that there is a plan to finalize the arrangements required within an acceptable timeframe that is acceptable to the Gatekeeper.	LCP must negotiate a PPA with Hydro.I <i>This is unlikely to be a problem.</i>	none
17	N/A	That for the transmission access agreements for export transmission that no showstoppers are apparent and that there is a plan to finalize the agreements within an acceptable timeframe that is acceptable to the Gatekeeper.	Does not apply since scope of IPR excludes Maritime Link.	none
18		That the negotiations and consultations with aboriginal groups are well advanced and proceeding in accordance with a plan, which has been endorsed by the Gatekeeper, including negotiation of any Impact and Benefits Agreements.	The progress of the negotiations, Benefit Agreements etc. appears to be well advanced and sufficient for Gate 2 decision. <i>This is one of several areas that are nearing resolution but not in time for Gate 2.</i>	Recognize the uncertainties associated with the current status of the aboriginal agreement program.

Item	Heat	Focus Area	Findings & <i>Observations</i>	Recommendations
19		That the scope of work for Phase 3 is defined and that there is a process available for bidding, review and contract award and that this complies with best practice standards or equivalent.	The Basis of Design for MF is largely complete and fixed (no revisiting or further optimization planned) with the exception of such areas as approach hydraulics, SOBI crossing, spillway gate type, and icing loads on the xmsn lines (Long Range Mtns.) While we have not reviewed a document for this, the review process for contract evaluation and award, as explained, was consistent with best practice. The review of the bid package indicates the EPCM Phase 3 deliverables are defined in accordance with best practice and this project's requirements. <i>This is based on confidence that all the studies currently underway on these outstanding design topics will be complete end 2010 and fully documented so EPCM has complete BOD from which to start work. We are concerned that the workload associated with bid evaluation during this same period may jeopardize the timely completion of these studies. We are not sure that the owner's deliverables for Gate 3 (see notes on AFE focus area and the limited time available to complete prep of all Gate 3 deliverables) have been updated for the current project configuration (MF) and financing scheme (100% equity).</i>	1. Prepare detailed work-scope and plan for first 90 days of EPCM to assure efficacy of early phase 3 engineering.
20		That a project cost and schedule estimate in the appropriate range of accuracy is available.	The IPR Team was not provided with a definitive probability ("P") value for the cost estimate nor its level of accuracy. <i>There appears to be some ambiguity around the appropriate P-value to be used for the Gate 2 decision, as well as the correct way to utilize the latest Risk Analysis to determine accuracy.</i>	1. Prepare a current analysis of estimate probability value and accuracy and include this is the Gate 2 deliverables. 2. Prepare a current analysis of schedule probability value and accuracy and include in Gate 2 deliverables.
21		That an organization, mobilization and office plan has been developed and the organization is adequate to enter into the next phase.	This is addressed in the Project Execution Plan and provides a level of completeness regarding roles and "LACTI" responsibilities that is commensurate with Gate 2. The proposed organization chart for Phase 3 (including Home Office and Project Team(s) appears to provide an adequate number of resources (although the final assessment of EPCM capabilities will be a major factor). <i>There does not appear to be a transition plan indicating the source of resources in key roles and how the current organization &amp; staffing will be transitioned into Phase 3. There does not appear to be a detailed plan that addresses the critical staffing issues such as relocation, compensation, contract vs salary, and retention, consistent with the tight schedule requirements if Phase 3 is to ramp up promptly.</i>	1. Specific, short-term (6 months) staffing and recruiting plan must be developed and address transition of current staff, policy and use of salary vs. contract staff, Project Policy with regard to compensation, travel, relocation, temporary living & housing.



