

nalcor
energy
LOWER CHURCHILL PROJECT

LCP-PT-MD-0000-PM-CH-0002-01

Approvals and Revision History							
Status / Revision	Date	Reason For Issue	Prepared By	Checked By	Checked By	Checked By	Project Manager Approval
B1	10-Jan-11	Issued for Use	J. Kean	L. Clarke			P. Harrington
A1	4-Sep-08	Issued for Review / Comment	P. Harrington	J. Kean			

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Additional Signatures (where required)

B1	10-Jan-11	Issued for Use					
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Status / Revision	Date	Reason For Issue	LCP VP Approval	CFO Approval	Gatekeeper Approval		

Professional Engineers Stamp:
(where required)

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1.0 Purpose

This *Decision Gate 2 Independent Project Review Charter* defines the agreed purpose and scope for the Lower Churchill Project's Gate 2 Independent Project Review. The review will be performed in accordance with the intentions of Nalcor's Gateway process. Gate 2 refers to the end of the Phase 2 – Generate and Select Alternatives and the beginning of Phase 3 which culminates in Gate 3, Project Sanction.

This document should be read in conjunction with documents [LCP-PT-MD-0000-PM-PL-0005-01 Project Governance Plan](#) and [LCP-PT-MD-0000-PM-PR-0001-01 Lower Churchill Project Gateway Process](#).

2.0 Scope

Gate 2 is of strategic importance to the NE-LCP as it signifies that the development scenario or scheme, including phasing and sequence has been confirmed, and that the Project Team is ready to move into the Detailed Design phase and prepare to commence early construction works following release from Environmental Assessment. During Phase 3 engineering will progress to 70 – 80% complete thereby allowing for the award of various construction and supply contracts required to provide the level of confidence prerequisite to achieve the cost, schedule, and risk certainty required for Gate 3 – Project Sanction.

An Independent Project Review (IPR) provides the degree of quality assurance required by the Gatekeeper for major decisions. The reviews are regarded as an opportunity to assess readiness, to challenge the project team, and provide assurance that the project will deliver the required business results. The findings, observations and recommendations from IPR, as well as a gap closure plan, will be included in the Decision Gate Support Package when submitted to the Gatekeeper.

The general objectives of an IPR are:

- To provide external challenge to the project team at each Decision Gate, to help assess the validity and robustness of the work done, the key areas requiring focused attention and to assist in maximizing the value of the business opportunity.
- To assess the suitability of the project plans and strategies.
- To appraise the readiness and justification of the project to proceed into the next phase.

3.0 Definitions

[LCP-PT-MD-0000-PM-LS-0001-01 Project Dictionary](#) is the approved dictionary of definitions for the NE-LCP.

Decision Gate	A Decision Gate is a predefined moment in time where the Gatekeeper has to make appropriate decisions whether to move to the next stage, make a temporary hold or to terminate the project.
Decision Support Package	Comprehensive package recommending a preferred way forward for a business decision; including justification, rationale, and supporting documentation for recommended way forward.
Gatekeeper	Individual responsible for making the decision at the Decision Gate of the Gateway Process.
Key Deliverable	High-level listing of key outputs/documents which collectively demonstrate that objectives of the relevant Phase of the Gateway Process have been attained.
Lower Churchill Project Management Team	Managers and their delegates who report directly to the NE-LCP Project Director.
Shareholder	For Nalcor Energy, the Shareholder is the Province of Newfoundland and Labrador.

4.0 Abbreviations and Acronyms

AFE	Authorization for Expenditure
DGSP	Decision Gate Support Package
EPCM	Engineer, Procurement and Construction Management
HSE	Health, Safety and Environment
IPR	Independent Project Review
NE-LCP	Nalcor Energy Lower Churchill Project
NE-LCPMT	Nalcor Energy Lower Churchill Project Management Team

5.0 Roles and Responsibilities

Gatekeeper	Sanctions the IPR, approves the IPR terms of reference, and is the individual responsible for making the decision at the Decision Gate of the Gateway Process.
NE-LCP Vice President	Responsible for organization and structure of the IPR to satisfy the requirements set forth in the <i>Project Governance</i>

*Plan.***Nalcor Energy Leadership Team**

Responsible to participate in the IPR process, including interviews as requested by the IPR Team.

