

Nalcor Energy – Lower Churchill Project

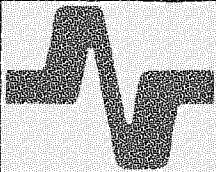


Lower Churchill Project - Risk Management Philosophy

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TABLE of CONTENTS

| | | |
|------------|--------------------------------------|----------|
| 1.0 | PURPOSE | 3 |
| 2.0 | SCOPE | 3 |
| 3.0 | ABBREVIATIONS / ACRONYMS..... | 3 |
| 4.0 | STRATEGY | 3 |

1.0 PURPOSE

The purpose of this document is to outline the philosophy for effective risk management, including risk allocation, for the Lower Churchill Project (LCP). This Philosophy will:

- Define the foundation on which a risk management framework and program will be developed and implemented;
- Identify what mechanism will be used to define and allocate these risks;
- Identify where responsibility of risk can fall among the appropriate stakeholders;
- Identify who will participate in key decisions regarding determining acceptable risk levels; and
- Identify who will participate in defining the optimal risk management strategy for the various risks.

2.0 SCOPE

This Philosophy, as part of the LCP Risk Management Framework (reference Figure 4.1) applies during planning, execution and start-up phases (Gateway Phases 2 through early phase 5) of the LCP and is meant to encapsulate all risks in the following categories: financial, market and market access, occupational health & safety, environmental, technical, schedule, cost / financial, operational / reliability, and reputation / image.

This Philosophy should be read in conjunction to the Lower Churchill Project Risk Management Policy (MSD-RI-001).

