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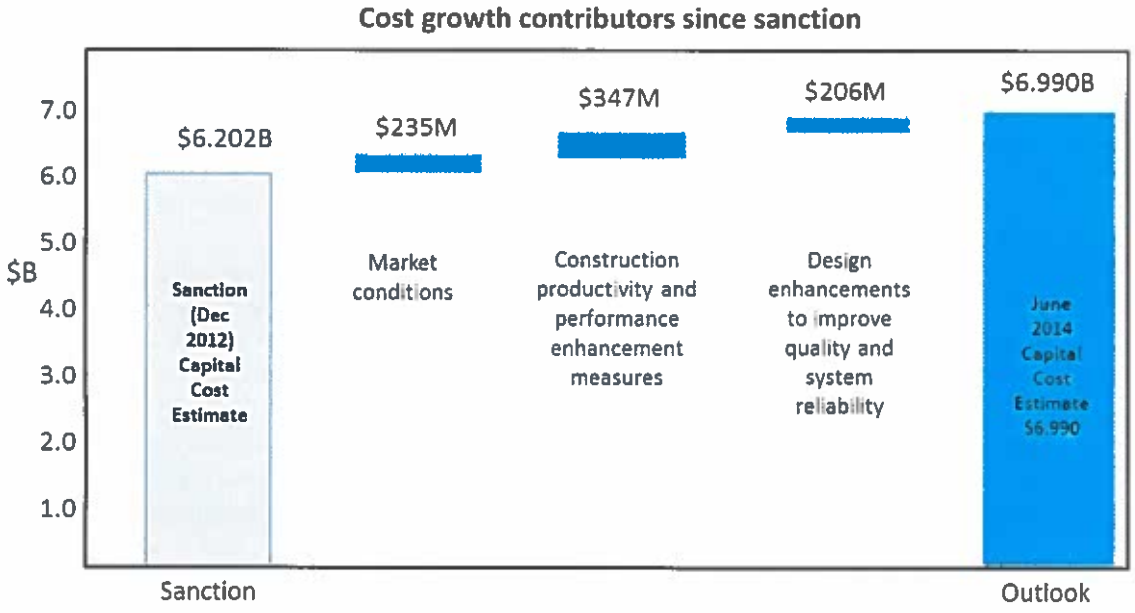
Backgrounder: Key Factors Influencing Capital Costs

Since the Muskrat Falls Project was sanctioned in December 2012, a number of additional investments to enhance system reliability, operation and productivity throughout construction were made. These enhancements, combined with impacts from external market factors, have refined the capital (or facilities) cost forecast for the project.



Notes:

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

Market Conditions: $235 million

- Highly competitive contractor and labour market with significant construction activity ongoing in Newfoundland and Labrador, around North America and globally.
- Increased need for specialized contractors and equipment for construction of the Labrador-Island Link, due to logistical challenges resulting from topographical conditions, particularly in Labrador and the Long Range Mountains.

Key Construction Productivity & Performance Enhancement Measures: $347 million

- Enclosure of the powerhouse at Muskrat Falls to provide safer working conditions, increased productivity, reduce possible slow-downs during winter conditions, and facilitate year-round construction and employment opportunities for the project's workforce.
- Enhanced accommodation complex, catering and general site amenities to increase recruitment and retention in a highly-competitive labour market.

- Established a 300-person starter camp at Muskrat Falls to support labour requirements during bulk excavation activities.
- Optimized the construction sequence including reconfiguring spillway construction timeline to allow rescheduling of the river diversion at Muskrat Falls from 2015 to 2016, to minimize weather risks during construction of the spillway structure.
- Significant site infrastructure upgrades, such as expansion and relocation of the laydown area and administration buildings, to increase efficiencies and productivity and facilitate concurrent activities by various contractors.
- Investment in environmental mitigation measures to reduce risk of delays during construction, such as site water controls, and the historic resource recovery program.

Strategic Investments to Design Enhancements to Improve Quality & System Reliability: $206 million

- The design of the spillway and powerhouse at Muskrat Falls has been optimized and refined since December 2012 with the completion of additional engineering.
- Design enhancements to the spillway include the use of five low-level vertical gates to improve winter operations and reliability, and the addition of a concrete liner in the discharge channel to mitigate risk of potential downstream erosion. For the powerhouse structure, a second service bay has been added to provide operational flexibility. Additional critical spare equipment required for operation has also been procured.
- For Labrador Transmission Assets between Muskrat Falls and Churchill Falls, further corrosion protection has been added for HVac tower foundations as well as a lower utilization factor for transmission towers, increasing the reliability of the transmission line beyond the initial expected design return period, making for a more robust tower design able to withstand even harsher weather conditions.
- Final design of the HVdc transmission line to ensure the reliability of the Labrador-Island Link has resulted in a more robust transmission system with larger towers, larger foundations and a decision to fabricate the components using low temperature steel. Enhancements to the design of the synchronous condenser facility at Soldiers Pond have also been incorporated.
- Construction of an additional access points along the transmission line right-of-way that will facilitate the long-term operation and maintenance of this infrastructure.

