

1 **Undertaking Request (U-54)**

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3 ***Transcript Reference: July 18, 2018, Pg. 2, line 16 to Pg. 5, line 21***

4 Undertake to provide the PowerPoint presentation showing the double counting in the
5 O&M number.

6

7

8 **Undertaking Response**

9 Please refer to U-54, Attachment 1 that contains the presentation provided to Hydro in
10 support of the O&M costs for the LIL and LTA. As a result of the delay in the completion of
11 the monopole commissioning and an update to reduce costs (as referred to in the July 17,
12 2018 testimony of Mr. LeBlanc, page 19 line 20 to page 20 line 1), 2018 LIL and LTA O&M
13 costs are now expected to begin to be billed in Q4 2018. This has reduced the LIL and LTA
14 2018 operating costs to \$8.3 million and 2019 O&M costs to \$51.3 million (as referenced in
15 the July 17, 2018 testimony of Mr. LeBlanc on page 20 lines 5 and 6, and page 195 line 7,
16 respectively).

Lower Churchill Project Budget/Forecast 2018-2021 O&M Cost Supporting Details

Boundless Energy



March 2018



Confidential and Commercially Sensitive

Outline

1. Purpose
2. Background – 2018 Budget
3. Key Assumptions
4. O&M Cost Details
5. Labour Cost Details

Appendix A – SEM Contracts Overview

Purpose

- To provide additional details on the budget/forecast O&M costs for MF, LIL and LTA over the 2018 - 2021 period

Background – 2018 Budget

Introduction

- The following will demonstrate for LIL/LTA:
 - O&M model anchored to the **need for high degree of reliability and availability**
 - **Lean, cost-effective staffing levels** consistent with other reliability links (i.e. fully-staffed model)
 - Extension of a **proven team** with a track record of safe, reliable, cost-effective delivery to its customers
 - Deliberate and **prudent risk management** and operational contingencies for the early in-service period
- Similar approach will be taken for MF with greater emphasis on it found in the 2019 budget package given current schedule for First and Full Power

