Hydro Place. 500 Columbus Drive.
P.O. Box 12800. St. John's. NL
Canada A1B 0C9
t. 709.737.1440 f. 709.737.1800
nalcorenergy.com

September 20, 2019

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: **Ms. Cheryl Blundon**
Director Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: **Rate Mitigation Options and Impacts Review – Nalcor Energy and Newfoundland and Labrador Hydro Evidence and Witness Lists**

Further to the Board's schedule and correspondence received September 19, 2019, enclosed you will find an original and five additional copies of the following:

1. Nalcor Energy and Newfoundland Labrador Hydro Evidence; and
2. Nalcor Energy & Newfoundland & Labrador Hydro – Joint Witness List.

If you have any questions, please feel free to contact the undersigned.

Yours truly,

Nalcor Energy

Peter Hickman
Senior VP, Chief Legal Officer
& Corporate Secretary

Yours truly,

Newfoundland and Labrador Hydro

Geoffrey P. Young, Q.C.
Corporate Secretary & General Counsel

/bds
cc: Paul Coxworthy, Industrial Customer Group
Kelly Hopkins, Newfoundland Power Inc.
Dennis Browne, QC, Consumer Advocate

Reference to the Board on Rate Mitigation Options and Impacts

Evidence of Nalcor Energy & Newfoundland and Labrador Hydro

September 20, 2019

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 EXECUTIVE SUMMARY 3

3.0 CORPORATE OVERVIEW 6

4.0 SYNAPSE REPORT 8

4.1 Points of Agreement 8

5.0 LIBERTY REPORT 9

5.1 Points of Agreement 9

5.2 Further Commentary 9

A.1 Financial Mitigation Opportunities 9

A.2 Hydro's Capital Structure 10

A.3 Regulatory Review of MFP Capital and O&M Expenditures 12

A4. Combination of Hydro / Newfoundland Power 13

A.5 MFP O&M Cost Savings 18

5.3 Points of Divergence 19

5.4 Further Commentary 19

D.1 Scope of Regulatory Framework for NL 19

D.2 Organizational Structure 23

D.3 NEM 31

D.4 Offshore Development Opportunities and Requirements 35

6.0 CONCLUSION 37

Appendix 1 - Power Advisory Report - Review of North America Electric Utility Organizational Structures & Implications for Proposals in The Liberty Consulting Group Final Report

Appendix 2 - Government of Newfoundland and Labrador Commitment Letter

Appendix 3 - Operational Opportunities Analysis

Appendix 4 - FTE Review and Power Advisory Report – *Extended Review of the Liberty Consulting Group Executive Analysis and Results*

1.0 INTRODUCTION

This document constitutes the collective response and evidence of Nalcor Energy ("**Nalcor**") and Newfoundland and Labrador Hydro ("**Hydro**") with respect to Phase 1 and Phase 2 processes of this rate mitigation reference (the "**Reference**"), largely focusing on:

1. The Synapse Energy Economics Inc. ("**Synapse**") Report entitled *Phase 2 Report on Muskrat Falls Project Rate Mitigation*, released September 3, 2019 (the "**Synapse Report**"); and
2. The Liberty Consulting Group ("**Liberty**") Report entitled *Final Report on Phase Two Muskrat Falls Project Potential Rate Mitigation Opportunities*, released September 3, 2019 (the "**Liberty Report**").

Nalcor and Hydro have worked to provide a high level of cooperation and support to the Board of Commissioners of Public Utilities (the "**Board**"), its consultants Liberty and Synapse throughout the Reference, including providing responses to formal and informal information requests, and attending meetings with Board staff and both consultants, and further meetings with Board staff, Liberty and Newfoundland Power. The process has engaged most business units of Nalcor and Hydro. The companies look forward to the Board's final report.

The following are the reference questions under consideration in this proceeding:

1. *Options to reduce the impact of Muskrat Falls Project costs on electricity rates up to the year 2030, or such shorter period as the Board sees fit, including cost savings and revenue opportunities with respect to electricity, including generation, transmission, distribution, sales, and marketing assets and activities of Nalcor Energy and its Subsidiaries, including NLH, Labrador Island Link Holding Corporation, LIL General Partner Corporation, LIL Operating Corporation, Lower Churchill Management Corporation, Muskrat Falls Corporation, Labrador Transmission Corporation, Nalcor Energy Marketing Corporation, and the Gull Island Power Company (together the "Subsidiaries", and collectively with Nalcor Energy, "Nalcor";*
2. *The amount of energy and capacity from the Muskrat Falls Project required to meet Island interconnected load and the remaining surplus energy and capacity available for other uses such as export and load growth; and*

3. *The potential electricity rate impacts of the options identified in Question 1, based on the most recent Muskrat Falls Project cost estimates.*

By letter addressed to the Minister of Natural Resources dated April 25, 2019, the Board advised that the financial structure of the Muskrat Falls Project ("**MFP**")[1] would no longer be considered:

> *As noted in the Plan the Government of Canada has committed to engage with Government to examine the financial structure of the Muskrat Falls project and to consider all options, including those identified in the Board's interim report. In light of this the Board has decided to suspend its work on the analysis of options to mitigate rates that may arise from Muskrat Falls project financing.*

It is worth noting that in its Phase 1 Report, Liberty observed that "[r]ate mitigation from the financing structure of the MFP has enormous potential (dwarfing other alternatives in magnitude)."[2]

Rate mitigation has been a primary focus of both Nalcor and Hydro for several years and they have been working with the Government of Newfoundland and Labrador (referred to as either the "**Province**" or "**Government**") to find solutions on an ongoing basis, through the Province's Rate Mitigation Committee and internal research efforts. The companies acknowledge that without mitigation, there will be material increases to customer rates in the coming years. Nalcor and Hydro believe that many of the options identified by the Board's consultants represent tangible opportunities to reduce rates from what would otherwise be required without rate mitigation.

Each of Hydro and Nalcor has standing in the Reference and are represented by separate counsel. To assist the Board in its deliberations, Nalcor and Hydro provide this joint response and evidence with respect to the Liberty and Synapse Reports. The companies have set out separately where Nalcor and Hydro agree and disagree with the recommendations of the Board's consultants and where necessary, have provided additional context.

[1] Sometimes referred to by the Board and consultants as the Lower Churchill Project, or LCP.
[2] Liberty, *Final Report on Phase One of Muskrat Falls Project Potential Rate Mitigation Opportunities* (31 December 2018), page 13.

2.0 EXECUTIVE SUMMARY

Nalcor fully supports the Reference and understands customers' concerns over a steep rise in electricity rates and the need for electricity at lowest possible cost, consistent with reliable service. Rate mitigation has been a focus of both Nalcor and Hydro for several years and the companies have been working with the Province to find solutions on an ongoing basis, through the Province's Rate Mitigation Committee and internal research.

Nalcor and Hydro have considered the reports of Liberty and Synapse and have found many areas of agreement, specifically:

- **Electrification.** Of the options considered by Synapse,[3] electrification (conversion of oil to electric heat, electric vehicles, etc.) provides the greatest potential for rate mitigation, coupled with conservation demand management ("**CDM**") to manage demand.
- **Financial mitigation opportunities.** Nalcor generally agrees with Liberty's analysis that combining the financial opportunities provides the potential to reduce revenue requirements by an annual amount beginning in 2021 at approximately $165 million, and potentially growing to over $500 million by 2030. Decisions on financial mitigation options are policy decisions for the Province.
- **Hydro's Capital Structure**. Hydro agrees that altering the target equity in the capital structure is a public policy decision for Government. Maintaining an equity target of 25 percent allows Hydro to strengthen its financial position, while still giving the province the option of using dividends to mitigate rates and reduce the amount of debt it guarantees for Hydro.
- **Regulatory Review of MFP**. Nalcor and Hydro agree that any changes with respect to the Board's authority to review and adjust MFP capital and operating and maintenance ("**O&M**") expenditures would be a policy decision for the Province. Such changes would need to take into consideration Nalcor's subsidiary obligations under the MF financing and commercial agreements, as well as the obligations of the Province to the Government of Canada ("**Canada**") under the Federal Loan Guarantee ("**FLG**").
- **Combination of Hydro/Newfoundland Power.** Nalcor and Hydro agree with Liberty's assessment that any asset transfer from Nalcor/Hydro to Newfoundland Power Inc. ("**Newfoundland Power**") could increase rates for customers. Hydro and Nalcor agree there are

[3] The options considered by Synapse included export market sales, energy efficiency, in-Province electrification and rate design approaches.

modest savings opportunities through combining either assets or operations of Hydro and Newfoundland Power but these opportunities also have significant execution risks and transition needs. Nalcor and Hydro agree with Liberty that finding efficiencies in current utility operations is likely to result in savings but without similar risks.

- **MFP O&M cost savings.** Nalcor and Hydro agree there are potential opportunities to reduce future MFP O&M costs.

Significantly though, Nalcor and Hydro diverge with Liberty's assessment of the following:

- **Regulation.** Extending regulation as a mechanism of cost oversight;
- **Integration of Hydro and Power Supply.** The purported "operational opportunity" of integrating Hydro with Power Supply; and
- **NEM.** The use and place of Nalcor Energy Marketing ("**NEM**") within Nalcor.

Nalcor and Hydro also believe that there are rate mitigation opportunities with respect its Offshore Development business, an option not considered by Liberty.

Nalcor's responsibility as party to the Reference is not only to ensure full cooperation with the Board and its consultants but also to ensure it clearly articulates its position on these matters for the Board's consideration. In considering Liberty and Synapse's recommendations, Nalcor sought input from its own consultant, Power Advisory LLC ("**Power Advisory**", a North American management consulting firm that specializes in electricity sector matters and solutions), on these recommendations, the organization structure and other matters. Power Advisory prepared a reported titled *Review of North America Electric Utility Organizational Structures & Implications for Proposals in Liberty Consulting Group Phase Two Final Report Power Advisory Report* (the "**Power Advisory Report**"), attached as **Appendix 1**.

As part of its work, Power Advisory conducted a jurisdictional scan and its findings are consistent with Nalcor's approach, organizational structure and areas of divergence with Liberty, stating that:

1. Regulated and non-regulated operations are typically separated;
2. Energy trading operations are largely unregulated; and
3. Most energy trading operations are in stand-alone entities.

Delivering on a plan that ensures the reliable generation of power and the safe delivery of this power to customers requires a long-term vision; a vision that is focused on the effective and strategic stewardship of the province's energy resources for the people of NL, today and well into the future. In 2016, Nalcor's President & CEO, Stan Marshall, instituted the existing organization structure, separating MFP into Power Generation and Power Supply, putting clear focus on the two separate construction projects and bringing the project to planned completion in 2020. The clear separation of regulated Hydro from non-regulated operations ensures that Hydro is focused on its core mandate to serve its customers with electricity that is lowest cost, consistent with reliable service. Nalcor carefully considered the companies' priorities and the organization structure needed for success in the short-term, and well into the future to ensure Nalcor is strategically flexible and competitive in the energy industry to maximize value from commercial opportunities.

In considering its current organizational structure, Nalcor focused on its short-term and long-term priorities. The Upper Churchill contract is set to expire in 2041. While this event occurs 22 years in the future, this is a relatively short time frame when considering the lengthy planning horizon required for utility planning. As such, a decision regarding the future of the Churchill Falls plant must be made at least a decade in advance of contract expiration (i.e., by 2031). Following completion of MFP in 2020, Nalcor and Hydro will remain focused on the successful and reliable integration of these new assets to the existing electricity grid up to 2022-23 and beyond. During the interim period, Nalcor will focus on retention of the strategic, commercial, and financial expertise required to ensure success in future planning and negotiations. As noted by Power Advisory on page (ii) of its report:

> *Liberty asserts that it found significant potential cost savings from combining Power Supply and NLH. Power Advisory believes that Liberty hasn't appropriately valued the importance of maintaining the organizational capability to deliver on Nalcor's resource development mandate and the essential role of an unregulated development organization to do so.*

All parties agree that rate mitigation is a priority and that there are mechanisms available for consideration by the Board and ultimately the Government (as Nalcor's shareholder). Nalcor and Hydro have carefully considered the short-term priorities to finish the MFP, successfully integrate the new assets into service, and serve their customers while also considering that Nalcor must remain strategically flexible and competitive in the energy industry to maximize commercial opportunities today, and well into the future.

3.0 CORPORATE OVERVIEW

Nalcor is the Province's energy company established in 2007 under the *Energy Corporation Act*.[4] Its business includes the development, generation, transmission and sale of electricity, the exploration, development, production and sale of oil and gas; industrial fabrication site management; and energy trading. Nalcor manages $18.9 billion in assets. In 2018, the Canadian Electricity Association ("**CEA**") designated Nalcor as a Sustainable Electricity Company™, a prestigious designation which requires utilities to conform to the internationally-recognized *ISO 14001* standard on Environmental Management Systems and *ISO 26000* Guidance on Social Responsibility. Nalcor is one of only seven utilities in Canada to have received this designation.

Nalcor's mandate is to manage the Province's energy resources effectively and responsibly for the benefit of its people. Nalcor's corporate structure ensures strict focus and accountability on the company's key priorities:

1. To ensure the successful completion of the MFP;
2. To prepare the provincial electricity system for the integration of MFP power, the largest transformation of the utility sector in the Province since the 1960's, including preparing the provincial electricity system for integration of MF power and interconnection of the provincial electricity grid to the North American system;
3. To have clear separation of, focus on and accountability for Hydro, distinct from the remaining Nalcor business operations; and
4. To use corporate competitiveness and strategic flexibility of non-regulated assets and operations to leverage commercial opportunities within the electricity industry to maximize benefits for customers and people of the province.

Nalcor is comprised of five business segments in regulated operations (Hydro) and non-regulated operations (Power Generation, Power Supply, Offshore Development and Corporate Services). These are described in more detail below:

- **Hydro** is the main energy provider for the people of the province, providing power to more than 200 communities with 80% of its energy being clean hydroelectric generation. Hydro's activities are regulated by the Board, however Hydro is also responsible for the non-regulated sale of

[4] SNL 2007, Chapter E-11.01.

power to mining operations in Labrador West and other operations it manages that are not subject to regulation.

- **Power Development** is responsible for construction of the 824MW hydroelectric generating facility at Muskrat Falls, a component of the MFP currently under construction on the Lower Churchill River in Labrador.
- **Power Supply** is responsible for the construction and operation of the MFP transmission assets including the Labrador-Island Link ("**LIL**") and Labrador Transmission Assets ("**LTA**") including the transmission lines connecting the MF hydroelectric plant, the Churchill Falls hydroelectric facility, and certain portions of the transmission system in Labrador to the island of Newfoundland. Power Supply is also responsible for:
    - The Churchill Falls hydroelectric generating facility in Labrador which sells electricity to Hydro-Québec and Hydro;
    - NEM, which includes energy trading and commercial activities related to securing and optimizing markets to extract greatest value from Nalcor's existing generation through the participation in export electricity markets;
    - Operation of the Menihek Generating Station in Labrador;
    - Unregulated generation growth development; and
    - MFP upon it coming into service.
- **Offshore Development** comprises Nalcor's share of exploration, development, production, transportation and processing sectors of the oil and gas industry and the Bull Arm Fabrication site, an industrial fabrication site in eastern NL, which is available for sublease to third parties. In 2018, Government announced that it would create a new, separate provincial oil and gas Crown Corporation. In March 2019, Government announced the structure for the new oil corporation and stated that Nalcor retains existing oil and gas operations, specifically existing equity interests in offshore developments.
- **Nalcor Corporate Services** provides services to the Nalcor group of companies and includes functional support areas such as finance, legal, safety, human resources, corporate affairs, environment, internal audit and information technology.

Nalcor is comprised of 13 legal entities overseen by the Nalcor Energy Board of Directors, the Hydro Board of Directors, and 11 additional sub-boards. The Nalcor Board has four standing committees: Audit,

Corporate Governance, Human Resources and Compensation, and Safety Health, Environment, and Community sub-committees.

4.0 SYNAPSE REPORT

4.1 Points of Agreement

Nalcor and Hydro agree with Synapse's conclusion that, of the options it considered, electrification (conversion from oil to electric heat, electric vehicles, etc.) provides the greatest potential for rate mitigation but add the following:

- Synapse's approach to CDM and "total household energy expenditures" is not focused solely on minimizing the retail rate. Using CDM (e.g., heat pump incentives) to reduce customer usage creates a loss of revenues. To offset the loss in revenue, customer bills would likely require a concurrent increase in the rate charged to all customers. This is acknowledged by Synapse on page 12 of the Synapse Report:

  > *On its own, the rate mitigation indication might suggest little value in aggressively pursuing CDM, notwithstanding its contribution to avoiding new supply costs. This is because it results in significant loss of revenue for contribution to fixed costs. However, the average customer has lower bills, even if rates need to be higher to ensure sufficient revenue collection.*

  Further, the "average customer lower bills" as referred to by Synapse includes oil savings for those who convert to electricity and are primarily attributable to "larger buildings".[5]
- The likely outcome of this approach would be that middle and upper income customers who own their homes would take advantage of CDM incentives to offset the higher rates. However, lower income households and renters may not be able to take advantage of these incentives, thereby shifting the burden of MFP costs disproportionately to this group of customers. This could be mitigated, in part, by targeting lower income customers with incentives (e.g., a sliding scale based on income), however, renters and very low-income customers would likely still be excluded. Aggressive CDM in the name of lower "average energy expenditures" should be approached with caution to avoid any unintended consequences.

[5] As noted on page 7 of the Synapse Report: "[d]elta Average Energy Expenditures is average across all customers and does not reflect the average savings seen for a residential customer, as a large fraction of oil savings is for larger buildings."

- Synapse recognized that electrification initiatives will contribute to capacity additions unless CDM is also pursued. Hydro believes that CDM in this case should target demand management.

5.0 LIBERTY REPORT

5.1 Points of Agreement

Overall, the "financial mitigation opportunities" identified in the Liberty Report are consistent with those identified by Nalcor and Hydro. Nalcor and Hydro agree that these provide significant opportunities to the Province for rate mitigation and could reduce forecasted rates significantly up to 2030 (the period covered by this Reference). As observed by Liberty:

> *Combining the financial opportunities we examined in Phase Two produces a potential for reducing revenue requirements by an annual amount beginning at about* ***$165 million in 2021, and potentially growing to over $500 million by 2030*** …[Emphasis added]

Regarding "operational opportunities", Nalcor and Hydro agree with Liberty's assessment that the cost savings opportunities within Hydro's current operations should be pursued as opposed to an asset sale or operations transfer between Hydro and Newfoundland Power.

Nalcor and Hydro also agree that there are potential opportunities to reduce future MFP O&M costs.

5.2 Further Commentary

Five points of agreement require further commentary and are set out in A1 through A5, below.

A.1 Financial Mitigation Opportunities

Opportunities for rate mitigation in this area have long been the subject of analysis by Nalcor. With respect to the calculation and distribution of various sources of revenue that the Province receives from Nalcor's electricity-based activities, Nalcor generally agrees with Liberty's analysis and also agrees that any decision on financial mitigation options would be a policy decision for the Province.[6] Nalcor

[6] Including:
- Equity returns on LCP investments;
- Excess MF energy sales;
- Water power rental fees for generation at CF; and
- MF, CF preferred shares dividends.

generally agrees with Liberty's analysis and that implementation is a public policy decision of the Province. As stated on page 3 of the Liberty Report:

> *…[T]his very sizeable offset will require the Province to consider the implications for its financial position and its ability to fund its operations without access to amounts identified in this report as available for rate mitigation...*

Nalcor and Hydro also agree with commentary on page 26 of the Liberty Report, and note the significance of this matter in the context of the Province's financial position:

> *The technical and accounting aspects of applying the various sources to rate mitigation for customers will require study by Nalcor and the Province to determine the most appropriate mechanism to effect such mitigation.*

The technical and accounting aspects of implementation of needed mitigation are complex and can be far reaching and have significant implications. For effective implementation, a thorough analysis would be required to ensure that there are no unintended consequences for the ratepayers or the Province.

A significant opportunity not considered by Liberty is the application of dividends from Nalcor's oil and gas business, as further described under Section D4, below.

A.2 Hydro's Capital Structure

Hydro agrees with Liberty's observations on equity levels and that altering the target equity in the capital structure is a public policy decision for the Province. Hydro believes that maintaining an equity target of 25 percent allows it to strengthen its financial position, while still giving the Province the option of using dividends to mitigate rates and reduce the amount of debt it guarantees for Hydro.

Hydro's regulated average equity for 2015 Test Year was 21.23%[7] and for the 2019 Test Year is 19.48%.[8] Hydro's target equity, for planning purposes, remains at 25%.

[7] General Rate Application ("**GRA**") Compliance Filing to Order P.U. No. 49(2016), Exhibit 2, page B-4.
[8] 2017 GRA Compliance Application, Exhibit 4, Appendix C, page C-4.

Hydro agrees with Liberty's observations on Hydro's equity levels found at pages 21 to 24 of the Liberty Report:

- Equity returns built into Hydro's rates for service to its customers comprise a central element in remaining self-sustaining;
- The use of Government guarantees has given Hydro the Province's credit rating, which resulted in Hydro achieving a lower interest rate than would have been available based on its own credit;
- Any question of whether Hydro is self-sustaining has Provincial implications as well; and
- Based on the forecast used, changing the equity share in the capital structure from 25 percent to 20 percent would allow for an increase in funds available for mitigation in the amount of $111 million annually between 2021 and 2025,[9] but would reduce these funds in each year thereafter. The 20 percent equity target produces $22 million less in cumulative dividends between 2021 and 2039.[10]

Hydro notes that there are risks[11] that could impact the amount and timing of dividends including: achieving the financial returns projected, transition from the Holyrood Thermal Generating Station to the integration of the MFP assets, recovery of projected costs in revenue requirement, and capital expenditures.

From a customer perspective, reducing the target equity in the capital structure to 20 per cent is simply a difference in timing as to when customer benefit is realized. The potential cash flow from this change is returned to customers earlier. However, it does require an increase in Hydro's debt. Maintaining an equity target of 25 percent allows Hydro to strengthen its financial position while giving the Government the option of using dividends to mitigate rates and reduce the amount of debt it guarantees for Hydro.

Hydro agrees that altering the target equity in the capital structure is a public policy decision for the Province.

[9] The increase in dividends in the 2021 to 2025 period results from Hydro reaching its target capital structure earlier. Under a 25% scenario, Hydro would begin dividend payout in 2025, whereas in a 20% scenario Hydro would begin dividend payout in 2021. Please see PUB-Nalcor-255 for scenario information.

[10] The decreased overall dividend level results from less equity in the capital structure upon which returns on equity are earned. Please see PUB-Nalcor-255 for scenario information.

[11] Liberty Report, page 23 also notes that Hydro does face material uncertainties as questions remain open regarding (i) the consequences of a vast increase in rates, (ii) provincial contributions to rate mitigation, (iii) completion of the MFP, and (iv) the ability to operate MF and the LIL.

A.3 Regulatory Review of MFP Capital and O&M Expenditures

Both companies agree with Liberty that any changes with respect to the Board's authority to review and adjust MFP capital and O&M expenditures would ultimately be a policy decision for the Province. Such changes would need to take into consideration Nalcor subsidiary obligations under the MF financing and commercial agreements, as well as the obligations of the Province to Canada relating to the FLG.

The current legislative framework implemented by Government in 2012/2013 to support commitments it made relating to the financing and FLG for the MFP has removed the Board's authority to exclude any of the MFP O&M and sustaining capital costs from amounts being recovered in customer rates.

As background, from 2011 to 2013, Nalcor, in consultation with Government and Canada, developed a financing structure for the MFP. The structure contemplated cash flows from the domestic sale of electricity to customers on the Island Interconnected System where that electricity was derived from the MFP. These cash flows would then be used to pay for the MFP.

These arrangements were initially described in the Government Commitment Letter of October 2011 (attached in **Appendix 2**). Subsequently, a series of agreements ("**Revenue Agreements**") were developed by Nalcor and Hydro (with oversight of Government and Canada) creating the commercial arrangements giving rise to such cash flows. Government then developed a legislative framework directing the Board to allow Hydro to recover MFP costs arising from the Revenue Agreements from Island interconnected rates. This framework includes (i) Bill 61 as promulgated, which amended the *Public Utilities Act*[12] and the *Electric Power Control Act, 1994*,[13] (ii) the MFP Exemption Order, and (iii) Order in Council OC2013-343.

The MFP legislative framework was designed by Government to ensure cash flow generated from MFP would fully service its underlying financing and was an essential component of achieving an investment grade rated project financing for MFP, as identified by the credit rating agencies. This also became a condition precedent of the FLG provided by Canada for the MFP financing and supported a commitment made by Government to Canada under the associated Inter-Governmental Agreement ("**IGA**").[14] Any changes to the legislative framework outlined above would need to take into consideration obligations

[12] RSNL 1990, Chapter P-47.
[13] SNL 1994, Chapter E-5.1.
[14] See PUB-Nalcor-018.

that Nalcor's MFP subsidiaries have under the financing and commercial agreements (including those with both Hydro and Emera Energy Inc. ("**Emera**")), as well as the obligations Government has to Canada under the IGA.

Given the basis of the legislative framework, Nalcor agrees with Liberty that any changes with respect to the Board's authority to review and adjust these costs is ultimately a policy decision of the Province and require amendments to legislation. Further commentary is provided in Section D1, below.

A4. Combination of Hydro / Newfoundland Power

Nalcor and Hydro agree with Liberty's assessment that any asset transfer from Hydro to Newfoundland Power could increase rates for customers. With respect to the possible implementation of an operational agreement for distribution and retail operations and lower voltage transmission facilities, both companies concur with Liberty's view that greater potential lies in pursuing efficiencies, including consideration of reduced capital investment, within the current utility structures. Hydro's position is outlined in more detail in **Appendix 3**.

Hydro agrees with Liberty that the materiality of the benefits associated with potential future change would not likely outweigh the risks and transition needs associated with changes being contemplated for the assets under consideration. Therefore, such change could result in limited benefit, no benefit or even negative benefit to customers.

Asset Transfer

In Phase 2, Liberty examined the transfer of ownership of Hydro's distribution and retail operations[15] and lower voltage transmission facilities[16] to Newfoundland Power. At page 6 of the Liberty Report, Liberty noted that it eliminated consideration of transferring 230 kV and HVdc facilities "*considering their criticality to overall system integrity and reliability, the need for allowing operation of MFP assets to reach a secure and steady state, and the lack of Newfoundland Power operational experience with such facilities.*" Hydro agrees.

[15] Island Interconnected System, Labrador Interconnected System and isolated systems in both Newfoundland and Labrador.
[16] 66 and 138 kV.

Through its continued analysis of the remaining assets considered for transfer, Liberty concluded that the transfer of Hydro's assets to Newfoundland Power would result in negative rate consequences for customers:

> *Our analysis of the economic effects of asset transfers from Hydro to Newfoundland Power showed negative rate consequences for customers, even if we did not assume using Hydro's equity returns for rate mitigation. Hydro has significantly lower carrying costs for capital investments, even with the same rate of returns on the equity portion of its capital structure. Greater equity levels, higher debt costs, and taxation exemplify factors that make Newfoundland Power's costs higher.*[17]

Hydro's own findings and analysis are consistent with Liberty's conclusion on the negative customer impact of transferring assets to Newfoundland Power.[18] A transfer of assets would result in negative rate consequences due to the difference in Newfoundland Power's level of equity in its capital structure and taxation, which result in higher carrying costs for the same assets if transferred to Newfoundland Power. Further, a transfer would likely increase dividends by Newfoundland Power to its shareholders which, unlike Hydro or Nalcor, would then be out of reach for potential rate mitigation considerations.

Hydro does not agree with the analysis presented by Newfoundland Power in PUB-NP-075 (1st Revision), Attachment A, that compared Hydro's *embedded* cost of capital to Newfoundland Power's *incremental* cost of capital in determining the financing costs to be recovered through customer rates. Newfoundland Power's analysis assumes that the historic high cost of debt reflected in Hydro's embedded cost of capital will no longer be required to be recovered from customers after the asset transfer to Newfoundland Power is completed and the assets transferred can all be refinanced at Newfoundland Power's incremental cost of capital. Hydro's outstanding long-term debt does not have any early retirement provisions attached to it. Therefore, Hydro will be required to continue to incur these debt costs even after the transfer occurs. Newfoundland Power's analysis did not consider the costs of stranding high cost debt with Hydro.

[17] Liberty Report, page 6.
[18] See PUB-Nalcor-280.

Further, a comparison of the embedded and marginal costs should be completed independently of each other. A comparison of the embedded cost of capital of one company to the marginal cost of another presents a distorted view of costs as it is comparing the cost of past debt to future debt.

The contemplation of a transfer of assets from a Crown corporation to an investor-owned utility must consider future implications once the assets are moved outside the domain of public ownership. These include:

- Loss of public revenue stream (for direct government revenue or reinvestment back into the utility);
- Increased customer costs associated with a higher equity level in the capital structure and taxation costs,
- The amount of tax payments that are directed to the provincial treasury;
- Reduced opportunity for utilization of the assets to address public policy issues; and
- The loss of direct operating control over the assets.

An investor-owned owned enterprise, such as Newfoundland Power, is focused on achieving long-term sustainable growth in rate base and earnings, with financial performance primarily measured on earnings per common share and total shareholder return.[19]

Operational Transfer

Hydro believes that the implementation of an operational agreement for distribution and retail operations and lower voltage transmission facilities has a significant potential to introduce material complexity to the operating and regulatory environment and has the possibility of introducing additional costs, the magnitude of which are unknown. This results in substantial uncertainty for all parties. It is reasonable to expect that Newfoundland Power, or any other interested party, would require compensation under such an agreement; however, it remains unclear whether Newfoundland Power could operate such that adequate savings would warrant such an arrangement. While Liberty indicated it has identified potential savings, it is subject to significant risk: "[w]e found the potential savings that would arise with a transfer of operating responsibilities to Newfoundland Power modest, and subject to significant execution risks and limitations."[20]

[19] Fortis Inc. 2018 Annual Report, page 28. Newfoundland Power is owned by Fortis Inc.
[20] Liberty Report, page 7.

Hydro concurs with Liberty's view that regarding opportunities to contribute to rate mitigation, greater potential lies in pursuing efficiencies within Hydro's existing operations rather than effecting a transfer of assets or implementing an operating agreement to a third party, such as Newfoundland Power. Liberty indicated that such an undertaking "can produce results as or more substantial than those postulated by our [Liberty's] Power Supply/Hydro integration."[21]

Efficiency and Effectiveness Plan

Hydro's efforts, both underway and in the immediate future, to pursue efficiencies and savings is outlined in more detail in **Appendix 3**. This Efficiency and Effectiveness Plan is focused on securing internal efficiencies and delivering cost savings that benefit customers in the following areas:

- Work management and execution;
- Operational technology advances;
- Exploits operations;
- Capital planning;
- Contracting and procurement; and
- Human resource management.

Hydro is committing to achieve $2 million[22] in efficiencies and productivity gains, in line with Liberty's suggested level of savings. The timing of these savings will be estimated and communicated to the Board in a progress report to the Board in the second quarter of 2020.

1. Work Management and Execution

Hydro has commenced the development of a multi-year plan to identify and implement the requirements necessary to centralize its planning and scheduling functions, which will deliver more efficient work execution. The plan will consider the necessary processes, procedures, tools and training required to align the planning and scheduling function with Hydro's overall asset management plan. The plan development and implementation is anticipated to occur over a three-year period with the productivity gains expected to start in 2021 and grow beyond that time frame.

[21] Liberty Report, page 7.
[22] Excludes Exploits targeted annual savings.

2. Technology

Hydro believes there is significant opportunity to enhance efficiency and productivity through technological advances. Hydro is currently developing a request for proposals to assess current and future opportunities for technology adoption for its utility operations. A multi-year schedule will be developed to implement those projects selected. Implementation timelines and resulting cost savings will be dependent on project complexity and funding availability. Hydro believes it is reasonable and prudent to pursue technology adoption in a progressive manner to enable the required process and human resource changes to occur over time.

3. Exploits Assets

Hydro commits to undertaking a multi-year efficiency review of the Exploits operations, targeting annual savings of $2.5 million, which is over 25% of the current Exploits annual operating budget, subject to the degree of employee dislocation that is able to be attained. In consideration of the capital budget funding and resulting project execution which may be necessary to achieve the suggested savings, Hydro intends to identify, propose, obtain approval (as required for expenditures) and implement changes to the Exploits operations over a three- to five-year period. To achieve such a significant reduction in expenses at Exploits, material operational changes to the Exploits operation are required. Hydro will report to the Board on the plans and execution of such changes to ensure the Board is informed on outcomes of operational changes. Hydro anticipates filing an application to the Board for acquisition of the Exploits assets later in 2019.

4. Capital

Hydro continues to enhance its capital planning approach, particularly in light of the rate pressures in the province at this time. In response to the pending rate pressures, in 2018, Hydro began increased scrutiny of the future five-year capital spending plan to take costs out of the five-year plan, aiming to contribute to rate mitigation. This occurred again in 2019, and the five-year forecasted capital expenditure for the next five-years is forecasted to be 34% or approximately $250 million less than the five-year plan developed two years ago. At a minimum, Hydro intends to maintain this reduced level of expenditure, or continue to find areas to reduce costs, where possible, in the future. Hydro is cognizant of the necessity of appropriate capital spending and will closely monitor the effects of this reduced plan, while monitoring asset condition and reliability and being responsive to major customer growth needs.

Hydro will take prudent steps to adjust capital in subsequent years should it be justified to seek additional funds.

5. Contracting & Procurement

Hydro recognizes there are potential benefits in joint purchasing power. In addition to Hydro exploring internal consolidated procurement opportunities, Hydro is open to exploring opportunities with Newfoundland Power to determine which, if any, activities may benefit from joint procurement. Determining a realistic level of savings is critical and requires detailed analysis, which has not been conducted to date. Hydro is open to exploring solutions to potential policy barriers if it is determined that sufficient savings for customers can be achieved.

6. Human Resource Management

Since 2016, Hydro recommitted through new processes, to rigorously manage and approve any replacement or new full-time equivalents ("**FTEs**"). Hydro values its employees and understands the pressure on its workforce to meet customer demand and deliver least-cost, reliable service. As part of Hydro's commitment to reduce overall costs by at least $2 million on an annual basis, Hydro commits to reducing FTEs. To achieve the targeted cost reductions, Hydro will endeavor to minimize the impact of any transition over the coming years by making reductions through attrition based on its current workforce demographics and future employee function requirements.

A.5 MFP O&M Cost Savings

The categories of the MFP O&M estimates outlined in the Liberty Report where potential cost savings could be derived reflect those areas that Nalcor discussed with Liberty as part of the Phase 2 consultation process. Nalcor remains committed to finding MFP O&M cost savings in response to the Province's public policy framework for rate mitigation released in April 2019.

As noted in the Liberty Report at page 84:

> *Estimates of LCP O&M costs prepared in March and October 2018 provide sound, well developed baselines for projecting those costs. They take an appropriately conservative view of staffing needs, given the significant size of the project, new technology (i.e., HVdc), and most importantly, a several-year performance-stabilization period that commencement of LCP operations will require.*

Additionally, as Nalcor indicated in its responses to PUB-Nalcor-50 and PUB-Nalcor-270, the identification of cost savings has been a focus since these baseline estimates were first developed, and it will continue to be a priority during Nalcor's Budget 2020/2021 processes as the first full year of operation for MF approaches.

