

**From:** [Bown, Charles W.](#)  
**To:** [Mullaley, Julia](#); [Burt, Paula](#); [English, Tracy](#)  
**Subject:** Fw: Presentation for Cabinet tomorrow morning  
**Date:** Tuesday, June 24, 2014 4:41:47 PM  
**Attachments:** [ATT00001.jpg](#)  
[Muskat Falls Project Value and Cost Update June 20 2014 for Cabinet.pptx](#)

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Sent from my BlackBerry 10 smartphone on the Bell network.

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**From:** KONEill@nlh.nl.ca  
**Sent:** Tuesday, June 24, 2014 4:37 PM  
**To:** GBennett@nalcorenergy.com; EMartin@nalcorenergy.com; Bown, Charles W.  
**Cc:** Quinton, Diana  
**Subject:** Presentation for Cabinet tomorrow morning

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Hi Charles, here is the presentation that Ed delivered to the Premier last week and that he'll use tomorrow morning. Ed and Gilbert will do the briefing in the morning at 8:30.

Also, I'm just checking in to see if a decision has been made on when we will make the announcement - assuming we are now aiming for Thursday morning this week?

Thanks  
Karen



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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?

# Muskrat Falls Project Value and Cost Update

June 25, 2014

Boundless Energy



# Agenda

- Safety Moment
- Our Project, Our Benefits
- Muskrat Falls Project Update
- Long-term Value for Newfoundland and Labrador
  - Project Value
  - Capital Cost Drivers and Forecast
- Project Oversight
- Summary

# Safety on the Muskrat Falls Project

## Muskrat Falls Safety Performance Statistics - 2014

1.1 Million Hours Worked



Medical Aid Incidents - 1



Orientations Completed - 2,964

5X5

Step Backs Completed - 47,219



Completed Work Site Inspections - 1,529



Lost Time Incident - 2



Total Injury Frequency Rate - 0.56

# Our Project, Our Benefits



# Investing in Muskrat Falls

- Focus is on providing the greatest long-term value to the province
- Significant value and cash flows will be generated from the Muskrat Falls Project returning substantial revenue to the Province of Newfoundland and Labrador
- Nalcor has made additional strategic and prudent investments in the project to enhance system reliability and increase project productivity
- Market conditions are increasing some project costs
- Total value of project provides opportunity to offset net cost changes
- Nalcor will continue to look for opportunities that enhance project productivity and reliability to ensure long-term value to the project and the province

# Investing in Muskrat Falls

- Meeting our growing electricity needs
- Long-term rate stability
- Enhanced system reliability
- Eliminating our reliance on foreign oil for electricity
- Practically eliminating greenhouse gas emissions from electricity sector
- Employment & economic benefits
- Significant, long-term revenue for NL
- Controlling our energy future



# Muskrat Falls Project Update





# Project Progress

- Project Engineering >98% complete
  - Detailed engineering completed as planned
- Procurement
  - Contracts awarded/substantially advanced for >90% of project costs
- Environment
  - Environmental assessment release for generation and transmission
- Construction
  - Commenced work on all major sites as per construction plan and project construction progressing as per schedule

# Project Progress

- Financing
  - Federal loan guarantee & project financing completed
- Excess sales
  - Maritime Link sanctioned
  - Emera power sales agreement in place
- Schedule
  - Commissioning and start-up of first power - 2017

# 2014 Major Activities

- Activity will ramp up in all project areas:
  - Concrete placement at Muskrat Falls
  - Transmission line construction between Muskrat Falls & Churchill Falls
  - Award final major contracts
  - Complete drilling program in Straits
  - Continue site preparation and development at Soldiers Pond
  - Complete site work at Churchill Falls
  - Construction work on Labrador-Island Link



# Realizing Benefits Today

- Employment Benefits (as of April 2014)
  - Total project workforce is 1,785
  - 1,527 of project workforce are NL residents
  - 321 females working on the project (91% are NLers)
  - 164 Innu working on site
  - 52% of Labrador workforce are Aboriginal workers
- Employment expected to reach 2,500 by end of 2014