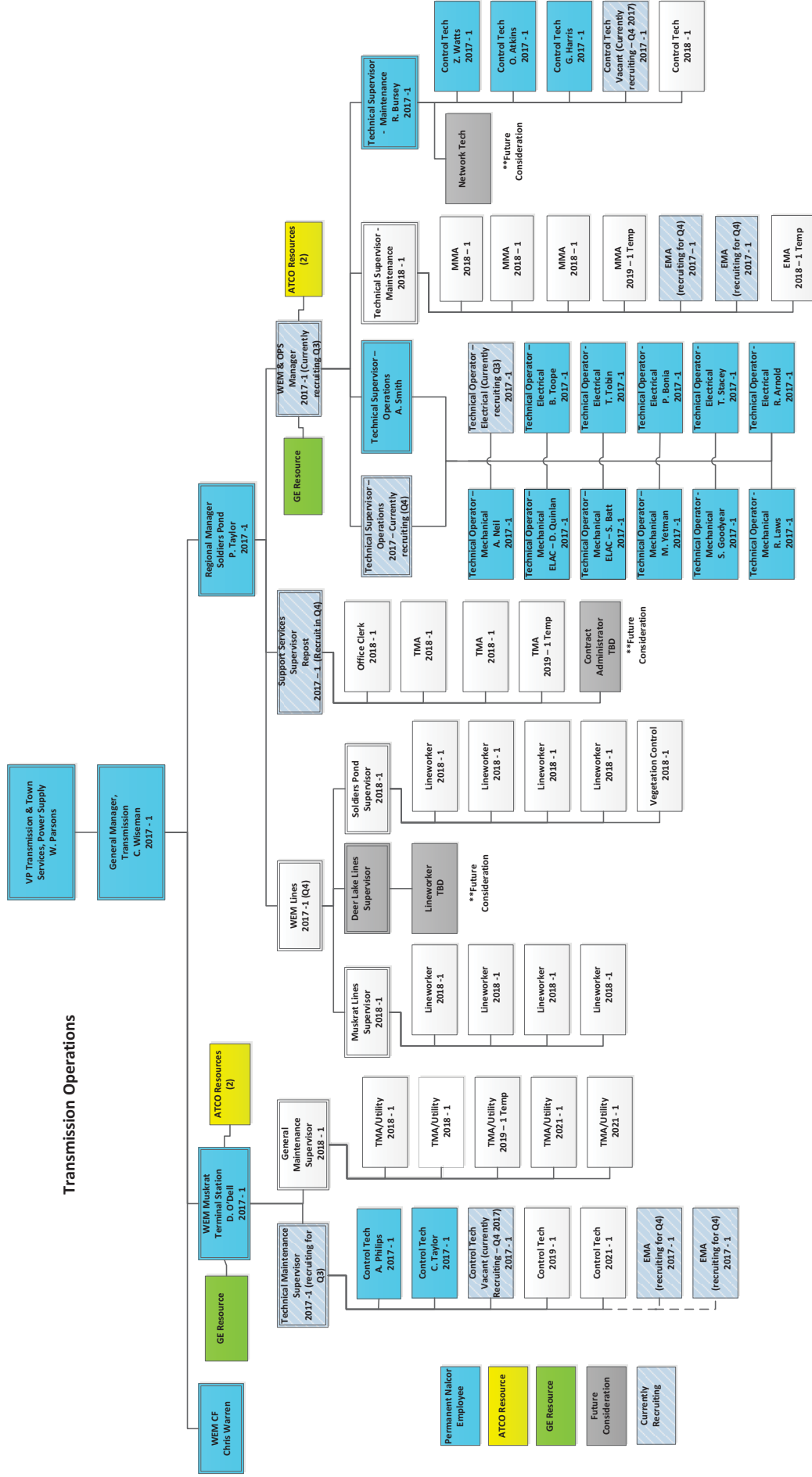
Reliability Considerations

- LTA/LIL will become the single most important source of the province's energy security
- Staffing levels informed by research into existing high-reliability links (i.e. fully-staffed model)
- Unstaffed and partially-staffed stations are the norm for merchant transmission links that are not critical to the operation of the electrical grid

Transmission Staffing Model

- Informed by work by TransGrid Solutions
 - Studied HVdc staffing at HQT, Manitoba Hydro, and Transpower New Zealand
 - Typical fully-staffed structure included 66 Full Time Equivalents (“FTEs”) including engineering support
- Nalcor’s Build the Production Organization (“BTPO”) structure adopted with some changes to reflect collective agreements with IBEW 1615 and 2351

Transmission Organization (September 2017)

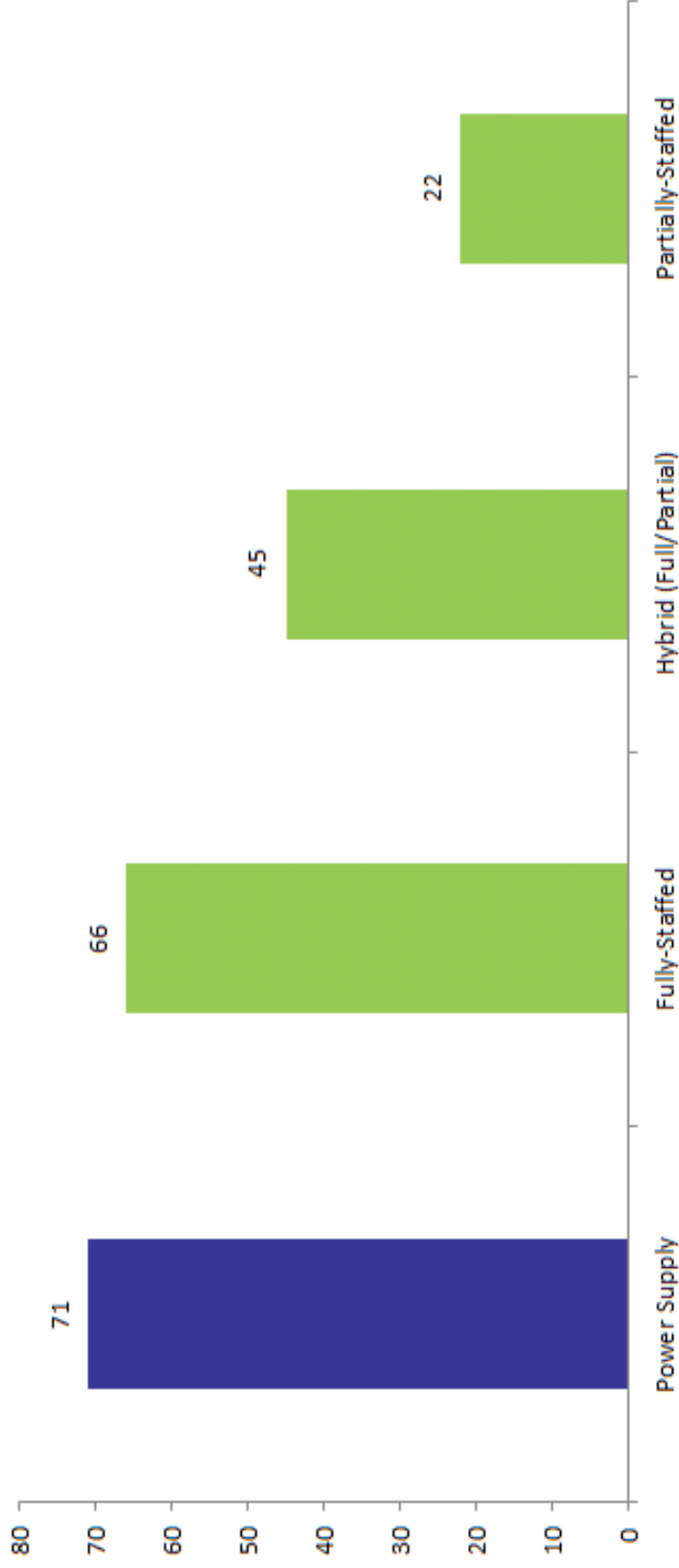


Permanent Nalcor Employee
 ATCO Resource
 GE Resource
 Future Consideration
 Currently Recruiting