It is also important to note that:

- For some categories the analysis completed by Nalcor and submitted to Liberty and the Board[23] yielded different cost savings estimates than those outlined in the Liberty Report; and
- As Liberty indicated, some of these cost savings can be realized starting in 2021, while others will likely take a number of years following full and stable operation to fully realize.

5.3 Points of Divergence

While Nalcor and Hydro agree with Liberty on several of the financial opportunities presented for rate mitigation and the degree to which they provide opportunities to impact rates, the companies diverge with Liberty's views in the following areas:

1. Scope of Regulatory Framework for NL;
2. Organizational Structure;
3. NEM; and
4. Offshore Development Opportunities and Requirements.

5.4 Further Commentary

Four points of divergence require further commentary and are set out in D1 through D4, below.

D.1 Scope of Regulatory Framework for NL

Liberty states on page 36 of its Report that "*[t]he Board will have no role in reviewing either the capital costs needed to sustain the MFP assets over time or the operating costs to run them.*" This, in their view, creates a problem: the lack of regulatory oversight will lead to conflicts of interest within Nalcor, preventing "*optimization of the two most centrally relevant factors -- reliability versus cost.*" While Nalcor and Hydro agree that it is appropriate for the Board and other stakeholders to have transparency into the costs of unregulated assets employed for the benefit of customers of Hydro, regulation of these

[23] Confidential Submission L300.09.

costs in the manner suggested by Liberty is not essential to meet the objective of ensuring lowest cost consistent with reliable service.

The current organizational design of the Nalcor group of companies separates regulated and non-regulated operations in a deliberate effort to coordinate incentives with responsibilities of these distinct organizations. Nalcor and its subsidiaries focus on safety of employees, contractors and the public and reliability of operations. The regulated operation (Hydro) is focused on reliability and cost control. The non-regulated operation (Power Supply) is focused on ensuring reliability, cost control and profitability of non-regulated activities. The focus on reliability is universal throughout electricity operations at Nalcor as there is little, if any, opportunity to segregate reliability from export or native load needs. It is mandatory for any sustainable market.

Electric utilities that are monopolies should be regulated to protect the interests of their customers. In return, they are permitted a rate of return (return on assets) which typically amounts to the utility's profitability. Regulation is a necessary component in this context.

Power Supply provides renewable energy from facilities at Churchill Falls and Muskrat Falls. There is also possible future development at Gull Island and other sites in Labrador. Most of the current and future Power Supply output is expected to be directed to external markets. (See further commentary on NEM in Section D3, below.) The remainder serves Hydro's native load.

Power Supply's existence speaks to Nalcor's mandate to operate in competitive markets, which is broader than servicing of native load customers in a monopoly environment. This is reflected in the January 2019 Mandate Letter from the Premier of NL to the Minister of Natural Resources, responsible for Nalcor:

> *Maximizing the net benefits from in-province use of energy and energy export by:*
>
> - *Intensively marketing cost competitive electricity generated by wind and hydro to regional, national, and international markets;*
> - *Encouraging investment and innovation in electrical power generation projects, and*

- *Seeking opportunities to develop the Gull Island Hydro Project, which will include identifying potential markets and access routes.*[24]

When one looks at other jurisdictions across Canada, in almost all situations, these market-based utility services do not fall within the full jurisdiction of the provincial regulator. As noted by Power Advisory at pages 22 of the Power Advisory Report: "*Liberty's efforts to extend the Board's reach to the profitability of 'sales of power and energy' made by [sic] is a stretch."*

Liberty refers to MFP's "dual personality" and the "conundrum" faced by Power Supply in maximizing off-system transactions versus reliability (see page 36 of the Liberty Report). In response, Nalcor and Hydro note that the additional capacity at the MF facility for the benefit of export sales (margins) has no bearing or impact on the reliability of delivery of energy to Hydro, nor has Liberty demonstrated that a correlation exists. The four units at MF generally endure the same wear and tear no matter how much water is running through the turbines. The plant was sized for the power and energy level justifiable at the time.

The planning and dispatch of Power Supply's and Hydro's assets will reflect reliability needs, for instance reserve as set by NL System Operator ("**NLSO**"), water management needs as set by the Water Management Agreement, as well as sales commitments. Reliability of assets is interlinked with the ability to maximize off-system sales.

As noted by Power Advisory at page 23:

> *Liberty is suggesting that Power Supply's decisions will be unduly influenced by the desire to realize increased margins from off-system transactions. This "dual personality" can be addressed by sharing these net margins with customers and mitigating rate impacts, much as Liberty has suggested. As a non-regulated entity, Power Supply is well positioned to assess the necessary tradeoffs between the profitability of capital investments and the resources needed to ensure system reliability. As a regulated, customer focused entity NLH can properly plan for the reliability of its system and electricity supply. This doesn't require that the Board be allowed to review all Nalcor capital investment decisions so that reliability and profitability can be properly balanced.*

[24] See https://www.nr.gov.nl.ca/nr/department/pdf/Mandate_MinisterCoady.pdf.

> *Furthermore, the conflict between increasing the value of off-system transactions and ensuring reliability is overstated. In general, there will be considerable alignment between these objectives. The value of off-system transactions can be increased by increasing output or producing output during periods when it is more valuable in export markets. Neither activity is likely to threaten reliability. Increased output will enhance reliability and shifting the timing of output should not have an affect. Power Advisory understands that maintaining the reliability of service to NL customers will be NLH's highest priority. It could require that sales to export markets be interrupted.*

Concerning Board oversight being required in this instance, Power Advisory states at page 10:

> *The net effect of Liberty's proposals for greater regulatory oversight is that unlike Nalcor's current organizational design it would open the door to exposing customers to the risks of future electricity supply decisions and require the Board to oversee the degree to which Nalcor is effectively managing the risks posed by such investments. This is effectively a step backwards and out of line with the developments in competitive electricity markets that Liberty cites.*

Regulation of Power Supply is not the sole means by which to achieve the goals of ensuring Hydro customers receive lowest cost power consistent with reliable service. With respect to the MFP assets within Power Supply, Nalcor is committed to providing the Board and other stakeholders with transparency in costs of these assets employed for the benefit of customers of Hydro and to continue to drive efficiencies, as cited in Section D2, below, while meeting reliability requirements, including:

- Annual work plan and budget development within the Nalcor group of companies, which involves input from all lines of business to obtain operating efficiencies and where appropriate consistency in practices;
- Board reporting as is already underway in respect of the Pilot Agreement for Optimization of Hydraulic Resources between Hydro and NEM;
- Continued dialogue and collaboration with Hydro, specifically relating to O&M and sustaining capital costs to ensure it is fully aware of the justification and any input offered by Hydro will be taken into consideration;
- Supporting information requests received by Hydro through regulatory proceedings, recognizing the Board's investigative and supervisory powers under the *Public Utilities Act*:

- Participation by Hydro representatives as part of the four Nalcor representatives in the six member Joint Operations Committee ("**JOC**") established under the Joint Operations Agreement ("**JOA**") between Nalcor and Emera. This JOC oversees various matters as outlined in the JOA related to the operation and maintenance of the LIL, LTA and the Maritime Link. This participation provides Hydro insight and influence into the O&M and sustaining capital costs of these transmission assets to ensure reliable operations; and
- Participation by two Hydro representatives in a four member Muskrat JOC established under the Power Purchase Agreement ("**PPA**") between Hydro and Muskrat Falls Corporation, owner of the Muskrat Falls generating station. This committee oversees various matters as outlined in the PPA related to the operation and maintenance of the Muskrat Falls generation station. This participation provides Hydro insight into the O&M and sustaining capital costs of the Muskrat Falls generating station and decisions are made by consensus.[25]

Nalcor is committed to providing transparency on these expenditures, and recognizes the importance of finding efficiencies in the context of the rate mitigation mandate it has been provided by Government.

Power Supply is operating largely in competitive markets and therefore needs to be flexible to enter any number of timely and complex commercial negotiations to secure competitive agreements for both existing (CF) and new assets. Leaving these activities unregulated and outside of Hydro will shield its customers from commercial risk and costs associated with these assets that should not be borne by domestic customers.

Finally, it is the companies' view that value sharing in respect of unregulated assets is a matter of government policy. Maintaining the sharing mechanism outside regulation affords the shareholder (Government) more flexibility in future development for export as well as flexibility to implement mechanisms to effect rate mitigation for the customers who most need that relief.

D.2 Organizational Structure

The 2016 reorganization of the companies into regulated and unregulated assets was executed in a considered fashion and based on industry practice and experience, including that of Nalcor President & CEO, Stan Marshall. Efficiency and cost optimization remains top of mind of Nalcor and Hydro leadership

[25] Section 5(3)(a) of the PPA.

and both organizations continue to work diligently to effect organizational change where there is a need to ensure that practices reflect those of a well-run electrical utility and support a safe and reliable electrical system that meets the needs of customers.

The current structure does not result in duplication of roles or additional unnecessary FTEs from the structure originally established in 2016, as Liberty implies. In the companies' view, the prescriptive FTE reductions suggested by Liberty would greatly impair both Nalcor's and Hydro's ability to provide quality services and fulfil the mandate as determined by the Province.

Finally, Nalcor's structure continues to evolve (which includes planned FTE reductions) as the MFP assets come in service. Any disruption to that process poses risk for execution schedule and reliability at a time of significant operational change for the Nalcor group of companies.

While Liberty noted that "by far", the financial opportunities related to the financing arrangements, return etc. present the largest opportunity for rate mitigation ($165M in 2021 to $551M in 2039),[26] at the other end of the spectrum of rate mitigation opportunities Liberty also examined the integration of Hydro and Power Supply and suggested that $17.6M in annual savings were possible through elimination of 94 FTEs.

Both Nalcor and Hydro are deeply appreciative of the contributions of every employee. Liberty's analysis and highly prescriptive conclusions on reintegration and FTE reductions fail to take into account such things as workload requirements, restructuring impacts (both in respect of costs to the companies and impact on productivity), requirements outside of the scope of Liberty's review and introduction of risk during a period of intense activity for both companies. A more detailed response has been provided in **Appendix 4** (in combination with input from Power Advisory at **Appendix 4A**) to bring greater emphasis and clarity on the issue of FTE requirements.

[26] See Liberty Report, page 92 to 93.

Purpose of Current Organizational Structure

The structure implemented in 2016 by the current President & CEO, Stan Marshall, is based on his 40+ years of recognized leadership in the utility sector.[27] The current organizational structure for Nalcor, as previously noted, separates regulated and non-regulated operations. It intended to put Nalcor in the position to achieve identified corporate priorities and meet the needs of the companies now and into the future. The existing structure has been closely examined by the Nalcor Board of Directors, with the recent assistance of their external consultants, Power Advisory. The Board is in full support of the existing structure and future plans, as noted in the Power Advisory Report, attached.

Specifically, the reorganization was executed to achieve the following:

1. To ensure the successful completion of the MFP;
2. To prepare the provincial electricity system for the integration of MFP power, the largest transformation of the utility sector in the Province since the 1960's, including preparing the provincial electricity system for integration of MF power and interconnection of the provincial electricity grid to the North American system;
3. To have clear separation of, focus on and accountability for Hydro, distinct from the remaining Nalcor business operations; and
4. To use corporate competitiveness and strategic flexibility of non-regulated assets and operations to leverage commercial opportunities within the electricity industry to maximize benefits for customers and people of the province.

Further, this structure intended to create minimal organizational change to deliver the mission, strategy and objectives of the organization, as determined by the mandate, as the company experiences a step change in scale and complexity of operations and assets under management.

Nalcor will require the capabilities to deal with emerging opportunities, including the expiry of the Upper Churchill contract in 2041, and oversight of the existing Offshore Development (oil and gas) equity stake. The policy objectives established by the Province identifies maximizing the value of wind and hydro assets as a priority, including seeking opportunities to pursue the development of Gull Island and other potential hydro and wind projects. In fulfillment of its current mandate to maximize energy

[27] See Nalcor's response to PUB-Nalcor 140.

opportunities for the Province, Nalcor needs to develop and maintain the skillsets and experience necessary to meet those requirements. As noted by Power Advisory on page (ii) of its report:

> *Liberty asserts that it found significant potential cost savings from combining Power Supply and NLH. Power Advisory believes that Liberty hasn't appropriately valued the importance of maintaining the organizational capability to deliver on Nalcor's resource development mandate and the essential role of an unregulated development organization to do so.*

And on page (v) to (vi) of the Power Advisory Report:

> *In sum, Nalcor's current design appears to be well suited to meet its strategic priorities. We recognize that these strategic priorities may change based on new direction from its shareholder, the Newfoundland and Labrador Government. However, absent such a change, the current organizational structure is appropriate and aligns with other electricity sector organizational structures. This finding is in direct contrast to Liberty's proposal to combine NLH and Power Supply in an effort to secure staffing reductions.*

Finding Efficiencies

Nalcor and its subsidiaries employ a "gating-in" process for its hiring approach, focused on resourcing requirements and efficiencies. This process ensures that as any position becomes vacant, that hiring supervisors/managers must justify to the Executive/Senior Vice President before it can be backfilled. There is no assumed or automatic approval to replace vacated positions.

The table below shows actual Nalcor FTE numbers in 2016 and "steady state" 2022 forecast post reliable in-service of the new assets and the planned transition of Holyrood Thermal Generating Station to a synchronous condenser facility.

	Actual	**2020 Forecast**[28]	**2022 Forecast**[29]
Year	2016	2020	2022
FTEs	1463	1630	1492

Increases in FTEs from 2016 to 2020 (forecast) are primarily associated with the increase in staff involved in the commissioning and operation of the new assets within MFP. Hydro and Nalcor commit to find efficiencies to bring the 2022 forecasted FTE count in line with or below that of 2016. It is recognized that in addition to essential positions such as operators, it is prudent to allow a notable increase in technical support staff, trades etc. until a level of sustained experience is gained with the new MFP assets and then effect FTE reductions as sustainable. The forecasted numbers above reflects the planned transition of Holyrood Thermal Generating Station in 2021 from a generating to a synchronous condenser facility and a commensurate decline in FTE numbers as a result.

As noted previously in Sections A4 (Combination of Hydro / Newfoundland Power) and A5 (MFP O&M Costs), Nalcor and Hydro are focused on (and committed to) finding efficiencies within the existing structure. The goal for the entire organization is to have the same (or less) FTEs as it did prior to the commencement of the MFP projects (subject to the *Reliability and Resource Adequacy Study* process currently with the Board and future role of the Holyrood Thermal Generating Station or any other resource decisions). This will be achieved without the specific position reductions proposed by Liberty, and in a fashion that best responds to the evolving requirements of both Nalcor and Hydro.

Hydro and Nalcor aim to provide a balanced assessment of potential future state operations with a view to identifying opportunities that benefit the ratepayer and taxpayer of this province. Both companies believe there are opportunities for efficiencies and enhancements, many of which may be achieved through continued organizational improvements and collaboration within the existing structure over time.

Hydro and Power Supply have worked, and will continue to work, together to ensure synergies are created and, when it makes sense, utilize the other's resources. In addition to areas that had retained

[28] The current forecast does not include work ongoing within Hydro and Power Supply to find efficiencies within the current structure. It has been adjusted to allow for the 71 vacancies budgeted within Hydro and Power Supply. It also does not take into account the potential results of the *Reliability and Resource Adequacy Study* as it relates to the Holyrood Thermal Generating Station, and current planning continues to forecast the repurposing of that facility.
[29] *Ibid*.

corporate servicing such as Payroll, Information Technology including Corporate Business Systems, and Supply Chain, examples of areas that have recently been examined by Power Supply for efficiencies and then implemented to date are:

- Drafting - Power Supply relies on Hydro services and systems;
- Operational Technology - Power Supply relies on Hydro to support that effort including Cyber aspects;
- Network Services - Power Supply relies largely on Hydro's Network Services; and
- Engineering Standards – Power Supply and Hydro are working together to establish common engineering standards and asset management principles.

There is strong collaboration between Hydro and Power Supply and this will continue where the equipment is similar, technical skills are common, and it is more effective to share resources.

In areas where there is significant investment in and quantities of major and critical equipment, such as transmission lines, transformers, generators, breakers, relaying, protection and control equipment, filters, synchronous condensers, HVdc converters, and other power delivery equipment, there is a need for dedicated oversight, which is effectively done with the division of regulated and unregulated assets. There is clear and effective accountability and there are no competing priorities.

Finally, capital investment in CF has grown substantially in recent years and is expected to continue to grow. The plant generated first power in December of 1971 and there is a significant long-term asset plan that is intended to ensure that the life of the plant extends beyond 2041 and Power Supply resources are required to undertake that major investment area.

A focus on returning to a more integrated organization versus a current "line of business" focus does not translate into significant organizational efficiencies or savings for rate mitigation purposes, especially when consideration is given to offsetting costs of this structure. Liberty acknowledges that further work needs to be done to establish the savings proposed at page 64 of the Liberty Report:

> *Achieving reductions in the range reported in this chapter will require a significant restructuring of Nalcor and Hydro. Some position eliminations may cause a need for increasing compensation for some position levels to provide for appropriate job scoping and compensation. Moreover, it is likely that the restructuring will permit combination of*

> *some positions below the management and supervisory level (i.e., the "individual contributor" level). Thus, a number of different means for combining the functions and re-defining some of the boundaries of work group responsibilities and interfaces will present themselves. It is important that the change result from a comprehensive organizational review.*

Introducing more change is disruptive to organizational effectiveness at a time of existing and significant operational change for the Nalcor group of companies.

Liberty's Analysis and Proposed FTE Reductions

Nalcor leadership's desire and readiness to address the changes MFP presents for the Province's electricity system and electricity rates is unwavering. The management team and Nalcor Board remain committed to finding synergies and rate mitigation remains a top priority.[30] However, the FTE reductions suggested by Liberty would greatly impair the organizations' capabilities and ability to provide quality service and fulfill its mandate.

Nalcor and Hydro have concerns with the methodology used to identify the targeted FTE reductions by Liberty. These concerns include:

a. **No analysis of actual workload.** Liberty's conclusions on FTE reductions were not based on any known workload analysis;
b. **Assumptions used**. Liberty employed certain assumptions in its analysis, which were not tested with the companies; and
c. **Other considerations**. Nalcor and Hydro list in **Appendix 4** other factors that were not considered by Liberty in the preparation of the Liberty Report, including (but not limited to): succession planning, recruitment and retention challenges, capacities and capabilities of the current team in light of an increased complexity of the electrical system and engagement and demands of current stakeholders.

In summary, reconfiguring the formal structure of an organization is something that must be taken seriously, as was done in 2016. The benefits of the current structure are just starting to come to fruition and reflect a better fit within the existing culture of the Nalcor group of companies. At a time in Nalcor's

[30] See PUB-Nalcor-269.

history where Nalcor and Hydro are experiencing exponential change in operations with the integration and operation of the MFP assets, now is not the time to create additional upheaval inside the organization. A focused team at all levels of the organization is required.

In addition to Nalcor's present obligations, it will need to be prepared for future growth opportunities. To fulfill this mandate successfully, Nalcor needs to maintain the appropriate resources and skillsets to identify, market, build and operate these renewable resources.

The current structure has been developed and communicated with a clear and consistent vision. It is at a point where it is taking hold and providing the desired outcomes and results. Instead of focusing on the organizational structure, Nalcor and Hydro must continue to focus on the challenge of building up an appropriate set of employee attitudes and skills and linking them together with carefully developed processes and relationships. In other words, the companies must continue to focus on building the organization and achieving an operational "steady state", with appropriate focus on efficiencies, rather than simply on changing the organizational structure again.

Nalcor and Hydro agree there are synergies that are achievable, and will continue to strive to meet or exceed them in order to reduce operating costs, while maintaining reliable service to customers, fulfilling regulatory obligations and reporting obligations to the shareholder. That is basic company stewardship. However, as a contributor to rate mitigation, Nalcor and Hydro see little utility and potentially significant service disruption, with the types of changes Liberty has proposed. As noted at page 29 of Power Advisory's report:

> *Liberty was charged with cost minimization and rate mitigation. While integrating NLH and Power Supply offers apparent opportunities to streamline operations and shed staff, a question that Liberty has failed to consider is: what the potential foregone future opportunities or lost capabilities from such an organizational structure are. As discussed above in Chapter 4, the current organizational structure provides a clear focus to NLH and Power Supply and as such is likely to support better decision-making with respect to the key planning, investment, and operating decisions that each organization must make.*

D.3 NEM

Maintaining the operation of NEM outside regulatory oversight affords Nalcor the necessary flexibility to operate a fast-paced and competitive energy marketing operation, which in turn allows it to be more efficient and therefore more profitable. As a result, the Province should receive higher dividends providing it with more flexibility to effect rate mitigation. Also, NEM, as a stand-alone, unregulated entity, insulates Hydro's regulated customers from risks associated with energy trading activities.

As noted by Power Advisory on pages 13 to 14 of its report:

> *The energy trading activities of virtually all of the companies that we reviewed were largely unregulated, except for Nova Scotia Power, which is a special case as discussed further below. A review of BC Hydro outlined the rationale for this as follows: "falling under BCUC [BC Utility Commission] oversight would hamper Powerex's [BC Hydro's unregulated energy trading subsidiary's] ability to compete and earn income in fast-moving and rapidly evolving competitive markets.*

Finally, outsourcing marketing functions as suggested by Liberty creates risk in potentially reducing the availability of in-house resources to monitor and quickly maximize future energy sales opportunities.

Liberty makes three material recommendations with respect to NEM and its current role within Nalcor:

1. **Value sharing.** Liberty believes ratepayers (via Hydro) should benefit from off-system sales directly as they bear the costs associated with the MFP and further states that doing so is a common practice among utilities (see pages 10 to 11, 19 to 21, 31 to 36 and 40 of Liberty Report).
2. **Expanded regulator oversight**. While it does not question the structuring of NEM as a separate corporate entity, Liberty believes NEM's off-system sales and operations should be under the direction of Hydro and subject to the same form of Board oversight as other parts of Hydro's operations (see page 42 of Liberty Report).
3. **Outsourcing services provided by NEM***.* Liberty believes alternatives to performing energy marketing and trading functions in-house (i.e., through NEM) should be explored and have suggested third party service providers as an option (see pages 40 to 43 of Liberty Report).

Nalcor and Hydro's response to Liberty's recommendations are set out below.

Value Sharing

Nalcor and Hydro acknowledge it is common within Canada for energy trading margins to be credited to customers in cases where margins are derived from utility assets paid for by utility customers. The decision as to where and how export margins get applied ultimately rests with Government.

Oversight

Nalcor's and Hydro's belief that NEM remain unregulated is supported by Power Advisory's jurisdictional scan as summarized in the Power Advisory Report.[31] While Liberty recommends that oversight by the Board should be the same as other parts of Hydro's operations, it is not clear how this would look or be implemented in the energy trading business. Liberty's recommendation could also expose Hydro's customers to risks associated with energy trading, which is not the industry best practice as observed by Power Advisory on page 18 and 19 of its report. The energy marketing and trading business is a competitive business requiring immediate and subjective decision making in ever changing market conditions. Extensive regulatory oversight could limit NEM's ability to compete and maximize profits from surplus energy sales. As noted on page (iii) of Power Advisory's report:

> *Liberty asserts that Board oversight of the trading organization has proven valuable in establishing best operating practices. Our jurisdictional review found one example of regulatory oversight of energy trading operations. Energy trading is fast-paced and requires detailed knowledge of energy markets and risk management practices. This capability resides in the industry, not in regulators.*

NEM is currently subject to rigorous risk oversight to monitor NEM's compliance with its authorized Energy Marketing Risk Management Manual, which includes, among a broad range of topics, approved transaction types, limits of delegated authority, and credit limits.

Outsourcing Services Provided by NEM

In respect of Liberty's suggestion that services provided by NEM could be outsourced, Nalcor makes the following observations:

[31] Power Advisory Report identified the Fuel Adjustment Mechanism applicable to Nova Scotia Power as a limited regulation to the extent the UARB may perform retrospective audits (Energy marketing and trading performed by Emera Energy out of Nova Scotia is unregulated).

1. Background / Due Diligence

When Nalcor first entered energy marketing and trading in 2009 with 1,200 GWh, it held an open solicitation for third-party service providers. Bidders were evaluated and Emera was selected. With the prospect of developing the Lower Churchill, Nalcor conducted a long term strategic assessment of its marketing function including: continuation of the Emera contract; entering into an agency relationship; entering into a joint venture; acquisition; internal growth (what eventually became NEM); and, ceasing marketing and trading activities. External subject matter experts were engaged to provide guidance and after careful deliberation and the sanctioning of Muskrat Falls, Nalcor determined the "Internal Growth" model offered it the best value. The Emera contract was concluded and NEM was formed in April 2015.

2. Mandate

The mandate of NEM is broader than Liberty suggests, as it is charged with the marketing of the Province's vast energy resources yet to be monetized. Even if no new generation assets are developed by Power Supply, consideration needs to be given to the expiry of the Upper Churchill contract with Hydro-Québec and the availability of Upper Churchill power beginning in 2041. Preparation and readiness for such power will occur long before the contract expires. It is critical to maintain energy marketing knowledge and capabilities within Nalcor to extract maximum value from future Upper Churchill power. Further, other potential unregulated activities and independent projects (e.g., development of Gull Island, runner upgrades at CF, smaller hydro and wind project developments surplus to native load requirements, marketing services to independent wind producers) have potential for economic benefit to Nalcor and the Province. NEM will be well positioned to participate in and add value in the sale of such power, given existing talents, skills and resources. Energy resources could be in excess of 40,000 GWh annually with Churchill Falls and the development of Gull Island alone. This amount exceeds five times the current island energy requirements.

3. Conflict of Interest

Energy marketing is a highly specialized industry requiring experience and knowledge of the market in which one operates. A small number of parties exist in the North East electricity market, all of whom are competitors or potential competitors of Nalcor/NEM (e.g., Emera, NB Power, Brookfield, Hydro-Québec).

4. The "Industry Standard"

There are no Canadian utilities with export volumes similar to Nalcor (post-MF) that contract out external marketing and trading services of surplus energy.[32]

5. Human Resources

If energy marketing and trading were contracted out, Nalcor would still need to retain a number of oversight FTEs. Further, Nalcor would lose intellectual capital accumulated over the years as NEM developed in-house expertise.

6. Portfolio Size

Liberty observed that several hundred MW of electricity available from MF is a comparatively small portfolio by industry standards, a further reason to consider the contracting out solution. Upon completion of Muskrat Falls, NEM will be marketing approximately 3 TWh of power annually. As noted by Power Advisory on page 20 of its report:

> *In sum, Liberty is out of step with typical practice. The amount of energy that NEM is likely to have available to market and the resulting revenues are in excess of what NB Power Energy Marketing manages and several orders of magnitude greater than what NorthPoint Energy Solutions manages. Focusing on the volume of energy for a portfolio of hydro assets understates the margins given a variable cost of effectively zero as well as the trading and profit opportunities given the arbitrage capabilities offered by these storage resources (i.e., the ability to buy energy when prices are low and sell energy when prices are high).*

7. Lack of Expertise

Liberty dismisses NEM's experience and skill seemingly with having completed no meaningful analysis of NEM's operations and staff.[33] Nalcor has been an active market participant since 2009 - initially through Nalcor's contract with Emera, and then as a full market participant (NEM) since 2015.

[32] See Power Advisory Report, pages 19 to 20:
Liberty's recommendation to consider outsourcing energy marketing is out of step with Canadian practice….With export revenues of greater than $100 million per year for NEM, Power Advisory believes that there's little precedent to contract out what is likely to be a core capability for Nalcor that is essential to its long-term economic viability and, with the sharing of these margins with customers, mitigating rates.

[33] Liberty Report, page 42.

8. Loss of Current Opportunities

Outsourcing energy marketing could jeopardize maximization of opportunities for arbitrage (i.e., importing low cost energy while storing energy in reservoirs and export same amount of energy later at a higher market price). A fully integrated subsidiary of Nalcor would hold a material advantage over a third-party provider with respect to this type of resource optimization.

Power Advisory states at page 19 of its report:

> *Focusing on the volumes of energy available to support contracting out energy marketing as Liberty does understates the margin opportunity as well as the importance of the trading capability to realizing these margins. Liberty fails to recognize that energy trading is a core capability and critical to the realization of the value offered by Nalcor's hydroelectric generation resources. Furthermore, to best realize these opportunities close coordination is needed between system operations and dispatch and energy marketing. Contracting out the energy marketing function will frustrate such close coordination and likely prevent the realization of the full value offered by this flexible resource.*

9. Mitigation of US Tax Exposure

Exposure to energy marketing and trading activities in the US can expose an entity to becoming subject to US taxation. A separate energy and marketing entity such as NEM shields Nalcor and affiliates from such risk.[34]

D.4 Offshore Development Opportunities and Requirements

In its report, Liberty focused on the "vertically integrated utility" and assumed the transfer of Nalcor's current and future offshore business to a separate Crown corporation ("Newco"). This reorganization will not occur in the manner initially contemplated as Nalcor Oil & Gas Corporation ("Oilco") will continue to own its existing interests in offshore developments. Two implications arise from this.

First, Oilco dividends received by Nalcor present a potentially valuable opportunity (approximately $2.4B) not considered by Liberty, similar to that of the other financial opportunities noted previously.

[34] Power Advisory Report, page 26.

These opportunities are noted in Figure 1, below and to be contrasted with Chart VII.16 on page 101 of the Liberty Report.

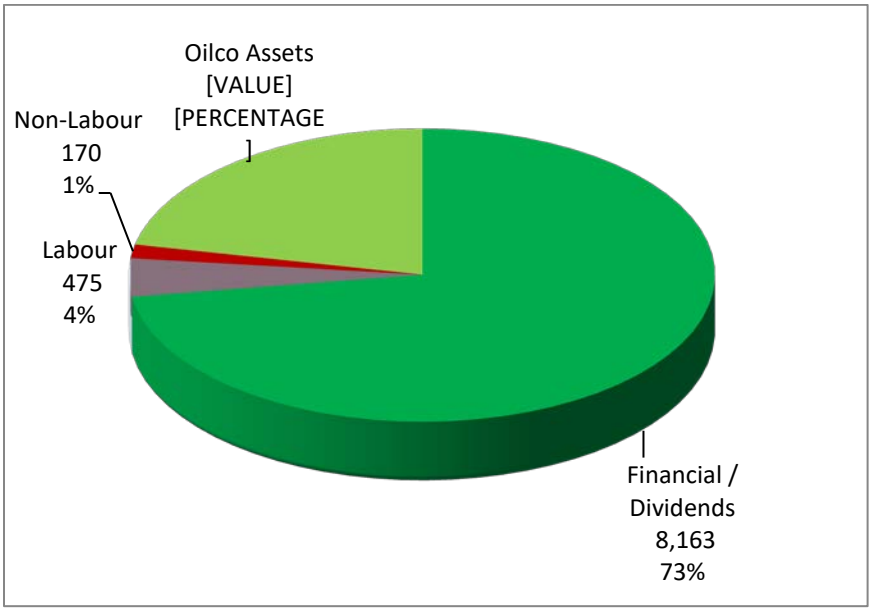


Figure 1 – 2020 to 2039 Total Mitigation by Source (Including Oilco) ($000,000s)

Second, Liberty did not consider the Nalcor resources that will still be required to support Oilco's business in the future. As noted at page 28 of the Power Advisory Report:

> *…Offshore Development is appropriately a separate business segment. As announced in March 2019, with Nalcor retaining the equity interests in the existing oil and gas investments after the creation of the new oil and gas crown corporation, it will be important to ensure the capabilities to govern and manage the investments are retained by Nalcor and appropriately reflected in its organizational structure.*

The management of Oilco's assets will be carried out by Newco pursuant to a Management Services Agreement ("**MSA**"), the term of which will likely be for the life of the fields in which Oilco has an ownership interest (i.e., for decades). As with any of a company's long-term significant commercial agreements, the MSA will have to be closely administered by Oilco throughout its term, which will require the involvement of Nalcor's Legal and Finance Departments, among others.

This involvement will include quarterly and consolidated financial statement preparation, financial and accounting reporting issues, consolidated budget preparation, forecasting, the interpretation of the terms of the MSA, compliance monitoring, advice on issues that arise during the life of the Agreement and more. The MSA will be the key component of the continuing business of Oilco, ensuring the appropriate management of Oilco's assets that provide a significant revenue stream for Nalcor. The MSA and the operations that it encompasses will warrant constant oversight and diligence. This was not contemplated by Liberty in its "operational opportunities" analysis.

As Oilco will continue to exist and be an important part of the business of Nalcor, the Board of Directors of Oilco will continue to have governance needs which will be supported by Nalcor staff. The work in this area is essential to the operations of the both the Board of Directors and Nalcor, and is not insignificant with respect to volume or time involved.

6.0 CONCLUSION

In conclusion, the companies reiterate that important opportunities for rate mitigation have been identified on the record in this proceeding. Nalcor and Hydro are generally in agreement with many of the points in the Synapse and Liberty Reports, in particular, the areas that are public policy decisions on the part of the Province. Where views diverge, particularly on regulatory scope and operational matters, Nalcor and Hydro have outlined in the commentary above the collective position of the companies and provided evidence to support their perspective.

Consideration of any change must take into account the current electrical system operating environment in NL, which is in a period of transformative change. The integration of the Maritime Link and the MFP, along with the review of future retirement or addition of generating sources on the Island, is the biggest system transition since the 1960s.[35] The contemplation of additional transformative change introduces the potential for added risk. The timing and impact of any suggested change needs to be carefully considered against the materiality of the opportunity identified, as well as the potential to gain further efficiencies in utility practices within the current structure.

[35] Hydro is currently participating in a review process with the Board and intervenors on the reliability standards for the provincial electrical system, which considers the future timing and need for new system resources, as well as the retirement of resources such as Holyrood Thermal Generating Station ability. This process commenced with Hydro's submittal to the Board in November 2018 of the *Reliability and Resource Adequacy Study*, and is ongoing.

Rate mitigation for customers in the Province is a critical issue for both Nalcor and Hydro and both companies look forward to further discussion of these issues at the upcoming hearing

Appendix 1

Power Advisory Report – *Review of North America Electric Utility Organizational Structures & Implications for Proposals in The Liberty Consulting Group Final Report*

Review of North America Electric Utility Organizational Structures & Implications for Proposals in The Liberty Consulting Group Final Report

Prepared for:

Nalcor Energy

September 19, 2019

Power Advisory LLC
55 University Avenue, Suite 605
Toronto, ON M5J 2H7
+1. 978-369-2465
poweradvisoryllc.com

EXECUTIVE SUMMARY

Nalcor is expected to complete construction and integration of the Muskrat Falls Project (MFP) in 2020, and its corporate priorities may be expected to evolve as it transitions into post-construction operations. Power Advisory LLC (Power Advisory) was engaged by Nalcor Energy (Nalcor) to provide strategic advice to the Nalcor Board of Directors on potential organizational structures that will allow it to achieve its objectives following the transition.

