

Estimate Contingency Discussion

Prepared for LCP Gatekeeper, 3-Mar-2011

Boundless Energy



Purpose

- Discuss the provisions for various forms of cost contingency as it relates to the \$6.2B capital cost estimate for LCP Phase I.

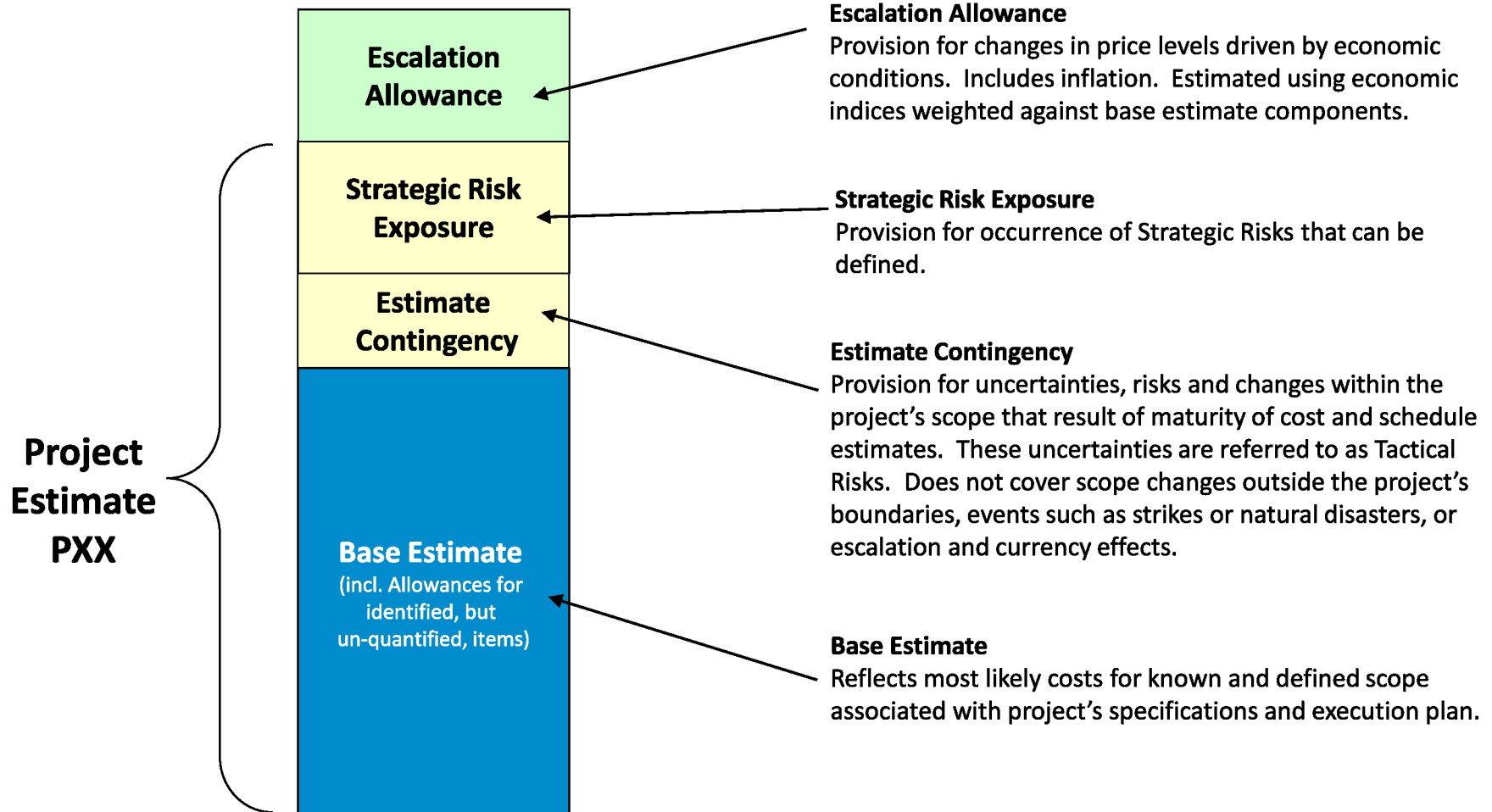
Anchoring Back

				<u>Breakdown by Components</u>		
				<u>Base</u>	<u>Contingency</u>	<u>Escalation</u>
Muskrat Falls	2.9	=		2.23	+	0.33
Labrador - Island Transmission Link	2.1	=		1.62	+	0.24
Maritime Link	1.2	=		0.90	+	0.13
Total Estimated Capital Cost (excl. IDC)		6.2				