Transmission Staffing Model

- FTE Counts for HVdc field and engineering



Budget Highlights and Assumptions - Operations

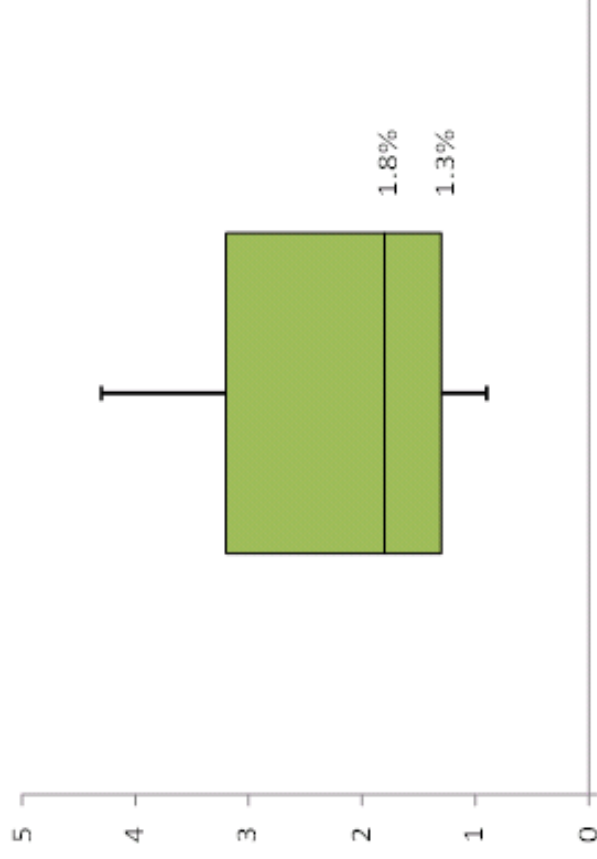
- Operating & Maintenance Cost (“O&M”) budget/forecast for 2018-2020 derived by starting with Base Year Estimate for 2021 (first full year of operations), and working backwards based on asset use requirements
- LTA and LIL will be available for interim use in 2018, to be capable of supporting Lab East load during winter 2017/18 (subject to GE commissioning not being delayed) and facilitate delivery of recall to NLH on a mono-pole basis starting by mid-year
- O&M costs for LTA is budgeted to be expensed in Q1 2018. O&M costs for LIL is budgeted to be expensed in Q2 2019, with costs prior to that being capitalized while bi-pole testing and commissioning activities are still underway (currently expected to be complete in Q1 2019). These O&M costs will be fully recovered through NLH through Transmission Use Payments prior to MF Full Power.
- O&M costs outlined herein based on best information currently available – LIL/LTA Transmission Use arrangements will include at least annual true-up mechanism, if required, to ensure NLH paying actual cost

Budget Highlights and Assumptions - Operations

- MF First and Full Power in Q4 2019 and Q3 2020, respectively – incurrance of MF O&M and recovery from NLH commences with Full Power through the Power Purchase Agreement (“PPA”)
- With MF Full Power, recovery of LIL/LTA O&M switches from Transmission Use Payments to payments under the Transmission Funding Agreement (“TFA”)/LIL Lease and Generator Interconnection Agreement (“GIA”)
- Any operational readiness costs prior to Q1 2018 for LTA, Q2 2018 for LIL and 2020 for MF will be funded under LCP/Transition to Operations (“TTO”) capital budget and recovered from NLH following MF Full Power through PPA/TFA
- Based on guidance from Nalcor’s auditors within IAS 16 and 23, Budget 2018 assumes interest costs will start being expensed for LTA in Q2 2018 and for LIL in Q2 2019, while depreciation for all LCP components will not commence until MF Full Power

Transmission Cost Benchmarking

- Distribution of Transmission O&M Costs as a percentage of Gross Asset Value



- Power Supply transmission costs at 1.2%

Total O&M Costs 2018-2021¹

	Budget			Base Year		
	2018	2019	2020	2020	2021	Forecast
	\$	\$	\$	\$	\$	\$
Operating Labour & Salaries	5.9	9.7	10.9	10.9	13.4	13.4
System Equipment Maintenance	14.2	24.2	27.9	27.9	33.0	33.0
Corporate & Engineering Support Labour & Salaries	3.3	12.3	13.0	13.0	14.3	14.3
Administration & Other Costs	3.7	6.3	9.0	9.0	14.8	14.8
	27.1	52.5	60.8	60.8	75.5	75.5
Environmental	0.2	0.4	3.4	3.4	9.4	9.4
Water Power Rental	-	-	5.2	5.2	15.6	15.6
IBA Payments	-	-	1.9	1.9	5.8	5.8
Total	\$ 27.3	\$ 52.9	\$ 71.3	\$ 71.3	\$ 106.3	\$ 106.3
Capital	\$ 19.7	\$ 10.9	\$ -	\$ -	\$ -	\$ -
Expense	7.6	42.0	71.3	71.3	106.3	106.3
Total	\$ 27.3	\$ 52.9	\$ 71.3	\$ 71.3	\$ 106.3	\$ 106.3

¹Represents costs associated with the operation of the assets and excludes construction period expenditures that are not eligible for capitalization in accordance with IFRS, but will be recovered through the long-term power supply and transmission related agreements with NLH following MF commissioning