Revised Capital Cost – Cost Growth

Project Summary

DG3 Original AFE:	**$ 6,203M**
Revised AFE:	**$ 6,990M**
Total Growth:	**$ 787M**
Growth Pre-November 2013:	**$ 329M**
Growth Post-November 2013:	**$ 458M**

Pre-November : $ 329M	Post-November : $ 458M
Construction productivity: $ 217M	Construction productivity: $ 129M
Market conditions: $ 75M	Market conditions: $ 160M
Improve quality and reliability: $ 37M	Improve quality and reliability: $ 169M

1. Muskrat Falls Generation

Summary table

DG3 Original AFE:	**$ 2,901M**
Revised AFE:	**$ 3,372M**
Total Growth:	**$ 471M**
Growth Pre-November 2013:	**$ 364M**
Growth Post-November 2013:	**$ 107M**

Pre-November : $ 364M	Post-November : $ 107M
Construction productivity: $ 217M	Construction productivity: $ 65M
Market conditions: $ 61M	Market conditions: $ 12M
Improve quality and reliability: $ 86M	Improve quality and reliability: $ 30M

1.1 Cost Growth Pre-November 2013

An update to the Muskrat Falls direct capital cost estimate of $2,901 million established at DG3 was completed as part of determining the $3,265 million Project Budget baseline as defined in the MF/LTA Project Finance Agreement executed by Muskrat Falls Corporation

on November 29, 2013. The increase of $364 million from the DG3 estimate to the Project Budget baseline was driven by:

a) Construction productivity and performance enhancement measures: $ 217M

1. Enclosure of Powerhouse to provide safer working conditions, increased productivity, longer continued employment opportunities for workforce: $ 32M
2. Enhanced camp and recreational complex as well as catering to increase work attraction and retention: $ 79M
3. Starter camp to support Bulk excavation: $ 18M
4. Change diversion window from 2015 to 2016 to reduce weather window risk on spillway construction: $ 50M
5. Significant site infrastructure upgrades – e.g. Lay down area expansion and relocation of the administration buildings to increase overall efficiencies and productivities: $ 33M
6. Extensive investment in environmental mitigations to reduce risk of construction delays – e.g. Site water controls, Historical resource recovery: $ 5M

b) Market conditions: $ 61M

1. Increased contractor margins and risk premiums for the Muskrat Falls concrete works due to contractor's negative views on labor productivity and performance influenced by the Vale Long Harbour experience and the departure of experienced workers industry trends

c) Design enhancements to improve quality and system reliability : $ 86M

1. Use of 5 low-level vertical gates in spillway to improve winter operation reliability: $ 16M
2. Spillway discharge channel concrete liner to remove risk of potential erosion: $ 21M
3. North Spur cut-off wall extension: $ 5M
4. Procurement of additional critical operational spares: $ 4M
5. Addition of 2nd service bay on North Side of Powerhouse to provide operational flexibility: $ 4M
6. Design optimization and fine tuning at the Spillway and Powerhouse: $ 36M

1.2 Cost Growth Post-November 2013

An update to the Muskrat Falls direct capital cost estimate of $3,265 million established in Nov 2013 shows an increase of $107 million. The cost increase is driven by:

a) Construction productivity and performance enhancement measures: $ 65M

1. Claims for On-going contracts: $ 10M (SSAR), $ 6M Bulk excavation, $ 2M (T&G)
2. Schedule extension for North Spur and North and south dams from 2 to 3 years program: $ 48M
3. Scope optimization for the Laboratory services: ($ 5M).
4. Allocation adjustment for Environment costs between LIL and MF: $ 4M

b) Market conditions: $ 12M

1. Favorable bid prices in some of the procurement and service contracts: ($ 31M) (Generator step up transformers, Generator circuit breakers, Catering services)
2. Loss of the credit related to the award of the North Spur and the North and South dams to the contractor of the PH and Spillway concrete works: $ 43M

c) Design enhancements to improve quality and system reliability of the North Spur, North and South Dams: $ 30M

1. Optimize mix design
2. Design development resulting in increased quantities
3. Seepage study
4. Upstream cofferdam optimization.