As part of this engagement, Power Advisory was asked to review electric utility organizational structures and the corresponding electricity market structures and regulatory frameworks that influence these organizational structures in Canada and the United States. As a secondary assignment and utilizing this research, we were asked to respond to the various issues raised in The Liberty Consulting Group's (Liberty's) "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities" (Final Report). This was part of a broader effort to provide input for purposes of the terms of reference (the "Reference Questions") released by the Government of Newfoundland and Labrador to examine options to mitigate electricity rates within the province. In this regard, given the scope of a number of Liberty's comments we were requested to comment on the appropriateness of Nalcor's organizational structure recognizing its strategic priorities. Nalcor sought such a review to provide context for the Reference Questions being considered by the Board of Commissioners of Public Utilities (Board) to examine options to mitigate electricity rates within the province.

To assist it with the evaluation of rate mitigation options the Board engaged Liberty and Synapse Energy Economics. In its Interim Report, Liberty noted that "Other comparatively small enterprises conducting vertically integrated electric utility operations do so under significantly less complicated structures than does Nalcor."[1] In meetings with Nalcor and other parties in August, Liberty proposed a series of organizational changes that would significantly alter Nalcor's organizational structure in an effort to reduce staffing levels and produce cost savings. Liberty's Final Report expands upon this interim recommendation and further examines potential mitigation opportunities. To address their rate mitigation objective they evaluated Nalcor's organizational structure, the Newfoundland and Labrador utility regulatory framework and "excess" energy marketing practices. As these issues were a focus of our review, Power Advisory offers comments on the Liberty Final Report in those areas, within the context of the findings from our research.

[1] The Liberty Consulting Group, "Final Report on Phase One of Muskrat Falls Project Potential Rate Mitigation Opportunities" December 31, 2018, p. 6.

This report presents our findings from the jurisdictional research and then assesses Nalcor's current organizational structure in light of these findings and responds to the Liberty Final Report.

Scope of Power Advisory Jurisdictional Review

Power Advisory elected to review electric utilities that would offer insights on some of the fundamental organizational design questions that Nalcor is considering: (1) the structure and relationship between regulated and non-regulated utility operations; and (2) the degree of regulatory oversight of energy trading operations and where they reside within the organization.

Given the prevalence of similar ownership structures and mandates that often include broad policy objectives, we reviewed the major utilities in Canadian jurisdictions. In the US, we focused on utilities that have restructured their electricity markets and have both regulated and unregulated operations.

Findings on Organizational Structure

The appropriate starting point for assessing organizational structure is understanding the organization's mission and objectives. In the words of Peter F. Drucker: "Mission defines strategy, and strategy defines structure."[2] This perspective is evident in the findings from our jurisdictional scan where the organizational structures were heavily influenced by their strategic focus.

The three primary findings from this jurisdictional research are:

(1) Regulated and non-regulated operations are typically separated. This simplifies the oversight of regulated operations and avoids risks of cross-subsidization of competitive operations by the regulated operations. A second reason for this separation is the distinct capabilities required for regulated and non-regulated operations where these businesses are disaggregated. Where these operations have been separated, regulated operations are typically focused on managing and operating transmission and distribution businesses and non-regulated operations often encompass the development, construction and operation of generation projects, wholesale energy trading, as well as retail energy services.

Liberty asserts that it found significant potential cost savings from combining Power Supply and NLH. Power Advisory believes that Liberty hasn't appropriately valued the importance of maintaining the organizational capability to deliver on Nalcor's resource development mandate and the essential role of an unregulated development organization to do so.

[2] Peter F. Drucker, *Management Challenges for the 21st Century*, 1999, p. 6.

(2) Energy trading operations are largely unregulated. A government review of BC Hydro outlined the rationale for this as: "falling under BCUC [BC Utility Commission] oversight would hamper Powerex's [BC Hydro's unregulated energy trading subsidiary's] ability to compete and earn income in fast-moving and rapidly evolving competitive markets."[3] Power Advisory believes that this rationale applies universally and limits the regulatory oversight over energy trading operations, particularly where they are a critical contributor to financial performance.

Liberty asserts that Board oversight of the trading organization has proven valuable in establishing best operating practices. Our jurisdictional review found one example of regulatory oversight of energy trading operations. Energy trading is fast-paced and requires detailed knowledge of energy markets and risk management practices. This capability resides in the industry, not in regulators.

(3) Most energy trading operations are in stand-alone entities. In Canada the rationale for this separation is believed to be the same as outlined by Nalcor: to shield the parent from the risk of becoming a taxable entity in the US and to remove affiliates from exposure to risks from energy marketing activities. This last issue is significant because it can affect the underlying cost of capital of these entities.

Liberty proposes that Nalcor consider contracting out its energy trading operations given their small size. Power Advisory believes that Liberty has inappropriately focused on energy volumes rather than margins and failed to recognize that highly flexible energy storage hydroelectric resources offer higher margins given their ability to arbitrage energy prices. Power Advisory was unable to find a precedent in Canada for a utility with a portfolio the size of Nalcor's that contracts out this core capability.

Liberty uses the departure from industry practice of allocating export margins to the cost of the facilities that produce them to argue for expanded oversight over Nalcor's investment decisions. Elsewhere it argues for greater regulatory oversight of Nalcor Energy Marketing. The net effect of these proposals would cause NLH to be among the most highly regulated utilities in Canada and this is for a crown-utility that is imbued with the public interest. Figure 1 reviews the degree of regulation across Canada by Province. As indicated, NLH is currently relatively heavily regulated with Power Supply effectively unregulated similar, albeit with less oversight, to generators and retailers in Alberta.

Assessing Nalcor's Organizational Structure

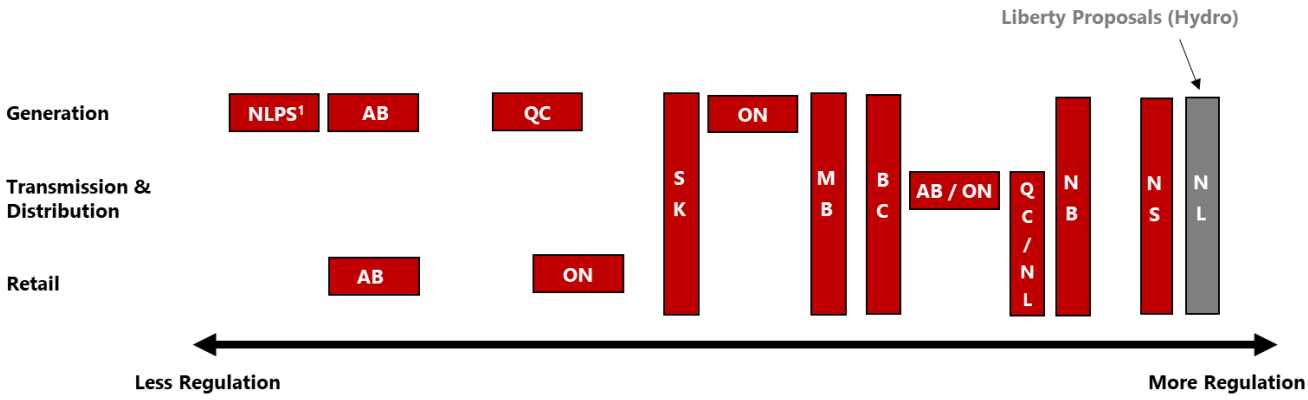
Once again, the starting point for assessing Nalcor's organizational structure is its mission. Nalcor's mission is to manage the province's energy resources effectively and responsibly for the

[3] British Columbia Ministry of Energy, Mines & Petroleum Resources, "Comprehensive Review of BC Hydro: Phase 1 Final Report", p. 20. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/final_report_desktop_bc_hydro_review_v04_feb12_237pm-r2.pdf

benefit of the people in the province, including investing in, engaging in, and carrying out related activities in all areas of the electricity sector. The current organizational structure for Nalcor reflects the following identified priorities:

1. To ensure the successful completion of the MFP;
2. To prepare the provincial electricity system for the integration of MFP power, the largest transformation of the utility sector in the Province since the 1960's, including preparing the provincial electricity system for integration of MF power and interconnection of the provincial electricity grid to the North American system;
3. To have clear separation of, focus on and accountability for Hydro, distinct from the remaining Nalcor business operations; and
4. To use corporate competitiveness and strategic flexibility of non-regulated assets and operations to leverage commercial opportunities within the electricity industry to maximize benefits for customers and people of the province.

Figure 1: Scope of Regulatory Oversight by Province



[1] Current, Nalcor Power Supply

Further insight into Nalcor's mission is provided by the Premier's January 2019 Mandate Letter to the Minister of Natural Resources (Minister), which requested the Minister to lead on the following:[4]

[4] Dwight Ball, Premier, January 9, 2019, p.2 https://www.nr.gov.nl.ca/nr/department/pdf/Mandate_MinisterCoady.pdf (Mandate Letter)

- "Maximizing the net benefits from in-province use of energy and energy export by:

  o Intensively marketing cost competitive electricity generated by wind and hydro to regional, national, and international markets;

  o Encouraging investment and innovation in electrical power generation projects, and

  o Seeking opportunities to develop the Gull Island Hydro Project, which will include identifying potential markets and access routes."[5]

Nalcor's current organizational design is focussed on achieving these strategic priorities. This is evident in the split between its regulated and unregulated operations. This is in full accord with our findings that regulated and unregulated operations are typically separated. NLH organized on a stand-alone basis provides a dedicated focus on its regulated electricity operations.

Furthermore, the non-regulated side of electricity operations was further separated into Power Development and Power Supply to deliver on the generation and transmission components of the Muskrat Falls Project as two separate projects and to recognize the distinct capabilities required to support project development, project operations, and energy trading for the non-regulated electricity segment. Establishing power development as a separate non-regulated business segment best positions Nalcor to pursue development of power generation projects, consistent with the direction provided to the Minister by the Premier. This follows the successful model that Hydro-Québec has employed where Hydro-Québec Innovation is a separate division and has effectively constructed almost 5,000 MW of new hydroelectric facilities since 2003.

The establishment of Nalcor Energy Marketing as a separate corporation is consistent with our findings that energy trading operations are typically stand-alone. This separation of Nalcor Energy Marketing and its exemption from regulatory oversight is particularly important given the potential margins available from the surplus energy that Nalcor is forecast to have available from its hydroelectric facilities on the Churchill River and the importance that these energy trading operations will have on the value that the Province realizes from these resources. This structure best allows Nalcor to intensively market electricity to regional, national, and international markets in accord with the direction provided to the Minister by the Premier. As BC noted with respect to BC Hydro's energy marketing affiliate, it is essential that this entity be nimble and fast-moving so to be able to respond effectively to competitive opportunities.

In sum, Nalcor's current design appears to be well suited to meet its strategic priorities. We recognize that these strategic priorities may change based on new direction from its shareholder, the Newfoundland and Labrador Government. However, absent such a change, the current organizational structure is appropriate and aligns with other electricity sector organizational

[5] Mandate Letter

structures. This finding is in direct contrast to Liberty's proposal to combine NLH and Power Supply in an effort to secure staffing reductions.

Finally, Drucker's aphorism, "Mission defines strategy, and strategy defines structure", explains Liberty's recommended organizational structure. Liberty's mission from the Board under the Reference Questions was to identify options to mitigate electricity rates within the Province. This is an important objective, but Nalcor's current mandate is clearly broader than this, with a core focus being "to support resource development in our province". The organizational structure proposed by Liberty is focused on cost reduction and does not conform with the most prevalent organizational designs that we found where there were both regulated and unregulated operations and where these unregulated operations were expected to make significant contributions to the organization's financial performance and where energy trading also was critical to this financial performance. There is a separate question regarding whether Liberty's proposed organizational design can achieve the estimated FTE reductions without impairing service quality or organizational capability and effectiveness. This issue is beyond our scope, but the close alignment of Nalcor's organizational structure with other electricity operations that we reviewed suggests that Liberty's proposed FTE reductions present a risk of reduced organizational effectiveness.

TABLE OF CONTENTS

Executive Summary ..... **i**

1. Introduction and Purpose **1**

1.1 Relevant Experience of Power Advisory 2

1.2 Contents of Report 2

2. Summary of Liberty Final Report **3**

2.1 Off-System Sales Margins to Offset Utility Revenue Requirements 3

2.2 Expanded Board Oversight of Off-System Sales and Major Investments 3

2.3 Contracting for Energy Marketing Services 4

2.4 Integration of Power Supply and Hydro 4

3. Jurisdictional Analysis Methodology **6**

3.1 Scope of Analysis and Canadian Utilities 6

3.2 Criteria for Selecting US Utilities 6

4. Jurisdictional Analysis Key Findings **8**

4.1 Energy Trading Profits Considered in Rates 8

4.1.1 Liberty Perspective: Export sales margins typically offset utility revenue requirements 9

4.2 Separation of Regulated and Non-regulated Operations 11

4.2.1 Liberty Perspective: NLH and Power Supply Integration would reduce costs 12

4.3 Energy Trading Operations Largely Unregulated 13

4.3.1 Liberty Perspective: Regulatory oversight of energy trading operations warranted 15

4.3.2 Liberty Perspective: Marketing organization should be directed by utility 16

4.4 Most Energy Trading Operations are Stand-Alone 17

4.4.1 Liberty Perspective: Reasons for structuring NEM as separate entity reasonable 18

4.4.2 Liberty Perspective: Regulators focused on ensuring that utilities avoid high risk activities 18

4.4.3 Liberty Perspective: NEM is fairly small and a contracted solution may be preferable 19

4.5 Regulatory Oversight Varies with Operations and Market Structure 20
4.5.1 Liberty Perspective: Regulator best positioned to optimize costs, reliability and ongoing O&M expenditures 21
4.6 Government Sets Underlying Policies 23
5. Review of Nalcor's Organizational Structure 25
5.1 Nalcor Mission & Implications for Organizational Structure 25
5.2 Nalcor's Current Organizational Structure 26
5.3 Assessment of Nalcor's Organizational Structure 27
5.3.1 Liberty Perspective: Integration of NLH and Power Supply would reduce costs 28
Appendix A: North America Utility Summaries 30
Newfoundland and Labrador: NL Hydro / Nalcor Energy 31
Newfoundland and Labrador: Newfoundland Power / Fortis Inc. 34
Nova Scotia: Nova Scotia Power Inc. (NSPI)/Emera Inc. 36
New Brunswick: NB Power Corporation (NB Power) 39
Québec: Hydro-Québec (HQ) 42
Ontario: Ontario Power Generation (OPG) 45
Ontario: Hydro One Limited 48
Manitoba: Manitoba Hydro 51
Saskatchewan: SaskPower 55
Alberta: ENMAX Corporation 57
British Columbia: BC Hydro and Power Authority (BC Hydro) 59
Minnesota, United States: Minnesota Power (MP) 62
New York, United States: New York Power Authority (NYPA) 66
New Jersey, United States: Public Service Enterprise Group, Inc. (PSEG) 68
Michigan, United States: DTE Energy 71
United States (Various): Exelon Corporation 73
United States (Various): FirstEnergy Corp. (FE) 76

1. INTRODUCTION AND PURPOSE

On September 5, 2018, the Government of Newfoundland and Labrador released the terms of reference (the "Reference Questions") for the Board of Commissioners of Public Utilities (Board) to examine options to mitigate electricity rates within the province, including options to reduce the rate impacts resulting from the Muskrat Falls Project (MFP). The Board engaged The Liberty Consulting Group (Liberty) and Synapse Energy Economics to assist it with its review of rate mitigation options. On January 2, 2019, the Board released two interim reports which were prepared by its experts relating to its review of electricity rate mitigation options and impacts in relation to the MFP. Liberty's interim report included preliminary findings on issues related to potential cost savings, including the structure of Nalcor Energy (Nalcor) and its various business segments. In its Interim Report Liberty noted that "Other comparatively small enterprises conducting vertically integrated electric utility operations do so under significantly less complicated structures than does Nalcor."[6] In meetings with Nalcor and other parties in August, Liberty proposed a series of organizational changes that would significantly alter Nalcor's organizational structure in an effort to reduce staffing levels.

Liberty's "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities" (Final Report) expands upon these interim conclusions and further examines potential mitigation opportunities.[7] Their examination included a review of Nalcor's organizational structure, the Newfoundland and Labrador utility regulatory framework and various issues associated with Nalcor's energy marketing affiliate and the treatment of energy export margins. The Liberty Final Report considers even more significant changes to the Nalcor organizational structure than the Interim Report.

Power Advisory LLC (Power Advisory) was engaged by Nalcor to review electric utility organizational structures and corresponding electricity market structures and regulatory frameworks that influence these organizational structures in Canada and the United States. Specifically, Nalcor asked Power Advisory to review these electricity markets, including the historical context, key drivers and policies shaping the electricity sector and the resulting various electric utility organizational structures employed and based on this research to assess Nalcor's existing organizational structure, recognizing its strategic priorities. This report presents our findings from this research and then comments on the proposals put forward in Liberty's Final Report that were covered in our research.

[6] The Liberty Consulting Group, "Final Report on Phase One of Muskrat Falls Project Potential Rate Mitigation Opportunities" December 31, 2018, p. 6.

[7] The Liberty Consulting Group "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities" September 3, 2019

1.1 Relevant Experience of Power Advisory

Power Advisory is a management consulting firm specializing in electricity market analysis and strategy, power procurement, policy development, regulatory and litigation support, market design and project feasibility assessment. We are regularly called upon to review various aspects of North American electricity markets. Of direct relevance to this project, in 2015 we were engaged by the Newfoundland and Labrador Department of Natural Resources to conduct an independent review of the Newfoundland and Labrador electricity sector and each of the other Canadian provinces to identify best practices with respect to oversight, governance, planning and regulatory review for the electricity sector.

1.2 Contents of Report

This report is organized into five chapters, the first of which is this introduction. The second chapter summarizes Liberty's proposals that we are responding to.[8] Chapter 3 reviews the scope of our jurisdictional scan. The next chapter presents the key findings from the jurisdictional analysis we conducted and contrasts Liberty's proposals with our findings. Chapter 5 first reviews Nalcor's organizational structure and then assesses its appropriateness in light of the findings from our jurisdictional review. Appendix A provides summary reviews of the North America utilities selected for the jurisdictional scan.

[8] Nalcor has a separate report that responds to other issues raised by Liberty.

2. SUMMARY OF LIBERTY FINAL REPORT

This chapter serves as a summary of the primary proposals in the Liberty Final Report that Power Advisory responds to in this report based on the findings from our jurisdictional scan of North America electric utility structures. This does not represent an exhaustive summary of the Liberty Final Report. These proposals correspond to several of the largest operations-related rate mitigation opportunities identified. The Liberty proposals and comments reviewed are: (1) the use of off-system sales margins to offset utility revenue requirements; (2) Board oversight of off-system sales and capital investments; (3) contracting out the energy marketing function provided by Nalcor Energy Marketing (NEM); and (4) the reintegration of Nalcor Power Supply and NLH.

2.1 Off-System Sales Margins to Offset Utility Revenue Requirements

Liberty notes that it is common practice in North America for a portion off-system sales revenues to be used to offset utility revenue requirements.[9] This is based on the principle that when export revenues are obtained from the use of assets that support utility service, and whose costs are borne by customers, the benefit of such export sales should be credited to customers. Liberty asserts that the misalignment whereby these margins are retained by Nalcor and the shareholder whereas the facilities' costs are paid by customers results in a "dual personality" that will lead Nalcor to maximize profitability from excess energy at the expense of controlling customer costs and promoting reliability.

2.2 Expanded Board Oversight of Off-System Sales and Major Investments

While Liberty does not question the structuring of NEM as a separate corporate entity, it believes that all off-system sales should be under the direction of NLH and subject to the same form of Board oversight as other parts of NLH's operations.[10] Liberty seeks to ensure that what it describes as net customer costs, as opposed to marketing and trading margins, are optimized. Liberty proposes that the Board's review include the structure and operating costs of NEM, nature and extent of transactions in which it engages, controls to ensure integrity in trading and measures to mitigate transaction risk. Liberty asserts that Board oversight has "proven very valuable" in establishing best operating practices with respect to the definition of transaction types with appropriate risk appetite, credit limits to mitigate counterparty risk and organizations, systems, and controls to ensure transaction integrity. Although, Liberty recognizes that it is not Canadian Crown corporation practice for export sales to be subject to regulatory oversight, even where

[9] Liberty Phase Two Final Report, crediting of off-system sales to customer primarily discussed on p.10-12, p.19-21 , p.31-34 and p.40.

[10] Ibid., p.42

margins are applied to revenue requirements, it asserts that this is not the case in the US (without identifying the US jurisdictions or utilities to which it is referring).[11]

2.3 Contracting for Energy Marketing Services

Liberty proposes that Nalcor consider contracting out energy marketing services to a third-party in lieu of developing and maintaining these capabilities within NEM. The asserted benefit is that existing entities across North America have stronger capabilities, experience and market connections then NEM has or could timely and efficiently develop for such a comparatively small energy marketing operation.[12] Liberty notes that it does not have an understanding of the relative costs of external energy marketing and monitoring of its performance to an internal, at-cost operation or if there is the market interest to provide such services.[13] It proposes a market solicitation to better determine the costs of these services and interest by potential service providers.

2.4 Integration of Power Supply and Hydro

Reintegrating Nalcor Power Supply and NLH into a single organization operating LCP, Churchill Falls, other hydro generation, transmission, distribution, and customer service was one of the key operational proposals identified by Liberty in Phase One. In the Phase Two Final Report this proposal is further examined with Liberty finding that re-integrating Power Supply and NLH would produce substantial cost saving due to a reduction in required FTEs.[14] These potential operational cost savings are primarily from combining Power Supply and NLH engineering, elimination of executive/senior management, reduced corporate services and to a lesser extent in transmission.[15]

The core of Liberty's argument is that upon completion of LCP and the separation of the oil and gas business into a new Crown corporation, Nalcor will be a comparatively small vertically integrated utility that can be operationally supported through a single organization. More specific to the current role of Power Supply, Power Development is understood to be eliminated upon completion of MF and Liberty asserts that the current resources dedicated to Power Supply's

[11] Ibid., p.36 / p.39

[12] Ibid., p.11

[13] Ibid., p.42-43

[14] Ibid, p.64. This topic is the focus of Chapter V "Hydro and Nalcor Power Integration." Higher potential savings of 113 FTE are cited in the introduction (p.6) but this includes the originally identified potential combination of NLH and NP small hydro operations, which was found to be "not worth pursuing."

Integration is also significantly discussed in Chapter I (p.3-11), Chapter VI and Chapter VII. D.2 (p.94).

[15] Ibid., p.63-64

development mission should not be integrated. It believes that the development mission can be reinstated with a merchant focus at the point it is required in the future as opposed to being part of the integrated organization. From this standpoint Liberty envisions Nalcor becoming solely utility-focused and in a low-growth mode for the foreseeable future.[16]

An additional element of the Liberty discussion of integration is removing the separation between Nalcor's regulated (NLH) and unregulated assets such as Churchill Falls and LCP (currently, Power Supply). Liberty identifies the distinction between the two asset types as artificial. It asserts that there is no sound operational reason for maintaining the distinction, restating that the combined organization would have the characteristics of comparatively small vertically-integrated utility.[17] Therefore, Liberty proposes the combination of regulated and non-regulated operations.

Finally, to support the resulting elimination of "executives" from the integration of Power Supply and NLH, Liberty presents the results of an executive organization analysis comparing Nalcor's current structure to four peer utilities. With this analysis Liberty suggests that "the executive organization of Nalcor is unusually large and complex for such a comparatively small utility operation."[18] We comment on this analysis in a separate report.

[16] Ibid., p.79

[17] Ibid., p.63

[18] Ibid. p.82-83

3. JURISDICTIONAL ANALYSIS METHODOLOGY

3.1 Scope of Analysis and Canadian Utilities

As discussed, the primary purpose of this jurisdictional scan was to review electric utilities that would offer insights on the specific organizational design questions that Nalcor is considering. The two issues that Nalcor indicated as being of the greatest interest were: (1) the structure and relationship between regulated and non-regulated utility operations; and (2) the degree of regulatory oversight of and the structure of energy trading operations (i.e., where do these operations reside).

Given the prevalence of similar ownership structures and mandates that often include broad policy objectives, we reviewed the major utilities in all Canadian provinces, except PEI. We elected to not review PEI given its small size and the limited scope of Maritime Electric, the investor-owned utility that serves about 90% of the Island.[19]

In Alberta and Ontario there are number of major electric utilities. In Alberta we selected ENMAX given that it operates distribution and transmission divisions as well as has competitive wholesale and retail operations. In Ontario, we focused on Hydro One Networks Ltd., the transmission and distribution company that received the legacy wires assets owned by the former Ontario Hydro and Ontario Power Generation, which owns and operates various nuclear, hydroelectric and fossil generating units that were spun off from Ontario Hydro.

3.2 Criteria for Selecting US Utilities

Given a fundamentally different US landscape compared to Canada, specific criteria were employed to identify the US utilities or utility holding companies that we reviewed. Many US electricity markets were restructured in the late 1990s and early 2000s, with a number of states mandating or encouraging the sale of utility-owned generation assets to enhance the competitiveness of wholesale electricity markets.[20] In general, we focused on jurisdictions where there was a mandated separation of regulated and unregulated operations.

In those states that mandated or encouraged the divestiture of generation assets by utilities, there is no remaining generation business owned by the utilities. This leaves just a few states that required a separation of regulated and competitive operations but did not mandate or promote the sale of the generation portfolio. Furthermore, many states continue to have vertically integrated electric utilities and therefore, don't have organizational structures that offer insights

[19] However, Newfoundland Power/Fortis Inc. was reviewed.

[20] These states included California, Connecticut, Massachusetts, Maine, New York and Rhode Island. In New Jersey, some electric utilities sold their generation assets, while others spun them off into what become competitive subsidiaries.

into these questions. Finally, some utilities that had affiliates participating in competitive markets have since elected to refocus on their regulated businesses given the greater earnings stability that such businesses offered, further reducing the available universe of utilities/companies offering relevant organizational structure insights.

In total, there is a limited universe of utilities in the United States that have regulated and unregulated operations. From this limited universe we reviewed Public Service Enterprise Group, Inc. (PSEG), parent of Public Service Electric & Gas a distribution company in New Jersey; DTE Energy, a Michigan-based utility holding company; Minnesota Power/ALLETE, which is a vertically-integrated electric utility, with various competitive affiliates; Exelon Corporation (Exelon), which is the parent of six combined transmission and distribution companies and a wholesale generation and retail energy services company; FirstEnergy Corp. (FirstEnergy), which is the parent of various regulated combined transmission and distribution companies and a vertically integrated utility;[21] and the New York Power Authority. The summary of our reviews of these companies and the market structures and regulatory environments in which they operate is provided in Appendix A.

[21] In March 2018, FirstEnergy Solutions Corp. and FirstEnergy Nuclear Operating Company filed for bankruptcy protection under Chapter 11 of the US Bankruptcy Code. Under this filing, FirstEnergy's financial interests in these subsidiaries was eliminated and they were effectively transferred to the creditors.

4. JURISDICTIONAL ANALYSIS KEY FINDINGS

This chapter summarizes the key findings from this jurisdictional research and where appropriate contrasts these with the proposals put forward by Liberty. These findings have been organized to respond to the proposals and comments put forward by Liberty.

The primary findings are: (1) energy trading profits are typically considered in rates, particularly where these profits are generated from regulated assets; (2) regulated and non-regulated operations are typically separated; (3) energy trading operations are largely unregulated; (4) most energy trading operations are in stand-alone entities; (5) regulatory oversight varies with operations and market structure and to a lesser degree financial capability; and (6) Government sets underlying policy. Each of these findings is discussed further in turn.

4.1 Energy Trading Profits Considered in Rates

Profits from these energy trading operations are typically considered when setting rates. With regulated assets used to generate the electricity that is traded, sharing the resulting profits with customers is typically deemed to be appropriate, but as discussed, these operations are typically unregulated. The BCUC's treatment of Powerex's net income when reviewing BC Hydro's rates is one example. Powerex's forecast net income is included in BC Hydro's revenue requirements based on a five-year historical average.[22] Variances between actual and forecast net income are captured by a Trade Income Deferral Account. If Powerex incurs a loss in any year, BC Hydro does not transfer the loss, such that the shareholder, the BC Government, incurs these losses. The variance between forecast net income and $0 is transferred to the Trade Income Deferral Account under such conditions.

NB Power's energy trading subsidiary's, NB Energy Marketing, energy trading profits are considered when setting NB Power's rates. NB Power's regulated assets are a major contributor to these energy trading opportunities. NB Power's 10-Year Plan, Fiscal Years 2020 to 2029, indicates that export revenues for 2020 are forecast to be $166 million, representing about 10% of total revenues.[23]

Similarly, Manitoba Hydro's export sale revenues are considered when setting rates for it; in FY 2018 these represented 19% of Manitoba Hydro's total revenues.[24] The Manitoba Public Utility Commission reviews and critically assesses Manitoba Hydro's assumptions for these export

[22] Powerex's net income for FY 2020 was forecast to be $120.6 million, about 17% of BC Hydro's net income target for rate-setting purposes for this period.

[23] Net income realized from these sales is not indicated.

[24] Revenue estimates based on 2018 Annual Report.

revenues but doesn't review or oversee the performance of Manitoba Hydro's energy trading operations. The majority of Manitoba Hydro's export revenues are derived from long-term contracts with US utilities in the Upper Midwest. Historically, Manitoba Hydro has pre-built hydroelectric projects for export markets and uses these export sales to amortize the cost of these projects, resulting in lower effective costs for its domestic customers when there is a domestic need for the energy.[25]

Hydro-Québec is an exception. HQ Energy Marketing's energy trading profits are realized by Hydro-Québec and not shared with customers. However, Hydro-Québec customers benefit from an inflation indexed wholesale energy rate that reflects the embedded cost of facilities and presumably considers the profitability of export sales. This low wholesale rate effectively eliminates the need to directly consider these energy trading profits. Hydro-Québec customers benefit from low rates and are shielded from the risks associated with these energy trading operations.[26]

4.1.1 Liberty Perspective: Export sales margins typically offset utility revenue requirements

Liberty notes that "Nearly universal practice in both Canada and the U.S. would already apply this source of revenue [export sales] to offset utility revenue requirements." (p. 10) As discussed above, our research supports this position. This is ultimately an appropriate decision for the shareholder and policymakers.

Under a section labeled "Aligning Risk and Reward" Liberty asserts that the current utility regulatory framework in Newfoundland and Labrador is anomalous:

> "it creates a division between cost responsibility for LCP investment and operating costs (which fall on customers) and off-system benefits (which flow to ownership) respecting the very same assets. Having cost risk and profit opportunity reside with the same entity (an unregulated one) is a central element in a restructured industry; the same is true in a vertically integrated one (customers representing that entity)." (p. 38)

Liberty uses this departure from industry practice of allocating export margins to the cost of the facilities that produce them to argue for expanded regulatory oversight over many additional aspects of Nalcor/NLH's electricity business and operations. However, if export margins are used to reduce the regulated cost of service, one of the primary issues with respect to aligning risk and reward for Muskrat Falls is largely addressed. Nonetheless, Liberty uses this asserted misalignment

[25] In its Need For and Alternatives To proceeding the Manitoba PUC found that "new generation will likely be required [for domestic consumption] no later than 2024. However, there are compelling economic, financial and commercial reasons to advance the Keeyask Project to 2019." (p. 20). Among the compelling financial and commercial reasons to advance the Keeyask Hydroelectric Project (695 MW) were long-term sales contracts with Minnesota Power (250 MW) as well as other long-term export commitments.

[26] However, Hydro-Québec Production's reservoirs are an effective hedge on these risks and limit the potential downside.

and the lack of a fully competitive wholesale electricity market as the basis for proposing increased regulatory oversight over many additional aspects of Nalcor/NLH's electricity business and operations. Our response to these proposals is presented below.

The net effect of Liberty's proposals for greater regulatory oversight is that unlike Nalcor's current organizational design it would open the door to exposing customers to the risks of future electricity supply decisions and require the Board to oversee the degree to which Nalcor is effectively managing the risks posed by such investments. This is effectively a step backwards and out of line with the developments in competitive electricity markets that Liberty cites. Policymakers supported the development of competition to address the deficiencies of regulation. Regulators like investors don't have perfect vision regarding future market conditions so there are risks to future investments that need to be allocated either to investors or customers.[27] In Newfoundland and Labrador given Nalcor's modest financial capability much of this risk must reside with either the Province or customers.

Power Advisory acknowledges that there isn't a competitive wholesale electricity market that can be relied upon by customers to exercise discipline over Nalcor's investment decisions. However, given the energy surplus from Muskrat Falls, future generation supply decisions for customers are relatively far into the future. Therefore, near and immediate term generation supply decisions would be based on the value offered by the export markets. As a basic principle, investments that are not for the benefit of customers should not affect these customers. Customers should be shielded from the risks of any such investments. Nalcor's current organizational structure was developed to do this.

Recent experience with Muskrat Falls suggests or may even dictate that the risks of such investments be borne entirely or primarily by third-parties.[28] Furthermore, given the Premier's 2019 Mandate Letter to the Minister, Nalcor has an obligation to support natural resource development in the province and with respect to clean energy to maximize the net benefits from energy export by intensively marketing cost competitive electricity to regional, national and international markets.[29] Power Advisory understands from Nalcor that there are a wide range of power development opportunities available to the Province. Given these opportunities and this strategic direction, Nalcor has sought to ensure that it maintains the organizational capability to develop these projects so as to be able to continue to support resource development in the province. As discussed further below, maintaining an organizational structure that separates

[27] A truism used in forecasting is: "the forecast is always wrong." Therefore, there is risk to be allocated. The question is who will bear it.

[28] Partnerships allow such risk allocations to be achieved. One of the lowest risk alternatives would be a royalty arrangement, whereby the Province or Nalcor would receive a portion of sales or profits for making the resource available and bear little to no project development or operating risk.

[29] Dwight Ball, Premier, January 9, 2019 https://www.nr.gov.nl.ca/nr/department/pdf/Mandate_MinisterCoady.pdf (Mandate Letter)

regulated and non-regulated operations is consistent with industry practice and appropriate for the resource development objectives specified by the Province.

4.2 Separation of Regulated and Non-regulated Operations

Regulated and non-regulated utility operations are typically separated. ENMAX Corporation (ENMAX), Hydro-Québec, Ontario utilities, PSEG, ALLETE, Exelon, FirstEnergy and DTE Energy are examples of this. The disaggregation of Ontario Hydro into Hydro One and Ontario Power Generation (OPG) is another example, with Hydro One to be a regulated wires company and OPG to be a competitive generation company.[30,31] However, as discussed further below, OPG is now largely regulated.