NE-LCP Project Director

Responsible for ensuring communication of the IPR terms of reference within the Project Team and to ensure the required level of participation within the team.

NE-LCPMT

Responsible to participate in the IPR process, including interviews as requested by the IPR Team. Also responsible to produce the required key deliverables and documentation to support the IPR.

6.0 Reference Documents and/or Associated Forms

LCP-PT-MD-0000-PM-LS-0001-01	Project Dictionary
LCP-PT-MD-0000-PM-PL-0005-01	Project Governance Plan
LCP-PT-MD-0000-PM-PR-0001-01	Lower Churchill Project Gateway Process
GEN-PM-001	Lower Churchill Project Gate 2 Deliverables

7.0 Purpose of the IPR

The purpose of the Gate 2 IPR is to assess completion of the project deliverables produced during the Generate and Select Alternatives phase and readiness of the Project Team leading to Phase 3. This review shall assess the readiness of the NE-LCP to enter the next phase of the Project's development by reviewing the processes and the deliverables from the feasibility phase and assessing the status of other factors which will influence the decision to proceed with Phase 3 expenditures and activities.

8.0 Objectives of the IPR

The stated objectives of the Gate 2 IPR are to:

- Provide an independent assessment of the work performed by the collective NE-LCPMT and the deliverables from the Phase 2, with special emphasis on the processes and outcomes of these processes that have been used to arrive at the NE-LCPMT's conclusions and recommendations.

- Identify observations and findings and provide recommendations relative to the observations and findings that require NE-LCP VP disposition to responsible managers, action and closeout at an appropriate time during Phase 3.
- Provide an independent assessment and recommendation to Nalcor's leadership regarding the Project Readiness of People, Processes and Tools to proceed through Gate 2 based on the evidence provided during the IPR and the deliverables defined as being necessary to pass through Gate 2.
- LCP Team to demonstrate due diligence and provide a record that an independent third party expert review has occurred relative to the Gate 2 IPR and approval sought, in accordance with the gateway process.

9.0 IPR Scope and Focus Areas

9.1 Scope

This Gate 2 IPR will address the following scope of the NE-LCP where applicable and as determined by the NE-LCP Gatekeeper.

Selected project development scheme:

- Muskrat Falls Generation Facility followed by the Gull Island Generation Facility
- HVdc transmission link to the Island, ensuring that proper consideration regarding upgrades to the island system to facilitate the Island Link have taken place.
- HVac Transmission from Muskrat Falls to Churchill Falls.
- Optimization potential of the first phase of the project, Muskrat Falls and HVdc transmission link to the Island, including identification and screening of export scenarios for excess energy.

In agreement with the NE-LCP VP, the focus of the review will be directed towards the selected project development scheme and shall consider:

- The Readiness for the Project to proceed through Gate 2 and commence Phase 3 scope from a People, Process and Tools readiness perspective;
- The identification of potential gaps in the Project processes and project strategies;
- Feasibility deliverables and preparation work required to enter into Phase 3;
- Compliance with appropriate policies, procedures and processes; and
- Confirmation that deliverables required, in order to conduct a meaningful assessment of Project viability from a technical, economic and risk based perspective are available and are adequate.

Project deliverables will be reviewed for the purpose of confirming the status and effectiveness of existing project management processes and management systems and the readiness of the project team from a perspective of People, Processes and Tools.

In agreement with the NE-LCP VP, the IPR will be organized by the Focus Areas defined in Section 9.2.