O&M Costs 2018-2021 By Component

	Budget	Base Year		
		2018	2019	2020
(\$ millions)				
LIL Operating Labour & Salaries	\$ 3.8	\$ 7.6	\$ 7.6	\$ 7.6
System Equipment Maintenance	12.1	21.8	21.8	21.9
Corporate & Engineering Support Labour & Salaries	1.8	8.9	7.8	6.8
Administration & Other Costs	2.4	4.8	5.4	7.3
Environmental	0.2	0.4	0.4	0.4
LIL Total	20.3	43.5	43.0	44.0
LTA Operating Labour & Salaries	2.1	2.1	2.1	2.1
System Equipment Maintenance	2.1	2.4	3.5	3.5
Corporate & Engineering Support Labour & Salaries	1.5	3.4	3.4	3.1
Administration & Other Costs	1.3	1.5	1.7	2.4
LTA Total	7.0	9.4	10.7	11.1
MF Operating Labour & Salaries	-	-	1.2	3.7
System Equipment Maintenance	-	-	2.6	7.6
Corporate & Engineering Support Labour & Salaries	-	-	1.8	4.4
Administration & Other Costs	-	-	1.9	5.1
Environmental	-	-	3.0	9.0
Water Power Rental	-	-	5.2	15.6
IBA Payments	-	-	1.9	5.8
MF Total	-	-	17.6	51.2
Total	\$ 27.3	\$ 52.9	\$ 71.3	\$ 106.3

Key Assumptions

Key Assumptions

Labour Costs

- Labour cost assumptions take into consideration historical benchmarking from existing Nalcor, NLH and CF operations, where applicable
- Operating labour costs based on FTE assumptions as at Q3 2017, prepared during Nalcor 2018 budget cycle
 - Transmission organizational structure has continued to evolve since then, with the establishment of a Nalcor Power Supply / CF O&M Agreement for LTA assets and the confirmation of jurisdiction for collective bargaining unit having subsequently occurred
- Corporate Support Services labour costs based on *budgeted hours x bill rate*, provided by support functions as part of the 2018 budget cycle
 - 2021 Base Year forecast based on projections as at Q3 2017
 - Base Year Equivalent Labour Hours = *Portion of FTE x 1,950 hours/year*
 - Finance costs assume dedicated LCP Finance and Commercial team of 10 FTEs (comparable to CF), with remaining FTE's representing an allocation for Nalcor Corporate Finance resources including Financial Reporting, Investment Evaluation, Tax, Treasury and AP/AR charging their time into the LCP Power Supply business unit
 - System Planning and Operations cost represent assumed Power Supply commitment to fund dedicated positions within NLSO related function
 - Executive costs represent a portion of the Power Supply Leadership team being charged into LCP O&M costs (ranging between 50-75%)
 - FTE's for other Corporate Support functions represent Nalcor Corporate resources charging their time into the LCP Power Supply business unit

Key Assumptions *(cont'd...)*

Labour Costs *(cont'd...)*

- Engineering Services costs based on FTE forecast as at Q3 2017, as provided by Power Supply Engineering Services
 - Full Power Supply Engineering Services department represents consolidation of existing Nalcor PETS and LCP engineering functions, and headcount neutral on an overall basis
 - Base Year Equivalent Labour Hours = *Portion of FTE x 1,584 hours/year*

System Equipment Maintenance (“SEM”) Costs

- System Equipment Maintenance budget based on original 2018 budget estimates, updated to reflect awarded contracts and projected requirements as at Q4 2017
- Appendix A includes an overview of the types of SEM contracts included under each component/category

Environment, Water Power Rentals & IBA

- Environment budget based on information provided by Nalcor Environment group
- Water Power Rental costs based on the Water Management Agreement as modeled by Investment Evaluation
- IBA Payments based on the Impacts and Benefits Agreement as modeled by Investment Evaluation

Key Assumptions *(cont'd...)*

Administration & Other Costs

- Considers historical benchmarking from existing Nalcor, NLH and CF operations, where applicable, and for the Base Year based on the following assumptions:

Category	Assumption
Community Betterment	Estimate for NCC commitments and Wellness Center
Professional Services	Based on history of Bay D'Espoir (Generation) and TRO (Transmission)
Transportation (fuel, mobile equip.)	\$900K per year for Direct Operations and \$54K per year for Shared Services
Travel	\$4-5K per employee per year for Direct Operations and Shared Services
Relocation	\$25K x 16 employees for Direct Operations
Office Space rental	\$15K per employee per year for Shared Services and \$60K per year for Soldier's Pond
Training	\$6K per employee per year for Direct Operations and \$2K per employee per year for Shared Services
Insurance	Provided by Nalcor Insurance group
Independent Engineer	Based on estimates for O&M Monitoring Services in the Independent Engineer contract
Office (copiers, supplies, phones, etc.)	\$3K per employee per year for Direct Operations and Shared services
Equipment Rentals	\$22K per month for Direct Operations
Safety Supplies	\$1K per employee per year for Direct Operations and Shared Services
Admin Fee IS	\$3K per employee per year for Direct Operations and Shared Services
Admin Fee HR and Safety	\$2K per employee per year (\$1.5K HR/\$0.5K Safety) for Direct Operations and Shared Services
NERC	Based on estimate provided by external consultant