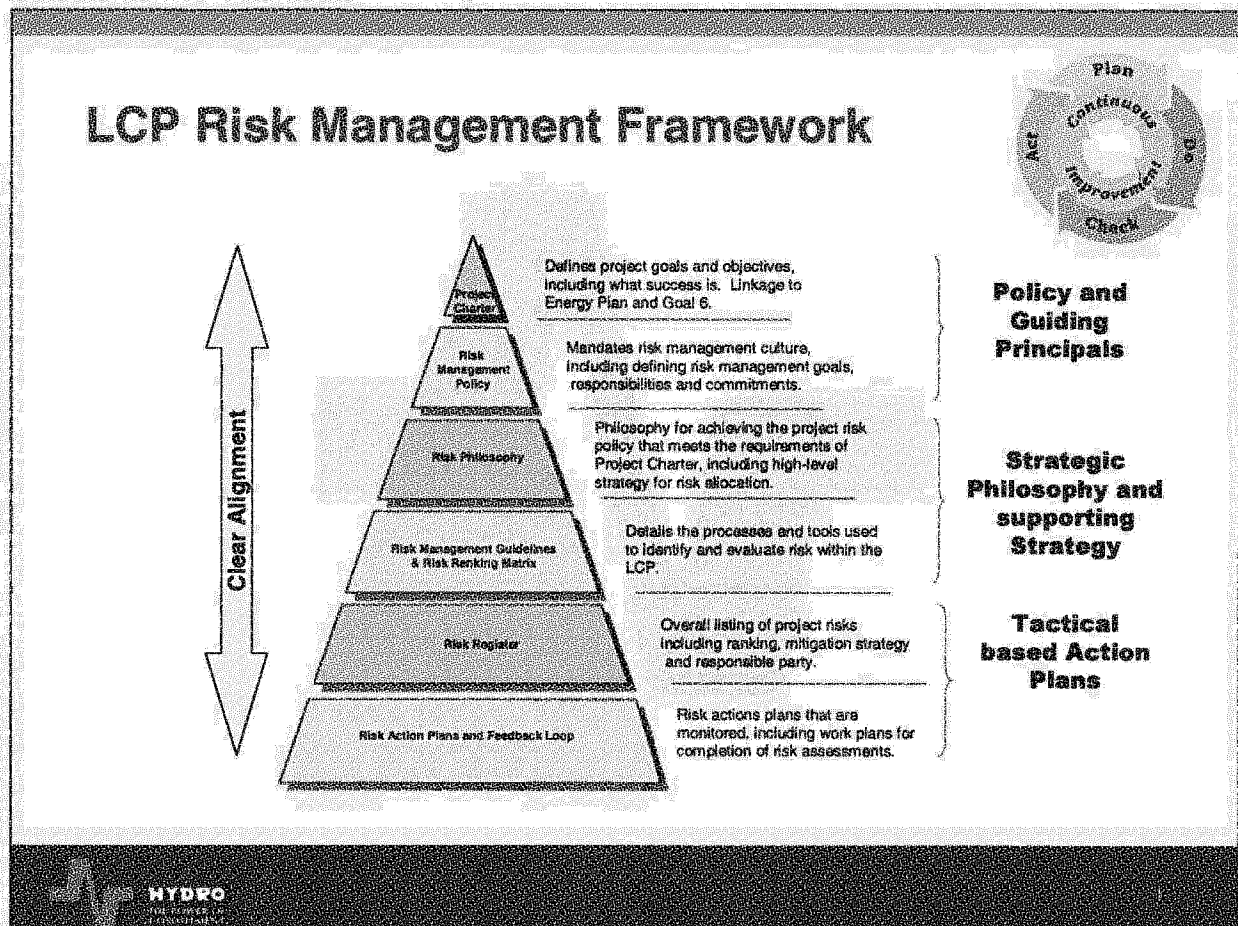
3.0 ABBREVIATIONS / ACRONYMS

| | |
|--------------|---|
| ECNL | Energy Corporation of Newfoundland and Labrador |
| LACTI | <u>L</u> eads, <u>A</u> ccountable, <u>C</u> onsulted, <u>T</u> echnical and <u>I</u> nformed Chart |
| LCP | Lower Churchill Project |
| LCPMT | Lower Churchill Project Management Team |

4.0 STRATEGY

Risk management is a responsibility of all LCP Management Team (LCPMT) members as committed to in the LCP Risk Management Policy, while many other project participants are extensively involved in managing sub-components consistent with the integrated team approach comprised of ECNL, LCPMT and key consultants including Financial Advisor, Insurance Advisor, and Risk Advisor.

Figure 4.1 LCP Risk Management Framework



The LCP has developed a Risk Management Framework (reference Figure 4.1) that provides linkage on the Project Charter down through risk identification and action plans. As a key component of this Risk Management Framework, the LCP Risk Management Policy, states that the LCP is committed to planning and executing the Lower Churchill Project in such a way as to minimize the potential negative effects of risks and to maximize opportunities. To achieve this, the LCP will implement a comprehensive, holistic risk management framework to manage all project risks and help achieve the project goals and objectives as defined in the ENCL's Goal 6 and LCP Project Charter.

The objectives of this risk management program are as follows:

- Identify, assess, respond to, manage and mitigate all key risks and uncertainties;
- Allocate project risk to the party who can most efficiently and effectively manage the risk (risk allocation);
- Identify the timeframe (i.e. Gateway Phase) in which a risk may be realized;
- Improve decision-making by thoroughly understanding project risks and uncertainties.

In addition to these four (4) objectives the LCP risk management program and encompassing Risk Management Framework must be sufficiently defined and robust enough to meet not only the management of construction risk, must convey a sense of comfort to the lenders, via the independent engineer, that this is indeed the case and re-affirm the recommended contingency level is sufficient to mitigate all open risks.

In an effort to develop this LCP Risk Management Framework, the LCPMT have engaged a specialist risk consultant to provide required risk advisory services based upon industry best-practice.

In order to ensure effective implementation of this Framework, the LCP Project Manager, with the sponsorship of the LCP Vice President, will appoint a full-time Risk Manager. The Risk Manager will work to further develop and implement the risk framework by coordinating overall risk management activities among all project participants to ensure a holistic application of the framework. One of the key roles of the Risk Manager is to monitor all project work streams so as to continuously identify and be able to effectively monitor and manage project risks. It is the Risk Manager's role to champion the risk management process. Embedment and engagement of this position within all project work streams is essential to ensure this objective is achieved.