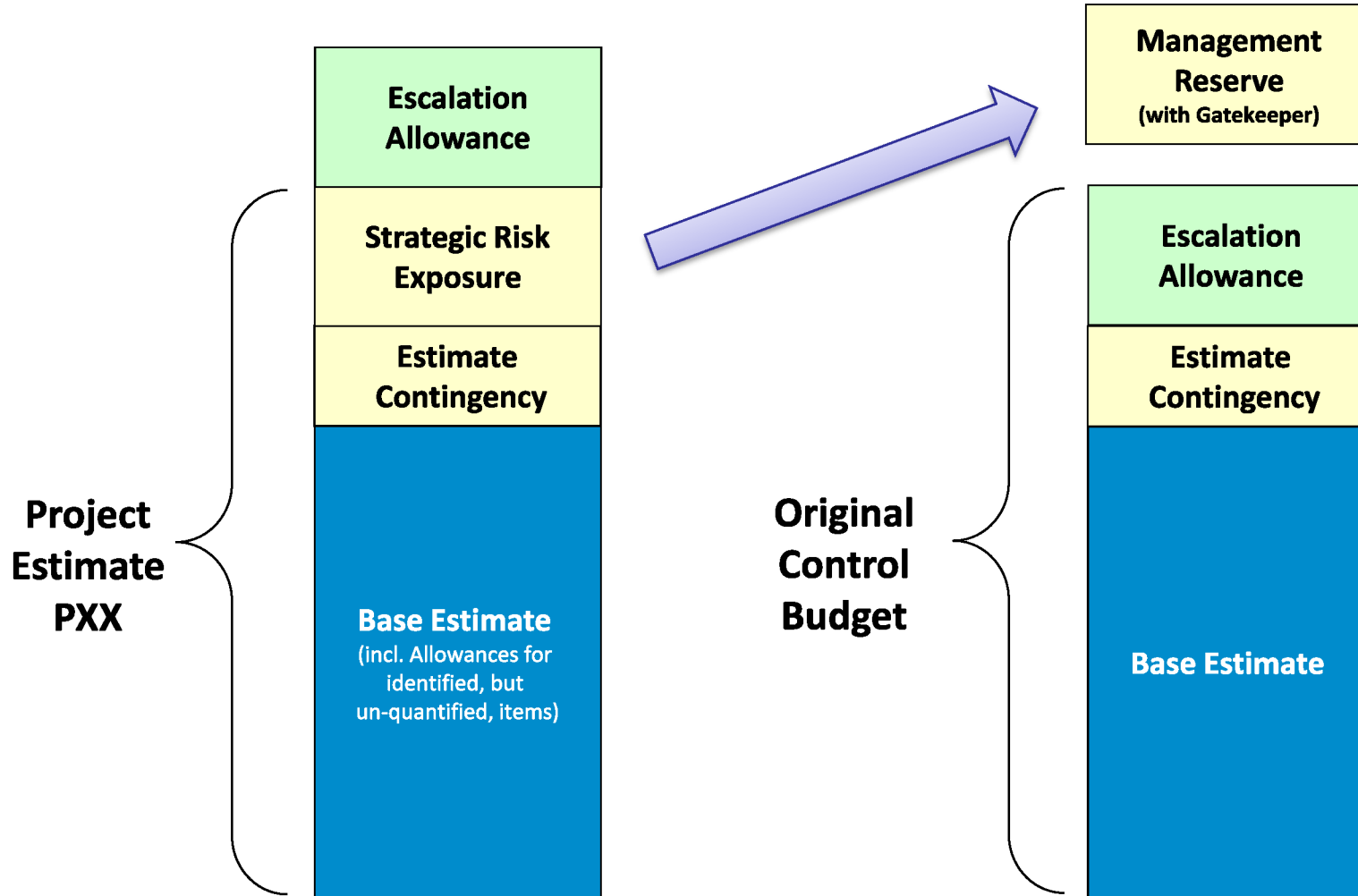
Notes:

1. Contingency adjusted from 21% to 15% during Emera negotiations to remove Project's recommended allowance for Strategic Risk Exposure
2. All cost in 2010 CDN \$ (billions)