Item	Heat	Focus Area	Findings & <i>Observations</i>	Recommendations
22		That the organization staffing and design is commensurate with the complexity of the project and is both well represented and functional.	See above. <i>It is essential that the mindsets and behaviors of the NALCOR Phase 3 team be appropriate for the Owner role in oversight and guidance of work by the EPCM (many owner teams have difficulty "letting go" of the actual engineering work thereby rendering the contractor ineffective). The proposed organization, consisting of Home Office and Project Teams, must function as a matrix with all the well-known challenges that impiies. There remain important strategic decisions as to exactly how this will work (e.g., "strong" vs "weak" matrix) and these should be taken seriously.</i>	1. Coordinated with the short term staffing plan above, the planned Phase 3 Home Office and Project organizations need to be fully defined in terms of manpower, competencies required, and allocations of responsibility and accountability.
23		That there is a strategy and plan in place to have Operations and Maintenance representation in the Project and that a high level Operations philosophy has been developed which includes responsibilities during handover and a “Ready for Operations” philosophy aligned with corporate operating philosophy.	John Mallam is transitioning to this position. Draft Project Completion and Ready For Operations Procedures have been prepared. Lead engineers typically have extensive NLH operations experience at UC indicating engineering already reflects O&M considerations. <i>Although there is not a detail plan for integrating O&amp;M (John) into the EPCM design process, working as an integral part of the Engineering team we believe the plan as informally agreed will be effective.</i>	1. Ensure that communication with the existing O&M organization is frequent and incorporated into key design reviews and decisions as the EPCM's phase 3 design work progresses.
24		That the Environmental Assessment process is underway, on schedule, that no showstoppers are apparent and that there is a plan to finalize the environmental activities leading up to a final decision to meet the Project schedule.	EA process is being worked hard and professionally, plans in place adequate for Gate 2. <i>While there are no obvious show-stoppers at this time for GEN, it is clear that this remains an area of significant risk &amp; uncertainty the resolution of which must continue to be progressed aggressively through Phase 3. Concern that JRP does not know of switch to MF first and there is no apparent plan in place to rectify this. IL requires only EIS but this work has not started and there are no guidelines currently in place; this is planned for 1Q11, so we cannot judge the progress.</i>	1. Ensure messaging of pivot to MF first is conducted effectively. This requires careful analysis to determine optimum timing to ensure there is no disruption to the ongoing EA process.
25		That the strategic and tactical project risks are understood and a risk management plan is in-place and being actively pursued.	Risk Management Plan indicates good level of understanding of the primary strategic risks and drivers. The extent of Risk Management work on this project is very consistent with best practice and exceeds the progress most projects have achieved at this stage. There is a noticable risk-aware culture across the project team of risk drivers and many activites are risk-driven (e.g., early engagement of Aon). Although a recent Risk Analysis was done based on MF, the Risk Frames used for Risk Management activities have not yet been updated. <i>The Risk Management Program in terms of both process documentation and implementation is among the best the IPR Team has seen.</i>	1. Update the Risk Frames to reflect the MF first strategy and latest risk assessments. This should be a requirement for Gate 2. 2. Ensure that supporting work processes such as trend identification, variance analysis and cost/time forecasting are developed to meet Phase 3 &4 requirements and integrate with EPCM. 3. Ensure risk culture is continued through Phases 3 and 4, and throughout the EPCM organization.
26		That the project execution approach is clearly defined, validated and endorsed by management.	Execution approach is clearly defined and understood by all. <i>We agree with the thought process and conclusions that led to the EPCM approach.Strategy developed for GI applicable to MF as well.</i>	none