Key Assumptions *(cont'd...)*

Contingency

- Base Year 2021 estimate, developed during Budget 2018 cycle and used as the starting point for prior year estimates, included a prudence contingency to address cost variations, escalation, etc. - based on 12% of total O&M Costs, less MF Water Rental and IBA payments (and carried in the SEM cost category in breakdown provided)
- Updated view on SEM costs included a drawdown of some contingency to reflect subsequent changes and actual awards

Allocations

- Shared costs and contingency were allocated to legal entities based on direct costs per year excluding MF Water Rental and IBA payments
- These allocations were calculated as follows:

	Base year			
	2018	2019	2020	2021
LIL	76%	82%	67%	52%
LTA	24%	18%	17%	13%
MF	0%	0%	16%	35%
	100%	100%	100%	100%

Key Assumptions *(cont'd...)*

Actual vs. Budget (Estimate) True-Up

- O&M costs outlined herein based on best **available** information **at the time the 2018 budget was established** – interim contractual arrangements for use of LIL/LTA prior to MF Full Power will include a quarterly true-up mechanism, if required, to ensure NLH paying actual cost
- PPA, TFA/LIL Lease and GIA already include a quarterly true-up mechanism for the long term arrangements following MF Full Power

O&M Cost Details

O&M Costs 2018-2021 By Component

	Budget			Base Year	
	2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2021
(\$ thousands)					
LIL Operating Labour & Salaries	\$ 3,805.6	\$ 7,611.2	\$ 7,611.2	\$ 7,611.2	\$ 7,611.2
System Equipment Maintenance	12,157.0	21,872.2	21,809.0	21,908.2	21,908.2
Corporate & Engineering Support Labour & Salaries	1,817.6	8,873.5	7,836.8	6,795.6	6,795.6
Administration & Other Costs	2,355.3	4,831.2	5,359.4	7,251.3	7,251.3
Environmental	175.0	350.0	350.0	350.0	350.0
LIL Total	20,310.5	43,538.1	42,966.4	43,916.3	43,916.3
LTA Operating Labour & Salaries	2,068.2	2,068.2	2,068.2	2,068.2	2,068.2
System Equipment Maintenance	2,060.3	2,366.4	3,502.6	3,551.9	3,551.9
Corporate & Engineering Support Labour & Salaries	1,547.1	3,466.4	3,391.9	3,152.1	3,152.1
Administration & Other Costs	1,313.1	1,483.5	1,697.6	2,354.3	2,354.3
LTA Total	6,988.7	9,384.5	10,660.3	11,126.5	11,126.5
MF Operating Labour & Salaries	-	-	1,217.6	3,652.7	3,652.7
System Equipment Maintenance	-	-	2,576.8	7,560.0	7,560.0
Corporate & Engineering Support Labour & Salaries	-	-	1,783.1	4,408.2	4,408.2
Administration & Other Costs	-	-	1,870.0	5,145.4	5,145.4
Environmental	-	-	3,013.3	9,040.0	9,040.0
Water Power Rental	-	-	5,203.3	15,610.0	15,610.0
IBA Payments	-	-	1,946.7	5,840.0	5,840.0
MIF Total	-	-	17,610.8	51,256.3	51,256.3
Total	\$ 27,299.2	\$ 52,922.6	\$ 71,237.5	\$ 106,299.1	\$ 106,299.1

O&M Cost Details by Component - LIL

(\$ thousands)	Budget			Base Year	
	2018	2019	2020	Forecast 2020	Forecast 2021
Operating Labour & Salaries					
Salaries Perm/Term	\$ 2,520.3	\$ 5,040.5	\$ 5,040.5	\$ 5,040.5	\$ 5,040.5
Overtime (8%)	201.6	403.2	403.2	403.2	403.2
Burdens (33%)	831.7	1,663.4	1,663.4	1,663.4	1,663.4
Temporary Labour (10%)	252.0	504.1	504.1	504.1	504.1
	3,805.6	7,611.2	7,611.2	7,611.2	7,611.2
System Equipment Maintenance					
Stations	6,462.9	7,369.5	7,348.2	7,381.7	7,381.7
Facilities	2,719.4	4,423.4	4,410.6	4,430.7	4,430.7
Transmission	1,674.2	8,109.0	8,085.6	8,122.3	8,122.3
SOBI	1,300.5	1,970.3	1,964.6	1,973.5	1,973.5
	12,157.0	21,872.2	21,809.0	21,908.2	21,908.2
Corporate & Engineering Support Labour & Salaries					
Corporate Support Services	806.4	5,611.4	4,574.7	3,533.5	3,533.5
Engineering Services	1,011.2	3,262.1	3,262.1	3,262.1	3,262.1
	1,817.6	8,873.5	7,836.8	6,795.6	6,795.6
Administration & Other Costs					
Community Betterment	361.4	781.5	637.2	492.1	492.1
Professional Services	326.1	664.5	634.1	603.6	603.6
Transportation	320.5	644.4	636.2	628.0	628.0
Travel and relocation	298.4	606.8	582.3	557.6	557.6
Office space rental	230.3	497.9	405.9	313.5	313.5
Training	198.7	402.4	390.1	377.8	377.8
NERC	-	-	-	1,725.0	1,725.0
Insurance	-	-	316.6	949.9	949.9
Independent Engineer	-	-	245.5	189.6	189.6
Other (Office supplies, equipment rental, admin fees, etc)	619.9	1,233.7	1,511.5	1,414.2	1,414.2
	2,355.3	4,831.2	5,359.4	7,251.3	7,251.3
Environmental					
Environmental Effects Monitoring	175.0	350.0	350.0	350.0	350.0
Total	\$ 20,310.5	\$ 43,538.1	\$ 42,966.4	\$ 43,916.3	\$ 43,916.3