Project Cost Estimate Components



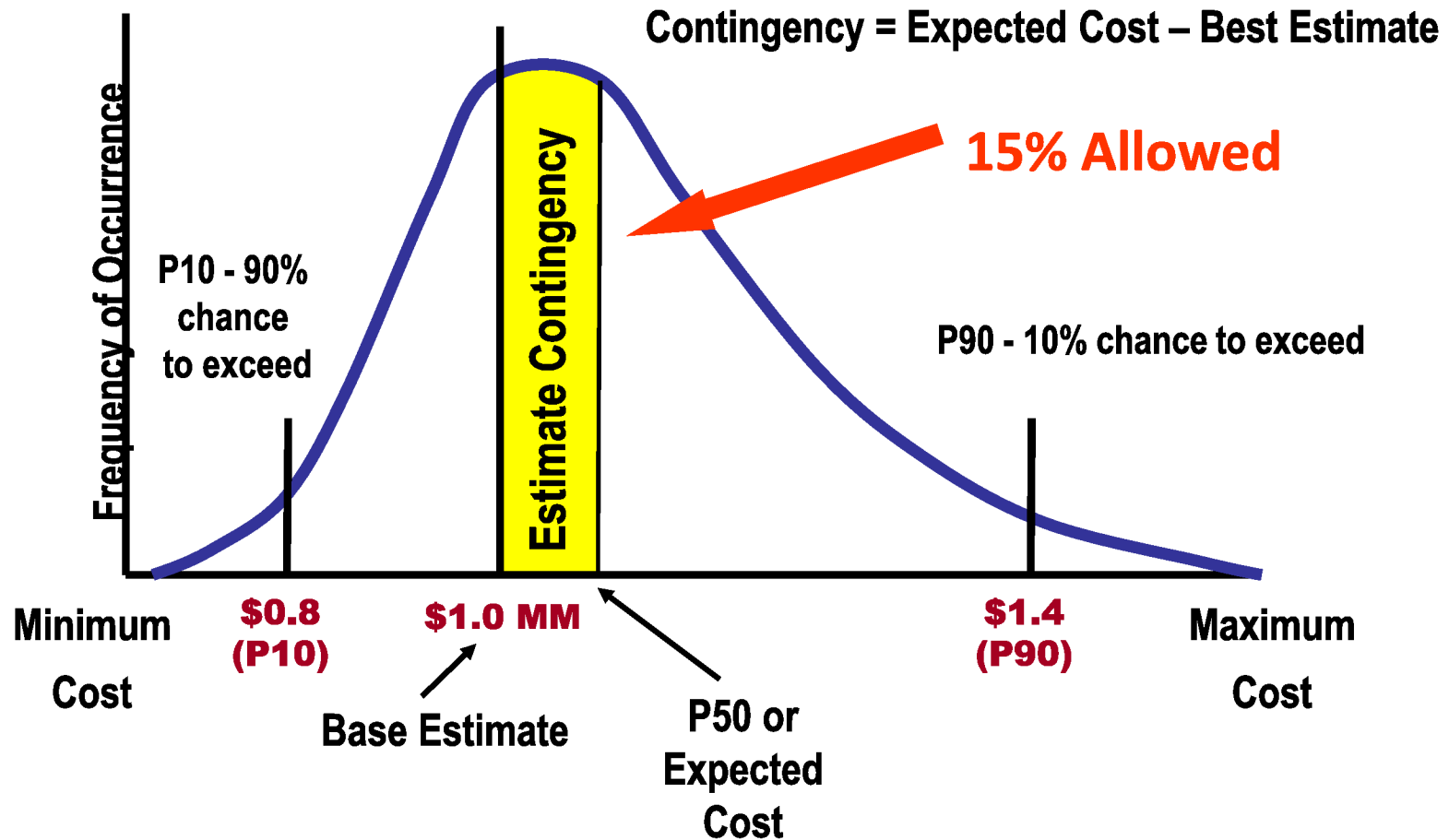
Establishing Original Control Budget



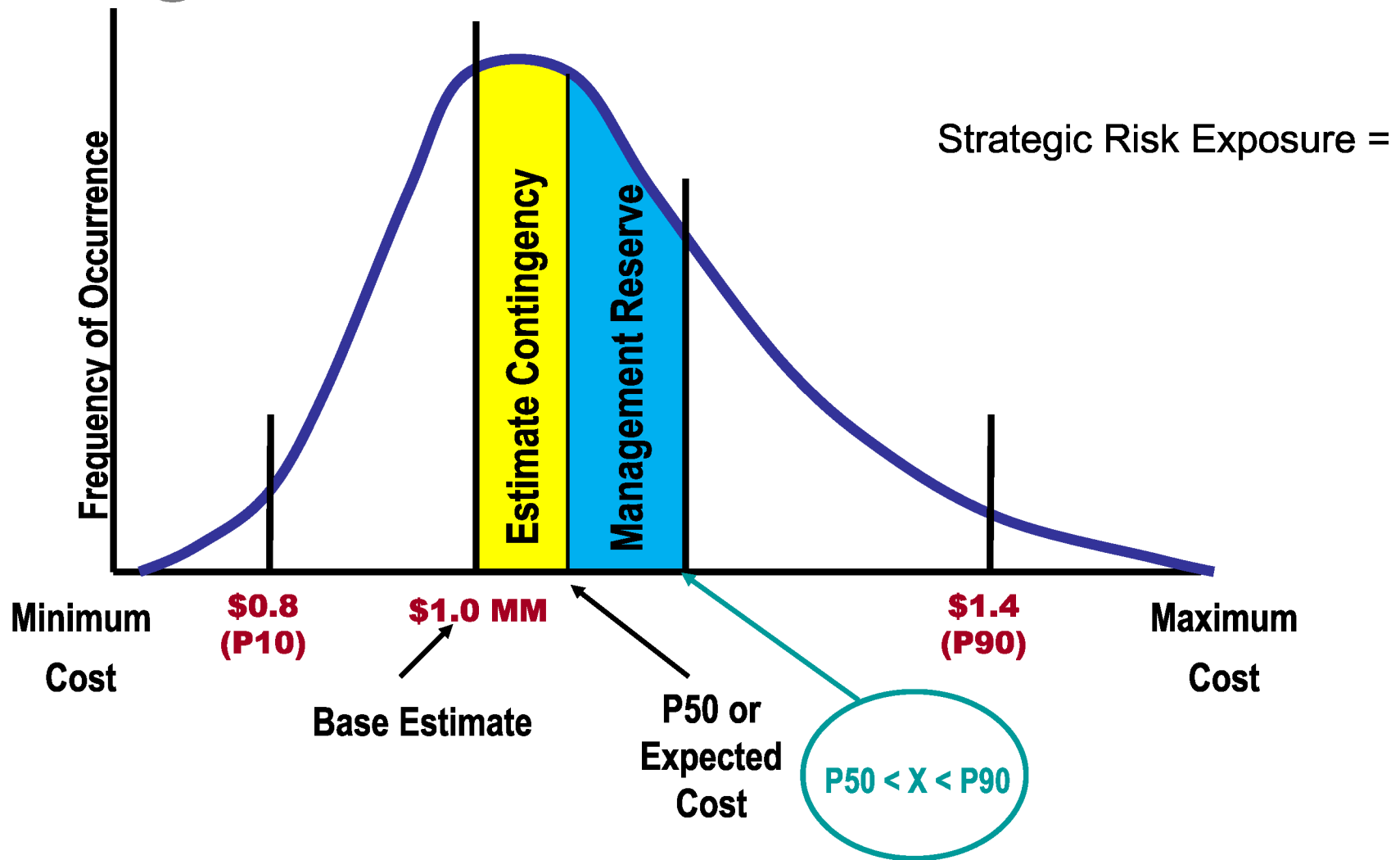
Terminology: Management Reserve

- Approved capital budget held in reserve and controlled by Gatekeeper, which is used to provide a higher confidence cost level (i.e. comfort factor).
- It is often used by Gatekeeper as a mechanism to support scope addition in a project raised as part of the change management process which would not be covered by Estimate Contingency.
- Typically only the Gatekeeper, direct reports, and Investment Evaluation are aware of the existence and value of Management Reserve fund. Unlike Contingency, Management Reserve is not expected to be spent unless the Gatekeeper so directs.

Estimate Contingency Illustrated



Management Reserve Illustrated



Westney Risk Analysis

- Risk Analysis undertaken in June 2010 for MF + IL only.
- Based upon then understanding of plant, including a then 600 MW capacity Island Link.
- Results:
 - P50 Estimate Contingency = 16% of Base Estimate
 - P50 Strategic Risk Exposure = \$412M (~10%)

Nalcor Adjustments

- Use 15% Estimate Contingency given maturing of IL estimate over summer.
- Strategic Risk Exposure (i.e. Management Reserve) of ~10% removed
 - Assumed to be covered by \$600M Contingent Equity allowance.

Basis of Assessment

Project Components*

- 1) Muskrat Falls 824 MW Plant
- 2) 600 MW 250kV HVdc Island Link (50-year return period)

*Consistent with client Capital Cost Case 8

Cost Estimates+

- 1) Muskrat Falls Plant: \$2,215 million
- 2) Island Link: \$1,144 million

+Estimates are in C\$ and do not include any contingency

Current Project Schedule

Ready to Start Site Work at Muskrat Falls	19-Jun-11
First Power	22-Sep-16
Island Link Ready for Power Delivery	7-Feb-17
Full Commercial Power	16-May-17

Assessment Summary

Time Risk

The modeled results show a predictive range (P25 to P75) for Full Commercial Power of February 2018 to September 2018, which equates to 9 to 16 months later than the current schedule of May 2017.