A key component of this Risk Management Framework is that when a risk is identified and framed, a strategy must be developed in order to cost effectively manage the risk and reduce the amount of contingency required to be carried by ECNL or the lender. Careful consideration of procurement planning will be one such means by which risks will have to be cost effectively managed in order to optimize the amount of contingency required. As such early in the implementation of the LCP risk management program, significant emphasis will be placed on identifying risks through a structured discovery process. Using this information the risks will be quantified as to determine the unmitigated value of risks for consideration in developing management plans to achieve optimal risk / cost optimization.

Generally to achieve the lowest cost of risk, the LCP will be adopting a multi-dimensional strategy for considering and managing all risks to include technical, operational, procurement, market and market access, financing, and risk retention considerations. This multi-dimensional consideration of risks will focus on establishing a balanced but rigorous risk / cost optimization allowing the consideration of all risks within these categories to be considered in the context of the other risks in determining risk resolution strategies.

To identify, frame, and develop resolution strategies for these risks will require the LCPMT, ENCL Corporate, Financial Advisor, Insurance Advisor, and LCP Markets and Market Access team to work together (reference Figure 4.2) as a Risk Resolution Team in a process that will be facilitated by the LCP Risk Manager using the support of the Risk Advisor in the capacity of a risk broker in order to create common understanding of all identified risks and determine the big picture of risk and optimal allocation of risks. The roles and responsibilities of the various members of this Risk Resolution Team are captured in the high-level LACTI contained within this Philosophy (reference Figure 4.4).

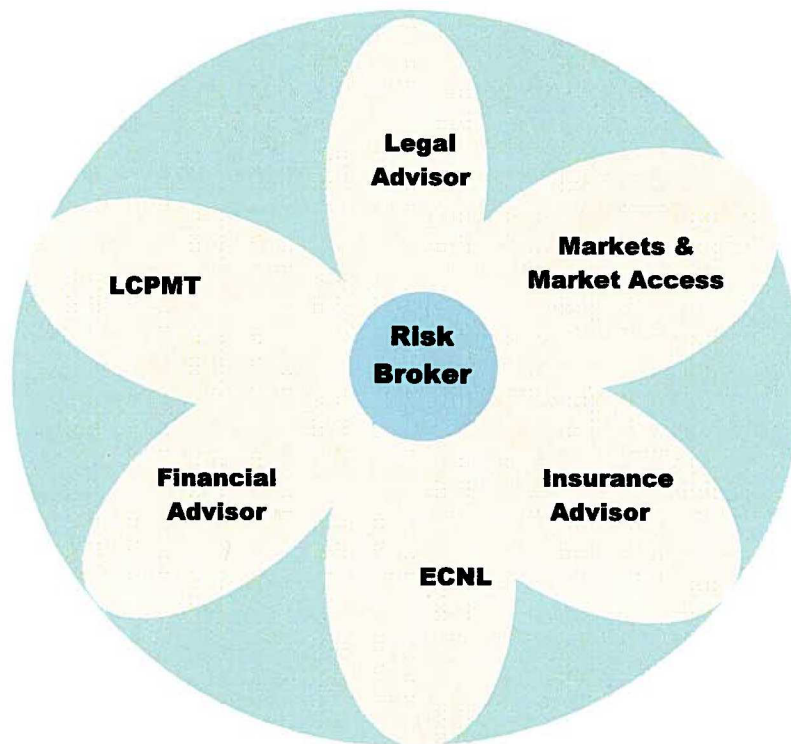
By creating a common understanding of the risks and values within the Risk Resolution Team, the risk broker is able to facilitate the determination of the optimal resolution strategy for the identified risks. The risk resolution strategy must strive to achieve a balance between what risk acceptance levels can pragmatically be achieved in the procurement and power sales market places against what the lender is willing to accept.