2. Labrador Transmission Asset

Summary table

DG3 Original AFE:	**$ 692M**
Revised AFE:	**$ 832M**
Total Growth:	**$ 140M**
Growth Pre-November 2013:	**$ 29M**
Growth Post-November 2013:	**$ 111M**

Pre-November : $ 29M	Post-November : $ 111M
Construction productivity: $ 0M	Construction productivity: $ 75M
Market conditions: $ 14M	Market conditions: $ 25M
Improve quality and reliability: $ 15M	Improve quality and reliability: $ 11M

2.1 Cost Growth Pre-November 2013

An update to the Labrador Transmission Assets direct capital cost estimate of $692 million established at DG3 was completed as part of determining the $720 million Project Budget baseline as defined in the MF/LTA Project Finance Agreement executed by Labrador Transmission Corporation on November 29, 2013. The increase of $29 million from the DG3 estimate to the Project Budget baseline was driven by:

a) Market conditions: $ 14M

1. Increased contractor margins and risk premiums for the AC TL due to contractor's negative views on labor productivity and performance: $ 14M

b) Design enhancements to improve quality and system reliability : $ 15M

1. Increase reliability in AC TL beyond initial design return period expectations through:
   - Additional foundation corrosion protection
   - Higher utilization factor for AC towers

2.2 Cost Growth Post-November 2013

An update to the Labrador Transmission Asset direct capital cost estimate of $720 million established in Nov 2013 shows an increase of $ 111 million. The cost increase is driven by:

a) Construction productivity and performance enhancement measures : $ 75M

1. Cancellation of the clearing contract due to lack of resources and productivity and awarding the scope to a different contractor: $ 17M
2. EPC instead of EPCM approach in the switchyards contract: $ 30M.
3. Higher standards in camp services at the CF camp to enhance construction productivity: $ 3M.
4. Allocation adjustment for Owner's costs between LIL and LTA: $ 25M

b) Market conditions: $ 25M

1. Increase in Freight forwarding costs: $ 2M
2. Market conditions reflective of current buoyant local / national market, lack of competitiveness and the presence of several sites contributed to a large portion in increasing the price of the switchyards contract: $ 23M

c) Design enhancements to improve quality and system reliability: $ 11M.

1. Optimization of HVac TL hardware through the use of Implos connections and additional dampers for guy wires and conductors

3. Labrador - Island Transmission link

Summary table

DG3 Original AFE:	**$ 2,610M**
Revised AFE:	**$ 2,787M**
Total Growth:	**$ 177M**
Growth Pre-November 2013:	**$ (64M)**
Growth Post-November 2013:	**$ 241M**

Pre-November : $ (64M)	Post-November : $ 241M
Construction productivity: $ 0M	Construction productivity: $ (11M)
Market conditions: $ 0M	Market conditions: $ 123M
Improve quality and reliability: $ (64M)	Improve quality and reliability: $ 128M

3.1 Cost Growth Pre-November 2013

An update to the Labrador-Island Link direct capital cost estimate of $2,610 million established at DG3 was completed as part of determining the $2,546 million Project Budget baseline as defined in the LIL Project Finance Agreement executed by the Labrador-Island Link Limited Partnership on November 29, 2013. The decrease of $64 million from the DG3 estimate to the Project Budget baseline was driven by:

a) Design enhancements to improve quality and system reliability: ($ 64M)

1. Reduction in the number of feeders in the Soldiers Pond switchyard: ($ 11M)
2. Route reduction in the Strait of Belle Isle fibre crossing: ($ 17M)
3. Removal of the Holyrood synchronous condenser conversions in lieu increasing the rating of the new synchronous condenser installation at Soldier's Pond: ($ 36M)

3.2 Cost Growth Post-November 2013

An update to the Labrador – Island Transmission Link direct capital cost estimate of $2,546 million established in Nov 2013 shows an increase of $241 million. The cost increase is driven by:

a) Construction productivity and performance enhancement measures: $ (11M)

1. Increase in Freight forwarding cost of the DC TL equipments to maintain schedules and avoid delivery delays: $ 17 M
2. construction productivity enhancement growth: $ 10M
3. Re evaluation of the helicopter costs: $ (9M)
4. Allocation adjustment for Environment costs between LIL and MF: $ (4M)
5. Allocation adjustment for Owner's costs between LIL and LTA: $ (25M)

b) Market conditions: $ 123M

1. Reflective of current buoyant local / national market, the presence of several sites and the logistic challenges related to the site locations contributed to a large portion in increasing the price of the converters civil works: $ 45M.
2. Increase in the Synch. Condenser cost: $ 23M
3. Logistical challenges with the DC TL caused by topography highly affecting productivity especially in the Labrador section, limited competition and lack of specialized worker, construction growth: $ 55M

c) Design enhancements to improve quality and system reliability: $ 128M

1. Design optimization has resulted in scope reductions at SP switchyard: ($ 10M)
2. Slight cost growth in DC equipments due to design fine tuning: $ 4M
3. Design enhancements of the DC TL : $ 114M
   - Increase in DC hardware quantities (insulators, dampers...)
   - Use of double clamps for OPGW
   - Increase in tower weight due to re-routing and changes in conductors and tower types
   - Use of armour rods
   - Increase in some tower foundations loading
   - Larger guy wires due to change in loads
   - Use of Implo connections
   - Increased number of accesses providing flexibility for long term operations

4. Design enhancement of the synch. Condenser: $ 20M