Regulated and non-regulated operations are typically separated because this simplifies the oversight of regulated operations and avoids risks of cross-subsidization of competitive operations by the regulated operations. In some jurisdictions, this separation is mandated by law.[32] A second reason for this separation is the distinct capabilities required for regulated and non-regulated operations. Where these businesses have been separated, regulated operations are typically focused on managing and operating transmission and distribution businesses and

[30] ENMAX has competitive wholesale and retail businesses within ENMAX Energy Corporation and regulated transmission and distribution companies within ENMAX Power Corporation. Public Service Electric & Gas Company (PE&G) operates as PSEG's regulated transmission and distribution utility and PSEG Power LLC operates as its competitive power generation business. ALLETE has regulated operations under Minnesota Power and Superior Water, Light & Power and unregulated businesses that include ALLETE Clean Energy, a renewable generation project developer; BNI Energy, which is a supplier of lignite coal; and ALLETE Properties, which is a real estate development company. Exelon has six combined transmission and distribution companies, which are regulated and Exelon Generation Company LLC, which is a generation and retail services company. FirstEnergy has nine regulated combined transmission and distribution companies, one vertically integrated electric utility and a services company. DTE Energy is the parent company and has regulated operations which operate as DTE Electric and DTE Gas as well as a nonutility operations in the form of DTE Gas Storage & Pipelines, which operates an intrastate natural gas storage facilities regulated by the Michigan Public Service Commission; Power and Industrial Projects, which owns and operates projects that provide energy and utility-type products to large customers; and Energy Trading, which provides power and gas marketing and trading and structured transactions to utilities, distribution companies, and generators.

[31] Other entities created with the vertical disaggregation of Ontario Hydro were the Ontario Electricity Financial Corporation, who held Ontario Hydro's stranded debt and various non-utility generation contracts; the Independent Electricity Market Operator, who was renamed the Independent Electricity System Operator (IESO); and the Electrical Safety Authority.

[32] Massachusetts' *Electric Industry Restructuring Act* mandated the divestiture of generation resulting in a separation of the wires businesses and competitive generation businesses. Maine, Rhode Island, Connecticut, New Jersey, Maryland and Illinois enacted similar legislation and New York's Public Service Commission negotiated agreements that provided for the divestiture of generation by investor-owned utilities in New York State.

non-regulated operations often encompass the development, construction and operations of generation projects, wholesale energy trading, as well as retail energy services.

Codes of conduct and affiliate relationship codes are sometimes used to guide inter-division/company transactions between regulated and unregulated affiliates. For example, ENMAX has an Inter-Affiliate Code of Conduct and an Inter-Affiliate Code of Conduct Compliance Plan and Hydro One's conduct is governed by an Affiliate Relationship Code developed by the Ontario Energy Board.

Service companies and shared services are typically used to provide services across affiliates, achieving economies of scale and enhancing capabilities. For example, one of ENMAX's business segments is ENMAX Corporate and Eliminations and is responsible for providing shared services and financing to ENMAX's other business segments. The costs of these shared services are allocated across segments based on their use of them. Similarly, PSEG has PSEG Services Corporation, which provides corporate communications, corporate real estate, information technology, procurement, payroll and other transactional services to PSEG companies.

Another interesting example is Hydro-Québec's Innovation division,[33] which is responsible for the design, construction and refurbishment of transmission and generating facilities. This is similar to Nalcor's non-regulated power development activities. Having a division such as Innovation or Power Development/Power Supply ensures that this capability resides within the organization and enhances the company's ability to manage the construction of complex projects, which require distinct skills sets. Maintaining the capabilities that reside within its Innovation division appears to have helped Hydro-Québec with respect to its effectiveness in managing the construction of these projects. Innovation is generally responsible for the study, design, construction and operation of generation and transmission projects; however, it does use contractors on these projects. Innovation has overseen the construction of almost 5,000 MW of hydroelectric projects since 2003.

4.2.1 Liberty Perspective: NLH and Power Supply Integration would reduce costs

Liberty asserts that it found significant potential cost savings from combining Power Supply and NLH. Liberty notes that the separation between Power Supply and NLH was driven by two factors: "(a) a desire to increase the organizational focus on completion of the LCP, and (b) to make more transparent the separation between the regulated operations of Hydro, and the "unregulated" nature of the LCP and Churchill Falls assets." (p. 64) Liberty notes that the "distinction between regulated and "unregulated" assets and operations may or may not continue indefinitely. To the extent it does in some form, we view a soundly constructed, well-controlled, carefully executed system of cost charging and allocation sufficient to address it." (p. 65-66)

[33] The formal name for this division is Hydro-Québec Innovation, équipement et services partagés.

Liberty hasn't appropriately valued the important issue of maintaining the organizational capability to deliver on Nalcor's resource development mandate and the essential role of the unregulated organization to do so. We have not evaluated Liberty's claims of the savings that can be realized from combining these two organizations, however, it does appear that Liberty's proposed organization would undercut Power Supply's ability to deliver on its resource development mandate. This suggests that these cost savings should be weighed in terms of the potential benefits foregone. Liberty indicates that future investment opportunities are relatively far into the future implying that greater weight should be given to near-term cost savings. Based on our discussions with Nalcor, we don't believe that this is necessarily the case.

Finally, Drucker's aphorism, "Mission defines strategy, and strategy defines structure", explains Liberty's recommended organizational structure. Liberty's mission from the Board under the Reference Questions was to identify options to mitigate electricity rates within the Province. This is an important objective, but Nalcor's current mandate is clearly broader than this, with a core focus being "to support resource development in our province". The organizational structure proposed by Liberty is focused on cost reduction and does not conform with the most prevalent organizational designs that we found where there were both regulated and unregulated operations that were expected to make significant contributions to the organization's financial performance and where energy trading was also critical to this financial performance. There is a separate question regarding whether Liberty's proposed organizational design can achieve the estimated FTE reductions without impairing service quality or organizational capability and effectiveness. This issue is beyond our scope, but the close alignment of Nalcor's organizational structure with other electricity operations that we reviewed suggests that Liberty's proposed FTE reductions present a risk of reduced organizational effectiveness.

4.3 Energy Trading Operations Largely Unregulated

The energy trading activities of virtually all of the companies that we reviewed were largely unregulated, except for Nova Scotia Power, which is a special case as discussed further below.[34] A review of BC Hydro outlined the rationale for this as follows: "falling under BCUC [BC Utility Commission] oversight would hamper Powerex's [BC Hydro's unregulated energy trading subsidiary's] ability to compete and earn income in fast-moving and rapidly evolving competitive

[34] In the US, the regulation of virtually all these energy trading operations is limited to oversight by the US Commodity Futures Trading Commission (CFTC) and Federal Energy Regulatory Commission (FERC). Much of the regulation of wholesale energy trading is focused on avoiding anti-competitive behavior and market manipulation. In particular, the role of the CFTC is to oversee futures trading and ensure orderly futures markets that are not manipulated. FERC regulates wholesale energy markets and to ensure wholesale rates and contracts are just and reasonable and not unduly discriminatory or preferential.

markets."[35] Power Advisory believes that this rationale applies universally and limits the regulatory oversight over energy trading operations, particularly where these operations are core to the broader organization's performance.[36] Powerex has access to the surplus energy from the BC Hydro system and is able to use the storage capability of BC Hydro's reservoirs to support its trading activities. For example, in FY 2020 Powerex's energy trading profits are forecast to represent about 17% of BC Hydro's net income and Hydro-Québec Energy Marketing provided 23% of Hydro-Québec Production's net income in 2018.[37] [38]

Another example is SaskPower's energy trading affiliate NorthPoint Energy Solutions (NorthPoint), which has broad responsibilities and little regulatory oversight. NorthPoint is responsible for dispatching SaskPower's regulated generation and managing natural gas procurement for Independent Power Producers and SaskPower assets to increase operating efficiencies and trading opportunities.[39] There is little to no regulatory oversight of NorthPoint in spite of this important role in SaskPower's operations. However, there is relatively limited regulatory oversight of SaskPower overall. The Saskatchewan Rate Review Panel advises the Government of Saskatchewan on rate applications proposed by SaskPower and the Rate Review Panel's oversight is largely limited to these rate reviews.

In Nova Scotia, Nova Scotia Power Inc.'s (NSPI's) energy trading revenues are considered as part of the Fuel Adjustment Mechanism (FAM). The FAM was an outcome of NSPI's 2007 Rate Settlement where most parties agreed in principle that the Utilities and Review Board (UARB)

[35] BC Ministry of Energy, Mines & Petroleum Resources, "Comprehensive Review of BC Hydro: Phase 1 Final Report", p. 20. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/final_report_desktop_bc_hydro_review_v04_feb12_237pm-r2.pdf. The report continued: "For this reason, government will continue to restrict the BCUC from regulating the activities of Powerex as an outcome of the Review. It is worth noting that ICBC's optional insurance products, which also

operate in a competitive environment, are not regulated by the BCUC." (p. 20).

[36] Legislation was enacted in BC to restrict the oversight of the BCUC with respect to the operations of Powerex; previously, the BCUC's authority in this area was restricted by a Directive.

[37] Hydro-Québec 2018 Annual Report, p. 34

[38] Liberty appears to overstate the value that Powerex brings to BC Hydro. Liberty notes "The 2018/2019 trading revenues of Powerex, Corp., a wholly-owned BC Hydro subsidiary, amounted to $1.14 billion for the fiscal year ending in March 2019, for wholesale power, renewable energy credits or similar products, carbon-allowances, natural gas, ancillary services, and financial energy products." (p.34) The $1.14 billion revenue figure creates the wrong impression regarding Powerex's contribution to BC Hydro. Powerex's net income over the past five years is about $121 million, which is not out of line with the net margins that NEM is forecast to realize.[38] We believe that Powerex is an example of the value offered by an energy trading affiliate and the value that NEM can offer Nalcor and ultimately customers.

[39] NorthPoint characterizes its services as "electrical energy generation and load management services under contract to SaskPower. These services include activities related to minimizing the overall cost of fuel and purchased power to SaskPower. Specifically, the economic dispatch of units, economic purchase and sale of energy and capacity, hydro resource planning and management, emergency energy shortfall management, transmission service acquisition and power purchase agreement management.

should adopt a FAM for NSPI. This was in a period of considerable fuel price volatility. One of the prerequisites identified by the UARB for the establishment of a FAM is a "meaningful audit process administered" by the UARB.[40] However, this is a retrospective review. There is no oversight of transactions in real-time.

NSPI's Fuels Department oversees a "marketing desk" that engages in energy trading in order to fulfill NSPI's mandate to ensure the lowest cost energy for ratepayers. With these energy trading operations an element of the FAM, they are subject to the regulatory oversight of the Nova Scotia UARB. However, it is important to put NSPI's energy trading operations in context. NSPI plans for its customer's energy requirements and its energy trading operations are to optimize the economics of its generation fleet in light of energy trading opportunities available to it, which until the Maritime Link was built were all sourced through New Brunswick as its only interconnection. Unlike BC Hydro, Hydro-Québec and Nalcor, NSPI's energy trading operations aren't based on low variable cost hydroelectric resources, which generally yield high energy trading margins. Furthermore, NPSI's parent, Emera Inc., also has an energy trading affiliate, Emera Energy, which trades natural gas, power, renewable energy credits, and carbon credits and allowances.

4.3.1 Liberty Perspective: Regulatory oversight of energy trading operations warranted

> "Some jurisdictions, as discussed above, do not fully regulate the operations of the entities responsible for export sales (e.g., their organization and operating costs), even where they apply margins produced to revenue requirements. That is not the case in the U.S. - - for strong reasons in our view. Regulatory oversight of these elements has the same public value in promoting cost efficiency through review by the province's presumably most expert authority on utility operations." (p. 35-6)

> "typical practice would make the reasonableness and prudence of its operations subject to Board review. Specifically, key facets of such operations warranting Board review include its structure and operating costs, the nature and extent of the transactions in which it engages, the controls it applies to ensure integrity in transacting, and the measures it takes to mitigate transaction risk. Board oversight of NEM would generate the regulatory oversight that has proven very valuable in ensuring the establishment of best operating practices" (p. 42)

This is an overstatement. There's little to no regulation of the operations of entities responsible for export sales, except in Nova Scotia where these are considered as part of the Fuel Adjustment Mechanism. The New Brunswick Energy and Utilities Board has required NB Power to submit an external audit to measure compliance and effectiveness of the financial risk management policies for both NB Power and New Brunswick Energy Marketing.[41] As an audit this is relatively unintrusive and does not include subjecting "its operations to the same forms of Board oversight that exists

[40] Decision, 2007 NSUARB 8, p. 45-46.

[41] This audit focuses on its hedging program, in particular its design, monitoring, reporting and governance. New Brunswick Energy and Utilities Board Decision, Matter No. 336, June 14, 2017, p. 10

for other operations whose costs form part of Hydro's regulatory requirements." (p. 42) This is an intermediate form oversight, which limits the constraints on the energy trading entities' ability to respond nimbly to market opportunities, which is a critical success factor for such operations.

We note that when identifying the actual scope of Board oversight, Liberty also specifies:

> "• Definition of available transaction types consistent with a clearly established level of "risk appetite" appropriate for utility operations
>
> • Credit limits intended to mitigate counterparty risk
>
> • Organizations, systems, and controls to ensure transaction integrity, and where required, accounting to the proper entities." (p. 42)

Such oversight is appropriate, but it would more appropriately be exercised by Nalcor's Board of Directors rather than the Board. Power Advisory's research indicates that the vast majority of the trading operations are unregulated. While the revenues for export sales are typically considered when setting rates this isn't tantamount to providing regulatory oversight of these operations. Recall that the BC Government elected to not subject Powerex to regulatory oversight given its need "to compete and earn income in fast-moving and rapidly evolving competitive markets."[42] Energy trading requires detailed knowledge of energy markets and risk management practices. This capability resides in the industry, not in regulators.

4.3.2 Liberty Perspective: Marketing organization should be directed by utility

> "With respect to location within an organization, we consider the overriding issue to be from whom the marketing entity takes direction. Direction from outside the utility, Hydro in this case, raises material concerns when the marketing entity uses assets whose costs are borne by utility customers. The principal reason is that incentives to optimize margins from off-system sales can produce diseconomies if the marketing entity has the ability to override utility decisions, about dispatch for example. Power Supply, with NEM as its operating authority, has more than that ability with respect to off-system sales; it does not need to override utility decisions, it makes those decisions itself. This is not only true for LCP assets. Nalcor proposes to give it control over all external transactions. Moreover, Nalcor proposes for NEM a central role in "optimizing" Hydro's assets as well. NEM has taken into its organization a water management and hydro production scheduling group formerly operating as part of Hydro's power production resources." (p. 40)

Liberty is overstating appropriate concerns and not acknowledging typical practice in Canada. Contrary to the concerns expressed by Liberty, NorthPoint Solutions, the SaskPower energy marketing affiliate, directs the dispatch of SaskPower's generation fleet to realize potential energy trading opportunities and to most efficiently purchase and schedule natural gas generating units.

[42] BC Ministry of Energy, Mines & Petroleum Resources, "Comprehensive Review of BC Hydro: Phase 1 Final Report", p. 20. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/final_report_desktop_bc_hydro_review_v04_feb12_237pm-r2.pdf.

This goes well beyond NEM's proposed role with external transactions. Energy marketing affiliates can be given broad dispatch control so as to maximize energy marketing opportunities. This recognizes the significance and potential magnitude of these opportunities and the importance of integrating generator dispatch with energy trading.

Similar to NEM, Powerex has control over all external transactions. Powerex has a Transfer Pricing Agreement (TPA) with BC Hydro that specifies the prices for purchases of energy from BC Hydro and sales to BC Hydro. Under the TPA, Powerex is able to use BC Hydro's available energy storage to creating trading opportunities and by so doing maximize its net margins, which it in turn shares with BC Hydro.

> "We do not, however, believe that the use of a subsidiary (a distinct corporate entity) has bearing on the source from which it should take direction or to where the margins it produces should flow. We believe that direction should come from Hydro in order to ensure that net customer costs (as opposed to marketing and trading margins) get optimized. Consistency with prevailing practice would subject its operations to the same forms of Board oversight that exists for other operations whose costs form part of Hydro's regulatory requirements. Providing that direction from Hydro also leaves control of important operating activities (like those of the water management and hydro production scheduling group moved to NEM) with the party responsible for generation operations." (p. 42)

Liberty is conflating issues. NEM will be trading MF and CF's surplus energy. The objective is to make the amount of the overall energy margins realized larger. There isn't as Liberty suggests an objective of reducing net customers costs as opposed to increasing marketing and trading margins. If marketing and trading margins are maximized there is a larger surplus available for all stakeholders (customers and the shareholder). Direction may influence risk management practices, but these practices should be based on appropriate standards, criteria and analysis.

Finally, Liberty appears to fail to consider the importance of a trading operation in supporting long-run investment decisions in both additional hydroelectric resources (including refurbishments) as well as new transmission and the acquisition of transmission rights. The in depth understanding of energy and capacity markets from energy trading supports better decisions regarding these investments.

4.4 Most Energy Trading Operations are Stand-Alone

Emera, NB Power, BC Hydro, SaskPower and Hydro-Québec all have wholly-owned energy trading subsidiaries, similar to NEM. For NB Power and SaskPower, these energy trading affiliates are the only affiliates of these companies, an indication of the importance of having a separate, stand-alone entity providing these services.[43]

[43] BC Hydro has only one other subsidiary other than Powerex, Powertech, which offers specialized engineering, testing and analysis services.

In Canada the rationale for this separation is believed to be the same as outlined by Nalcor: to shield the parent from the risk of becoming a taxable entity in the US and to remove affiliates from exposure to energy marketing risks. This last issue is significant because it can affect the underlying cost of capital of these entities. This was certainly a concern in Ontario, which limited the scope of activities in which distribution companies were allowed to participate.

Manitoba Hydro is an exception. It does not have a stand-alone energy trading affiliate. However, it relies heavily on long-term power purchase agreements to reduce market risks and trades at the US border to avoid possible exposure to US taxation, both of which reduces the complexity of and reliance on energy trading.

In addition, customers are largely shielded from energy trading risks. Recall that to the degree there are losses incurred by Powerex, BC Hydro's energy trading affiliate, these are borne by its shareholder, the BC Government.

4.4.1 Liberty Perspective: Reasons for structuring NEM as separate entity reasonable

Liberty states: "We do not question the reasons for structuring NEM as a separate corporate entity." (p. 42) We appear to be in agreement with respect to this issue.[44]

4.4.2 Liberty Perspective: Regulators focused on ensuring that utilities avoid high risk activities

> "Regulators certainly interest themselves in ensuring that utilities avoid high risk marketing activities and that they undertake measures to mitigate even lower risk activities. Examples include utilities with provider of last resort ("POLR") responsibilities entering into electricity and natural gas, as appropriate, hedging arrangements to mitigate potential future price volatility in those commodities." (p. 40-41)

We largely agree with Liberty, but the example they cite isn't appropriate. While there are a wide range of structures for POLR responsibilities, these are typically not imposed on utilities, but on marketers, traders, and retailers that compete to provide these services such that there's a market test for the pricing of this service and that the risk is appropriately priced.[45] This is the model that is employed in Connecticut, Maine, Massachusetts, New Jersey, Pennsylvania, and Texas where competitive market entities have responsibilities for managing these risks not utilities. This design was deliberate to shield these utilities from these risks and avoid adverse impacts on their cost of

[44] Liberty acknowledges that Nalcor identified tax considerations as one justification for establishing NEM as a separate entity. This rationale is offered by other Canadian utilities as well and Power Advisory understands that Nalcor secured a legal opinion on this matter. We note that Manitoba Hydro elects to trade at the US border given this issue. This constrains the scope of its trading.

[45] POLR has an explicit meaning, generally it applies to the supplier who has responsibility for serving customers after their supplier defaults. We believe that Liberty is using the term in a more general manner to include the provision of default or standard offer supply for those customers who haven't elected a competitive supplier.

capital. Having NLH as a regulated entity bear the risks associated with energy trading is not consistent with best practice given that it could result in a higher cost of capital for it.

4.4.3 Liberty Perspective: NEM is fairly small and a contracted solution may be preferable

> "With a planned split of the oil and gas business from Nalcor and with no clear commitment to Gull Island on the horizon, a due regard for operational efficiency would appear to rule out NEM being organized to suit a large sized portfolio…what remains available to market from Churchill Falls does not add enough to the Muskrat Falls excess to make NEM more than a fairly small market participant…In fact, when considering a trading operation sized on the basis of Muskrat Falls, management should have considered a contracted solution to providing it." (p. 41)

Focusing on the volumes of energy available to support contracting out energy marketing as Liberty does understates the margin opportunity as well as the importance of the trading capability to realizing these margins. Liberty fails to recognize that energy trading is a core capability and critical to the realization of the value offered by Nalcor's hydroelectric generation resources. Furthermore, to best realize these opportunities close coordination is needed between system operations and dispatch and energy marketing.[46] Contracting out the energy marketing function will frustrate such close coordination and likely prevent the realization of the full value offered by this flexible resource.

There is no precedent for utilities with the value of export sales that Nalcor will have when MF achieves commercial operation contracting out the marketing of surplus energy. All similarly situated Canadian utilities maintain responsibility for the marketing of surplus energy internally. This is particularly important for hydroelectric utilities that are likely to realize the highest margins from these sales and more so for utilities with storage hydroelectric resources that have the ability to arbitrage prices over time and further increase energy margins.

Once again, Liberty's focus was to identify options to mitigate electricity rates within the Province. This is an important objective and consistent with elements of NLH's "least-cost" mandate, but Nalcor's current mandate is clearly broader than this, with a core focus being "to support resource development in our province".[47]

Liberty's recommendation to consider outsourcing energy marketing is out of step with Canadian practice. SaskPower's energy marketing affiliate, NorthPoint Energy Solutions, is forecast to produce net margins of less than $1 million per year and has incurred losses for two years in a row.[48] In spite of this performance, SaskPower and its shareholder the Government of

[46] This is evident in other energy trading operations, particularly for hydroelectric utilities where dispatch decisions can be more complex given multiple resources on a river system, the need to maintain storage for future demand and to use this storage to arbitrage price differentials.

[47] Premier's January 2019 Mandate Letter to the Minister of Natural Resources
https://www.nr.gov.nl.ca/nr/department/pdf/Mandate_MinisterCoady.pdf

[48] SaskPower 2018 Rate Application

Saskatchewan elect to continue to maintain a separate energy marketing affiliate rather than contract with a third-party for this service. With export revenues of greater than $100 million per year for NEM, Power Advisory believes that there's little precedent to contract out what is likely to be a core capability for Nalcor that is essential to its long-term economic viability and, with the sharing of these margins with customers, mitigating rates.

Furthermore, given the volume of transactions and their underlying commercial sensitivity, Power Advisory is concerned that contracting out this function would not serve the province or customers well. Energy trading is highly competitive, with the timing of transactions critical (securing access to transmission and scheduling deliveries on a real-time basis), particularly for highly flexible and responsive hydroelectric resources. Parties that would be the best positioned to serve Nalcor are likely to have conflicts of interest given their existing commercial interests. While other parties could develop the required market knowledge and understanding of Nalcor's hydroelectric resources, we wonder what it would cost to do so and what would be the opportunities foregone while this capability is being developed. In contrast, NEM has acquired extensive experience.

In sum, Liberty is out of step with typical practice. The amount of energy that NEM is likely to have available to market and the resulting revenues are in excess of what NB Power Energy Marketing manages and several orders of magnitude greater than what NorthPoint Energy Solutions manages. Focusing on the volume of energy for a portfolio of hydro assets understates the margins given a variable cost of effectively zero as well as the trading and profit opportunities given the arbitrage capabilities offered by these storage resources (i.e., the ability to buy energy when prices are low and sell energy when prices are high).

4.5 Regulatory Oversight Varies with Operations and Market Structure

The degree of regulatory oversight varies by the type of operations and market structure. As natural monopolies, transmission and distribution operations (aka the wires businesses) are universally subject to some form of regulatory oversight. With the form of regulatory oversight varying from jurisdiction to jurisdiction, traditional cost-of-service regulation is commonly used, with a range of different forms of performance-based regulation increasingly relied upon.

Where there are competitive wholesale electricity markets, regulatory oversight of generation varies. The definition of competitive wholesale electricity markets can vary. This can take the form of real-time and day-ahead energy markets, which exist in New England, New York, Texas and more broadly the PJM market.[49] New England, New York, Texas generators are unregulated.[50] The

[49] The PJM market covers all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.
[50] Vermont hasn't restructured its electricity sector and continues to have vertically integrated electric utilities.

returns that investors earn for these generation assets are dictated by market conditions and decisions by investors to enter and exit these markets are driven in large part by these returns.

Ontario Power Generation (OPG), the largest generator in Ontario and owned by the Ontario government, is subject to rate regulation for the majority of its generation assets, with some hydroelectric units not subject to regulation, but under long-term contract to the IESO. This rate regulation framework is administered by the Ontario Energy Board (OEB). Both of OPG's two nuclear generating stations and the majority of its hydroelectric generating units (54 out of 66 units) are rate regulated.[51] The OEB used a cost-of-service approach to set the payment amounts (prices) for its first two price setting reviews and has subsequently moved to an incentive ratemaking framework. For the hydroelectric facilities, the regulated prices are now determined using a formula that annually escalates the previously approved regulated prices, subject to some adjustments, based on an industry-specific weighted inflation factor less a stretch factor adjustment.

Alternatively, the implementation of open access transmission in the US and Canada, has opened many wholesale markets and provided wholesale customers with access to a number of potential suppliers. In fact, these reforms allow Hydro-Québec Production to be unregulated. However, it is committed to provide Hydro-Québec Distribution a heritage block of energy equal to 165 TWh per year, plus associated losses, at an inflation indexed rate, which is well below the market price for this energy.

Similar to Québec, BC enacted legislation to provide protection for BC Hydro's heritage assets. Heritage assets were broadly defined to include BC Hydro's existing electrical generation, storage reservoirs, and transmission and distribution systems and focused on ensuring that they remain publicly owned. However, unlike Québec the pricing for the energy provided by these heritage assets wasn't prescribed. Under an Order in Council, the BCUC had little or no discretion regarding the various finance, amortization, depreciation, interest and return on equity charges for the heritage assets. As part of the Comprehensive Review of BC Hydro, the Government elected to give the BCUC greater discretion on BC Hydro's costs and proposed rate increases and has effectively eliminated the heritage asset designation.

4.5.1 Liberty Perspective: Regulator best positioned to optimize costs, reliability and ongoing O&M expenditures

> "we consider the utility regulatory authority best positioned to judge how best to optimize costs and reliability in a joint process. It has a defined role and has the objectivity and expertise to do so more effectively and objectively to meet both customer and provincial economic interests that are placed in conflict by the treatment of large margins from off-system sales.

[51] Under section 78.1 of the *Ontario Energy Board Act, 1998*, the Board is authorized to determine the payment amounts to be made to OPG with respect to the output of certain of its generation facilities.

> The same is true for managing ongoing capital and O&M expenses and asset operation. Maximizing reliability can sacrifice economy, as maximizing economy can sacrifice reliability. From a customer perspective, both should be optimized together. Giving the Board authority to review and approve capital and operating cost plans, and the reasonableness and prudence used in executing them, will most effectively optimize both reliability and operations." (p. 38-9)

Here as well Liberty is arguing for expanded regulatory oversight. Liberty appears to have unbridled optimism regarding the capabilities of regulators to exercise oversight. Liberty fails to acknowledge in Canada where Crown corporations are the predominant suppliers of electricity, the degree of regulatory oversight varies. With provincial ownership there is reduced rationale for regulatory oversight, recognizing that there are costs to such regulatory oversight, which include the costs of the regulation itself as well as extended decision-making timeframes that add risk to investment.

> Empowering the Board to exercise with respect to LCP the same authority it has to review other ongoing utility capital and operating costs and operating and maintenance methods, practices, decisions, and actions will provide a more unified basis for ensuring optimization of costs and reliability." (p. 10)

Liberty is conflating cost control over the hydroelectric generation asset and the profitability of sales of power and energy. While there are instances where Nalcor/NLH would have to make capital investment decisions that will have implications for the sales of "power and energy" such as runner replacement and exciter upgrades at Churchill Falls, under the current structure these would presumably be "unregulated" with no cost responsibility to NLH customers. This is a benefit of the current organizational design, which separates regulated and unregulated operations in a deliberate effort to align incentives and responsibilities within these distinct organizations. With regulated operations (i.e., NLH) focused on reliability and cost control and unregulated operations (i.e., Power Supply) focused on profitability and ensuring reliability. This organizational design is in full accord with our research which found that regulated and unregulated operations are typically separated and that establishing unregulated operations allows customers to be shielded from the risks posed by future investment decisions.

Furthermore, Power Supply's focus on maximizing the profitability of "sales of power and energy" typically will have little bearing on project operating costs given that its generation assets are predominately hydroelectric where costs are largely fixed. Therefore, these tradeoffs would be assessed by management and the shareholder at the time of the investment decisions and the current organizational design allows these costs and profit tradeoffs to be properly weighed without the "dual personality" issues that Liberty attributes to Nalcor. Liberty's efforts to extend the Board's reach to the profitability of "sales of power and energy" made by is a stretch.

Liberty also asserts the Board is needed to balance Nalcor's supposed conflict with favouring off-system sales relative to reliability. Liberty claims:

> "the Board will effectively have to take Muskrat Falls and LIL reliability "as it finds them," because those capital and operating plans and their execution will strongly affect their reliability. Expecting the Board to exercise robust oversight of reliability becomes unrealistic with so large and important

> a set of assets outside its purview…This inherent problem, already material in our view, will be exacerbated by the personality split woven into the current means of dealing with the LCP assets. When Power Supply makes decisions about plans, expenditures, and operations for the assets, it will do so in consideration of maximizing the value of off-system transactions. One should expect the size of the margins they produce to serve as the strongest influence on these performance definers and drivers. Importantly, however, what drives off-system margins may not be the same as what drives reliability." (p. 36)

Liberty is suggesting that Power Supply's decisions will be unduly influenced by the desire to realize increased margins from off-system transactions. This "dual personality" can be addressed by sharing these net margins with customers and mitigating rate impacts, much as Liberty has suggested. As a non-regulated entity, Power Supply is well positioned to assess the necessary tradeoffs between the profitability of capital investments and the resources needed to ensure system reliability. As a regulated, customer focused entity NLH can properly plan for the reliability of its system and electricity supply. This doesn't require that the Board be allowed to review all Nalcor capital investment decisions so that reliability and profitability can be properly balanced.[52]

Furthermore, the conflict between increasing the value of off-system transactions and ensuring reliability is overstated. In general, there will be considerable alignment between these objectives. The value of off-system transactions can be increased by increasing output or producing output during periods when it is more valuable in export markets. Neither activity is likely to threaten reliability. Increased output will enhance reliability and shifting the timing of output should not have an affect. Power Advisory understands that maintaining the reliability of service to NL customers will be NLH's highest priority. It could require that sales to export markets be interrupted.

Finally, Nalcor's current organizational structure is better able to manage this "dual personality." NLH and Power Supply will have to manage these competing objectives within the scope of their individual mandates. NLH will be focused on ensuring reliability and properly managing costs and Power Supply will be focused on maximizing the value of off-system transactions and ensuring reliability.

4.6 Government Sets Underlying Policies

In all jurisdictions reviewed, government establishes the underlying policies that shape the electricity sector. This includes the appropriate scope of regulatory oversight. BC is a perfect example of this. The scope of the BCUC's ratemaking oversight over BC Hydro had been significantly constrained by various Orders in Council, but the Government recently determined that greater BCUC oversight over BC Hydro's rates was appropriate. Interestingly, in many

[52] In fact, North American regulators typically don't dig too deeply into reliability versus cost tradeoffs except after the fact when there has been a reliability incident or a decline in the underlying reliability of service. This is largely because the evaluation of investment decisions that impact reliability is complex and these investment decisions are often governed or triggered by reliability standards and criteria imposed by NERC.

Canadian jurisdictions regulatory oversight of major generation asset investments is constrained, with these investments driven by broader public policy objectives.

In addition, regulators typically don't have a role with respect to overseeing organizational structures. One example is the Nova Scotia UARB, which was concerned with the organization structure of Emera Inc. (Emera). In particular, the UARB was concerned that the Chair of the Board of Directors of Emera was the CEO and President of Emera, rather than an independent Director, who would be able to exercise greater oversight over the management of Emera. The UARB was concerned about potential conflicts of interest because Emera had affiliates that had commercial interests that ran counter to those of NSPI. In a decision rendered in 2018, the Nova Scotia regulator acknowledged the legal restrictions placed upon it to order changes in NSPI's organizational structure.[53]

One area where regulators sometimes restrict organizational structures is to limit dealing between regulated and competitive affiliates. Regulators are concerned that the customers of regulated entities could be used to subsidize these competitive affiliates. For example, the OEB has placed restrictions on local distribution companies (LDCs) owning generation assets. The objective here was also to prevent LDCs ownership from providing these generation assets with an advantage in the competitive market.

[53] 2018 NSUARB 45, M07755

5. REVIEW OF NALCOR'S ORGANIZATIONAL STRUCTURE

5.1 Nalcor Mission & Implications for Organizational Structure

The appropriate starting point for reviewing Nalcor's organizational structure is best framed by the words of Peter F. Drucker, the preeminent management consultant: "Mission defines strategy, and strategy defines structure."[54] Nalcor's mission is to manage the province's energy resources effectively and responsibly for the benefit of the people in the province including investing in, engaging in, and carrying out related activities in all areas of the electricity sector.[55]

The current organizational structure for Nalcor reflects the following identified priorities:

- to ensure the successful completion of the MFP;
- to prepare the provincial electricity system for the integration of MFP power; and
- to have a clear separation of (and focus on) the regulated electricity operations from the remaining non-regulated electricity operations while continuing its commitment to providing safe and reliable electricity to customers.

Further insight into Nalcor's mission is provided by the Premier's January 2019 Mandate Letter to the Minister of Natural Resources. In this Mandate Letter the Premier conveyed his interest in continuing "to support natural resource development in our province."[56] Specifically with respect to clean energy, the Premier requested the Minister to deliver on this plan by leading on the following:

> "Maximizing the net benefits from in-province use of energy and energy export by:
>
> o Intensively marketing cost competitive electricity generated by wind and hydro to regional, national, and international markets;
>
> o Encouraging investment and innovation in electrical power generation projects, and
>
> o Seeking opportunities to develop the Gull Island Hydro Project, which will include identifying potential markets and access routes."[57]

[54] *Management Challenges for the 21st Century*, 1999, p. 6.
[55] The *Energy Corporation Act*
[56] Mandate Letter
[57] Mandate Letter

Clearly, as part of its mission Nalcor requires the capabilities to "market electricity" in regional, national, and international markets and "encourage investment" in power generation. Power Advisory understands from Nalcor that there are a wide range of power generation development opportunities available to the Province, including onshore wind and a range of hydroelectric projects including Gull Island and significant potential upgrades to the existing Churchill Falls and Bay d'Espoir power plants.[58]

Given these opportunities and this strategic direction, Nalcor has sought to ensure that it maintains the organizational capability to develop these projects so as to be able to continue to support resource development in the province.