This Risk Resolution Team will work to package the underlying risks, develop appropriate risk resolution strategies and develop detailed LACTI for each of these risks. The first priority will be on the top 40 to 50 project risks. In addition the net result to the risk profile will be presented by way of a risk balance sheet in order to present a monetary value of the risks at play in order to

recommend a defensible contingency level. As these mitigation strategies are progressed through development and execution, regular status reporting to the Risk Resolution Team by way of regular meetings and status reports will be completed, as led by the Risk Manager.

It must be emphasized that neither the Risk Manager nor the Risk Broker are technical experts in all the risks areas, but will facilitate a structured process with the Risk Resolution Team to achieve the before mentioned objective.

Figure 4.2 Risk Resolution Team



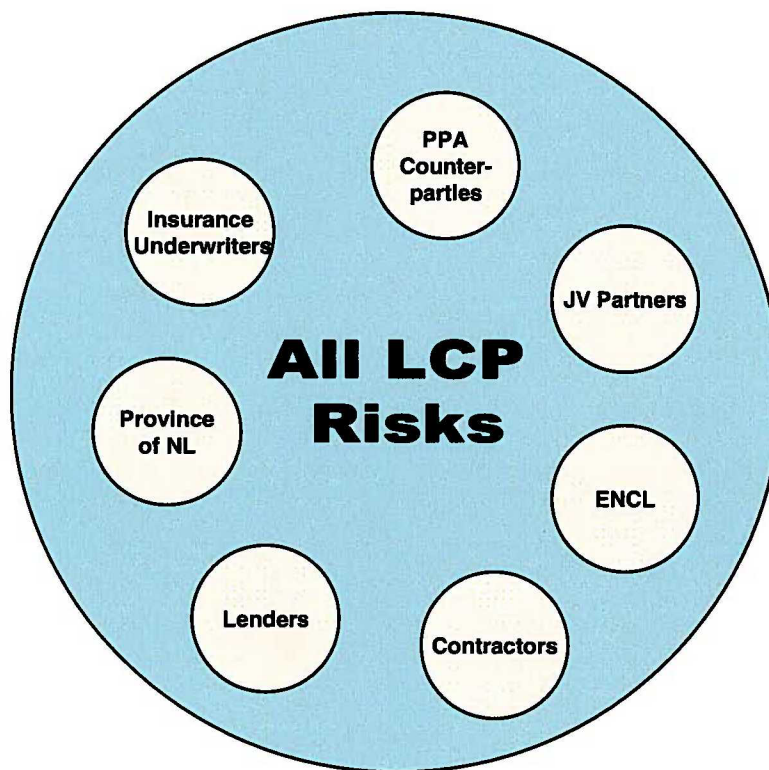
The risk resolution strategy chosen may be either of:

- **Avoidance** – eliminate the specific threat, usually by eliminating the risk cause. Can be achieved by finding an alternative approach or different route to reach the end objective of the project.
- **Mitigation** (control or abatement) – reduce the probability and/or consequence of an adverse risk event to an acceptable threshold (i.e. reduce the probability of event occurrence or minimize the consequence if the event occurs)
- **Allocation** (or transfer) – seeking to shift the consequence of a risk to a third party, together with ownership of the response, who is better able to manage the risk. This does not eliminate the risk, however reduces exposure of the project.
- **Acceptance** (or assumption / retention) – Accept the consequences of the risk (i.e. live with it – run the risk, include contingency).

In the allocation strategy, the parties (reference Figure 4.3) who are likely to assume some risk for the project along with “indicative” risks they would own a share of are:

- **ECNL** – certain execution risks (e.g. differing site conditions), image / reputation risks and financial risks as an equity partner, operational risk.
- **Lenders** – financial market risk due to fluctuation, interest, etc.
- **Contractor** – execution and performance-related risks.
- **Province of NL** – financial risks as an equity partner.
- **Insurance Underwriters** – catastrophic incident risk.
- **PPA Counterparties** – may assume certain execution risks or price risk.
- **Joint Venture Partners** – own execution and performance risks, financial risks as an equity partner and some operational risk.