9.2 Focus Areas

The IPR Team shall review and evaluate the deliverables from Phase 2 which have been used by the Project to prepare recommendations, applications or have been the basis for analysis and selection of a particular project development option. Verification that the deliverables defined for Gate 2a and 2b (reference document [Lower Churchill Project – Gate 2 Deliverables GEN-PM-001](#) for listing) have been achieved or there is a workaround which is deemed acceptable by the Gatekeeper that includes verification of the following:

- 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.
- That there are adequate processes, procedures, tools, and systems in place or planned to be developed to proceed to the next phase.
- That there is an adequate general understanding by the project team of the processes, procedures, tools, systems and drivers of the project.
- That the quality and completeness of the source data used by Project is suitable.
- That the processes and methods used for Risk Analysis, Estimating and Economic analysis comply with appropriate standards, best practices or are equivalent.
- That the development of the Project Charter and Project Execution Plan was carried out correctly.
- 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.
- That the project contract strategy has incorporated sufficient market intelligence to make it feasible from a legal, insurance and execution perspective.
- That the Health, Safety and Environment processes and procedures used comply with the appropriate standards, best practices or equivalent.
- That the Quality Assurance processes and procedures used comply with the appropriate standards, best practices or equivalent.
- 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.
- 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.

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- 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - That a project cost and schedule estimate in the appropriate range of accuracy is available.
 - That an organization, mobilization and office plan has been developed and the organization is adequate to enter into the next phase.
 - That the organization staffing and design is commensurate with the complexity of the project and is both well represented and functional.
 - 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.
 - 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.
 - That the strategic and tactical project risks are understood and a risk management plan is in-place and being actively pursued.
 - That the project execution approach is clearly defined, validated and endorsed by management.
 - That the governance structures are established and clearly communicated for current and subsequent project phases.
 - That the project’s stakeholders are identified, an engagement plan is in-place and an appropriate level of engagement underway.
 - That the project management system structure is developed and implementation underway.

- 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.
- That Benefits obligations are understood and clearly communicated.
- That a Labour Relations Plan is in-place and clearly communicated.
- That Shareholder requirements for equity and supporting debt have been communicated.
- That and information management plan is in place and communicated.
- 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.

10.0 IRP Methodology

The Gate 2 IPR will be undertaken by an independent review team at the NE-LCP offices in St. John's. This review will be formally structured with an agenda prepared in advance of the review by the IPR Team Lead and reviewed with the NE-LCP VP and PMT.

The IPR Team will be granted access to the required information considered necessary to be examined in order to achieve the IPR objectives stated in this Charter. Accessibility and confidentiality concerns shall be addressed between the IPR Team Lead (with the Coordinator) and the NE-LCP VP (with the Project Manager).

The IPR Team will hold a pre-review meeting and a kick-off meeting on Day 1, and will conclude with a closeout presentation on or before Day 7. An Overview Schedule is provided as Attachment B.1.

11.0 IPR Timing

Gate 2 IPR will occur the week of September 12, 2010.

12.0 IPR Review Team Composition

At the discretion of the NE-LCP VP and based upon the degree of independent review required at Gate 2, the IPR Team shall preferably be comprised of qualified and experienced personnel who are independent from the Project, except for the IPR Coordinator, who may be active in the Project.

The IPR Team may consist of Nalcor Energy employees, consultants and specialists who are knowledgeable and familiar with Nalcor's policies, processes and procedures and/or major project management execution, power sales and access, and project financing.

The IPR Team shall consist of the following expertise areas, however note that some of the expertise areas may be combined and addressed by one person.

- **IPR Team Lead** – with experience in a senior capacity of major project execution
- **IPR Coordinator** – must be knowledgeable of the project with a technical background. Facilitates the organization and management of the IPR on behalf of the NE-LCP Project Manager.
- **IPR Assistant** – person inside the team who assists the IPR Coordinator in planning and preparation, and also facilitates and follow-up on information request.

Areas of Expertise

- Project Management – with experience as a Project Manager on major projects.
- Risk Management – with extensive risk identification and mitigation on major projects.
- Power Sales – with knowledge and experience in closing power purchase agreements.
- Project Finance – with knowledge and experience in financing of major projects.
- Environmental – with knowledge and experience in the environmental assessment process on major projects.
- Engineering and Construction Specialist(s) – with knowledge and experience in dam, transmission, HVdc design, construction and commissioning.

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13.0 Reporting IPR Findings

13.1 Early Findings and Observations

Any Findings and Observations identified early by the IPR Team will be reported by the IPR Team Lead as follows:

- Immediately with the NE-LCP VP if any serious issue with implications for project safety or integrity is raised in the course of the review.
- Informally with the Project team during the review.
- At the conclusion of the IPR, in a closeout presentation to selected members of the Project team, the NE-LCP VP, VP's on the Project Steering Committee and the Gatekeeper.