O&M Cost Details by Component - LTA

	Budget		Forecast		Base Year	
	2018	2019	2020	2021	Forecast	2021
(\$ thousands)						
Operating Labour & Salaries						
Salaries Perm/Term	\$ 1,369.6	\$ 1,369.6	\$ 1,369.6	\$ 1,369.6	\$ 1,369.6	1,369.6
Overtime (8%)	109.6	109.6	109.6	109.6	109.6	109.6
Burdens (33%)	452.0	452.0	452.0	452.0	452.0	452.0
Temporary Labour (10%)	137.0	137.0	137.0	137.0	137.0	137.0
	2,068.2	2,068.2	2,068.2	2,068.2	2,068.2	2,068.2
System Equipment Maintenance						
Stations	1,263.5	1,260.5	1,493.7	1,514.7	1,514.7	1,514.7
Facilities	592.0	589.1	698.1	707.9	707.9	707.9
Transmission	204.8	516.8	1,310.8	1,329.3	1,329.3	1,329.3
	2,060.3	2,366.4	3,502.6	3,551.9	3,551.9	3,551.9
Corporate & Engineering Support Labour & Salaries						
Corporate Support Services	1,276.3	1,209.5	1,135.0	895.2	895.2	895.2
Engineering Services	270.8	2,256.9	2,256.9	2,256.9	2,256.9	2,256.9
	1,547.1	3,466.4	3,391.9	3,152.1	3,152.1	3,152.1
Administration & Other Costs						
Community Betterment	113.6	168.5	158.1	124.7	124.7	124.7
Professional Services	323.9	335.5	333.3	326.2	326.2	326.2
Transportation	206.5	209.6	209.0	207.1	207.1	207.1
Travel and relocation	199.3	208.6	206.9	201.2	201.2	201.2
Office space rental	72.4	107.3	100.7	79.4	79.4	79.4
Training	105.6	110.3	109.4	106.6	106.6	106.6
NERC	-	-	-	575.0	575.0	575.0
Insurance	-	-	96.6	289.8	289.8	289.8
Independent Engineer	-	-	60.9	48.0	48.0	48.0
Other (Office supplies, equipment rental, admin fees, etc)	291.8	343.7	422.7	396.3	396.3	396.3
	1,313.1	1,483.5	1,697.6	2,354.3	2,354.3	2,354.3
Total	\$ 6,988.7	\$ 9,384.5	\$ 10,660.3	\$ 11,126.5	\$ 11,126.5	\$ 11,126.5

O&M Cost Details by Component - MF

(\$ thousands)	Budget 2018	Forecast 2019	Forecast 2020	Base Year Forecast 2021
Operating Labour & Salaries				
Salaries Perm/Term	\$ -	\$ -	\$ 806.4	\$ 2,419.0
Overtime (8%)	-	-	64.5	193.5
Burdens (33%)	-	-	266.1	798.3
Temporary Labour (10%)	-	-	80.6	241.9
	-	-	1,217.6	3,652.7
System Equipment Maintenance				
Facilities	-	-	1,199.0	3,518.0
Reservoir, Dams, Spillway	-	-	1,053.8	3,091.6
Powerhouse	-	-	324.0	950.4
	-	-	2,576.8	7,560.0
Corporate & Engineering Support Labour & Salaries				
Corporate Support Services	-	-	1,111.1	2,392.1
Engineering Services	-	-	672.0	2,016.1
	-	-	1,783.1	4,408.2
Administration & Other Costs				
Community Betterment	-	-	154.8	333.2
Professional Services	-	-	165.9	470.1
Transportation	-	-	42.1	118.9
Travel and relocation	-	-	79.0	214.6
Training	-	-	67.1	190.3
Insurance	-	-	920.0	2,760.0
Office space rental	-	-	98.6	212.3
Independent Engineer	-	-	59.6	128.4
Other (Office supplies, equipment rental, admin fees, etc)	-	-	282.9	717.6
	-	-	1,870.0	5,145.4
Environmental				
Environmental Effects Monitoring - Methylmercury	-	-	1,333.3	4,000.0
Environmental Effects Monitoring - Aquatic program	-	-	416.7	1,250.0
Environmental Effects Monitoring - Human health risk	-	-	333.3	1,000.0
Environmental Effects Monitoring - Other	-	-	725.0	2,175.0
Permits and other	-	-	205.0	615.0
	-	-	3,013.3	9,040.0
Water Power Rental	-	-	5,203.3	15,610.0
IBA Payments	-	-	1,946.7	5,840.0
Total	\$ -	\$ -	\$ 17,610.8	\$ 51,256.3