5.2 Nalcor's Current Organizational Structure

In 2016 Nalcor restructured. Nalcor reorganized its electricity operations into regulated (i.e., Newfoundland and Labrador Hydro) and non-regulated segments. As indicated in Figure 2, there are five business segments: (1) Power Development, which is responsible for overseeing the construction of the Muskrat Falls hydro-electric plant; (2) Power Supply, which is responsible for overseeing the construction of the Labrador-Island Link (LIL) and Labrador Transmission Assets (LTA), the operations of all non-regulated electricity operations, , and conducts external marketing activities via Nalcor Energy Marketing; (3) Newfoundland and Labrador Hydro (NLH), which as a vertically-integrated electric utility provides regulated generation, transmission and distribution services across the Province;[59] (4) Offshore Development, which includes Oil and Gas and Bull Arm Fabrication; and (5) Corporate, which includes finance and accounting operations, corporate planning and reporting, corporate communications, shareholder relations, information management, human resources, safety, environment, community investment, business development and all other shared service functions.

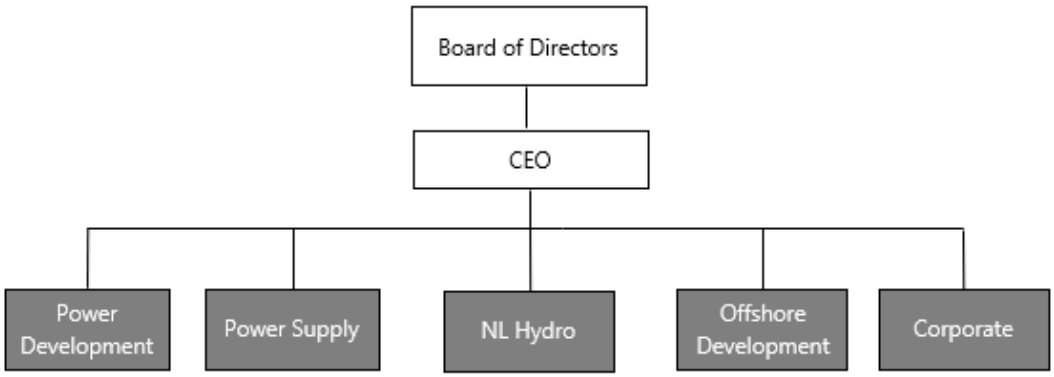
As discussed, Nalcor Energy Marketing resides within Power Supply, but is a separate corporate entity and is responsible for marketing energy that is surplus to the requirements of NLH's customers. Nalcor Energy Marketing was created as a stand-alone entity to shield Nalcor from the risks of becoming a taxable entity in the US and removed NLH's exposure to energy marketing activities.

[58] There is a separate question regarding how these resources would be developed such that their development satisfies the Government's, Nalcor's and customer's overall risk objectives. Partners can be used to mitigate risks to the various Newfoundland and Labrador stakeholders.

[59] NLH provides distribution and customer services primarily in the rural parts of the Island and Labrador.

Nalcor Energy Marketing is currently responsible for marketing the surplus from the 525 MW that is available from Churchill Falls for resale after meeting customer requirements in Labrador.[60] In FY 2018-19, this represented 1.6 TWh of recapture energy from Churchill Falls and $23 million in earnings, about 13% of Nalcor's total net income for the year.[61] With the additional energy available from Muskrat Falls that is surplus to NL customer obligations and Nova Scotia Power's contractual rights from the development of the Maritime Link, Nalcor forecasts that in 2021 the total net export revenues will be about $95 million.[62]

Figure 2: Nalcor Business Segments



5.3 Assessment of Nalcor's Organizational Structure

Nalcor's current organizational structure is focussed on achieving its strategic priorities as outlined in Section 4.1 above. The structure provides a dedicated focus on its regulated electricity operations, NLH, and a single executive leadership (President of NLH) for this division to ensure the provision of safe, reliable and least-cost electricity supply to customers. The separation of regulated and unregulated operations is in full accord with our findings that these operations are typically separated.

The non-regulated side of electricity operations was further separated to recognize the different skills and capabilities required to support project development, non-regulated electricity operations and energy trading. This structure allows for separate focus on the completion of MFP and the significant number of available hydroelectric development opportunities in the province. Having this capability within a dedicated organization is consistent with the direction provided to the Minister by the Premier (i.e., "encouraging investment and innovation in electrical power

[60] This includes the Recall Block of 300 MW and what was formerly referred to as the TwinCo block of 225 MW.

[61] 2018 Nalcor Annual Report.

[62] PUB-Nalcor Data Request Response 34 provides a schedule of the projected dollar value of the net revenues to be realized from these sales. Nalcor projects that about 57% of net revenues would be allocated to NLH and applied directly to rates.

generation projects…seeking opportunities to develop Gull Island Hydro Project"). Furthermore, this structure is consistent with that employed by Hydro-Québec, where Innovation is a separate division, who has a favorable track record with respect to the development and construction of major projects.

In addition, Nalcor Energy Marketing as a separate organization aligns with the organizational structures employed for other energy trading operations, which are typically stand-alone. This separation and its exemption from regulatory oversight is particularly important given the potential margins available from the surplus energy that Nalcor is forecast to have available from its hydro facilities on the Churchill River and the importance of these energy trading operations will have on the value that the Province realizes from these resources. This structure best allows Nalcor to intensively market electricity to regional, national, and international markets in accord with the direction provided to the Minister by the Premier. As BC noted in its Comprehensive Review of BC Hydro, with respect to its energy marketing affiliate, it is essential that this entity be nimble and fast-moving so to be able to respond effectively to competitive opportunities.

Given its focus on oil and gas development and the Bull Arm Fabrication facility, Offshore Development is appropriately a separate business segment. As announced in March 2019, with Nalcor retaining the equity interests in the existing oil and gas investments after the creation of the new oil and gas crown corporation, it will be important to ensure the capabilities to govern and manage the investments are retained by Nalcor and appropriately reflected in its organizational structure.

Finally, the corporate business segment enables the realization of economies of scale in the provision of these services.[63]

In sum, Nalcor's current design appears to be well suited to meet its strategic priorities. We recognize that these strategic priorities may change based on new direction from its shareholder, the Newfoundland and Labrador Government. However, absent such a change the current organizational structure is appropriate and aligns with other electricity sector organizational structures.

5.3.1 Liberty Perspective: Integration of NLH and Power Supply would reduce costs

> "the separation of Power Supply and Hydro produces greater costs than would occur without that separation. There is no sound operational reason for maintaining the distinction - Power Supply and Hydro together have the characteristics of a reasonably small and vertically-integrated utility

[63] The Province is establishing a separate Crown Corporation for oil and gas through the *Oil and Gas Corporation Act*, with much of Nalcor's Offshore Development operating segment and the former subsidiary Bull Arm Fabrication to be organized under the new corporation. (*An Act to Establish An Oil and Gas Corporation for the Province*, assented to April 2, 2019 (https://assembly.nl.ca/Legislation/sr/statutes/o06-1.htm). Nalcor's interests in existing oil and gas projects will be managed by the new Crown Corporation.

> capable of effective management with a fairly straightforward and simple top management structure." (p. 63)

Liberty was charged with cost minimization and rate mitigation. While integrating NLH and Power Supply offers apparent opportunities to streamline operations and shed staff, a question that Liberty has failed to consider is: what are the potential foregone future opportunities or lost capabilities from such an organizational structure? As discussed above in Chapter 4, the current organizational structure provides a clear focus to NLH and Power Supply and as such is likely to support better decision-making with respect to the key planning, investment, and operating decisions that each organization must make. Liberty has estimated the cost reductions that can be realized from the integration of these two organizations and while critically assessing these estimates is beyond our scope, they do appear to be aggressive. Nalcor's current organizational structure maintains capability for it to deliver on its mandate through the Ministry of Natural Resources to "support resource development in the province."[64] This requires the capability to plan for the development of power generation projects and to support the development of these projects in a manner that doesn't impose undue risks on customers. Forestalling or frustrating this development is likely to have a meaningful cost to the province given the number and wide scope of such investment opportunities. This needs to be considered.

Future development of generation projects can occur under a wide range of models that represent risk/reward tradeoffs that are appropriate for the province and Nalcor's shareholder. However, regardless of the model under which development could occur it is important for Nalcor to maintain the capability to assess and support this development and to be able to best represent the Province's interests when pursing this development. One model that may offer attractive risk/reward tradeoffs is to pursue such development through partnerships. Nalcor will need to be able to represent the province's interests in the partnership. This would require that the project assessment and development capabilities such as reside within Power Supply and Power Development be maintained.

[64] Dwight Ball, Premier, January 9, 2019, p.2 https://www.nr.gov.nl.ca/nr/department/pdf/Mandate_MinisterCoady.pdf

APPENDIX A: NORTH AMERICA UTILITY SUMMARIES

Newfoundland and Labrador: NL Hydro / Nalcor Energy

Company Overview Utility Website Annual Report (2018)	Ownership: Crown Corporation

Revenue: $1.0 B	Asset Base: $18.8 B	Load Served: 9.1 TWh	Peak Demand: 1,503 MW
Net Income: $191 M	Employees: 1,566	Customers: 38,600	Energy Sales: 39.7 TWh

Nalcor's operations consist of the following:

- Power Development, responsible for overseeing the construction of Muskrat Falls and other potential developments such as Gull Island;
- Power Supply, which operates or will operate the non-regulated electricity operations, including the hydroelectric plants located at Churchill Falls and Muskrat Falls, the Labrador-Island Link (LIL), and the Labrador Transmission Assets (LTA).
- NL Hydro is a vertically integrated utility, providing regulated generation, transmission and distribution services across the Province; and
- Offshore Development (which is involved in the development, production, transportation and processing of NL's offshore energy resources).

While each of the operations maintain separate support functions, many services within these support functions are shared across the broader organization.

Profile: Vertically integrated utility, primarily providing regulated generation and transmission services. Directly serves about 24,000 customers on the Island and 15,000 customers in Labrador and provides generation for Newfoundland Power (about 268,000 customers and 5.9 TWh in 2018).

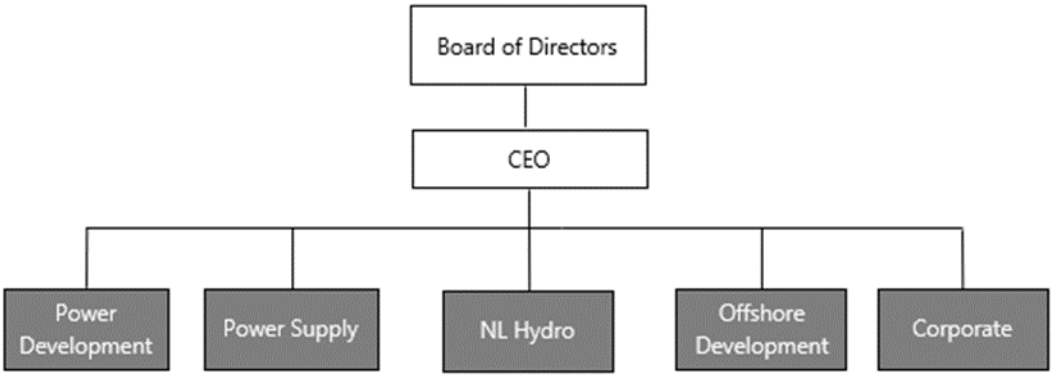
Supply Mix: Predominantly hydroelectric (~80%), with remainder thermal and purchases from IPPs. With the commercial operation of Muskrat Falls, NLH's power supply will be about 99% hydroelectric.

Mandate	To manage the province's energy resources effectively and responsibly for the benefit of the people in the province.
Primary Legislative & Policy Direction	*The Electrical Power Control Act (1994)* - Sets the electricity policy of the province with respect to electricity rates, criteria for the production, transmission and distribution of electricity, and gives the PUB the authority to implement these policies, but with provisions for direction from the government by the Lieutenant Governor in Council.
	Energy Corporation Act / Hydro Corporation Act (2007) - Established the existence of, and sets out the mandate, powers and management structure of Nalcor and NL Hydro as Crown Corporations.
	Muskrat Falls Exemption Order (2013) – exempts the costs of Muskrat Falls, the LIL, and the LTA from regulatory purview.
Regulation	• NL Hydro is rate regulated by the NL Board of Commissioners of Public Utilities (PUB).

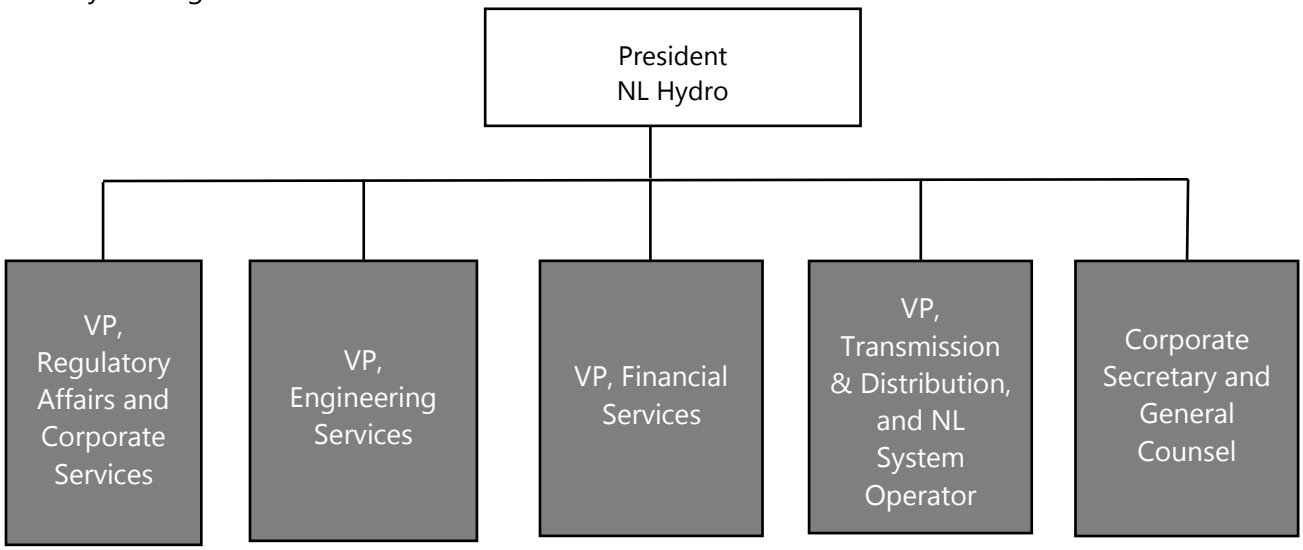
	• Not all of Hydro's activities are rate regulated. The non-regulated activities include the sale of power, purchased from Churchill Falls, to mining operations in Labrador as well as certain costs related to operations that NL Hydro manages.	
Growth Initiatives	Capital Assets	Muskrat Falls is expected to achieve commercial operation in 2020. Other hydroelectric resources remain for development, including material upgrades to existing plants (Churchill Falls 2, Churchill Falls excitation and runner upgrades, Bay D'Espoir Unit 8), Gull Island, and other greenfield hydro sites located throughout the province.
	Energy Trading	To date, the focus has been on exporting surplus Recall Energy from Churchill Falls to markets beyond Québec. Nalcor Energy Marketing will also market the surplus power from Muskrat Falls. Energy trading activities are non-regulated.
	Commercial Partnerships	Nalcor and Emera partnership interests in the Labrador-Island Link. Hydro holds a 65.8 percent interest in Churchill Falls with the remainder held by Hydro-Québec. The project was completed in 1971 and much of its output is under contract with HQ through August 2041. Partnered on Emera's proposed Atlantic Link, subsea HVDC link to Massachusetts in 2017, along with NB Power. Nalcor holds ownership interests in offshore energy projects (White Rose, Hibernia Southern Extension and Hebron). These investments will be retained by Nalcor in light of the creation of the new oil and gas corporation discussed below.
	M&A	N/A
Organizational Structure Insights	• NL Hydro's electricity operations were separated from the non-electricity operations in June 2016 to provide a dedicated focus on its regulated electricity operations. Additional changes were made to the non-regulated operations such as dividing the Muskrat Falls Projects into two components - Power Supply and Power Development - with separate Executive Vice Presidents and a resulting reorganization of operations for each. • The Province is establishing a separate Crown Corporation for oil and gas through the *Oil and Gas Corporation Act*, with much of Nalcor's Offshore Development operating segment and the former subsidiary Bull Arm Fabrication to be organized	

	under the new corporation.[65] Nalcor's interests in existing oil and gas projects will be managed by the new Crown Corporation.

Nalcor Organization Chart



NL Hydro Organization Chart

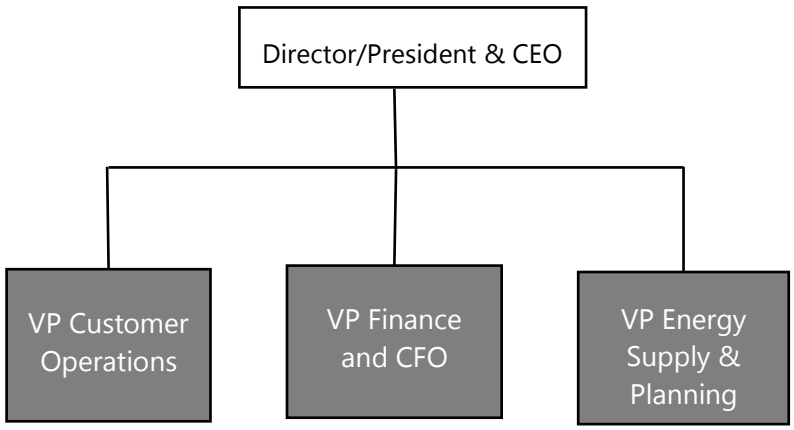


[65] An Act to Establish An Oil and Gas Corporation for the Province, assented to April 2, 2019
https://assembly.nl.ca/Legislation/sr/statutes/o06-1.htm

<table>
<tr><th colspan="5">Newfoundland and Labrador: Newfoundland Power / Fortis Inc.</th></tr>
<tr><td rowspan="5">Company Overview</td><td colspan="4">Ownership: Investor owned electric utility</td></tr>
<tr><td>Revenue: $664 M</td><td>Asset Base: $1.6 B</td><td>Load Served: TWh</td><td>Peak Demand: 1,362 MW</td></tr>
<tr><td>Net Income: $42 M</td><td>Employees: 623</td><td>Customers: 268,000</td><td>Energy Sales: 586 GWh</td></tr>
<tr><td colspan="4">Profile: Newfoundland Power is primarily an electric distribution company, responsible for serving approximately 87% of customers in Newfoundland and Labrador.</td></tr>
<tr><td colspan="4">Supply Mix: While it owns and operates 139 MW of hydroelectric and fossil generation, the vast majority of its electricity supply (i.e., about 93%) is provided by Newfoundland and Labrador Hydro.</td></tr>
<tr><td>Mandate</td><td colspan="4">To operate sound electricity distribution systems, deliver safe, reliable electricity to customers at the lowest reasonable cost, and conduct business in an environmentally and socially responsible manner</td></tr>
<tr><td>Primary Legislative & Policy Direction</td><td colspan="4">Electrical Power Control Act, 1994, grants the PUB the authority to oversee NP including approving rates and charges for services and various other rules and regulations related to this service. This directs utilities to manage their operations such that the power being delivered to customers is at the lowest possible cost consistent with reliable service.</td></tr>
<tr><td>Regulation</td><td colspan="4">• Subject to cost-of-service regulation by Newfoundland and Labrador Board of Commissioners of Public Utilities (PUB). In addition, the PUB oversees NP's capital expenditures greater than $50,000. NP has an Inter-Affiliate Code of Conduct to manage affiliate transactions.
• PUB inquiries following service interruptions in 2013 and 2014 concluded that "significant concerns" on reliability and adequacy remain over the supply from NL Hydro.</td></tr>
<tr><td rowspan="4">Growth Initiatives</td><td>Capital Assets</td><td colspan="3">Recent Capital Budget Application with the PUB indicates annual Capex of about $100 million, the majority of which is focused on its distribution system.</td></tr>
<tr><td>Energy Trading</td><td colspan="3">N/A for Newfoundland Power. Fortis has some assets and an affiliate whom engage in energy trading, but for the most part Fortis focuses on its regulated utility businesses.</td></tr>
<tr><td>Commercial Partnerships</td><td colspan="3">N/A</td></tr>
<tr><td>M&A</td><td colspan="3">M&A activity is at the level of its parent, Fortis, which has been very active.</td></tr>
<tr><td>Organizational Structure Insights</td><td colspan="4">• Newfoundland Power has a straight-forward organizational structure, with emphasis on finance, operations, and energy planning.
• Energy planning is likely of importance, as variability in energy supply and customer demand were noted as two significant risks in financial disclosures. In particular, cost overruns and delays on the Muskrat Falls project can affect both (influencing both the</td></tr>
</table>

	supply and cost of energy from NL Hydro, and in turn, any price increases can affect customer consumption trends).

NP Executive Organization Chart



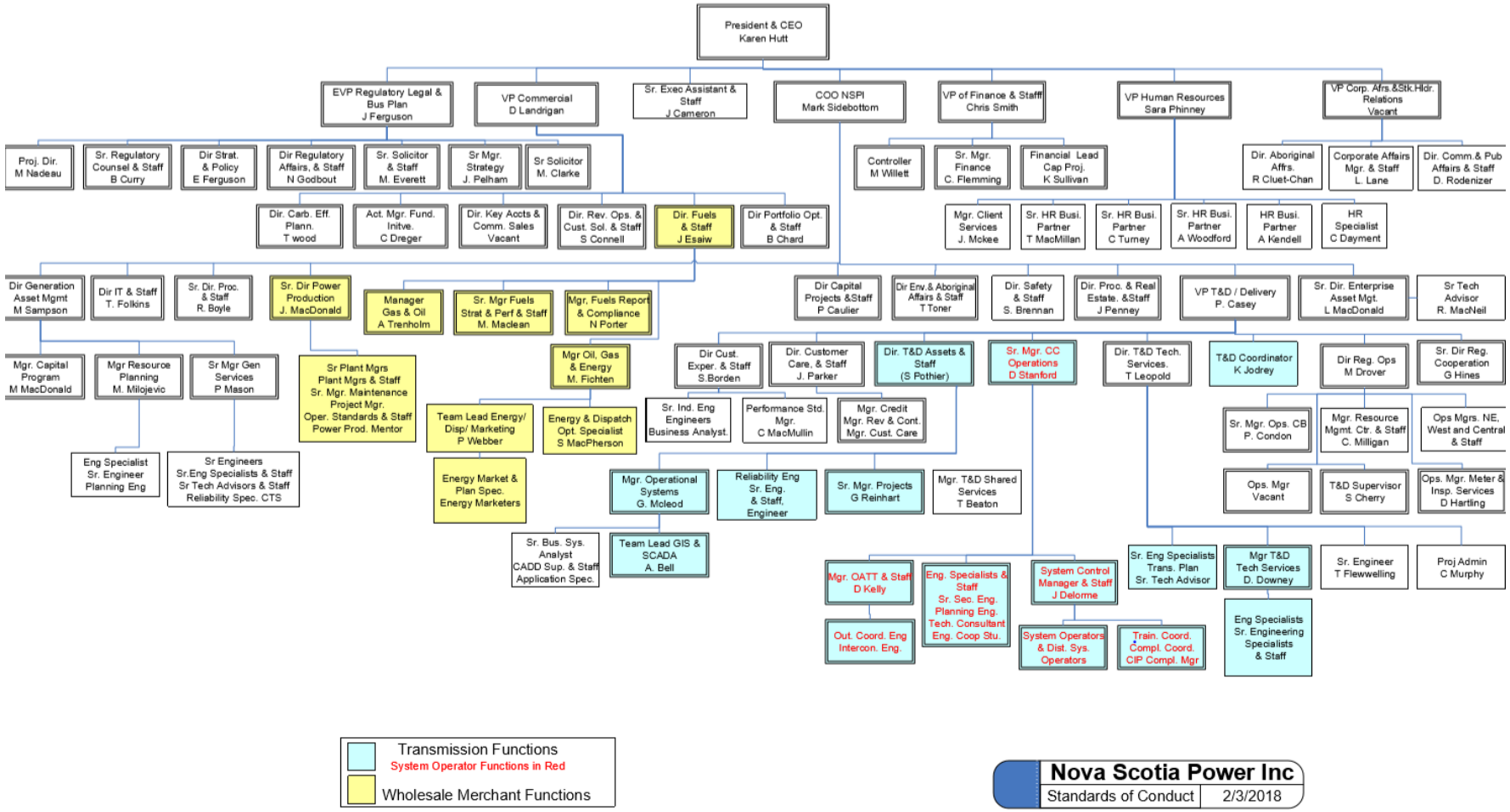
<table>
<tr><th colspan="5">Nova Scotia: Nova Scotia Power Inc. (NSPI)/Emera Inc.</th></tr>
<tr><td rowspan="5">Company Overview

Utility Website

Annual Report (2018)</td><td colspan="4">Ownership: Investor-Owned Utility</td></tr>
<tr><td>Revenue: $1.4 B</td><td>Asset Base: $5.1 B</td><td>Load Served: 10.6 TWh</td><td>Peak Demand: 2,139 MW</td></tr>
<tr><td>Net Income: $131 M</td><td>Employees: 1,700</td><td>Customers: 500,000</td><td></td></tr>
<tr><td colspan="4">Profile: NSPI is a vertically integrated electric utility that serves the majority of Nova Scotia and is a subsidiary of Emera.</td></tr>
<tr><td colspan="4">Supply Mix: NSPI's capacity mix consists of 50% coal/pet coke; 28% oil/gas; 20% hydro/wind; and 2% biomass, plus 546 MW from IPPs.</td></tr>
<tr><td></td><td colspan="4">Other: In addition to NSPI, Emera owns numerous affiliates including Tampa Electric (725,000 customers); Peoples Gas (Florida's largest natural gas provider with 325,000 customers); New Mexico Gas (513,000 customers); Emera New Brunswick, which owns a natural gas pipeline; Emera Energy, which owns various generation facilities and trades natural gas and electricity; Emera Caribbean, which has ownership interests in various distribution companies in the Caribbean; and Emera Newfoundland and Labrador (NL), which has various strategic investments in NL; and Emera Utility Services, the largest utility services contractor in Atlantic Canada. Emera Energy's trading activities are largely exempt from regulatory oversight. NSPI has a marketing desk that resides within its Fuels Department, which engages in energy trading of NSPI's portfolio in an effort to minimize electricity costs. This activity is covered under NSPI's Fuel Adjustment Mechanism and as such is subject to the regulatory scrutiny that this activity attracts.</td></tr>
<tr><td>Mandate</td><td colspan="4">Cleaner, affordable, reliable energy delivered safely.</td></tr>
<tr><td rowspan="3">Primary Direction</td><td colspan="4">In 2010, Electricity Act was amended to include Renewable Electricity Regulations, which require 40% of generation from renewable electricity by 2020. NSPI focused on moving from heavy reliance on coal-fired electricity to lower and non-emitting resources, Maritime Link an important element of this policy.</td></tr>
<tr><td colspan="4">Rate Stability ensuring cost certainty through "Fuels to Assets" (solar displacing fossil fuels) and "O&M to Assets" projects</td></tr>
<tr><td colspan="4">Emera is focused on increasing proportion of regulated assets (e.g., 95% regulated earnings by end of 2019). This is evident in sale of Emera Energy Generation assets discussed further below.</td></tr>
<tr><td>Regulation</td><td colspan="4">• Utility operations generally subject to cost-of-service regulation, with an allowed return on equity of 8.75% to 9.25%.</td></tr>
<tr><td rowspan="2">Growth Initiatives</td><td colspan="2">Capital Assets</td><td colspan="2">Invested $1.8 B in Maritime Link and $580 M in Labrador Island Link.</td></tr>
<tr><td colspan="2">Energy Trading</td><td colspan="2">With sale of generation, reducing reliance on Emera Energy for earnings growth.</td></tr>
</table>

	Commercial Partnerships	Partnered with Nalcor for development of Maritime Link and LIL and with Nalcor and NB Power on its proposed Atlantic Link, a subsea HVDC link to Massachusetts.
	M&A	Emera has recently sold its portfolio of natural gas-fired assets in New England and has agreed to sell its transmission and distribution assets in Maine to ENMAX.
Organizational Structure Insights	• NS UARB has devoted considerable resources addressing the relationship between Emera and NSPI and has specified that Emera create and maintain a corporate organizational structure which ensures that regulated electric and other utility services are provided solely by NSPI and by no other affiliate.[66] This would constrain NSPI's ability to rely on a services company to provide utility services (IT, customer service & billing, treasury) to Emera utility companies. • The UARB has also specified that: o NSPI should reconsider the structure of its Board and reconsider having an independent chair. o NSPI should revise its guidelines so that in any year in which a person acts as both a Director or Officer of NSPI and a Director or Officer of Emera, the person must complete the Emera Code of Conduct training, the NSPI Affiliate Code of Conduct Training, and execute a confidentiality undertaking. o As part of the revised code, certain sensitive positions that are not on the executive leadership team should not be shared with any affiliate transacting for goods and services with NSPI.	

[66] https://nsuarb.novascotia.ca/sites/default/files/Board%20Decision_10.pdf



Source: http://oasis.nspower.ca/site/media/oasis/March%202018,%20%20org%20chart%20with%20SO%20functions.pdf

New Brunswick: NB Power Corporation (NB Power)

Company Overview Utility Website Annual Report (2017-2018)	Ownership: Crown Corporation

Revenue: $1.8 B	Asset Base: $6.9 B	Load Served: 13.2 TWh	Peak Demand: 3,100 MW
Net Income: $23 M	Employees: 2,400	Customers: 358,238	Energy Sales: 16.7 TWh

Profile: Vertically integrated electric utility. System Operator was spun out as part of electricity restructuring. In 2013 NB Power was reintegrated to reduce overall costs and recognized that its electricity market was unlikely to become more competitive. NP Energy Marketing Corporation continued to be a separate entity.

Supply Mix: Purchases (including IPPs) 38%; nuclear 29%; thermal 19%; and hydro 14%.

Other: NB Power has one subsidiary, NB Energy Marketing Corporation, which conducts energy trading activities in markets outside of New Brunswick. The purpose of NB Energy Marketing is to purchase electricity to serve load in and outside NB and to market excess energy generated from NB Power's regulated assets to other jurisdictions. Its operations are largely exempt from regulation by the New Brunswick Energy and Utilities Board. However, its financial results are included in the financial statements of NB Power.

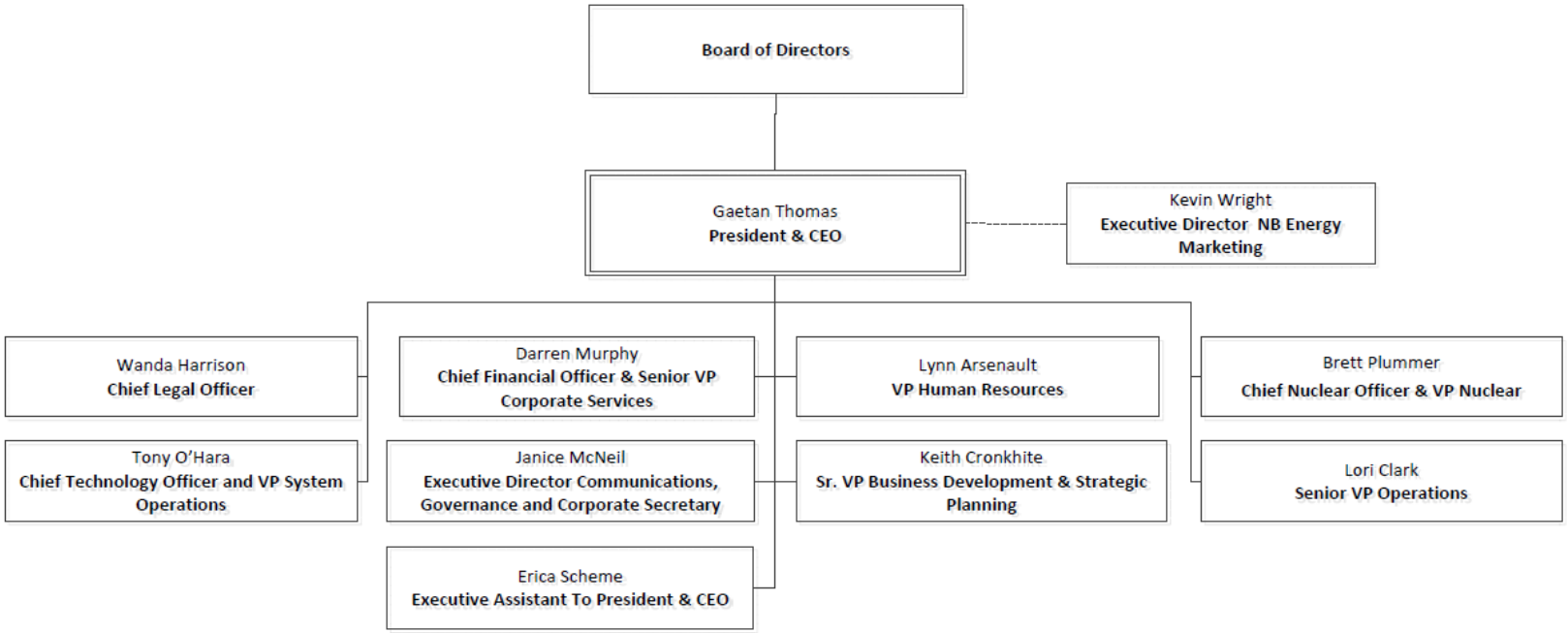
NB Power's debt ratio is 93%. Cost overruns for refurbishment of Pt. Lepreau nuclear unit and capital investment at Coleson Cove along with desire to keep rates low as possible contributed to this high degree of leverage.

Mandate	NB Power has responsibility for the following: ○ Maintaining and creating jobs in the resource sector in an economically sustainable fashion. ○ Working with the other Atlantic Provinces and neighboring jurisdictions to improve regional cooperation. ○ Working with the federal government in ongoing investment and energy-related issues. ○ Meeting debt reduction targets as established in NB Power's 10-year plan. ○ Protecting and improving the environment.
Primary Legislative & Policy Direction	*The Electricity Act* - establishes that, to the extent practical, rates charged by NB Power for sale of electricity within the province shall be maintained as low as possible and changes in rates shall be stable and predictable from year-to-year.
Regulation	• NB Power is required to file with the New Brunswick Energy and Utilities Board (EUB), once every three years, an Integrated Resource Plan (IRP) approved by the Executive Council. EUB does not review the IRP but uses it as a point of reference for other efforts. • Each year, NB Power is required to file with the EUB, for information purposes, a 10-year Strategic, Financial and Capital Investment Plan containing projections of capital expenditures, revenue requirements, load and revenue forecasts and changes in rates for the ten-year period covered by the plan.

	• The threshold for approval of capital expenditures is $50 million. • Each year, NB Power is required to apply to UEB for approval of the rates the utility proposes to charge for that year. This requirement exists even if not proposing to increase rates.	
Growth Initiatives	Capital Assets	With limited forecast load growth, there is limited forecasted capital investment in new generation prior to 2030 other than for the refurbishment of the Mactaquac hydroelectric unit ($1.2 billion out of $4.5 billion of CAPEX).
	Energy Trading	NB Energy Marketing actively participates in export markets. In 2018, 33% of NB Power's energy supply was from imports and exports represented about 23% of its total sales.
	Commercial Partnerships	NB Power was a partner in Emera's Atlantic Link proposed HVDC subsea project that sought to supply Massachusetts with clean energy from Atlantic Canada.
	M&A	N/A
Organizational Structure Insights	• NB Power's organizational structure is relatively straight forward, with Generation, Nuclear, and Transmission & Distribution divisions. • NB Energy Marketing is a wholly owned subsidiary, separate from these divisions.	