Tactical Risk

The predictive range for the Tactical-Risk analysis for Muskrat Falls and the Island Link is \$3,469 million to \$4,367 million, with the P50 value being \$3,885 million.

Strategic Risk

The predictive range for the Unmitigated Risk Exposure is \$490 million to \$852 million; the predictive range for the Mitigated Risk Exposure drops to \$187 million to \$413 million.

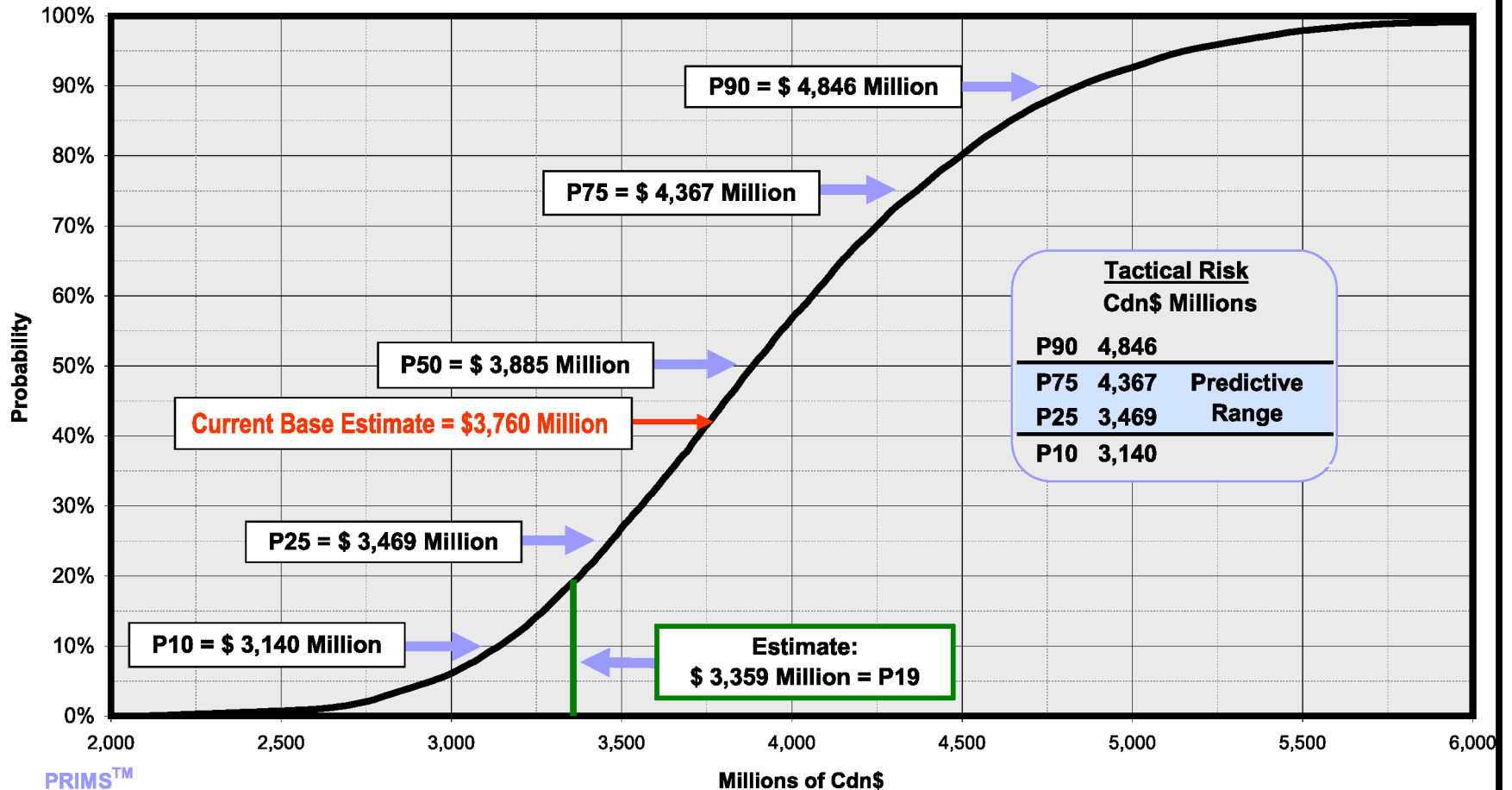
The P50 value of \$3,885 million compares to an estimate of \$3,359 million, suggesting that an estimate contingency of \$526 million (16%) would be appropriate for Muskrat Falls combined with the Island Link.

It is recommended that a reserve be established to cover the Mitigated Risk Exposure level of \$413 million. This reserve is in addition to the contingency and equates to approximately 12% of the estimate.