WOMEN ARE PART OF SOMETHING **BIG**

AT MUSKRAT FALLS





Learn more about employment opportunities with the Muskrat Falls Project at [muskratfallsjobs.com](http://muskratfallsjobs.com)



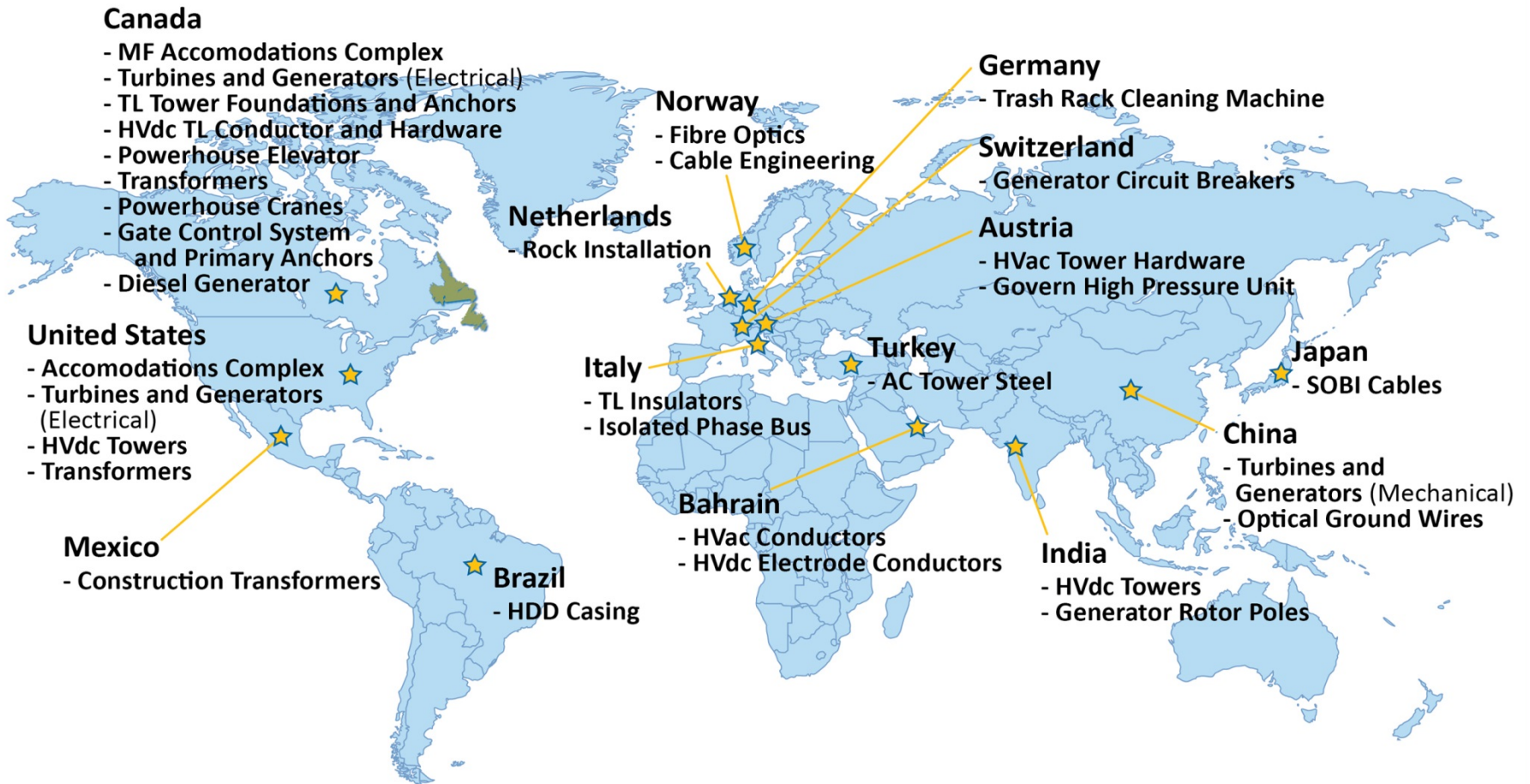
# Realizing Benefits Today

- Economic & Income Benefits (Jan'13 to April'14):
  - >\$457 million invested in NL businesses
  - >\$105 million in salaries paid to NL residents
  - Total direct benefits to NLers and NL-based businesses >\$562 million
  - IBA procurement commitments exceeded - ~\$450 million in contracts awarded to Innu businesses
- Total incurred costs to April'14 - >\$1.2 billion





# Lower Churchill Project Global Reach



# Long-term Value for Newfoundland & Labrador



# Components of Project Value

- Overall project value is a function of revenue, cost, quality/reliability and schedule
- Revenue comprised of:
  - Domestic electricity sales
    - Includes return on equity
  - Water rentals
  - Value from excess power sales and other storage/transmission opportunities
- Costs are comprised of three main categories:
  - Capital (facilities), financing and operating costs
- Quality and reliability