Figure 4.3 Parties to Risk Allocation



In this figure the larger circle represents the entire risks for the LCP, while the smaller circles represent the risks that each of the before mentioned parties will assume. Those risks remaining (denoted by the blue-shaded area) will require the LCP Project Management Team to work to ensure they are effectively mitigated and managed.

Each of these parties will play a significant role in the mitigation efforts where possible as well. Some examples are:

- **ECNL** – LCPMT will work with ECNL executive on bigger picture. For example, if power is being regulated in NL unfavorably to LCP, ECNL could take responsibility to address the issue.
- **Lenders** – Financial expertise to best ensure the flow of cash at lending rates that make the project viable.
- **Contractors** – With their knowledge of field logistics, supervision, construction execution, etc. they will be allocated significant execution related risks.
- **LCP** – Through the LCPMT will develop a contracting and project execution strategy that encompasses industry best practice and latest marketplace realities.
- **Province of NL** – Risk to be taken on certain aspects of the LCP (i.e.: Aboriginal and regulatory Issues) will be brought to ECNL executive to bring to the province.
- **Insurance Underwriters** – Will handle all insurable risk and provide advice on mitigation through audit and review.

Cost effective management of risks will be essential to the viability of the LCP. The overall net risk exposure after implementation of the appropriate risk resolution strategy will require the provision of contingent equity in order to manage all materialization of these risks.

For those risks that have not been effectively resolved by allocation or other contingent funding will be required. Provision of the contingent equity may have to be assumed by ECNL and the Lender, hence by viewing risk in a multi-dimensional, holistic approach to effectively allocate the risk to the party who can most cost effectively manage it, is an attempt to minimize the requirement for this contingent equity.

Detailed risk reviews will be completed as key points of the LCP's lifecycle as determined in order to achieve the level of certainty required by all parties of the Risk Allocation Team that all key project risks are understood and management plans have been put in-place that will prevent or mitigate the materialization of these risks as required to fulfill the requirements of the ECNL and the Lender or its representative.

Figure 4.4: Risk Management LACTI Chart

| Description of Activity | ECNL Rep - CFO & VP Finance | LCP VP | LCP Project Manager | LCPMT | LCP Risk Manager | Risk Advisor | Financial Advisor | Insurance Advisor | Legal Advisor | |
|---|-----------------------------|--------|---------------------|-------|------------------|--------------|-------------------|-------------------|---------------|--|
| Establish Risk Philosophy | C | A | C | C | L | T | C | I | I | |
| Establish and Implement Risk Management Program | C | C | A | C | L | T | C | C | C | |
| Coordinate Project Risk Activities | I | I | A | I | L | T | I | I | I | |
| Identify Risks to Achieving Financial Close | C | A | C | L | C | I | T | I | I | |
| Identify and Define Insurable Risk | C | A | C | L | C | C | C | T | C | |
| Allocation of insurable items | L | I | I | A | C | I | C | T | C | |
| Identify and define general project risks | I | I | A | L | T | T | C | I | I | |
| Define Insurance Philosophy | L | I | C | A | C | I | C | T | C | |
| Management of Risks to Financial Close | C | A | C | L | C | C | T | C | C | |
| Identify and Define Contractor Risk | I | C | A | L | C | I | C | C | T | |
| Allocation of Contractual Risk | I | C | A | L | C | I | C | C | T | |
| Determine Corporate Risk Appetite | L | A | C | C | C | C | C | I | T | |
| Overall Risk Allocation | C | C | A | C | L | T | C | C | C | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Legend:

- L** LEADS - Who leads the activity
- A** ACCOUNTABILITY - Who has accountability for the activity
- C** CONSULTED - Who needs to be consulted during the activity
- T** TECHNICAL - Who provides technical input on the activity
- I** INFORMED - Who should be informed, but is not actively participating in the activity