LCP - Muskrat Falls & Island Link

Tactical (Cost Estimate) Risk Assessment

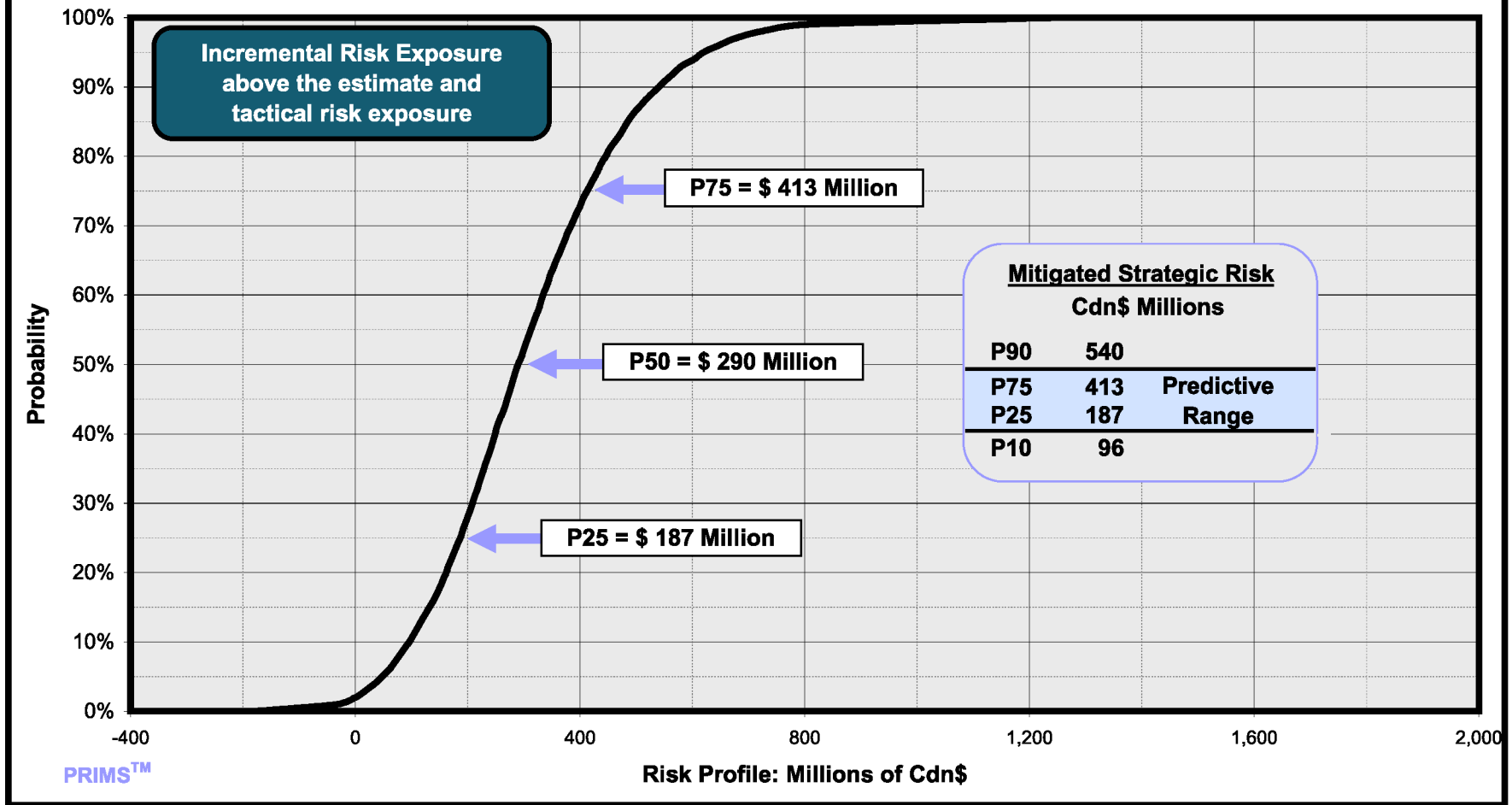
Risk Resolution®



LCP - Muskrat Falls & Island Link

Mitigated Strategic Risk Assessment

Risk Resolution®



Reference Material



Cost Estimate Components

DEFINITION

PERFORMANCE



- Location Factors
- Plant Definition
- Major Equipment
- Bulk Quantities
- Design Constraints
- Design Criteria
- Design Standards
- Technology Limits

- Build Sequence and Constraints
- Construction Equip.
- Labor Demands
- Trade Mix
- In-directs
- Support Facilities
- Seasonality

- Labor Rates
- Equipment Rates
- Marine Construction Vessels
- Commodities Rates
- Permanent Equip.
- Materials Cost
- Contracting & Procurement Strategy

- Labor Productivity
- Mobilization Constraints
- Seasonality Impacts
- Equipment Productivity
- In-Directs
- Project Management Resources

Terminology: Tactical Risk

- Refers to risks associated with the base capital cost estimate as a result of uncertainties with the four components of the estimate: (1) project definition / scope, (2) construction methodology and schedule, (3) performance factors, and (4) price. It excludes cost and price escalation.