Labour Cost Details

Operating Labour Cost Detail by Geographic Location

(\$ thousands)

Entity	Location	FTE	Budget 2018	Forecast 2019	Forecast 2020	Base Year	
						Forecast 2020	Forecast 2021
LIL	Labrador	12	\$ 788.2	\$ 1,576.5	\$ 1,576.5	\$ 1,576.5	1,576.5
	Island	13	859.3	1,718.5	1,718.5	1,718.5	1,718.5
	Support	5	306.2	612.5	612.5	612.5	612.5
	Soldier's Pond	26	1,851.9	3,703.7	3,703.7	3,703.7	3,703.7
LIL Total		56	3,805.6	7,611.2	7,611.2	7,611.2	7,611.2
LTA	Labrador	16	2,068.2	2,068.2	2,068.2	2,068.2	2,068.2
MF	Labrador	27	-	-	1,217.6	3,652.7	3,652.7
Total		99	\$ 5,873.8	\$ 9,679.4	\$ 10,897.0	\$ 13,332.1	

Includes overtime(8%), burdens(33%) and temporary labour(10%)

Operating Labour Cost Detail by Functional Discipline

(\$ thousands)

Entity	Discipline	FTE	Budget			Base Year Forecast		
			2018	2019	2020	2020	2021	
LIL	Management & support services ¹	15	\$ 1,162.4	\$ 2,324.8	\$ 2,324.8	\$ 2,324.8	\$ 2,324.8	
	Trades ²	41	2,643.2	5,286.4	5,286.4	5,286.4	5,286.4	
LIL Total		56	3,805.6	7,611.2	7,611.2	7,611.2	7,611.2	
LTA	Management & support services	4	561.0	561.0	561.0	561.0	561.0	
	Trades	12	1,507.2	1,507.2	1,507.2	1,507.2	1,507.2	
LTA Total		16	2,068.2	2,068.2	2,068.2	2,068.2	2,068.2	
MF	Management & support services	6	-	-	278.3	835.0	835.0	
	Trades	21	-	-	939.3	2,817.7	2,817.7	
MF Total		27	-	-	1,217.6	3,652.7	3,652.7	
Grand Total		99	\$ 5,873.8	\$ 9,679.4	\$ 10,897.0	\$ 13,332.1	\$ 13,332.1	

Includes overtime(8%), burdens(33%) and temporary labour(10%)

¹Management & support services include managers, supervisors, administration and support staff

²Trades include front line and technical workers

Corporate Support & Engineering Services Details

(\\$ thousands)

Department	FTE's ¹	Equivalent Labour hrs ¹	Budget 2018	Forecast 2019	Forecast 2020	Base Year Forecast 2021
Corporate Support Services						
Finance, IE & Treasury	13.8	26,813	\$ 655.3	\$ 2,146.1	\$ 2,146.0	\$ 2,146.1
System Planning & Operations	8.0	15,600	402.1	1,316.7	1,316.6	1,316.8
Executive	3.1	6,045	338.9	1,109.8	1,109.9	1,109.9
Environment	4.0	7,800	171.2	560.9	560.9	560.8
Supply Chain/Procurement	3.0	5,850	110.7	362.4	362.4	362.4
Network Services	2.0	3,900	92.2	302.0	302.1	301.9
Ind. Affairs/Comm Relations	1.0	1,950	78.4	256.7	256.7	256.7
Legal	1.0	1,950	64.5	211.4	211.4	211.3
Communications	1.0	1,950	50.7	166.1	166.1	166.1
Internal Audit	1.0	1,950	43.8	143.4	143.5	143.4
Safety	1.0	1,950	41.5	135.9	135.8	135.9
Insurance & Risk	0.5	975	33.4	109.5	109.4	109.5
	39.4	76,733	2,082.7	6,820.9	6,820.8	6,820.8
Engineering Services						
Engineering & technical specialties	22.4	35,483	840.0	3,558.1	3,966.0	4,781.9
Management & administration	12.9	20,429	442.0	1,960.9	2,225.0	2,753.2
	35.3	55,912	1,282.0	5,519.0	6,191.0	7,535.1
Total	74.7	132,645	\$ 3,364.7	\$ 12,339.9	\$ 13,011.8	\$ 14,355.9

¹ For Base Year Forecast

Corporate Support & Engineering Services Details – LIL (\$ thousands)

Department	Equivalent Labour hrs ¹	Budget 2018	Forecast 2019	Forecast 2020	Base Year	
					Forecast 2020	Forecast 2021
Corporate Support Services						
Finance, IE & Treasury	13,890	\$ 253.7	\$ 1,765.6	\$ 1,439.3	\$ 1,111.8	
System Planning & Operations	8,081	155.7	1,083.3	883.0	682.2	
Executive	3,132	131.2	913.0	744.4	575.0	
Environment	4,041	66.3	461.4	376.2	290.5	
Supply Chain/Procurement	3,031	42.8	298.1	243.1	187.7	
Network Services	2,020	35.7	248.4	202.6	156.4	
Ind. Affairs/Comm Relations	1,010	30.4	211.2	172.2	133.0	
Legal	1,010	25.0	173.9	141.8	109.5	
Communications	1,010	19.6	136.6	111.4	86.0	
Internal Audit	1,010	17.0	118.0	96.2	74.3	
Safety	1,010	16.1	111.8	91.1	70.4	
Insurance & Risk	505	12.9	90.1	73.4	56.7	
	39,751	806.4	5,611.4	4,574.7	3,533.5	
Engineering Services						
Engineering & technical specialties	16,152	673.9	2,174.1	2,174.1	2,174.1	
Management & administration	8,083	337.3	1,088.0	1,088.0	1,088.0	
	24,235	1,011.2	3,262.1	3,262.1	3,262.1	
Total	63,986	\$ 1,817.6	\$ 8,873.5	\$ 7,836.8	\$ 6,795.6	