NB Power Senior Leadership Team

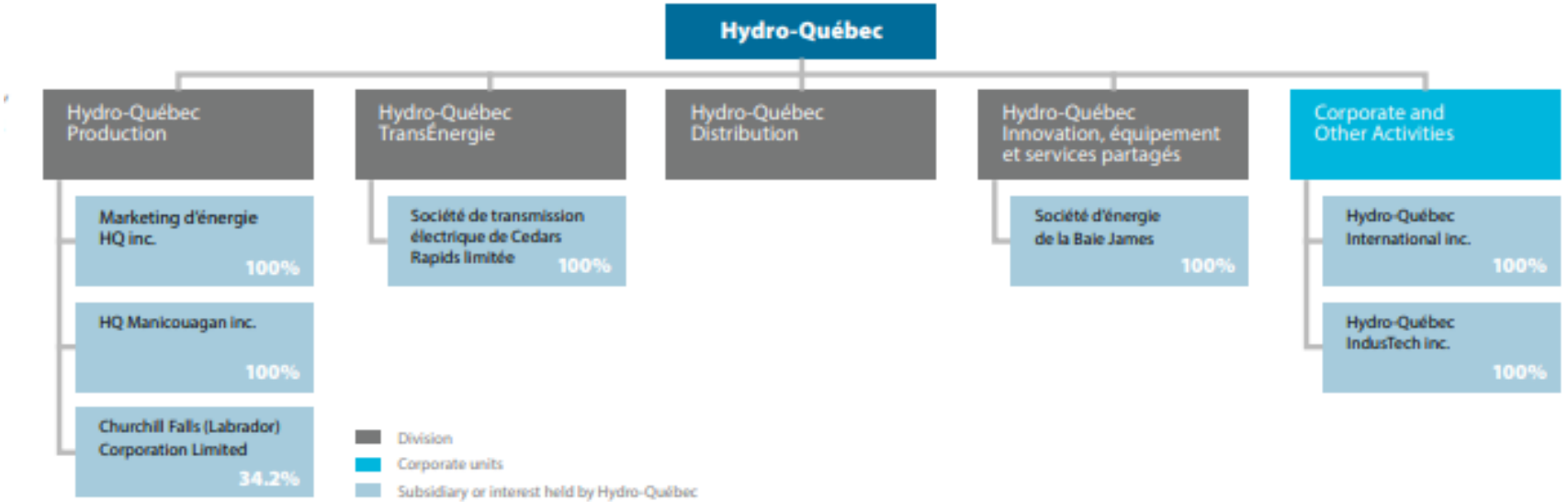
November 2018



Québec: Hydro-Québec (HQ)

Company Overview Utility Website Annual Report (2018)	Ownership: Crown Corporation			
	Revenue: $14.4 B	Asset Base: $ 77 B	Load Served: 172.8 TWh	Peak Demand: 38,319 MW
	Net Income: $3.2 B	Employees: 19,786	Customers: 4.1 M	Energy Sales: 208 TWh
	Profile: Vertically integrated electric utility that has four major divisions: generation (HQ Production); transmission (HQ TransEnergie); distribution (HQ Distribution), which supplies retail customers; and Innovation, which designs, builds and refurbishes generation and transmission facilities.			
	Supply Mix: Majority hydroelectric (>95% of generation, 36,366 MW plus purchases including from Churchill Falls). About 4% of generation from IPP wind projects and the rest from smaller thermal units that are primarily oil-fired and other renewables (ex. biomass).			
	Other: HQ Energy Marketing optimizes HQ Production's hydro fleet, maximizing the value of exports while utilizing the capabilities of its reservoirs, exports provide 23% of net income.			
Mandate	To deliver safe, reliable supply of clean, renewable energy and high-quality services. "By developing hydraulic resources, we make a strong contribution to collective wealth and play a central role in the emergence of a low-carbon economy. As recognized leaders in hydropower and large transmission systems, we export clean, renewable power and commercialize our expertise and innovations on world markets."			
Primary Legislative & Policy Direction	In 2001 the *Act to amend the Act respecting the Régie de l'énergie* established a Heritage Pool giving Québec consumers access to 165 million MWh per year from HQ Production at a rate of $27.90/MWh, which now escalates with inflation. This ensures customers have access to the low-cost power available from HQ Production while allowing it to realize an attractive return as the cost of this energy declines. For volumes beyond the Heritage Pool, HQ Production competes with other suppliers to supply HQ Distribution, ensuring that Québec customers are shielded from the risks of new hydro projects. In the late 1990s and early 2000s competitive wholesale markets opening in many of HQ's interconnected markets (resulting in hourly prices, which varied significantly over a day and from day-to-day) creating a major opportunity for HQP to use its storage reservoirs to arbitrage prices. This Act also mandated the vertical separation of HQ as it exists today. Such vertical separation of utility functions was common as the sector moved toward more competitive markets.			
Regulation	• The Régie de l'énergie (Régie) regulates HQ TransEnergie and HQ Distribution, setting rates based on the cost-of-service. The Régie also approves Distribution supply plans that determine when it procures additional power and transmission and distribution investment projects.			

	• HQ Production and HQ Energy Marketing are unregulated. • HQ also operates under various rules of conduct that govern affiliate relationships.	
Growth Initiatives	Capital Assets	HQ has aggressively pursued the development of its hydro resource potential. It is finishing construction of the Romaine River project, a 1,550 MW project producing 7.5 TWh per year of energy. Last year HQP's exports were 36.1 TWh, a record. In 2018, Massachusetts awarded HQP a contract to deliver 9.5 TWh/year at a price of $59/MWh in 2017$ (USD), which escalates by 2.5% per year. This includes about $11/MWh for transmission.
	Energy Trading	HQ has sought long-term contracts for the output of its recently commissioned hydro projects. Given high utilization of its existing transmission interconnections additional transmission was required to deliver this energy to export markets.
	Commercial Partnerships	HQ sale to Massachusetts was in a partnership with Avangrid affiliate Central Maine Power.
	M&A	The HQ Strategic Plan indicates that they are considering the purchase of assets or stakes outside Québec. Additionally, about 1% of revenue is spent on R&D and committed to step up HQ's efforts to commercialize innovations.
Organizational Structure Insights	• Organizational structure is a classic design with generation, transmission and distribution as separate divisions. HQ Production is unregulated, but Heritage Pool guarantees low costs of portfolio to customers and shields them from risks of new projects. Strong HQ balance sheet and earnings allows this. HQ Production is free to aggressively pursue opportunities in export markets. • Fourth division is Innovation, which provides the capability for new project development and construction. Having this capability in house appears to have let HQ better manage construction of these projects. However, there is not full transparency regarding its construction record.	



GENERATION

Hydro-Québec Production operates and develops Hydro-Québec's generating facilities. It generates electricity for the Québec market and exports power to wholesale markets in northeastern North America.

TRANSMISSION

Hydro-Québec TransÉnergie operates and develops Hydro-Québec's power transmission system. It markets system capacity and manages power flows throughout Québec.

DISTRIBUTION

Hydro-Québec Distribution operates and develops Hydro-Québec's distribution system and ensures the supply of electricity to the Québec market. It also carries on activities related to electricity sales in Québec, provides customer services and promotes energy efficiency.

CONSTRUCTION

Hydro-Québec Innovation, équipement et services partagés and Société d'énergie de la Baie James (SEBJ) design, build and refurbish generating and transmission facilities, mainly for Hydro-Québec Production and Hydro-Québec TransÉnergie.

Source: HQ 2018 Annual Report http://www.hydroquebec.com/about/financial-results/annual-report.html

Detailed organizaiton chart avaliable here: http://publicsde.regie-energie.qc.ca/projets/515/DocPrj/R-4096-2019-B-0004-Demande-Piece-2019_08_02.pdf

<table>
<tr><th colspan="5">Ontario: Ontario Power Generation (OPG)</th></tr>
<tr><td rowspan="5">Company Overview

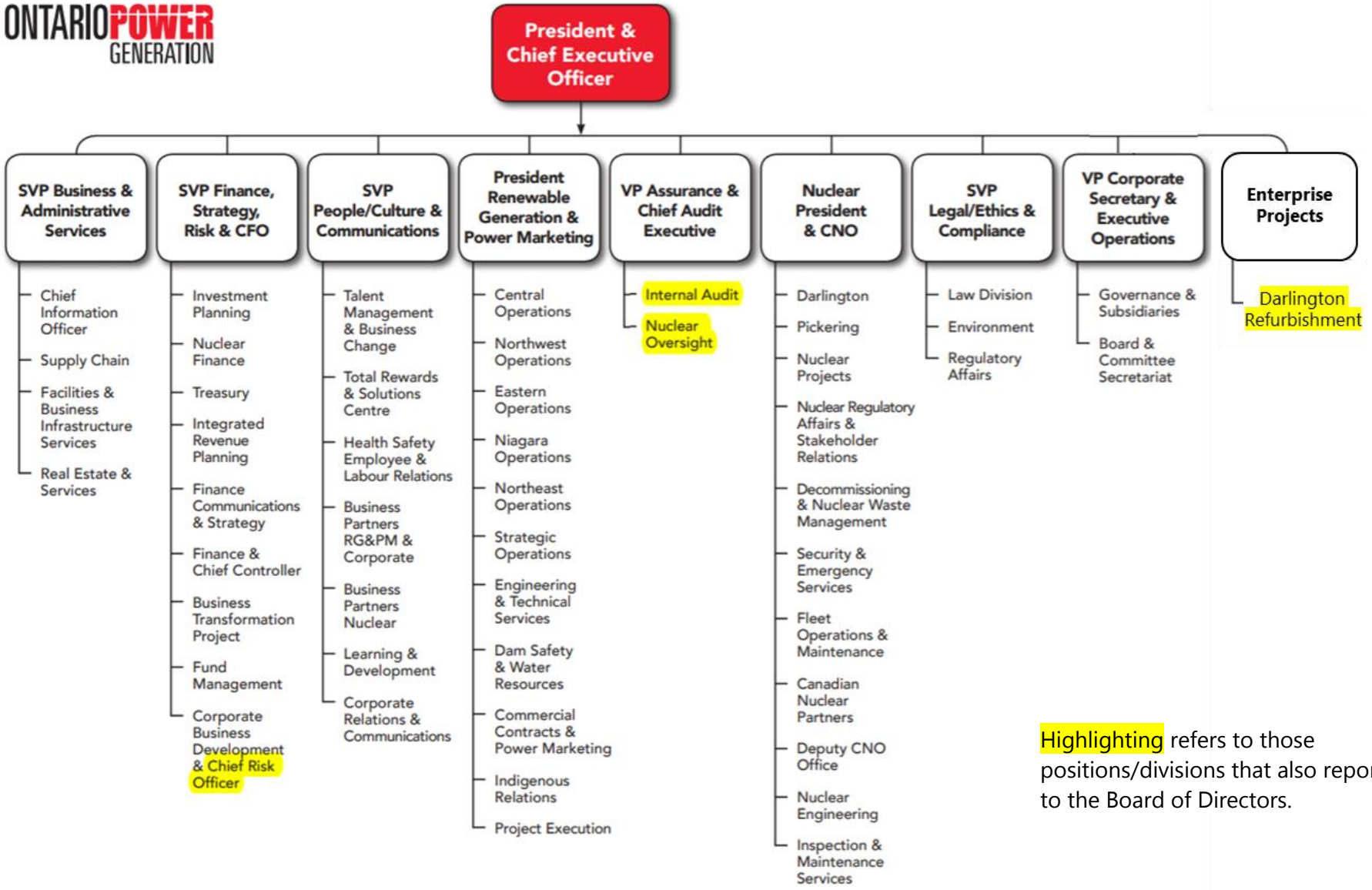
Utility Website

Annual Report (2018)</td><td colspan="4">Ownership: Crown Corporation, but as a business enterprise with a commercial mandate.</td></tr>
<tr><td>Revenue: $5.5 B</td><td>Asset Base: $52.0 B</td><td>Load Served: N/A</td><td>Peak Demand: N/A</td></tr>
<tr><td>Net Income: $1.2 B</td><td>Employees: 10,000</td><td>Customers: N/A</td><td>Energy Sales: 74.0 TWh</td></tr>
<tr><td colspan="4">Profile: Ontario Power Generation is a quasi-public electric generation utility with regulated and non-regulated operations, which operates under shareholder directives from the Government of Ontario as well as an MOU.[67]</td></tr>
<tr><td colspan="4">Supply Mix: 39% Nuclear, 15% Natural Gas, 44% Hydro, 2% Biomass, Wind and Solar</td></tr>
<tr><td>Mandate</td><td colspan="4">OPG aims be a low-cost, clean power leader in Ontario, while making positive contributions to the environment, economy and communities in which they operate.</td></tr>
<tr><td rowspan="2">Primary Legislative & Policy Direction</td><td colspan="4">Energy Competition Act - (October 1998) Energy Competition Act passed, which restructured Ontario Hydro into several different companies including OPG, which inherited Ontario Hydro’s generation assets. The province assumed large amounts of debt from the financing of the Darlington nuclear station, which was held by Ontario Electricity Financial Corp.</td></tr>
<tr><td colspan="4">OPG’s MOU with the Government directs it to leverage its assets and expertise to generate new revenues on a commercially sound basis, including the making of strategic investments and acquisitions in the electricity sector, as well as related business opportunities inside and outside Ontario for the benefit of the corporation and shareholder</td></tr>
<tr><td>Regulation</td><td colspan="4">• OPG is subject to regulatory oversight by the Ontario Energy Board which sets rates for its rate regulated hydro and nuclear units.</td></tr>
<tr><td rowspan="3">Growth Initiatives</td><td>Capital Assets</td><td colspan="3">OPG is refurbishing its Darlington nuclear plant since 2016, with a budget of $12.8 billion (CAD). The Darlington Refurbishment project is expected to extend the operating life of the plant by over 30 years.</td></tr>
<tr><td>Energy Trading</td><td colspan="3">Its energy trading operations are largely exempt from regulatory oversight. OPG trades short-term financial instruments including energy-related derivatives of typically one year or less duration.</td></tr>
<tr><td>Commercial Partnerships</td><td colspan="3">OPG partnered with Stem Inc. to work on advanced energy storage systems that will assist Ontario Industrial manufacturers in managing electricity costs.</td></tr>
</table>

		OPG is partnering with multiple commercial fleets to provide fleet electrification solutions and is also developing strategies for efficient and cost-effective grid integration of EVs. OPG also started a partnership with BWX Technologies in 2018 to produce medical isotopes through a wholly owned subsidiary, Canadian Nuclear Partners (CNP), Inc. The plan is to make the Darlington GS the first commercial nuclear plant to produce large quantities of molybdenum-99 (Mo-99) to use for medical imaging and diagnoses.
	M&A	In July 2019, OPG announced a $2.87 billion deal to acquire 2 CCGT projects and the remaining 50% interest in the Portlands Energy Centre from TC Energy. In 2018 OPG acquired Eagle Creek and their hydro and solar facilities in the US. Through Eagle Creek, OPG recently indicated that it had reached an agreement to acquire Cube Hydro an owner and operator of 385 MW of hydro units in the US.
Organizational Structure Insights	• OPG separates key corporate functions that are shared across the organization such as administration, finance and human resources. The simplicity of OPG's organizational structure is likely supported by it being solely a generation utility (i.e. no transmission, distribution or other utility business units). • Interestingly, Indigenous Relations is organized within the Renewable Generation & Power Marketing business unit as opposed to with the other communications/affairs roles in Administration and People, Culture & Communications. • OPG has a separate business unit, Enterprise Projects, that is currently focused on the Darlington nuclear refurbishment project and a distinct Board committee for the refurbishment. This demonstrates OPG's focus on the approved execution scope, including its budget of $12.8 billion (CAD) and the mitigation of project risks.	

[67] https://www.opg.com/about-us/corporate-governance-and-leadership/our-operating-principles/memorandum-agreement/

ONTARIO POWER GENERATION



Highlighting refers to those positions/divisions that also report to the Board of Directors.

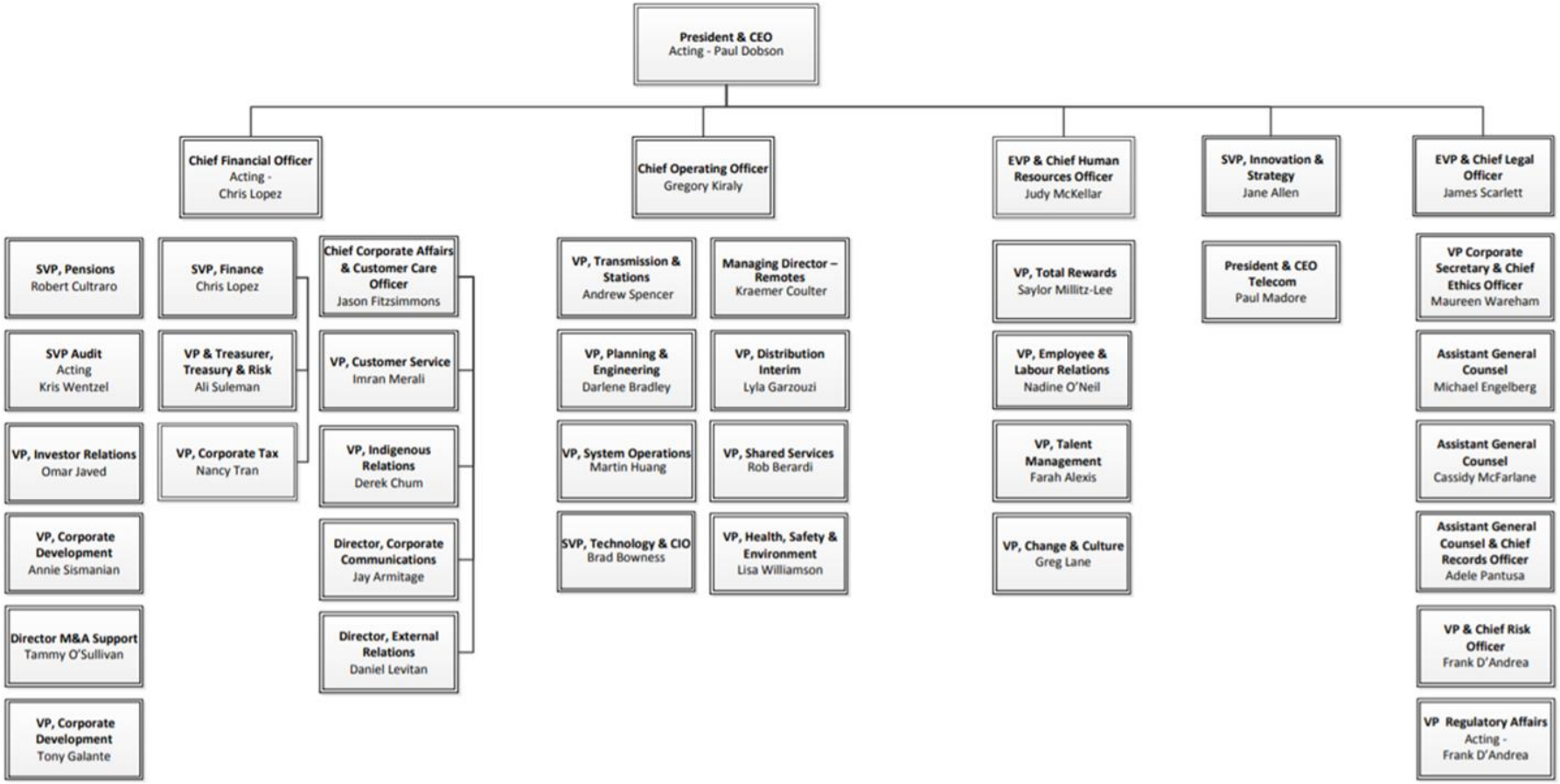
<table>
<tr><th colspan="5">Ontario: Hydro One Limited</th></tr>
<tr><td rowspan="5">Company Overview

Utility Website

Annual Report (2018)</td><td colspan="4">Ownership: Publicly traded on TSX, with the Government of Ontario currently holding a 47.4% stake.</td></tr>
<tr><td>Revenue: $6.2 B</td><td>Asset Base: $25.7 B</td><td>Load Served: 27.3 TWh</td><td>Peak Demand: 20,485 MW</td></tr>
<tr><td>Net Income: -$89 M</td><td>Employees: 8,600</td><td>Customers: 1.4 Million</td><td>Energy Sales: N/A</td></tr>
<tr><td colspan="4">Profile: Primarily a rate-regulated transmission and distribution utility. A smaller rate-regulated segment provides remote distribution and small, mostly diesel-fired generation to 21 remote communities in Northern ON similar to NLH's isolated system operations.</td></tr>
<tr><td colspan="4">Supply Mix: N/A</td></tr>
<tr><td></td><td colspan="4">Other: Owns a non-rate regulated telecommunications subsidiary, Hydro One Telecom, Inc., which supports Hydro One's regulated business and provides wholesale broadband telecommunications services to a variety of customers in ON.</td></tr>
<tr><td>Mandate</td><td colspan="4">Deliver exceptional customer service and a safe and reliable source of electricity to homes and businesses in every community we serve.</td></tr>
<tr><td rowspan="2">Primary Legislative & Policy Direction</td><td colspan="4">Energy Competition Act (October 1998) - restructured Ontario Hydro into several different companies including Hydro One, which held Ontario Hydro's T&D assets.</td></tr>
<tr><td colspan="4">Public Offering and Private Ownership - In 2015 Hydro One held its Initial Public Offering (IPO) and the Government announced a long-term target of 60% private investor ownership. This follows the intent of the Energy Competition Act that Hydro One operate as a private business and previous attempts at an IPO in the early 2000s.</td></tr>
<tr><td>Regulation</td><td colspan="4">• The provincial energy regulator, the Ontario Energy Board (OEB), approves Hydro One's revenue requirements, rates, T&D capital projects, and certain corporate decisions such as M&A in ON involving the purchase and consolidation of energy assets. The OEB is moving towards incentive-based regulation.
• Hydro One is currently seeking approval from the OEB for the acquisition of two small municipal distribution utilities and its 2020-2022 transmission rate application.
• The provincial government exercises considerable influence over Hydro One. For example, in 2018 the government and Hydro One agreed that the entire Board of Directors and the President and CEO would resign after intense criticism and pressure from newly elected Premier Doug Ford.</td></tr>
<tr><td rowspan="2">Growth Initiatives</td><td>Capital Assets</td><td colspan="3">Placed over $6.5 billion (CAD) of assets in-service over the last 4 years. The majority were transmission expansions and upgrades. Additional projects are planned or ongoing of about $0.5 billion including a $157 million East-West Tie Station Expansion.</td></tr>
<tr><td>Energy Trading</td><td colspan="3">N/A</td></tr>
</table>

	Commercial Partnerships	N/A
	M&A	Hydro One is awaiting approval for its acquisition of two small municipal utilities in ON, Peterborough Distribution ($105 million (CAD)) and City of Orillia Power Distribution Corporation ($28.2 million (CAD)). Acquisition of Avista Corporation, an US electric and natural gas utility valued at about $3 billion (USD), failed in January 2019 with a termination agreement. The Washington Utilities and Transportation Commission rejected the merger over concerns that Hydro One remains subject to management control by the Province of Ontario. It cost Hydro One $138 million including payment of a US$103 million termination fee to Avista.
Organizational Structure Insights	• Hydro One's subsidiaries are largely integrated into the organizational structure, which is supported by the complimentary focus on T&D and its limited number of unregulated affiliates (i.e. just Hydro One Telecom). ○ Within Operations there are natural divisions by asset type/business such as transmission, distribution, and remote. At the same time planning and engineering, EH&S, system operations and other functions are shared. • Hydro One telecom is organized under Innovation and Strategy. This allows for a degree of separation from the regulated business and is indicative of broadband services as minor part of Hydro One's operations. • The existence of a Corporate Affairs and Customer Care division highlights the growing emphasis on customers and other key stakeholders, especially considering the Government of Ontario's desire to minimize customer bills.	

Hydro One Organization Chart



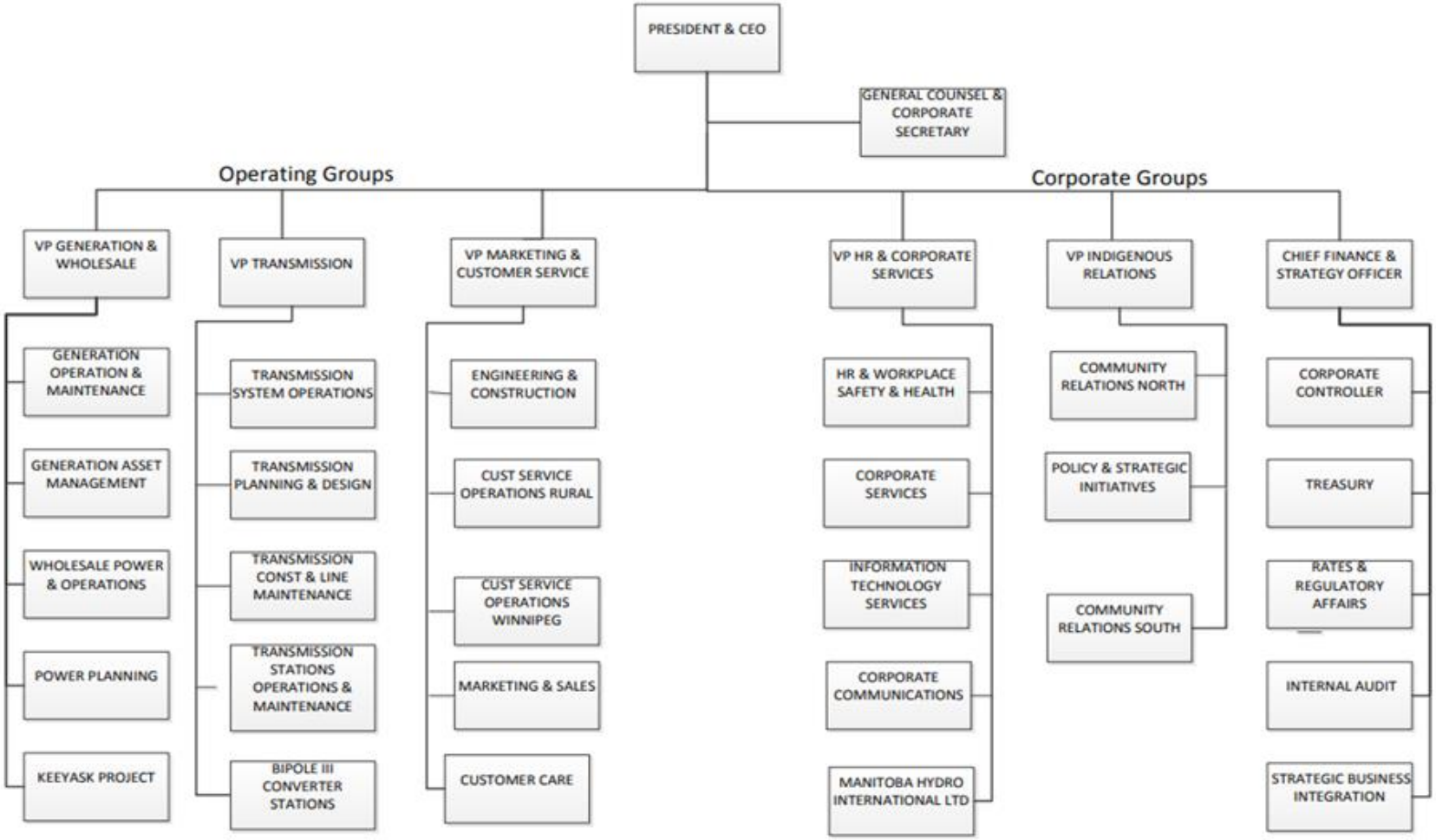
Source: "EB-2019-0082 - Hydro One Networks Inc.'s 2020-2022 Transmission Custom IR Application and Evidence Filing" OEB, March 21, 2019, p.222.

Manitoba: Manitoba Hydro

Company Overview Utility Website Annual Report (2017-2018)	Ownership: Crown Corporation			
	Revenue: $2.3 B	Asset Base: $25.2 B	Load Served: 23.3 TWh	Peak Demand: 4,735 MW
	Net Income: $37 M	Employees: 5,998	Customers: 580,262	Energy Sales: 34.6 TWh
	Profile: Vertically integrated electric and natural gas utility subject to cost-of-service rate regulation by the Manitoba Public Utilities Board.			
	Supply Mix: Predominately hydroelectric, about 87% of capacity and 98% of annual generation.			
	Other: Given annual variability of hydro output and desire to have sufficient hydroelectric output to cover customers' electricity requirements including export sales other than under drought conditions exports typically represent about 1/3 of total sales.			
Mandate	• To provide and market products, services and expertise related to the development, generation, transmission, distribution, supply and end-use of power, within and outside the province; and to market and supply power to persons outside the province on terms and conditions acceptable to the Board of Directors.			
Primary Legislative & Policy Direction	*The Manitoba Hydro Act* - Provides "for the continuance of a supply of power adequate for the needs of the province, and to engage in and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of power." *The Act* specifically recognizes that Manitoba Hydro will market and supply power to persons outside the province and makes clear that the focus is on the supply of power adequate for the needs of the province and to engage in and promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of power.			
	The Public Utilities Board Act - This act specifies that Manitoba Hydro is largely exempt from Public Utilities Board (PUB) oversight, other than reviewing its rates. For example, the PUB doesn't review Manitoba Hydro's major investment decisions, nor does it provide oversight over Manitoba Hydro's capital expenditures.			
Regulation	• There are no unregulated operations of Manitoba Hydro other than its subsidiary Manitoba Hydro International. • In a recent rate case, the PUB noted that "The two concerns that must be balanced by the Board in setting just and reasonable rates are the interests of the Utility's ratepayers and the financial health of Manitoba Hydro." • The PUB and Manitoba Hydro consider its export revenues when setting rates for domestic customers, with net revenues from exports allocated to customers based on the customer classes' share of generation and transmission expenses. Energy marketing activities are largely exempt from PUB oversight.			