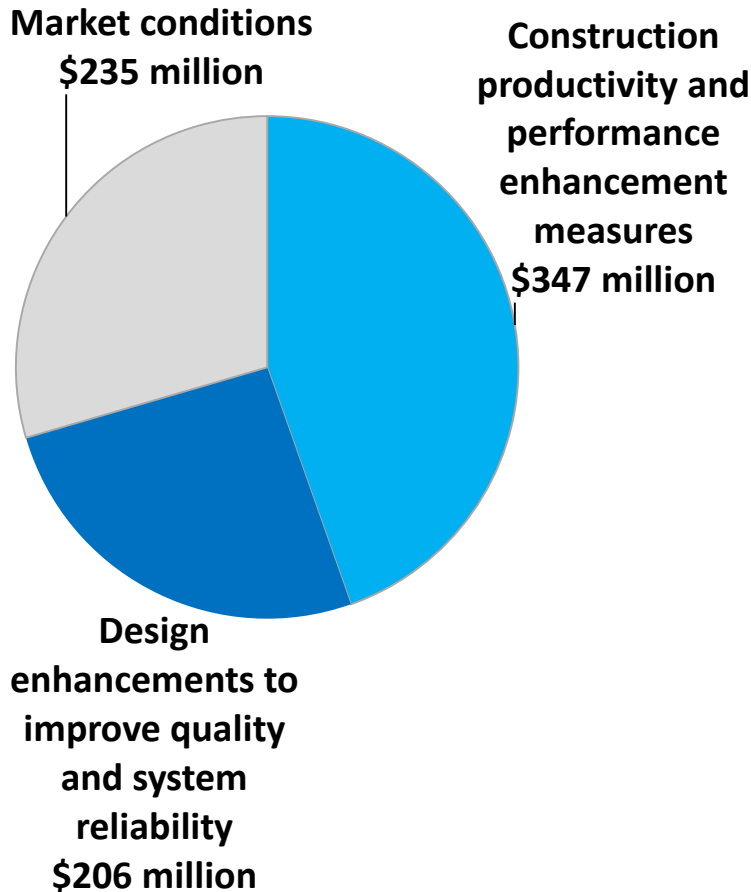
# Capital Cost Update



# Key Changes Since Sanction (Dec'12)

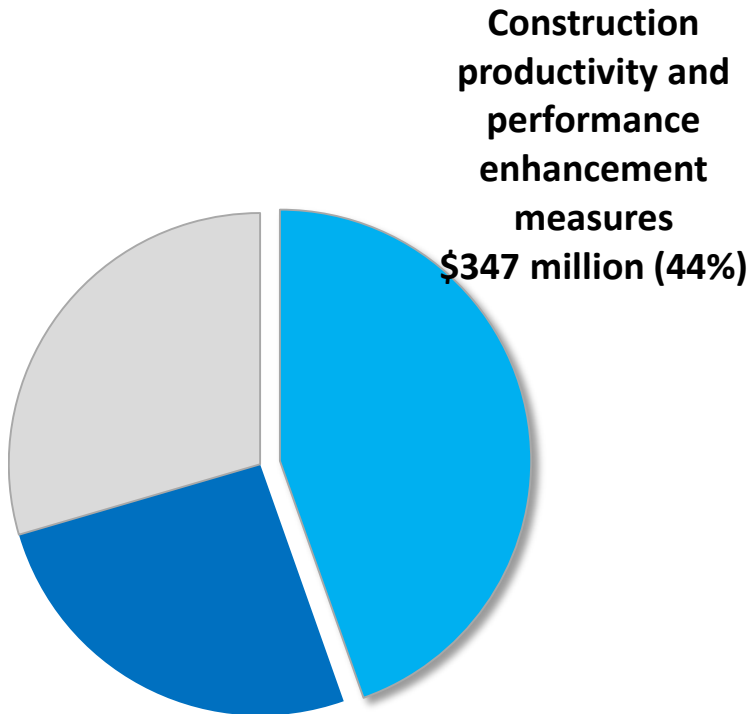
- Cost components:
  - Capital (facilities) costs
    - \$553 million investment in planned project enhancements (accounts for ~9% of cost changes)
    - \$235 million from market influences (accounts for ~4% of cost changes)
  - Financing costs - decrease of additional ~\$300 million on NPV basis
  - Operating costs – no change
- Revenue:
  - Increase \$100 million (NPV) from ML and Emera excess energy agreement

# Capital Cost Changes



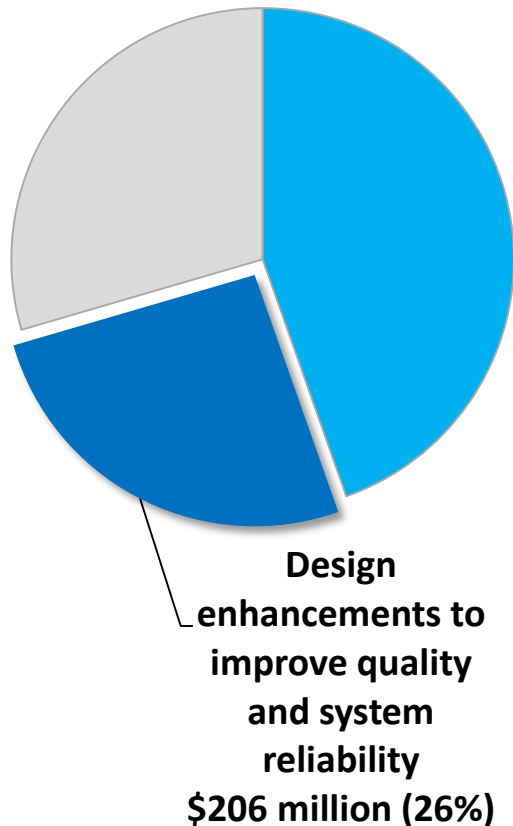
- \$553 million invested in productivity and reliability enhancements
  - Accounts for 70% of changes in capital costs
  - Decisions to enhance long-term value of the project
- Pressures in the market have increased capital costs by \$235 million
  - Accounts for 30% of increase in capital costs
  - Competitive market factors in NL and world wide

# Productivity and Performance Enhancements



- Strategic investments include:
  - Enclosure of powerhouse to provide safer working conditions, increased productivity, year-round employment opportunities for workforce
  - Enhanced accommodation complex and catering to increase worker attraction and retention
  - Significant site infrastructure upgrades to promote work face efficiencies – e.g., laydown area expansion
  - Change in river diversion window from 2015 to 2016 to reduce weather window risk on spillway construction