¹ For Base Year Forecast

Corporate Support & Engineering Services Details – LTA (\$ thousands)

Department	Equivalent Labour hrs ¹	Budget 2018	Forecast 2019	Forecast 2020	Base Year	
					Forecast 2020	Forecast 2021
Corporate Support Services						
Finance, IE & Treasury	3,519	\$ 401.6	\$ 380.5	\$ 357.1	\$	281.7
System Planning & Operations	2,047	246.4	233.4	219.1		172.8
Executive	793	207.7	196.8	184.7		145.7
Environment	1,024	104.9	99.5	93.3		73.6
Supply Chain/Procurement	768	67.9	64.3	60.3		47.6
Network Services	512	56.5	53.6	50.3		39.6
Ind. Affairs/Comm Relations	256	48.0	45.5	42.7		33.7
Legal	256	39.5	37.5	35.2		27.7
Communications	256	31.1	29.5	27.6		21.8
Internal Audit	256	26.8	25.4	23.9		18.8
Safety	256	25.4	24.1	22.6		17.8
Insurance & Risk	128	20.5	19.4	18.2		14.4
	10,071	1,276.3	1,209.5	1,135.0		895.2
Engineering Services						
Engineering & technical specialties	10,193	166.1	1,384.0	1,384.0		1,384.0
Management & administration	6,429	104.7	872.9	872.9		872.9
	16,622	270.8	2,256.9	2,256.9		2,256.9
Total	26,694	\$ 1,547.1	\$ 3,466.4	\$ 3,391.9	\$	3,152.1

¹ For Base Year Forecast

Corporate Support & Engineering Services Details – MF (\$ thousands)

Department	Equivalent Labour hrs ¹	Budget 2018	Forecast 2019	Forecast 2020	Base Year	
					Forecast 2020	Forecast 2021
Corporate Support Services						
Finance, IE & Treasury	9,403	\$ -	\$ -	\$ 349.6	\$ -	752.6
System Planning & Operations	5,471	-	-	214.5	-	461.8
Executive	2,120	-	-	180.8	-	389.2
Environment	2,736	-	-	91.4	-	196.7
Supply Chain/Procurement	2,052	-	-	59.0	-	127.1
Network Services	1,368	-	-	49.2	-	105.9
Ind. Affairs/Comm Relations	684	-	-	41.8	-	90.0
Legal	684	-	-	34.4	-	74.1
Communications	684	-	-	27.1	-	58.3
Internal Audit	684	-	-	23.4	-	50.3
Safety	684	-	-	22.1	-	47.7
Insurance & Risk	342	-	-	17.8	-	38.4
	26,911	-	-	1,111.1	-	2,392.1
Engineering Services						
Engineering & technical specialties	9,138	-	-	407.9	-	1,223.8
Management & administration	5,916	-	-	264.1	-	792.3
	15,054	-	-	672.0	-	2,016.1
Total	41,965	\$ -	\$ -	\$ 1,783.1	\$ -	\$ 4,408.2

¹ For Base Year Forecast

Appendix A – SEM Contracts Overview

SEM Contracts Overview (December 2017)

Component	Stations	Facilities	Transmission	SOBI	Reservoir, Dam & Spillway	Powerhouse
Labrador Island Link	<ul style="list-style-type: none"> • Converter Station/GIS/Sync Plant • Training & oversight • Diesel generators • Gases • Other 	<ul style="list-style-type: none"> • Snow clearing • Security • Mobile equipment maintenance • Inventory storage and control • HVAC (heating, ventilation, air conditioners) • Crane and hoist • Electrical contracts • Trucking/transportation • Other 	<ul style="list-style-type: none"> • Right of Way road maintenance • Vegetation management • Emergency response retainer • EFLA consulting services (emergency response plan) • Helicopter Service • Long term crown title rentals • Other 	<ul style="list-style-type: none"> • Emergency response and maintenance • Cable storage 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
Labrador Transmission Assets	<ul style="list-style-type: none"> • Converter Station/GIS/Sync Plant • Other 	<ul style="list-style-type: none"> • Mobile equipment maintenance • Security • Inventory storage and control • Other 	<ul style="list-style-type: none"> • Right of Way road maintenance • Vegetation management • Other 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
Muskkrat Falls	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Snow clearing • Security • Inventory storage and control • Janitorial • Mobile equipment maintenance • Other 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Debris management on log boom • North Spur dewatering ventilation, air • Dams and Dykes oversight • Other 	<ul style="list-style-type: none"> • Crane and hoist • HVAC (heating, ventilation, air conditioners) • Other