Growth Initiatives	Capital Assets	Manitoba Hydro has one major generating project under development, the Keeyask Generating Station, and two major transmission projects. Cost overruns with these two projects have stressed its financial condition and contributed to an 85% debt ratio. o Keeyask is a 695 MW hydroelectric generating station. Its commercial operation date is 2021, with an estimated cost of $8.7 billion, the original cost estimate was $6.5 billion. o Bipole III is a third HVDC connection between northern Manitoba and load centres in Southern Manitoba; the cost for Bipole III is $5.0 billion and is considerably higher than the initial estimate.
	Energy Trading	Manitoba Hydro's export strategy is predicated on long-term contracts that support the development of new hydroelectric projects and reduce the effective cost of these projects to customers. Under this structure, Manitoba Hydro customers bear much of the risk of these new major hydroelectric projects and mitigates this risk through long-term contracts. Its trading policies are relatively low risk.
	Commercial Partnerships	The Great Northern Transmission Line is Manitoba Hydro's other under development transmission project. The 220-mile, 500-kV line is expected to deliver about 350 MW of hydro from Manitoba to Minnesota Power (MP) starting in 2020. The project is majority owned by MP in partnership with Manitoba Hydro. This approach of the US utility owning the transmission in the US has been used by Manitoba Hydro for other similar projects.
	M&A	N/A
Organizational Structure Insights	• In 2016, the Board assessed the financial position of the utility and was concerned with an "aggressive" capital program that did not have sufficient equity. This would degrade the credit of the province. As a first step to better its financial position, Manitoba Hydro announced that it would restructure and reduce the executive team by 30% to achieve cost reductions. • As part of the restructuring, three Vice Presidents left the company and the province-wide workforce was reduced by 900 positions (about 15% of its permanent workforce). • The following groups were combined during the reorganization, reducing the number of business groups from 9 to 6: o Generation Operations and Major Capital Projects combined into: Generation & Wholesale	

	○ HR & Corporate Services and Corporate Relations combined into: Human Resources & Corporate Services ○ Customer Care & Energy Conservation and Customer Service & Distribution combined into: Marketing & Customer Service


PRESIDENT & CEO
GENERAL COUNSEL & CORPORATE SECRETARY
Operating Groups
Corporate Groups
VP GENERATION & WHOLESALE
VP TRANSMISSION
VP MARKETING & CUSTOMER SERVICE
VP HR & CORPORATE SERVICES
VP INDIGENOUS RELATIONS
CHIEF FINANCE & STRATEGY OFFICER
GENERATION OPERATION & MAINTENANCE
GENERATION ASSET MANAGEMENT
WHOLESALE POWER & OPERATIONS
POWER PLANNING
KEEYASK PROJECT
TRANSMISSION SYSTEM OPERATIONS
TRANSMISSION PLANNING & DESIGN
TRANSMISSION CONST & LINE MAINTENANCE
TRANSMISSION STATIONS OPERATIONS & MAINTENANCE
BIPOLE III CONVERTER STATIONS
ENGINEERING & CONSTRUCTION
CUST SERVICE OPERATIONS RURAL
CUST SERVICE OPERATIONS WINNIPEG
MARKETING & SALES
CUSTOMER CARE
HR & WORKPLACE SAFETY & HEALTH
CORPORATE SERVICES
INFORMATION TECHNOLOGY SERVICES
CORPORATE COMMUNICATIONS
MANITOBA HYDRO INTERNATIONAL LTD
COMMUNITY RELATIONS NORTH
POLICY & STRATEGIC INITIATIVES
COMMUNITY RELATIONS SOUTH
CORPORATE CONTROLLER
TREASURY
RATES & REGULATORY AFFAIRS
INTERNAL AUDIT
STRATEGIC BUSINESS INTEGRATION

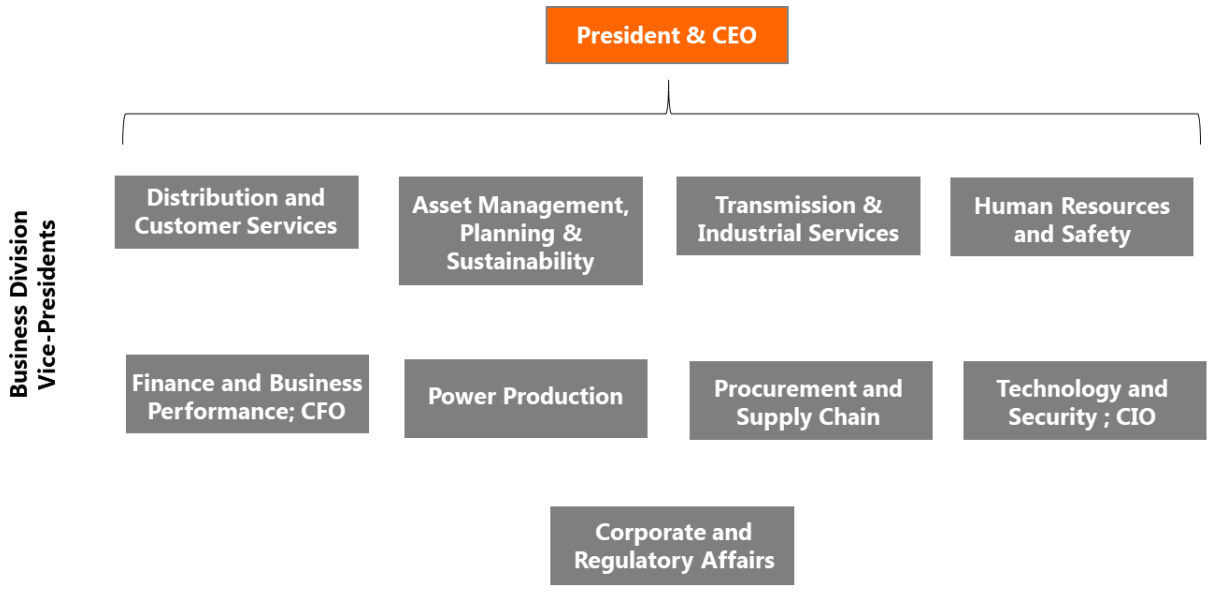
<table>
<tr><th colspan="2">Saskatchewan: SaskPower</th></tr>
<tr><td rowspan="5">Company Overview

Utility Website

Annual Report
(2017-2018)</td><td colspan="4">Ownership: Crown Corporation</td></tr>
<tr><td>Revenue: $2.6 B</td><td>Rate Base: $11.5 B</td><td>Load Served: 23.3 TWh</td><td>Peak Demand: 3,792MW</td></tr>
<tr><td>Net income: $146 M</td><td>Employees: 3,100</td><td>Customers: 533,000</td><td>Energy Sales: 25.3 TWh</td></tr>
<tr><td colspan="4">Profile: Vertically integrated electric utility serving Saskatchewan.</td></tr>
<tr><td colspan="4">Supply Mix: Predominately fossil-fired capacity (coal 43%; natural gas 36%; hydroelectric 20% and wind 5%). Significant changes expected in IRP and capital plan, including phaseout of all coal by 2030 and significant renewables additions (already 200 MW wind and 10 MW solar contracted). Wind expected to account for 30% of capacity by 2030.</td></tr>
<tr><td colspan="4">Other: SaskPower's wholly-owned subsidiary, NorthPoint Energy Solutions Inc. (NorthPoint), provides energy marketing and other services to SaskPower and relies upon SaskPower's regulated assets to support its energy trading. It is largely unregulated, but with net income considered in rate setting. It also engages in physical and financial wholesale energy trading in markets across Canada and the United States. The major services that it provides SaskPower are:
o Dispatches SaskPower generation resources, providing these services to better allow it to manage and market available energy and capacity for resale in other markets;
o Long term management of SaskPower's Power Purchase Agreements with IPPs; and
o Management of all natural-gas functions for SaskPower. By managing IPP's gas supplies it is better able to realize economies with the operation and dispatch of SaskPower's fleet and avoid risks associated with long-term gas supply contracts.</td></tr>
<tr><td>Mandate</td><td colspan="4">Ensuring reliable, sustainable and cost-effective power for customers and communities served.</td></tr>
<tr><td rowspan="2">Primary Legislative & Policy Direction</td><td colspan="4">The Power Corporation Act - provides "When required to do so by the Crown Investments Corporation of Saskatchewan, the corporation [SaskPower] shall submit to the Crown Investments Corporation of Saskatchewan for review and prior approval any rates, charges and prices at which any goods, utilities or services are sold or provided by the corporation and that the corporation proposes to establish or revise."[68]</td></tr>
<tr><td colspan="4">The Crown Corporations Act, 1993 - gives the Crown Investments Corporation of Saskatchewan (CIC), the holding company for Saskatchewan's commercial Crown corporations, broad authority to set the direction of the corporation.</td></tr>
<tr><td>Regulation</td><td colspan="4">• The Saskatchewan Rate Review Panel (SRRP) advises the Government of Saskatchewan on rate applications. The SRRP has no responsibilities regarding major capital investments or overseeing SaskPower's integrated resource planning. The Minister responsible for the CIC provides the Panel with instructions regarding the scope of each rate review. The SRRP then prepares and submits a written report containing its</td></tr>
</table>

	observations and recommendations to the Minister responsible for the Crown Investments Corporation and the Minister and President responsible.	
Growth Initiatives	Capital Assets	Capital investment is focused on meeting growth in customer requirements (specifically, a new CCGT and transmission facilities) and the refurbishment of existing assets. CAPEX of about $1 billion per year planned.
	Energy Trading	No major new initiatives; role of NorthPoint reviewed above.
	Commercial Partnerships	New generation has been developed in partnership with IPPs.
	M&A	NA
Organizational Structure Insights	• SaskPower's organizational structure is a classic functional structure for a vertically integrated utility. There are separate divisions/Vice Presidents for Power Production, Transmission and Distribution/Customer Services. ○ Distribution and Customer Services are integrated, as is common. ○ One departure is that Industrial Services is part of Transmission, most likely reflecting the fact that large industrial customers are served from transmission facilities and that their billing and customer service requirements are likely to be similar to other transmission customers (e.g., the two SK municipal utilities).	

Executive Team Organizational Structure:



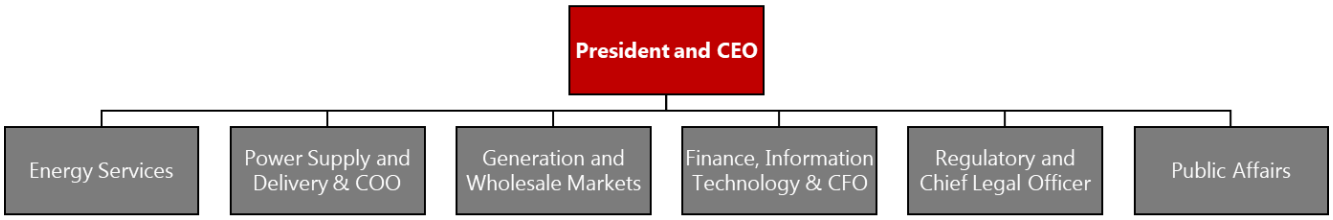
[68] *The Power Corporation Act* http://www.publications.gov.sk.ca/redirect.cfm?p=760&i=1158

Alberta: ENMAX Corporation

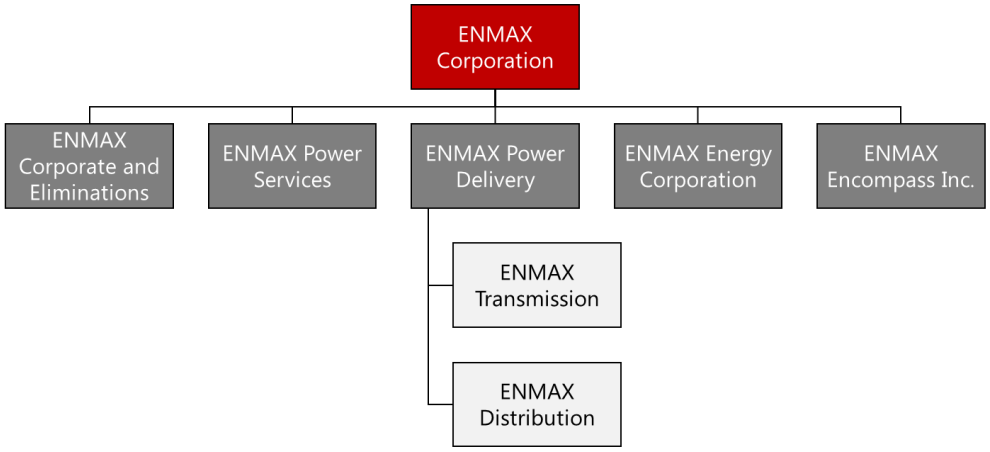
Company Overview Utility Website Annual Report (2018)	Ownership: Private Corporation, with The City of Calgary as the sole shareholder.			
	Revenue: $2.3 B	Asset Base: $5.6 B	Load Served: 19.6 TWh	Peak Demand: 1,692 MW
	Net Income: $5.1 M	Employees: 1,800	Customers: 960,000	Energy Sales: N/A
	Profile: Competitive wholesale and retail energy businesses with regulated transmission and distribution companies: ENMAX Power Corporation (EPC) owns, operates, and maintains the electricity transmission and distribution system in and around Calgary. ENMAX Energy Corporation (EEC) is the competitive generation and retail services arm of ENMAX.			
	Supply Mix: N/A			
	Other: ENMAX Encompass Inc. provides unregulated billing and customer care services on behalf of municipalities such as the City of Calgary. ENMAX Power Services Corporation (EPSC) provides competitive engineering, procurement, and construction and maintenance services. EPSC also builds and maintains Calgary's Light Rail Transit (LRT) system. ENMAX Corporate and Eliminations (Corporate) is responsible for providing shared services and financing to ENMAX Competitive Energy and ENMAX Power Delivery. The Corporation uses a shared service allocation model to allocate cost between segments.			
Mandate	Returning a stable dividend to The City of Calgary while providing safe, reliable, affordable energy.			
Primary Direction	1998 legislation was enacted to open both the province's wholesale and retail markets. The Alberta wholesale and retail markets opened on January 1, 2001. Since this market opening there have been a series of reforms to Alberta's wholesale and retail electricity markets including changes to the various key institutions.			
Regulation	• ENMAX Transmission and ENMAX Distribution, although heavily integrated, with common ownership and management, are regulated as two separate utilities with separate revenue requirements by the Alberta Utilities Commission (AUC). Distribution rates are subject to the Performance Based Regulation mechanism employed by the AUC for electric distribution companies, and transmission division rates are set based on an AUC approved revenue requirement and are regulated under a traditional cost of service framework. • EPC's affiliate relationships and the related affiliate transactions are governed by the Inter-affiliate Code of Conduct (inter-affiliate code) and by the Inter-Affiliate Code of Conduct Compliance Plan (inter-affiliate plan).			
Growth Initiatives	Capital Assets	ENMAX Transmission and Distribution are investing in their regulated operations to meet customer growth.		
	Energy Trading	N/A		

	Commercial Partnerships	N/A
	M&A	In March 2019, ENMAX announced that it had entered into an agreement to acquire Emera Maine, a regulated transmission and distribution company in Maine, for $1,286 million (USD).
Organizational Structure Insights	• ENMAX's regulated (EPC) and unregulated (EEC) businesses are separate. • ENMAX Power Corporation has separate divisions for transmission and distribution, but recognizing the efficiencies associated with a functional organizational structure is organized in terms of Planning & Asset Management, Projects & Engineering, Field Services, System Operations and Regulated Market Services. • Interestingly, the generation and retail businesses reside within the same entity, recognizing that there's a natural financial hedge between these two operations, i.e., retail customers are a market for the output of EEC's generation providing a hedge for generation and for customers. For example, the executive shown below for Power Supply and Delivery has a portion of his salary allocated to the various ENMAX businesses.	

Executive Team Structure



Corporate Structure



<table>
<tr><th colspan="2">British Columbia: BC Hydro and Power Authority (BC Hydro)</th></tr>
<tr><td rowspan="5">Company Overview

Utility Website

Annual Report
(2017-2018)</td><td>Ownership: Crown Corporation</td></tr>
<tr><td>
<table>
<tr><td>Revenue: $6.3 B</td><td>Asset Base: $25.7 B</td><td>Load Served: 52.1 TWh</td><td>Peak Demand: 9,651 MW</td></tr>
<tr><td>Net Income: $684 M</td><td>Employees: 6,128</td><td>Customers: 4 M</td><td>Energy Sales: 57.2 TWh</td></tr>
</table>
</td></tr>
<tr><td>Profile: Vertically integrated electric utility, with shared services model.</td></tr>
<tr><td>Supply Mix: Predominantly hydro (~90% of generation), with IPPs providing ~20% of supply.</td></tr>
<tr><td>Other: Wholly-owned energy trading subsidiary Powerex Corp. is expected to provide about 20% of net income (about $125 M per year), relying upon BC Hydro's regulated assets to support its energy trading.

Powertech Labs is the other principal unregulated subsidiary of BC Hydro. Powertech offers specialized engineering, quality testing, standards and code testing, and failure analysis services to energy clients, including BC Hydro, and other sectors globally. Contribution to net income of $2 to 4 M and a staff of about 200 employees.</td></tr>
<tr><td>Mandate</td><td>To provide reliable, affordable, clean electricity throughout British Columbia safely.[69]</td></tr>
<tr><td rowspan="3">Primary Legislative & Policy Direction</td><td>Clean Energy Act (2010) - exempted major projects (including Site C, see below in Growth Initiatives) from BCUC review; approval of Integrated Resource Plan moved from BCUC to Cabinet; matters regarding exports exempt from BCUC oversight.</td></tr>
<tr><td>BC Hydro Public Power Legacy and Heritage Contract - Provides legislative protection for heritage assets, ensuring that they remain publicly owned and customers benefit from low cost.</td></tr>
<tr><td>Direction No. 7 (OIC) - Provides limited discretion of BCUC with respect to capital charges for capital projects exempt from UC oversight including heritage assets and BC Hydro ROE (As discussed below Government subsequently repealed regulations that restricted this regulatory oversight).</td></tr>
<tr><td>Regulation</td><td>• Legislative instruments described above indicate high degree of intervention in the regulatory process to enable public policy objectives.

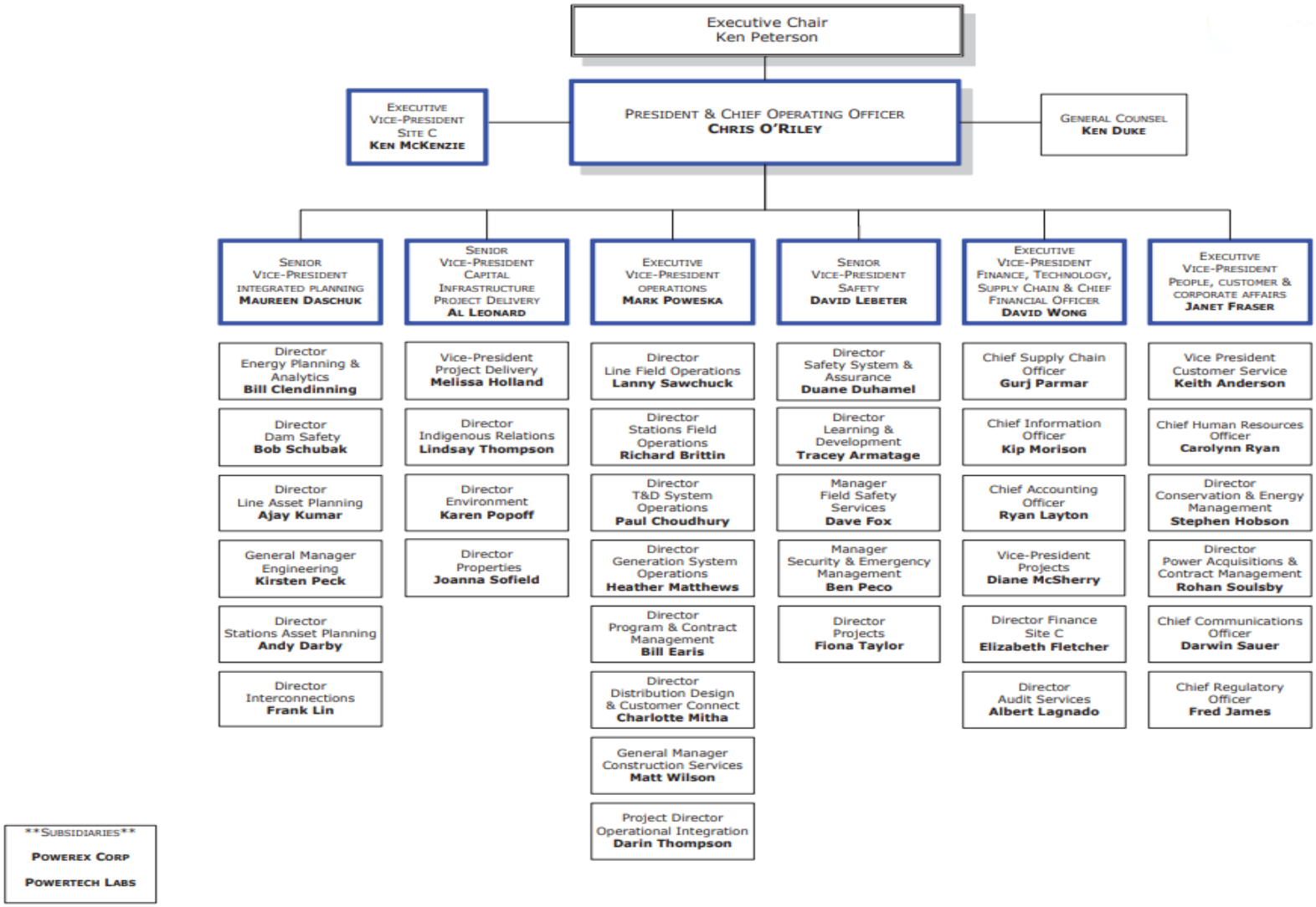
• This approach appears to be changing. In 2018, Government launched a Comprehensive Review of BC Hydro in two phases. Phase 1 focused on cost saving strategies and new revenue streams, with new regulatory framework to enhance BCUC oversight to BC Hydro, resulting in repeal of regulations cited. Phase 2 will focus on transformation of the industry.

• Powerex energy trading activities are not regulated citing that "falling under BCUC oversight would hamper Powerex's ability to compete and earn income in fast-moving and rapidly evolving competitive markets."[70] However, the BCUC considers Powerex's net income when setting rates for BC Hydro.</td></tr>
</table>

Growth Initiatives	Capital Assets	BC Hydro is developing a major hydro project, Site C, on the Peace River in Northeast BC. Site C approved by the Government in December 2014 and will provide 1,100 MW and about 5.1 TWh of energy per year. Targeted in-service date is 2024. Initial budget was $7.9 billion, now estimated at $10.7 billion. New Government directed the BCUC to perform independent review of Site C, which found project may not remain on schedule and increasingly viable alternative energy sources could provide similar benefits to ratepayers with lower or equal costs. To ensure Site C was cost-effective relative to other resources Government elected not to earn a return on its equity investment.
	Energy Trading	Powerex is responsible for energy trading for the BC Hydro portfolio.
	Commercial Partnerships	N/A
	M&A	N/A
Organizational Structure Insights	• Functional structure focused on capabilities and service delivery rather than asset type (GT&D), with senior executives responsible for planning, project delivery and operations. • Given the importance of the execution of Site C, the organization includes an SVP of Capital, Infrastructure & Project Delivery and VP of Project Delivery. • After 15-years of entire departments (such as Customer Care, IT, HR, Financial Systems and Building and Office Services) outsourced to Accenture, BC Hydro returned these functions to the Crown Corporation in 2018. The primary rationale for this repatriation was acquiring greater operational flexibility then the outsourced contract model allowed.	

[69] Ministry of Energy and Mines and Minister Responsible for Core Review "2017/18 Mandate Letter" February 16, 2017 https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/openness-accountability/2017-2018-bc-hydro-mandate-letter.pdf

[70] BC Ministry of Energy, Mines and Petroleum Resources "Comprehensive Review of BC Hydro: Phase 1 Final Report" https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/final_report_desktop_bc_hydro_review_v04_feb12_237pm-r2.pdf


Executive Chair
Ken Peterson
Executive Vice-President Site C
Ken McKenzie
President & Chief Operating Officer
Chris O'Riley
General Counsel
Ken Duke
Senior Vice-President Integrated Planning
Maureen Daschuk
Director Energy Planning & Analytics
Bill Clendinning
Director Dam Safety
Bob Schubak
Director Line Asset Planning
Ajay Kumar
General Manager Engineering
Kirsten Peck
Director Stations Asset Planning
Andy Darby
Director Interconnections
Frank Lin
Senior Vice-President Capital Infrastructure Project Delivery
Al Leonard
Vice-President Project Delivery
Melissa Holland
Director Indigenous Relations
Lindsay Thompson
Director Environment
Karen Popoff
Director Properties
Joanna Sofield
Executive Vice-President Operations
Mark Poweska
Director Line Field Operations
Lanny Sawchuck
Director Stations Field Operations
Richard Brittin
Director T&D System Operations
Paul Choudhury
Director Generation System Operations
Heather Matthews
Director Program & Contract Management
Bill Earis
Director Distribution Design & Customer Connect
Charlotte Mitha
General Manager Construction Services
Matt Wilson
Project Director Operational Integration
Darin Thompson
Senior Vice-President Safety
David Lebeter
Director Safety System & Assurance
Duane Duhamel
Director Learning & Development
Tracey Armatage
Manager Field Safety Services
Dave Fox
Manager Security & Emergency Management
Ben Peco
Director Projects
Fiona Taylor
Executive Vice-President Finance, Technology, Supply Chain & Chief Financial Officer
David Wong
Chief Supply Chain Officer
Gurj Parmar
Chief Information Officer
Kip Morison
Chief Accounting Officer
Ryan Layton
Vice-President Projects
Diane McSherry
Director Finance Site C
Elizabeth Fletcher
Director Audit Services
Albert Lagnado
Executive Vice-President People, Customer & Corporate Affairs
Janet Fraser
Vice President Customer Service
Keith Anderson
Chief Human Resources Officer
Carolynn Ryan
Director Conservation & Energy Management
Stephen Hobson
Director Power Acquisitions & Contract Management
Rohan Soulsby
Chief Communications Officer
Darwin Sauer
Chief Regulatory Officer
Fred James
Subsidiaries
Powerex Corp
Powertech Labs

<table>
<tr><th colspan="4">Minnesota, United States: Minnesota Power (MP)</th></tr>
<tr><td rowspan="5">Company Overview
*USD

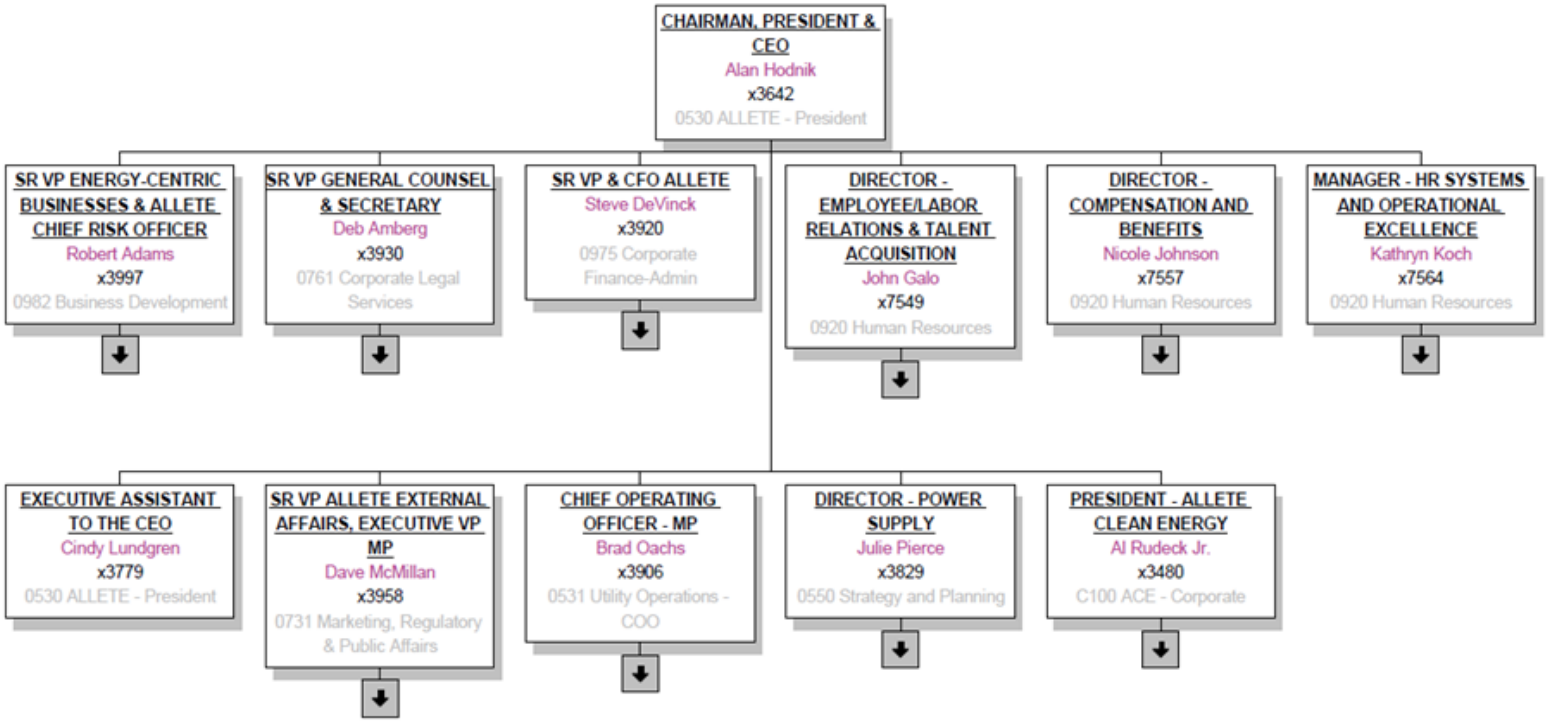
Utility Website

Annual Report
(2017)</td><td colspan="3">Ownership: Investor owned, parent company ALLETE.</td></tr>
<tr><td>Revenue: $1.4 B*</td><td>Asset Base: $5.3 B*</td><td>Load Served: 9.0 TWh</td><td>Peak Demand: 1,589 MW</td></tr>
<tr><td>Net income: $174 M*</td><td>Employees: 1,200</td><td>Customers: 144,000</td><td>Energy Sales: 8.6 TWh</td></tr>
<tr><td colspan="3">Profile: Vertically integrated utility serving Northeastern Minnesota.</td></tr>
<tr><td colspan="3">Supply Mix: 823 MW (47%) Coal, 620 MW (36%) Wind, 120 MW (7%) Hydro, 110 MW (6%) Gas, 62 MW (4%) Biomass, and 10 MW (<1%) Solar</td></tr>
<tr><td></td><td colspan="3">Other: Minnesota Power’s parent company also owns and operates the regulated utility Superior Water, Light & Power and has a stake in American Transmission Co. in Wisconsin, as well as several unregulated businesses: ALLETE Clean Energy (renewable generation developer), BNI Energy (lignite coal supplier in North Dakota), and ALLETE properties (Real estate investment portfolio company). Regulated operations represent about 75% of total revenue, with MP a majority of the regulated business.</td></tr>
<tr><td>Mandate</td><td colspan="3">Provider of affordable, reliable energy services in the Upper Midwest.</td></tr>
<tr><td>Primary Direction</td><td colspan="3">Renewable Energy Standard - Minnesota law requires 25 percent of electric utilities’ applicable retail and municipal energy sales in Minnesota to be from renewable energy sources by 2025. Minnesota law also requires Minnesota Power to meet interim milestones of 12 percent by 2012, 17 percent by 2016 and 20 percent by 2020.</td></tr>
<tr><td>Regulation</td><td colspan="3">• Minnesota Power is subject to regulatory oversight by Minnesota Public Utilities Commission, which oversees retail rates, retail services, capital structure, issuance of securities and other matters.
• Minnesota Power must comply with the Federal Energy Regulatory Commission on reliability standards, licensing hydroelectric projects, and setting rates and charges for transmission of electricity in interstate commerce.</td></tr>
<tr><td rowspan="3">Growth Initiatives</td><td>Capital Assets</td><td colspan="2">Currently constructing the Great Northern Transmission Line (with Manitoba Hydro), Nemadji Trail Energy Center (550 MW combined cycle gas plant), and Nobles 2 (250 MW wind facility). Each are being developed in partnership with other entities – see description below.</td></tr>
<tr><td>Energy Trading</td><td colspan="2">N/A</td></tr>
<tr><td>Commercial Partnerships</td><td colspan="2">As noted above, MP is developing the Great Northern Transmission Line with Manitoba Hydro, which will deliver 350 MW hydropower from Manitoba Hydro.

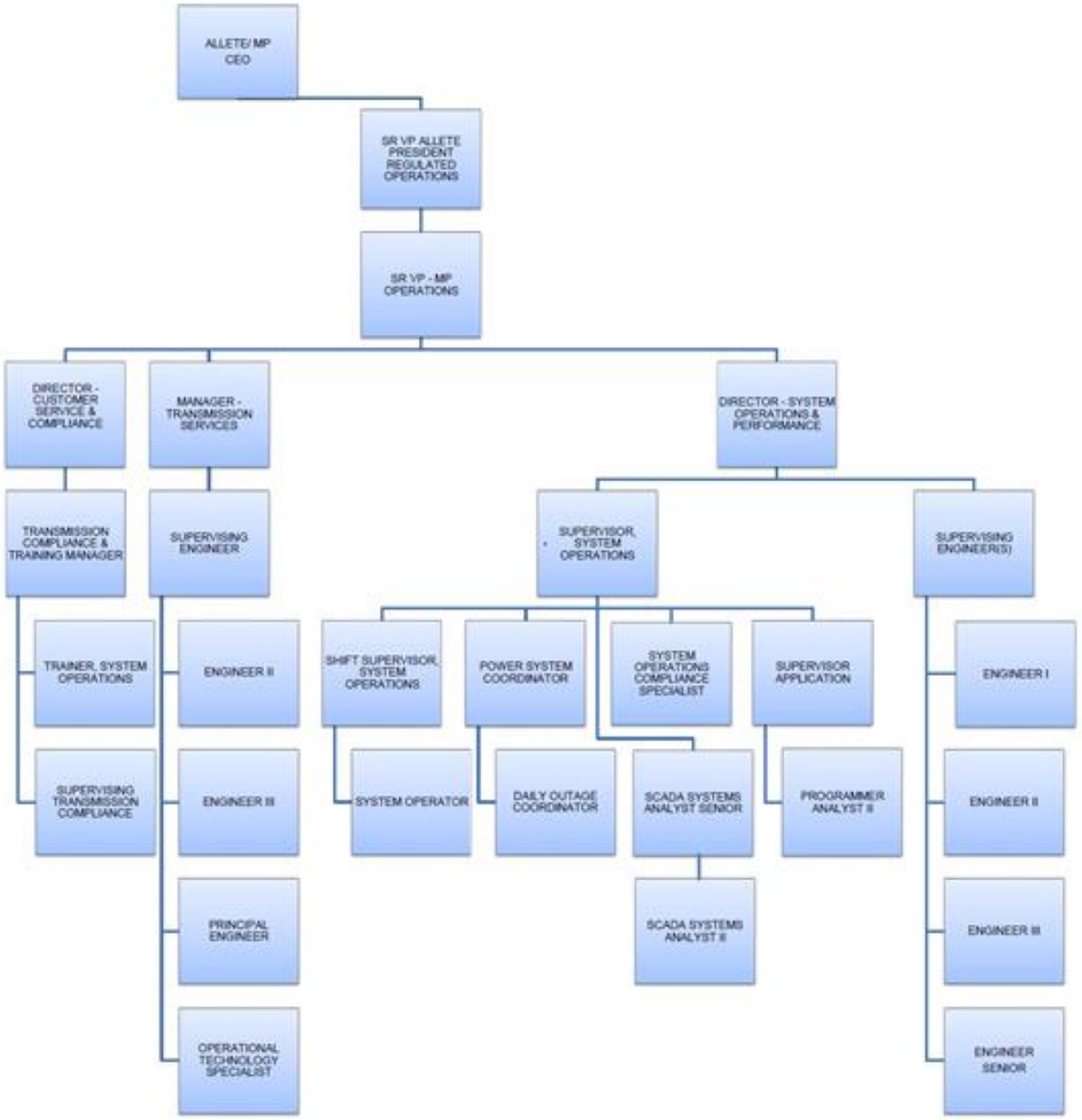
The development entity for Nemadji Trail Energy Center is jointly owned with Wisconsin utility, Dairyland Power Cooperative. ALLETE’s portion of the investment is approximately $350 M (USD).</td></tr>
</table>

		ALLETE Clean Energy, an affiliate of MP, has a partnership agreement with the primary developer Tenaska, Inc. to purchase an 49% equity interest (about $200 M (USD)) in Nobles 2. Prior to this equity interest Nobles 2 secured a 20-year PPA with MP.
	M&A	N/A
Organizational Structure Insights	• ALLETE organizational structure is organized so that MP is embedded within ALLETE. MP is a division of ALLETE rather than a subsidiary. The strength of the MP/ALLETE relationship is evidenced by the fact that MP is identified as "An ALLETE Company". MP has argued that MP and ALLETE are legally the same, compared to corporate structures where the public utility is a subsidiary of a holding company. This reflects the fact that Minnesota Power is such a large share of ALLETE. • ALLETE is structured to ensure that MP ratepayers do not cross-subsidize the activities of its affiliated companies.	