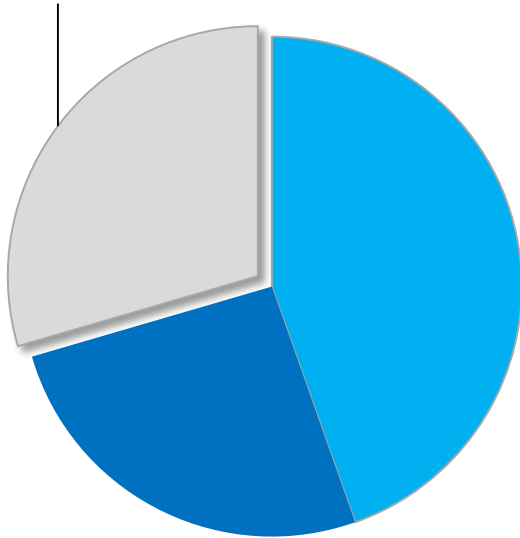
# Quality & System Reliability Improvements



- Substantive design enhancements:
  - Spillway discharge channel concrete liner to remove risk of potential erosion
  - Use of 5 low-level vertical gates in spillway to improve winter operation reliability
  - Increase reliability in transmission lines beyond initial design return period expectations:
    - Lower utilization factor for AC towers
    - Use of low temperature steel for HVdc line
    - Additional foundation corrosion protection
    - Increased number of accesses providing flexibility for long-term operations
    - Increased hardware quantities and tower weight, etc.) for HVdc line

# Market Conditions

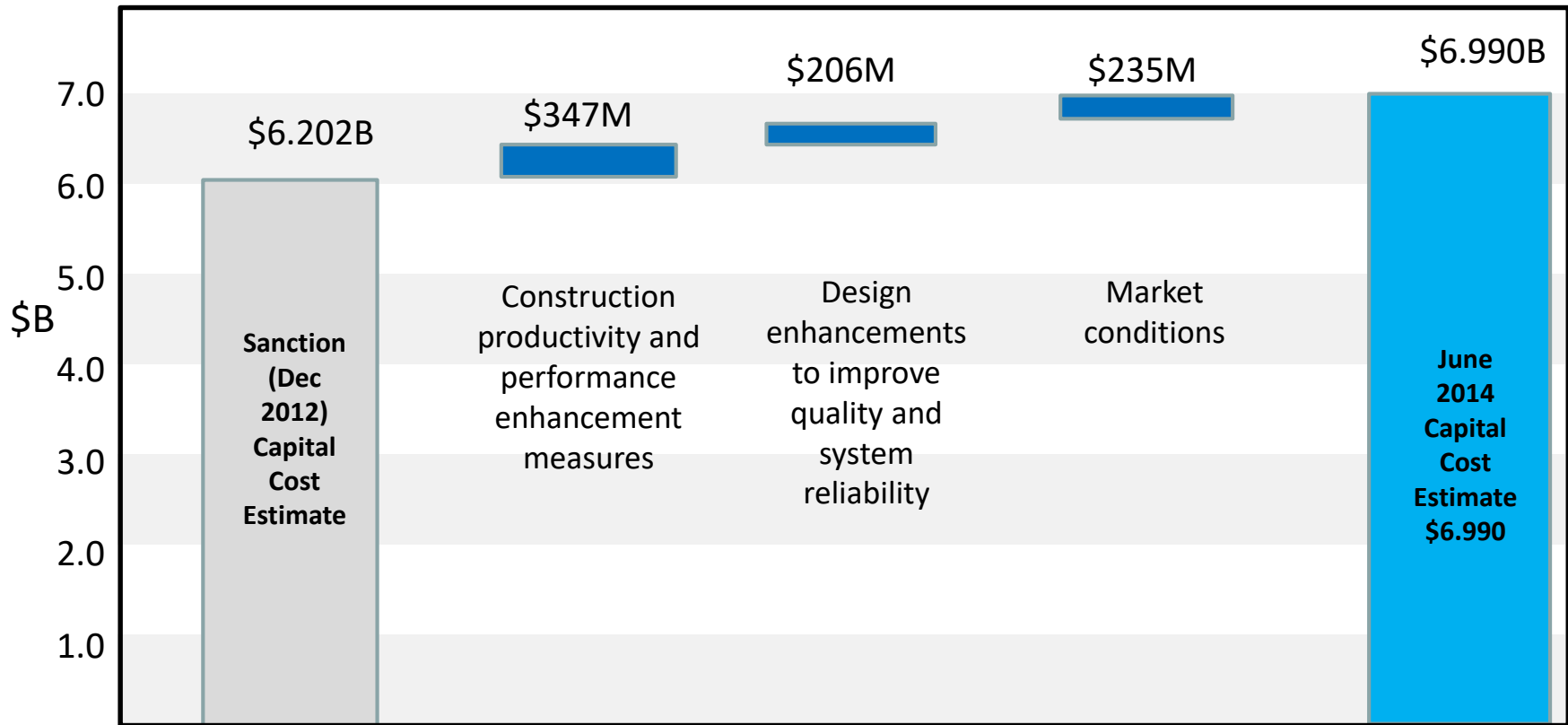
Market conditions  
\$235 million (30%)