13.2 Final Report

At the conclusion of the Gate 2 IPR the Panel will produce a written report addressed to the Gatekeeper and NE-LCP VP that includes the following:

- Overall impression / conclusion/ recommendation
- Opportunities for Value Improvement that need to be managed effectively to proceed through Gate 2 and commence Phase 3.

- Summary of the Review in each focus area, including areas of the Project that are performing well and areas for improvement
- Detailed observations and findings with accompanying suggested improvements that can be actioned and monitored for follow up through to closure.
- Documentation of the Gate 2 IPR Team process.

Note – once the Gate 2 IPR Team have submitted their final report it will be the responsibility of the NE-LCP VP for the disposition of the findings and observations to the responsible managers for follow up action through to closeout, to the satisfaction of the responsible managers and ultimately the NE-LCP VP approval.

14.0 Documents Available for Review

It is envisioned that all documents to be provided to the IPR Team are already in existence. It is not the intention that the Project will create new material for the IPR Team, however relevant extracts may have to be prepared.

14.1 Provided Prior To Review

The availability of Project documentation prior to the Gate 2 review helps familiarize the IPR Team with the Project, promotes efficient use of the Panel's time on-site, and reduces interference with the ongoing project activities. The IPR Coordinator will provide the rest of the IPR Team with the following documentation at least two weeks prior to the start of the IPR.

- Project overview information
- Generation Project Environmental Impact Statement
- Labrador – Island Link Transmission Project Environmental Assessment Registration
- Project Charter
- Project Governance Plan
- Project Management Plan
- Benefits Plan
- Basis of Design
- Organizational Plan
- Risk Management Plan
- Contracting & Procurement Strategy
- Results and findings of Pacesetter reviews conducted by Independent Project Analysis, Inc.
- Levels 1 and 2 Project Schedules
- Gate 2 Estimate Summary Report
- Latest Project Monthly Progress report including cost and schedule overview, latest project status report, and a listing of key issues and status.
- Feasibility phase summary and conclusions

14.2 Available During Review

References provided to the Panel enable verification of information obtained in interviews or by observation of project activities. The IPR Coordinator will make available to the rest of the Panel the following documentation during the review:

Note this list is not complete it is shown here as an example and will be defined in detail by the IPR Team Lead.

- Organization Plan
- Benefits Plan
- Project Financing Strategy
- Detailed construction plans (as available)
- Various Management Plans
- Contract Package Listing
- Training Plan
- Documents/materials summarizing lessons learned capture and application
- Project Cost and Schedule Estimate and Estimate Confidence Package (latest risk analysis study)
- Basis of Estimate Report
- Operations Philosophy
- Request for Proposal – EPCM Services
- Project Economics
- Selected Technical Studies
- Relevant power sales information
- IPA Pacesetter Review for FEL 2 – Final Report
- Other items as identified and requested during the Review

The documents should be available in the IPR Team meeting room. At the conclusion of the review, documents will be left in the meeting room for disposal or reuse by the NE-LCPMT.

A.0 Activity Flowchart (Excel Format)

A.1 N/A

B.0 Attachments/Appendices

B.1 IPR Overview Schedule

Attachment B.1 – IPR Overview Schedule

Prior to Saturday September 11	Sunday September 12	Monday September 13	Tuesday September 14	Wednesday September 15	Thursday September 16	Friday September 17
• Pre Review Panel Meeting – Conference Call	• Panel Arrive at Review Location • Kick-Off Meeting • Introduction • Project status update • Team Meeting	• Kick-Off Meeting • Project status update • Overviews by Functional Expertise • Management & Staff Interviews • Documentation Reviews • Team Meeting	• Management & Staff Interviews • Documentation Reviews • Team Meeting	• Management & Staff Interviews • Documentation Reviews • Team Meeting	• Management and Staff Interviews • Documentation Reviews • Team Meeting	• Present draft findings and observations to CEO, VP and selected members of Project Management team • Team Meeting
Saturday September 18						
• Team Travel day						