Terminology: Strategic Risk

- Identified background risks that are outside of the controllable scope of the project team, typically pertaining to external issues such as enterprise-level issues, governance, financial markets, stakeholders, hyperinflation, regulatory approvals. Managing these risks requires significant effort and influence by the Gatekeeper with external stakeholders. Strategic risk is also referred to as the risk of failure a planned execution strategy.

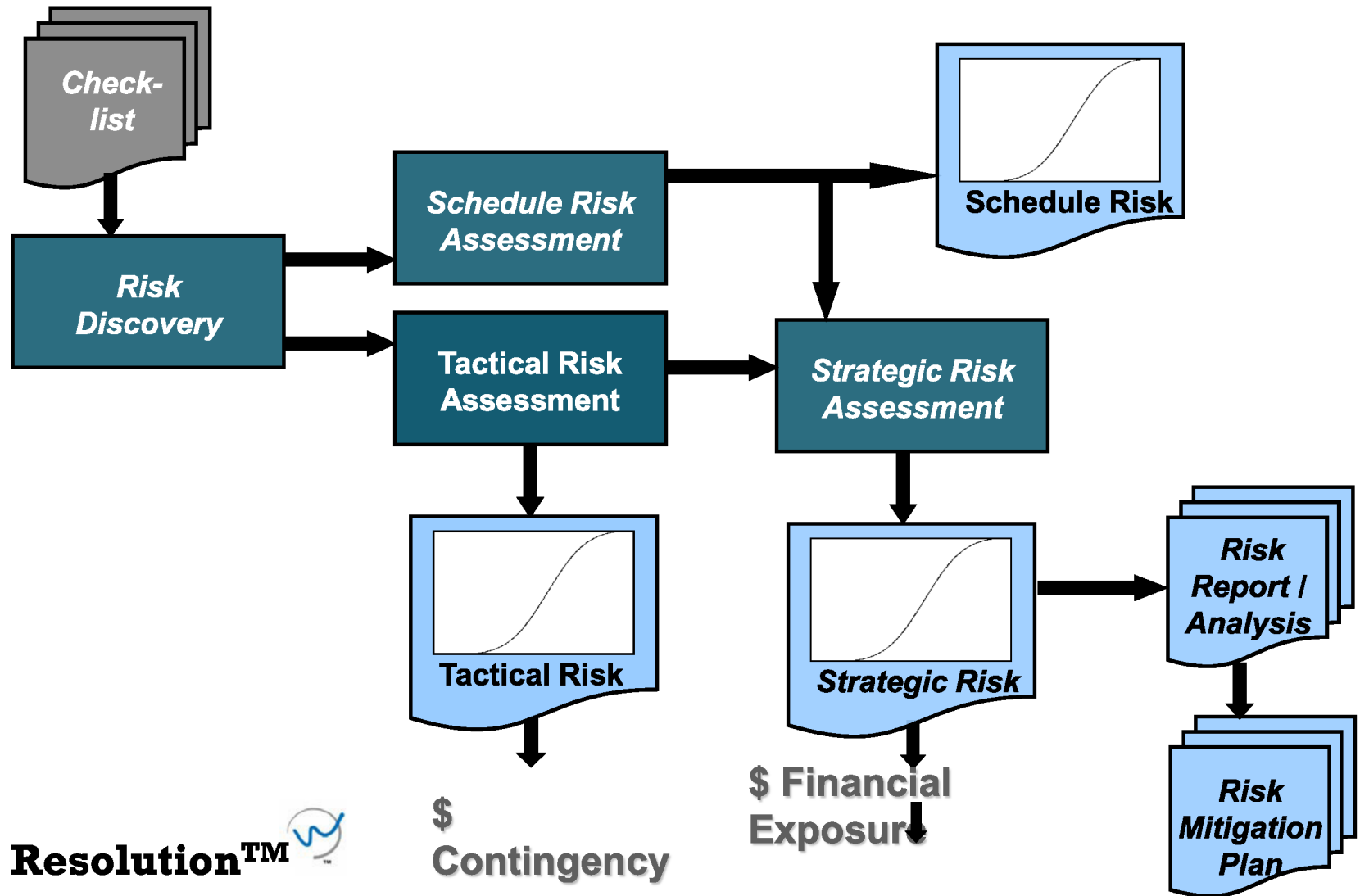
Terminology: Estimate Contingency

- Provision made for variations to the basis of an estimate of time or cost that are likely to occur, and that cannot be specifically identified at the time the estimate is prepared, but experience shows will likely occur.
- Contingency does not cover either of scope changes outside the project's boundaries, events such as strikes or natural disasters, or escalation and currency effects.