- Market condition drivers:
  - Perception of low labour productivity in NL by contractors is resulting in risk premiums which are driving up bids
  - Highly competitive labour market with significant construction activity ongoing in NL, North America and globally

# Capital Cost Outlook (Sanction to June'14)

Cost growth contributors since Sanction



Sanction

Notes

1. Value excludes interest during construction and capitalized financing costs
2. June 2014 cost outlook includes contingency of \$224 million
3. Additions may vary due to rounding

Outlook

# Cost Changes by Project Component

- From Sanction to June 2014

Project Component	Increase
Muskrat Falls	\$471M
LTA	\$140M
LIL	\$177M
Total	\$788M



# Project Oversight

# Project Oversight

- Government of NL (GNL) - Muskrat Falls Oversight Committee established
  - Purpose is to strengthen and formalize the existing oversight for the construction phase of the project
  - First report to be published in July 2014
- Independent engineer's oversight is part of GNL Oversight
- Auditor General has open access to Nalcor

# Project Oversight

- GNL, on behalf of the people of the province, holds Nalcor accountable for project management and establishing oversight practices and procedures
- Nalcor reports to the public and GNL through:
  - annual reports and audited financial statements
  - public AGM
  - requests for information, open houses & presentations
- Monthly Muskrat Falls Project public reports
- Nalcor public quarterly financial statements starting in fall 2014
- Nalcor presents its capital and operating budgets to GNL for review and approval

# Internal Approach

- Best practice project management processes
- Internal audit
- Internal quality control
- Board of Directors of project subsidiaries providing oversight and governance