Item	Heat	Focus Area	Findings & <i>Observations</i>	Recommendations
27		That the governance structures are established and clearly communicated for current and subsequent project phases.	Goverance structures appear to be not well established nor clearly communicated for upcoming phases. The team's Risk Analysis identifies "the necessary changes in governance and devolution of financial authorities and decision-making" as an important risk factor. <i>We consider this a major issue that should be resolved in principal as part of the Gate 2 decision process. <u>Inadequate or unclear governance issues:</u> Governance must be clarified around who "owns" key PM functions such as risk management, who makes what kind of decision etc. This is key to effectively managing the EPCM. <u>Overly-restrictive governance issues</u> : PMT ability to recruit, relocate, and retain key owner staff has been/will be severely restricted unless a "loose-tight" model is implemented.Grants of spending authority must be increased consistent with project's need to move quickly and by end 2010.</i>	1. Prepare a specific, detailed specification of the governance model required for the project to be able to recruit the right resources and enable them to be effective. This <b>Project Policy</b> will likely require addressing potential conflicts between corporate governance standards (of a regulated operating company) and the relative autonomy and high grants of authority a major project requires. This must be implemented immediately following Gate 2.
28		That the project’s stakeholders are identified, an engagement plan is in-place and an appropriate level of engagement underway.	IPR team concurs on all points.	none
29		That the project management system structure is developed and implementation underway.	Structure is developed but implementation is partially complete at this time (Hierarchy chart contains many "TBA"s indicating incomplete or non-existent procedures and work processes. <i>We suggest this is to be expected at Gate 2, but it is important that the implementation be driven to timely completion in accordance with the timing of the EPCM selection and mobilization. The effort to do this should not be underestimated.The PMS structure developed for GI applies as well to MF.</i>	1. Continue build-out of the PMS and complete by end 2010 prior to mobilization of EPCM.
30		That investment analysis process has been used to select the optimum development alternative, scheme and sequence and that such a process is commensurate with the level of decision.	Nalcor has used PWC to support the Investment Evaluation Group and ensure a consistent approach over time and across alternatives. The modeling tools continue to evolve with the project and numerous alternatives have been evaluated.	none
31		That Benefits obligations are understood and clearly communicated.	IPR team concurs on all points.	none
32		That a Labour Relations Plan is in-place and clearly communicated.	The current strategy is an amalgam of the project’s work and studies from expert consultants. <i>There is a need for documentation of the overall strategy and the short term activities needed to achieve a Labour Agreement. Given the importance of Labour Relations, consideration should be given to strengthening this role in the planned Phase 3 organization(note D. Clark recommendation that a Labour Relations negotiator with major project experience be brought on board and appropriately placed within the organization consistent with the importance and level of decisions.)</i>	1. Update the Labour Relations Strategy to incorporate latest report from D. Clark and his timeline for near-term activities associated with setting up the process to reaching a Labour Agreement. Ideally, this would be a Gate 2 deliverable. 2. Incorporate a high level Labour Relations position in the Phase 3 organization.
33		That Shareholder requirements for equity and supporting debt have been communicated.	IPR team concurs on all points.	none

Item	Heat	Focus Area	Findings & <i>Observations</i>	Recommendations
34		That an information management plan is in place and communicated.	Finance Minister has been closely involved throughout and there is strong support at all levels.	
35		That the optimization potential for the Muskrat Falls and HVdc Island Link project phase has been evaluated and the economic and technical feasibility analysis has been carried out with an appropriate plan in place for realization of any further potential as a result of the optimization.	<u>Generation</u> : MF has been optimized within the overall development plan of the river. <u>XMSN</u> : the available options have been studied (e.g., xmsn to the island, xmsn thru Quebec to US, xmsn thru Newfoundland to the Maritimes), the optimum option (xmsn to the island) selected and the design configuration optimized.	none

## IPR Schedule

Date	Time	Focus Area	Interviewees	Location	
12/9/2010	8:30				
	9:00				
	9:30				
13/09/2010	8:30	Kick off meeting			
	9:30	Project status update			
	####	Break/ Regroup			
	####				
	####				
	####				
	####	Lunch/ Regroup			
	1:00				
	1:30				
	2:00				
	2:30	Break/ Regroup			
	3:00				
	3:30				
	4:00				
	4:30	Debrief			
14/09/2010	8:30				
	9:30				
	####	Break/ Regroup			
	####				
	####				
	####				
	####	Lunch/ Regroup			
	1:00				
	1:30				
	2:00				
	2:30	Break/ Regroup			
	3:00				
	3:30				
	4:00				
	4:30	Debrief			
15/09/2010	8:30				
	9:30				
	####	Break/ Regroup			
	####				
	####				
	####				
	####	Lunch/ Regroup			
	1:00				
	1:30				
	2:00				
	2:30	Break/ Regroup			
	3:00				
	3:30				
	4:00				
	4:30	Debrief			
16/09/2010	8:30	Kick off meeting			
	9:30				

	####	Break/ Regroup			
	####				
	####				
	####				
	####	Lunch/ Regroup			
	1:00	Keep Thursday afternoon wide open so the team can catch up.			
	1:30				
	2:00				
	2:30				
	3:00				
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	4:00				
	4:30				
17/09/2010	8:30				
	9:30				
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