Terminology: Strategic Risk Exposure

- Provision for occurrence of Strategic Risks that can be defined.
- Handled by Management Reserve.

Westney's Risk Resolution™ Process (Chevrons 1 & 2)



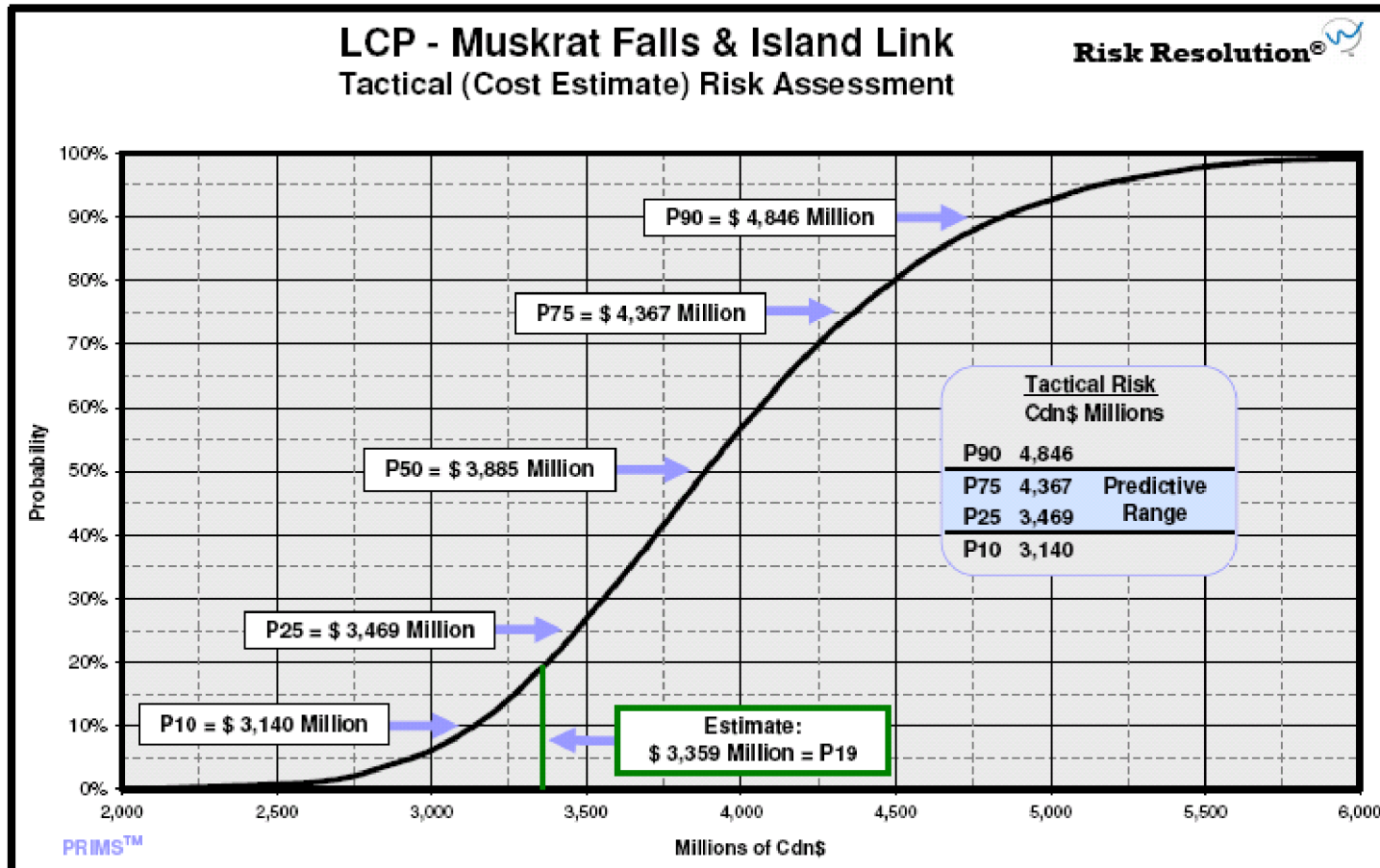
Risk Resolution™ 

LOWER CHURCHILL PROJECT

Portfolio CAPEX
VaR™

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energy

Tactical-Risk Assessment



July 2010

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Project Cost Estimate Components