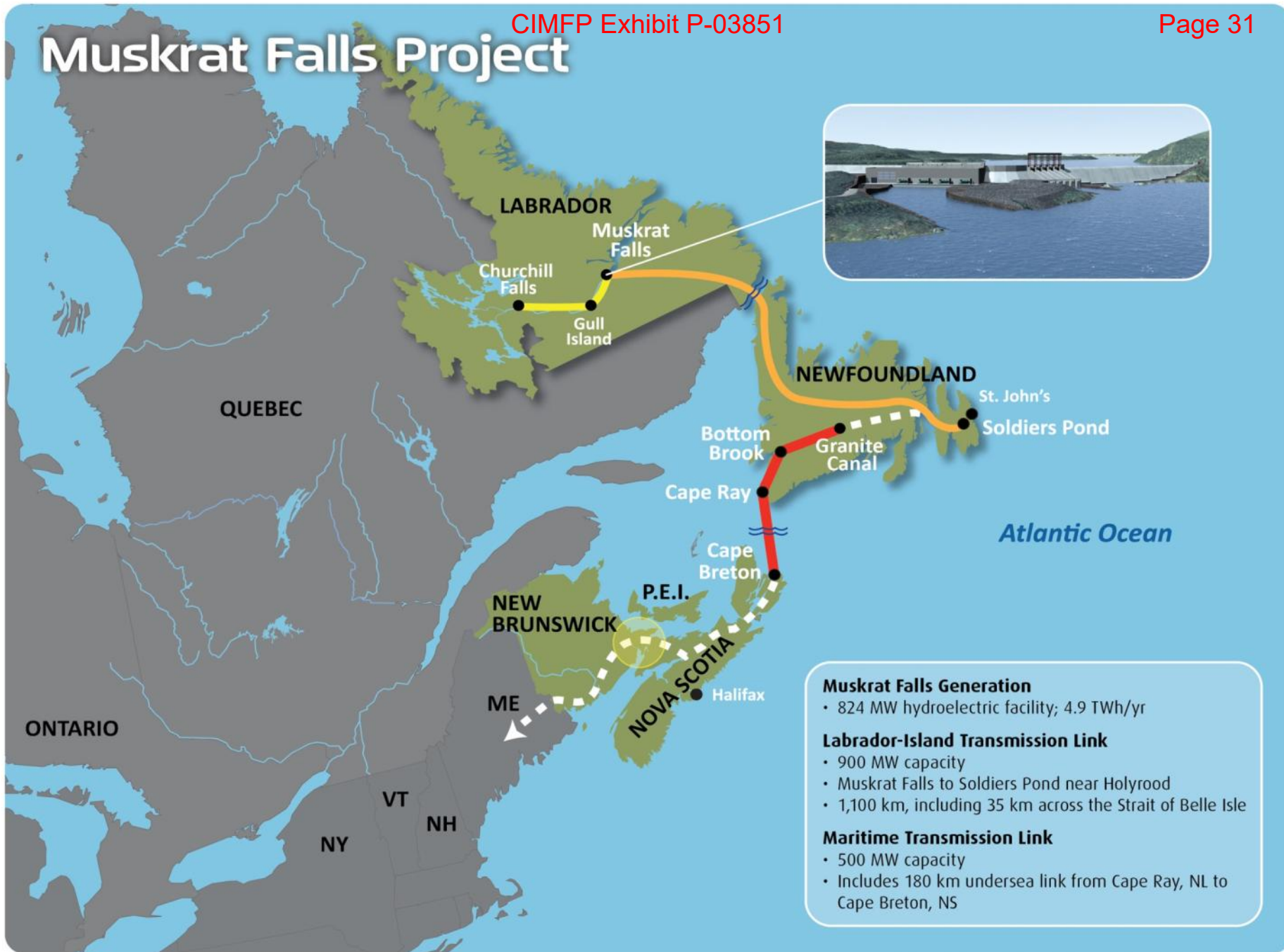
# Our Project, Our Benefits



# Summary

- The Muskrat Falls Project will return significant value and revenue to the Province of Newfoundland and Labrador
- Total value of project provides opportunity to offset net cost changes
- The majority of cost changes on the Muskrat Falls Project are a result of additional, strategic and prudent investments made to enhance and increase project productivity and reliability
- Market conditions have increased some project costs
- Our focus is on providing the greatest benefits to the province
- People of our province will be the owners of a valuable, long-term power-producing asset that they can take pride in
- We'll continue to look for opportunities that enhance project productivity and reliability to ensure long-term value to the project and the province

# Muskrat Falls Project



- Muskrat Falls Generation**
  - 824 MW hydroelectric facility; 4.9 TWh/yr
- Labrador-Island Transmission Link**
  - 900 MW capacity
  - Muskrat Falls to Soldiers Pond near Holyrood
  - 1,100 km, including 35 km across the Strait of Belle Isle
- Maritime Transmission Link**
  - 500 MW capacity
  - Includes 180 km undersea link from Cape Ray, NL to Cape Breton, NS