ALLETE / MP Organizational Chart



MP Transmission and Power Delivery Organizational Chart



<table>
<tr><th colspan="5">New York, United States: New York Power Authority (NYPA)</th></tr>
<tr><td rowspan="4">Company Overview
*USD

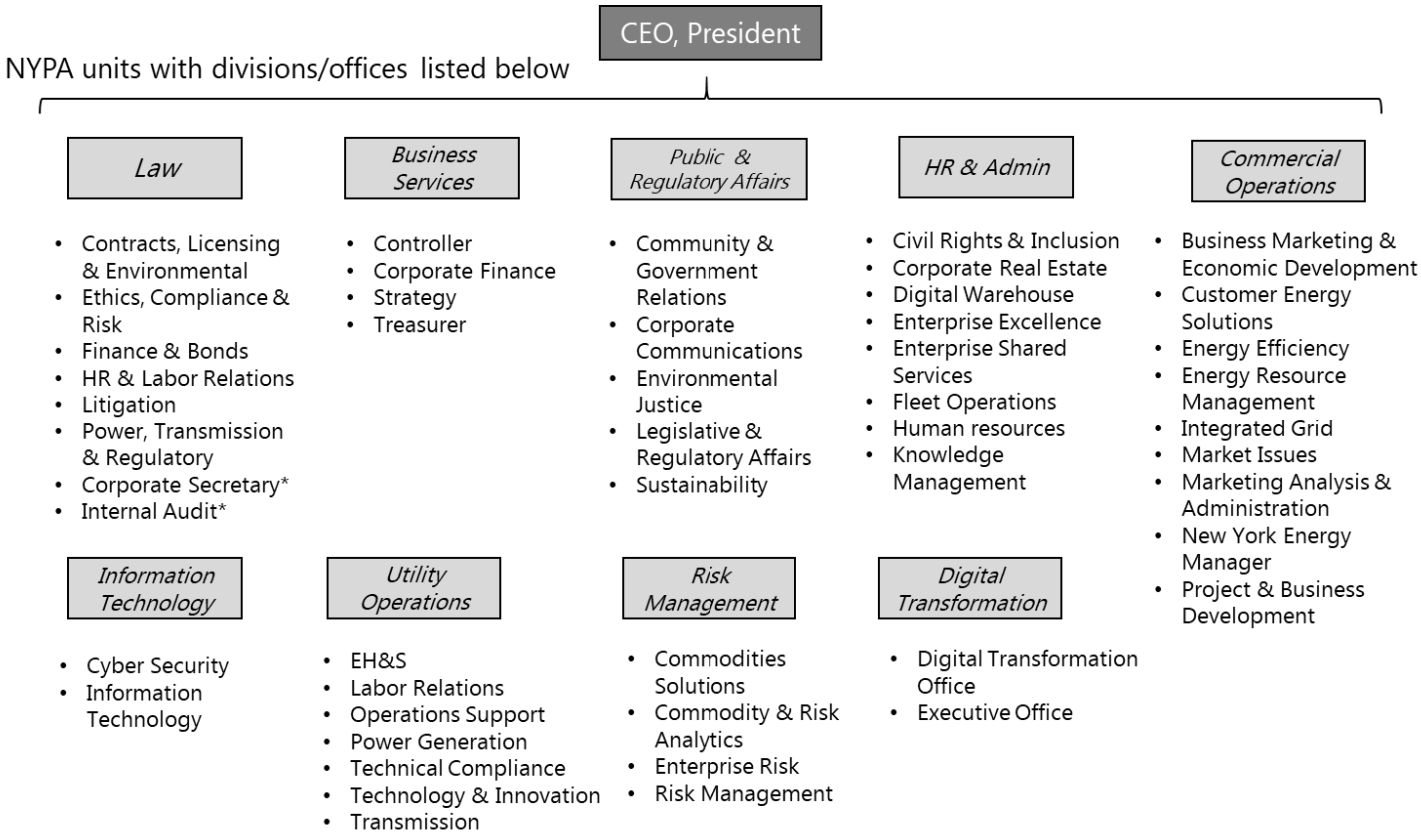
Utility Website

Annual Report
(2018)</td><td colspan="4">Ownership: State-owned</td></tr>
<tr><td>Revenue: $2.7 B*</td><td>Asset Base: $8.8 B*</td><td>Load Served: N/A</td><td>Peak Demand: N/A</td></tr>
<tr><td>Net Income: $102 M*</td><td>Employees: 1,710</td><td>Customers: N/A</td><td>Energy Sales: 30.1 TWh</td></tr>
<tr><td colspan="4">Profile: Operates as a fiscally independent public corporation (i.e. does not receive state funds). Primarily a generation and transmission utility. NYPA's customers include municipal and rural electric cooperatives located throughout New York State, investor-owned utilities, high load factor industries, commercial/industrial and not-for-profit businesses, and various public corporations located in New York City. It does not have a service territory or a statutory obligation to serve load.</td></tr>
<tr><td></td><td colspan="4">Supply Mix: Largely hydro (about 80 percent), with some fossil-fuel fired plants (mostly gas). Generates over 20% of the state’s annual energy requirements.</td></tr>
<tr><td>Mandate</td><td colspan="4">To power the economic growth and competitiveness of New York State by providing customers with low-cost, clean, reliable power and the innovative energy infrastructure and services they value.</td></tr>
<tr><td>Primary Direction</td><td colspan="4">Power Authority Act (1931) - created NYPA and outlines its relationship to the State.

NYPA’s participation in achieving state policy objectives and its corporate strategic goals are directed through its Board of Directors and the state legislature.</td></tr>
<tr><td>Regulation</td><td colspan="4">• NYPA is only subject to oversight from the NY Public Service Commission (PSC) on the siting of transmission assets, but not over rates for transmission or electricity generation.
• NYPA is subject to FERC oversight on transmission related matters, such as standards of conduct, revenue requirements, and cost recovery.</td></tr>
<tr><td rowspan="2">Growth Initiatives</td><td>Capital Assets</td><td colspan="3">NYPA is replacing 3 sections of the Moses-Adirondack line. A total of 86 miles of 230kV line will be replaced with lines designed for higher voltage (345kV) to support renewable energy growth in upstate NY and Canada. All costs will be recovered through the NYISO transmission tariff.

Last year, NYPA’s Board approved the first stages of funding for building out statewide EV-charging infrastructure ($250 million through 2025).</td></tr>
<tr><td>Energy Trading</td><td colspan="3">NYPA’s energy trading operations are largely unregulated, with no oversight by the PSC. Participates in NYISO’s energy and capacity markets. In 2018, NYISO sales made up about 30 percent of NYPA’s operating income.</td></tr>
</table>

	Commercial Partnerships	Participated in recent offshore wind proposals as a transmission developer. Transmission has been procured along with generation in these solicitations, so NYPA partnered with offshore wind developers.
	M&A	N/A
Organizational Structure Insights	NYPA's strategic vision - involving the tenants of customer success, cost leadership, and innovation - informs NYPA's investment activity and its organizational structure.	



Source: Adpated from June 6, 2019 NYPA Org Chart, https://www.nypa.gov/-/media/nypa/documents/document-library/governance/nypa-org-chart.pdf

<table>
<tr><th colspan="4">New Jersey, United States: Public Service Enterprise Group, Inc. (PSEG)</th></tr>
<tr><td rowspan="5">Company Overview
*USD

Utility Website

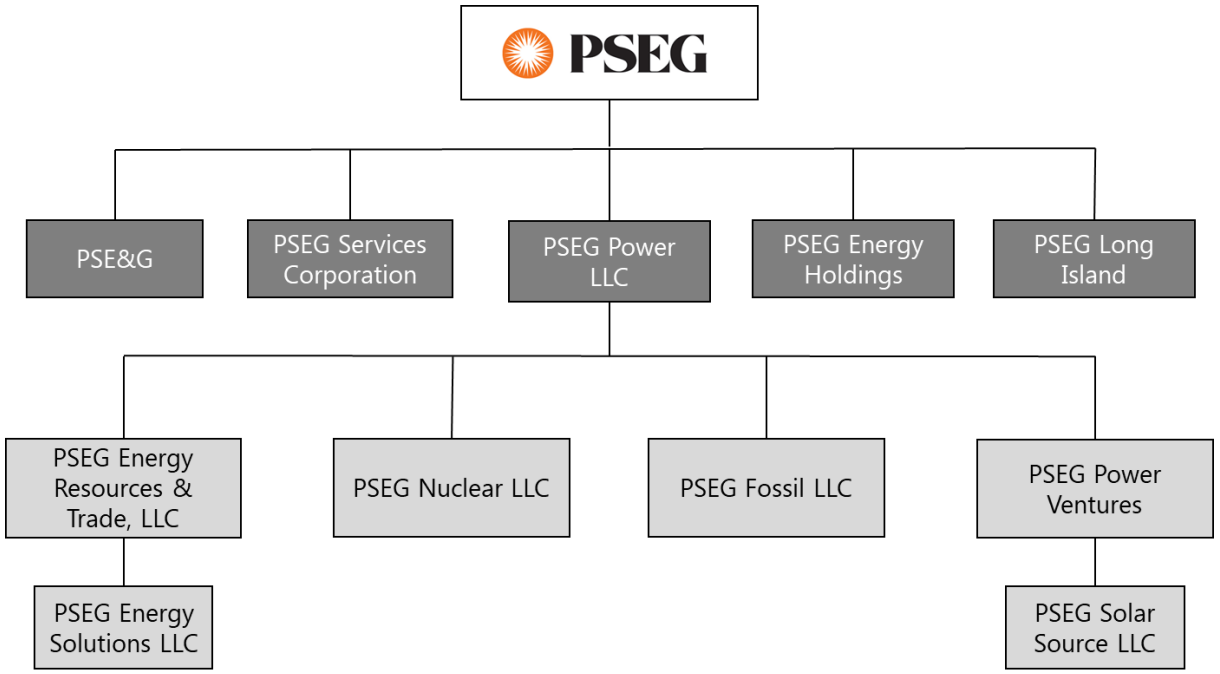
Annual Report
(2018)</td><td colspan="3">Ownership: Publicly traded utility holding company</td></tr>
<tr><td>Revenue: $9.6 B*</td><td>Asset Base: $45.3 B*</td><td>Load Served: 41.8 TWh</td><td>Peak Demand: 9,903 MW</td></tr>
<tr><td>Net Income: $1.4 B*</td><td>Employees: 12,937</td><td>Customers: 2.4 M</td><td>Energy Sales: 56 TWh</td></tr>
<tr><td colspan="4">Profile: Holding company with regulated and unregulated businesses. Largest subsidiaries are regulated transmission and distribution utility, Public Service Electric & Gas Company (PSE&G), and non-rate regulated energy supplier, PSEG Power LLC (Power).</td></tr>
<tr><td colspan="4">Supply Mix: Majority natural gas and nuclear (~85%). Some coal, but with planned retirements.</td></tr>
<tr><td colspan="4">Other: Also includes PSEG Services Corporation, which provides internal business services across the whole company; PSEG Energy Holdings (Energy Holdings), which earns revenue from a portfolio of leases representing around $540 M (USD); and PSEG Long Island (PSEG LI), a transmission and distribution utility for the Long Island Power Authority.</td></tr>
<tr><td>Mandate</td><td colspan="3">As a publicly traded company their mandate is to create long-term value for their shareholders; PSEG's vision is "People providing Safe, reliable, Economic, & Greener Energy."</td></tr>
<tr><td>Primary Direction</td><td colspan="3">For Electric & Gas Distribution and Transmission strategy: investments support reliability and customer expectations and are aligned with public policy

PSEG Power's strategy: a reliable, highly efficient carbon-advantaged fleet.</td></tr>
<tr><td>Regulation</td><td colspan="3">• PSE&G is regulated by the Board of Public Utilities (BPU), the New Jersey state agency responsible for utility regulation. Certain activities also make some subsidiaries subject to regulation by FERC, and participation in several wholesale markets also subjects the participants to market rules and FERC oversight.</td></tr>
<tr><td rowspan="3">Growth Initiatives</td><td>Capital Assets</td><td colspan="2">Ongoing investments in electricity and gas infrastructure. PSE&G has proposed additional investments in distribution upgrades, and in a "Clean Energy Future" initiative, which proposes capital investment in energy efficiency, electric vehicle infrastructure, energy storage, and advanced meter infrastructure with cloud energy software. These additional investments have not been approved by the BPU.

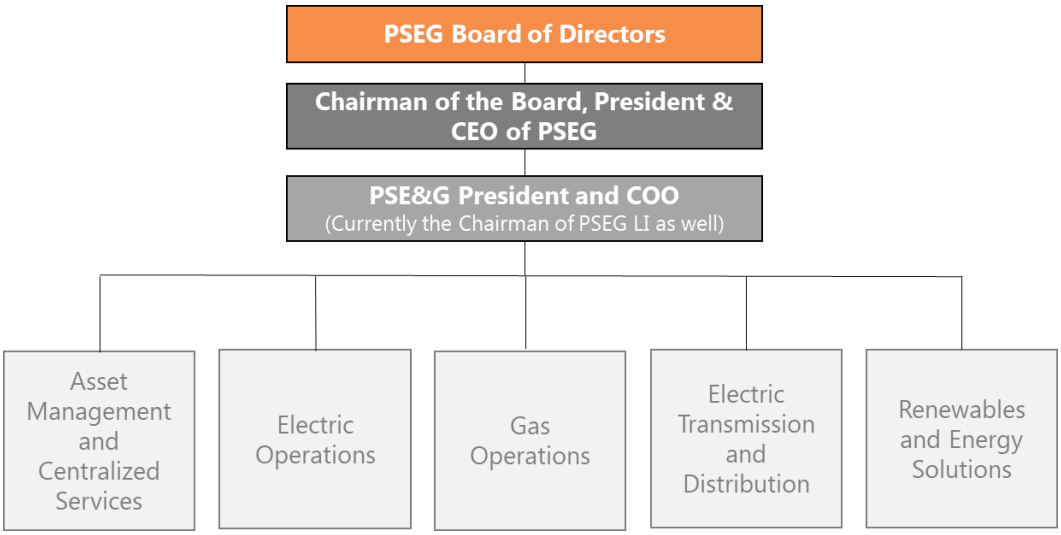
PSEG Power has sizable investments in solar (US$800 M, 414 MW).</td></tr>
<tr><td>Energy Trading</td><td colspan="2">N/A</td></tr>
<tr><td>Commercial Partnerships</td><td colspan="2">Option to invest in offshore wind developer Ørsted's 1,100 MW Ocean Wind offshore wind project. Furthermore, PSEG's non-utility</td></tr>
</table>

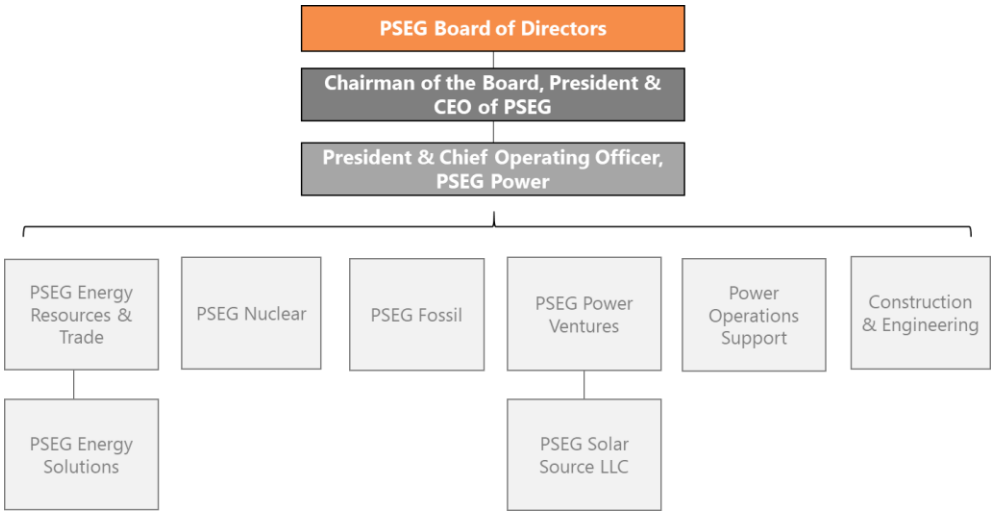
		affiliates will provide energy management services and potential lease of land for use for onshore facilities.
	M&A	N/A
Organizational Structure Insights	• State and federal policies on electric market restructuring and transmission ownership explain the division between the regulated and unregulated companies – namely PSE&G (regulated T&D) and PSEG Power (competitive generation). Within PSEG Power, there is organization by asset type. All typical corporate and operational functions such as law, human resources, finance, supply chain management and IT are within a single company, PSEG Services, which provides these services across the PSEG businesses.	

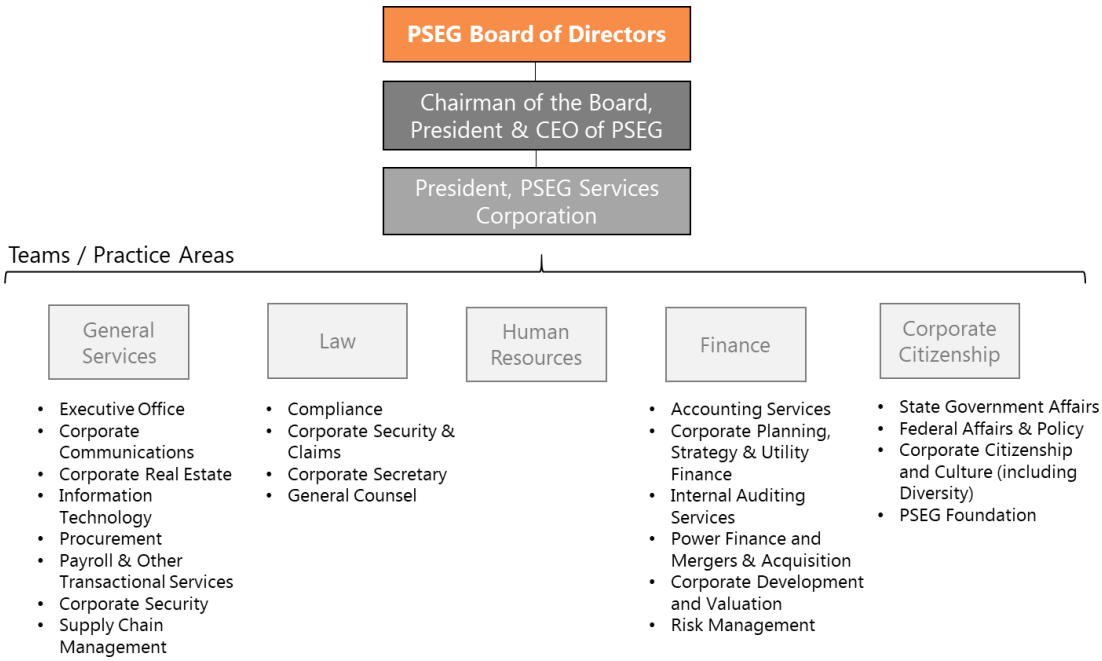
Corporate Structure



Organization Charts



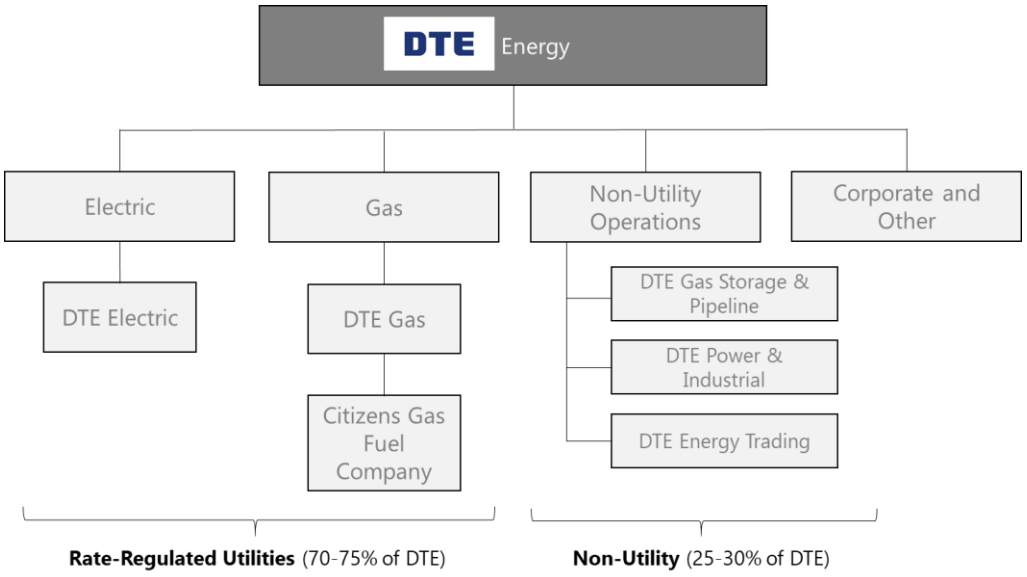


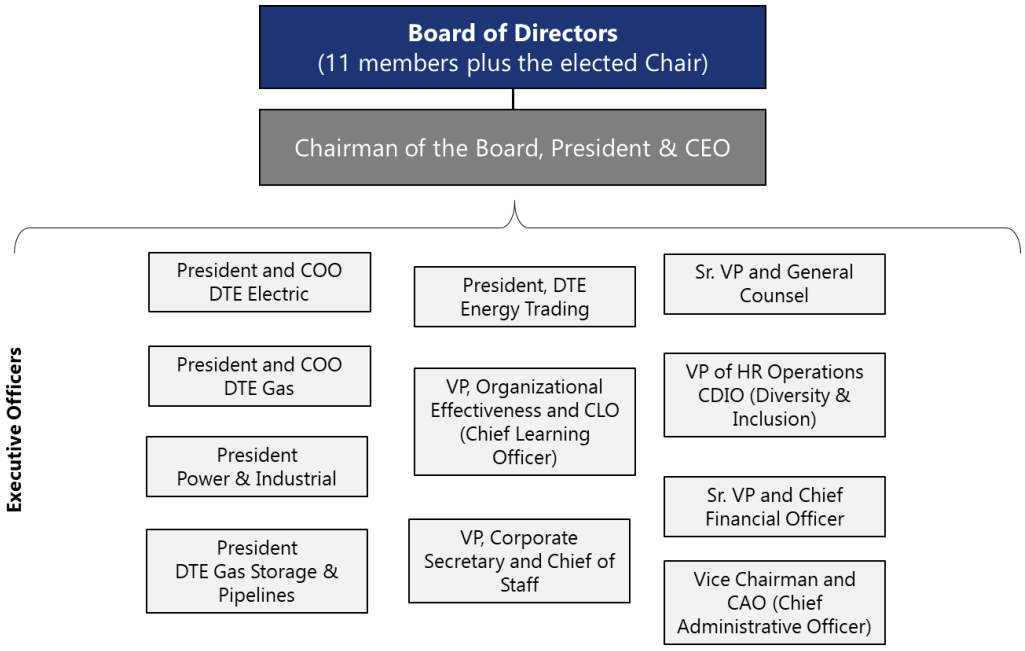


Michigan, United States: DTE Energy

Company Overview *USD Utility Website Annual Report (2017)	*Ownership:* Publicly traded utility holding company			
	Revenue: $14 B*	Asset Base: $36.2 B*	Load Served: 39.4 TWh	Peak Demand: 11,418 MW
	Net Income: $1.1 B*	Employees: 10,600	Customers: 2.2 M	Energy Sales: 48.6 TWh
	Profile: Holding company with regulated (electric and gas utility) and unregulated businesses			
	Supply Mix: Largely coal, with some nuclear and plans to shift to mostly natural gas and renewables by 2025			
	Other: Non-utility subsidiaries, DTE Energy Trading and DTE Power & Industrial, contributed 39% and 16% of 2018 operating revenues respectively.			
Mandate	To be the best-operated energy company in North America and create long-term value for their shareholders.			
Primary Direction	*Customer Choice and Electricity Reliability Act (Public Acts 141 and 142)* - Began the partial restructuring of electricity markets in Michigan by allowing retail customers a choice in electricity suppliers. Growth fueled by investment in utility infrastructure and generation along with non-utility opportunities.			
Regulation	• DTE Electric and DTE Gas are regulated by the Michigan Public Service Commission (MPSC). For both, the MPSC has oversight over rates, recovery of certain costs (such as generation, distribution and other regulatory assets), conditions of service, and some aspects of operations. Specifically, the MPSC approves rates to cover costs plus an authorized rate of return. • Certain activities of DTE Electric and DTE Gas, as well as various aspects of DTE Energy subsidiaries are regulated by the Federal Energy Regulatory Commission (FERC). FERC regulates matters pertaining to its wholesale sales and financing authorization. It also has oversight over DTE's natural gas transportation tariffs.			
Growth Initiatives	Capital Assets	Planned capital investment fall within three categories: US$4 billion for capital replacements (associated with major coal plant retirements within the next decade), US$4.6 billion for distribution system investments, and US$2.7 billion planned for new generation assets (mostly natural gas with some renewable assets) from 2019 to 2023.		
	Energy Trading	DTE Energy trading contribution noted, but no new initiatives		
	Commercial Partnerships	DTE Power & Industrial pursuing new cogeneration projects and new renewable natural gas projects, representing about 5 to 7% of overall growth.		

	M&A	N/A
Organizational Structure Insights	• The company structure is roughly divided by the rate-regulated utility business (which make up 70-75% of DTE) and non-regulated business (about 25-30%). This organizational structure is natural given regulatory requirements. The holding company provides the majority of corporate functions and there are numerous shared functions between the operating subsidiaries.[71]	





[71] This assessment is based on the description of corporate officers and various Minnesota regulatory filings (2018 / 2014).

United States (Various): Exelon Corporation

Company Overview Utility Website Annual Report (2018)	*Ownership*: Publicly traded, on the NYSE, utility services holding company.

Revenue: $35.9 B	Asset Base: $116.7 B	Load Served: 212 TWh	Peak Demand: 40.7 GW
Net Income: $2.1 B	Employees: 33,383	Customers: 10,000,000	Energy Sales: 273.6 TWh

Profile: A Fortune 100 energy company with power generation, competitive energy, and transmission and distribution (both electric and natural gas) businesses. Operates across 48 US states, the District of Columbia and parts of Canada. One of largest independent power generators and the largest competitive energy provider in the US.

Supply Mix: Exelon owns about 32,000 MW of generation. 62% is nuclear, 20% natural gas, 4% hydroelectric, 4% wind, 4% dual-fuel, 3% oil-fired, 1% solar and 0.2% landfill gas.

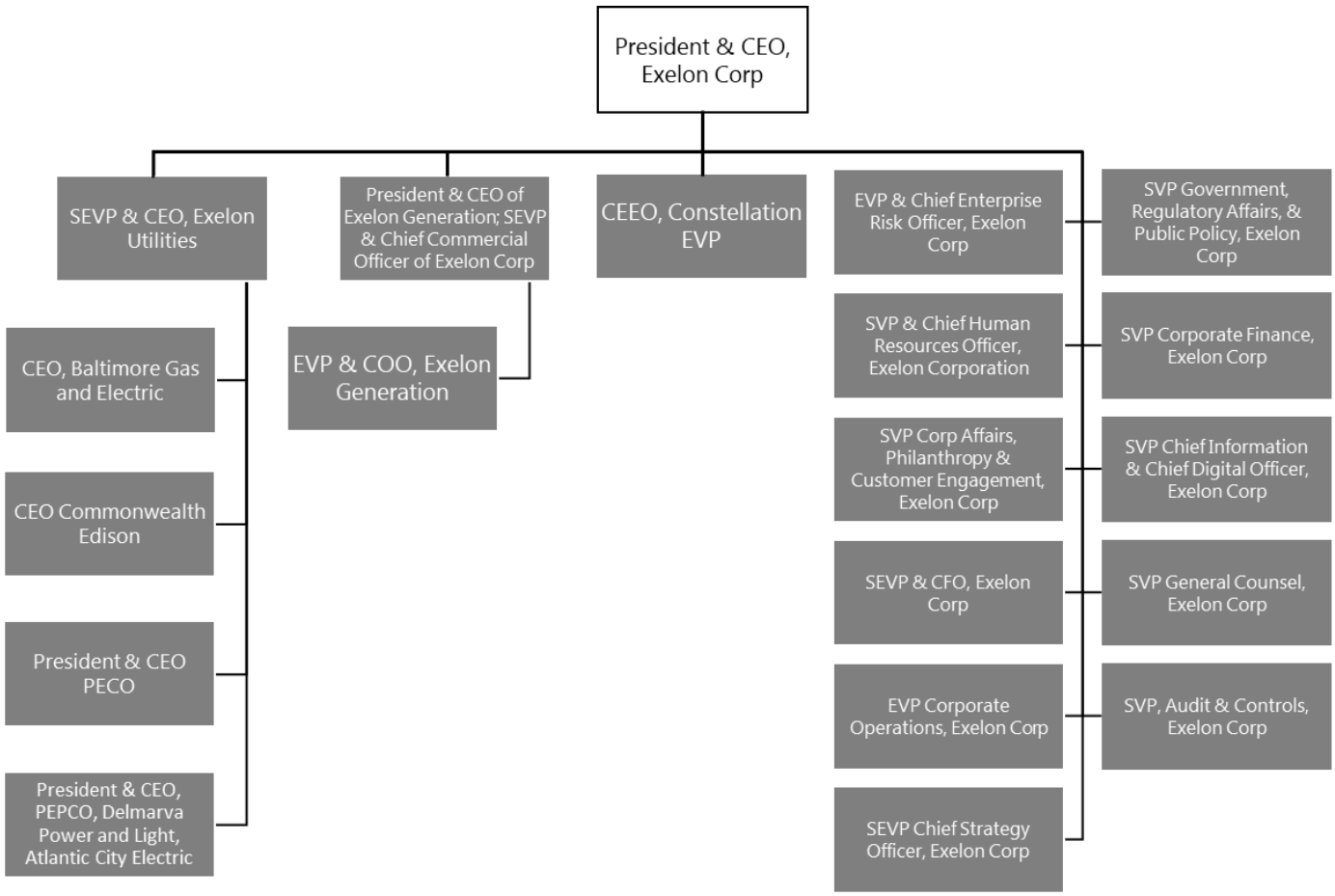
Other: Exelon is composed of eight operating subsidiaries and a shared corporate services unit.

- Exelon Generation, generation company split into Nuclear and Power business units that extend beyond the service territories of its regulated utilities;
- Constellation, a competitive energy supplier and marketer which provides energy products and services to 1.8 million residential, public sector and business customers;
- Six regulated T&D companies including Baltimore Gas and Electric (BGE) in Maryland, Commonwealth Edison (ComEd) in IL, PECO Energy Company in PA, Atlantic City Electric Company in NJ, Delmarva Power in MD and DE, and Potomac Electric Power Company (PEPCo) serving Washington DC and MD; and
- Exelon Business Services Company, the shared corporate services unit provides corporate strategy and development, legal, human resources, information technology, finance, real estate, security, corporate communications and supply services at cost to the Exelon operating companies.

Mandate	Exelon's mission is to be the leading diversified energy company by providing reliable, clean affordable and innovative energy products.
Primary Legislative & Policy Direction	*Zero Emission Credit (ZEC) Programs* - there are ZEC programs in place to support in state nuclear units in IL, NY and NJ. Pennsylvania's legislature is actively considering similar support. Pursuant to the 2016, *Future Energy Jobs Act*, Exelon Generation's Clinton Unit 1, Quad Cities Unit 1 and Quad Cities Unit 2 nuclear plants were selected in the Illinois Power Authority ZEC procurement and receive payments of about $150 million per year. In April, the joint PSEG and Exelon Salem Nuclear Power Plant was approved for ZECs under the New Jersey 2018, *Act Concerning Nuclear Energy* (S.B. 2313). Similarly, Exelon nuclear stations in New York have been selected in the first ZEC rounds under the state's Clean Energy Standard.
	Renewable Portfolio Standards - Applicable to standard service by Exelon's rate-regulated utilities and its competitive energy supply business. Standards vary by state but there is a general trend of increasingly aggressive RPS in the states where Exelon

	primarily operates. These include 50% by 2030 in New Jersey and Maryland, 100% by 2032 in Washington DC and 25% by 2025 in Illinois.	
Regulation	• The Exelon distribution operations across Illinois, Pennsylvania, Maryland, Delaware, New Jersey and Washington DC are rate regulated by their respective state public utility commissions, with the transmission assets owned by these companies subject to rate regulation by FERC. Exelon's energy generation and supply businesses (Exelon Generation and Constellation) are generally not rate regulated, but Exelon Generation's nuclear fleet participates in a number of state ZEC programs. • FERC oversees the wholesale markets in which Exelon Generation participates and the rates charged by many of its businesses. For example, PECO is working with PJM and FERC to transition from a fixed transmission rate to a formula rate. • The US Commodities and Futures Trading Commission (CFTC) oversees the energy commodity and futures trading activities that Constellation is engaged in.	
Growth Initiatives	Capital Assets	Exelon plans to invest $22.9 B (USD) from 2019 to 2022 in gas delivery and electricity T&D for a cumulative rate base growth of 7.8% from 2018.
	Energy Trading	Exelon engages in energy trading to hedge its generation business and for its competitive supply operations through Constellation.
	Commercial Partnerships	Strategic partner and founding investor (December 2017) in Volta Energy Technologies to help speed the deployment of battery storage technologies being developed out of Argonne National Laboratory. Volta recently raised an additional $180 M (USD) from Equinor and Hanon Systems. Exelon is in a multi-year partnership since October 2017 with GE to use GE's Predix software to help predict and manage outages and further strengthen the overall performance of electric transmission and delivery system. In turn, GE is refining its applications to improve the Predix suite. Along with several other energy companies, Exelon has partnered with block chain platform developer, Energy Web Foundation, who is creating a blockchain application for the energy sector. Exelon has financed Bloom Energy fuel cell projects including a 40 MW portfolio in California at customer sites which are also served by Constellation. One of the ways Exelon has worked to expand its competitive and distributed energy offerings.
	M&A	Exelon sought to acquire First Energy Solutions' competitive retail energy business for $140 M (USD) in 2018. The deal failed in early 2019. It would have represented an addition of about 900,000 retail customers mostly in OH and PA.

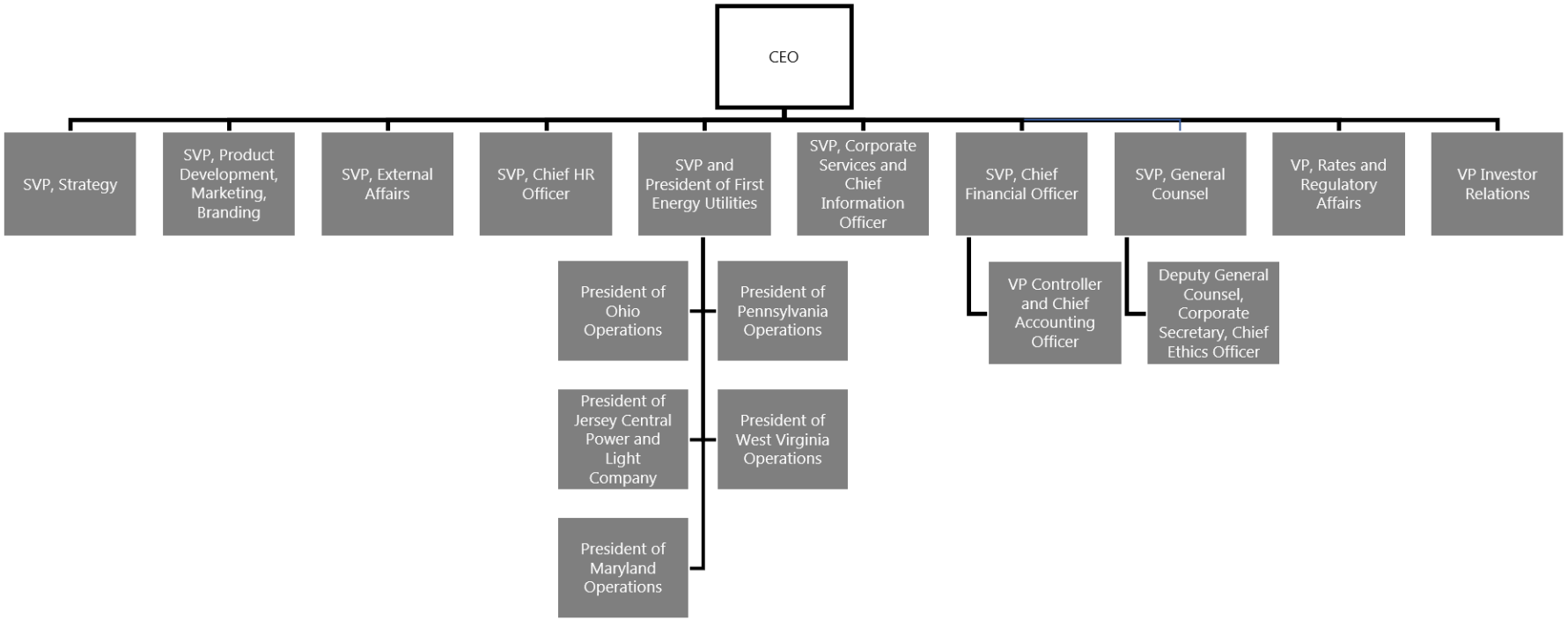
		Exelon has historically been active in M&A. Notably, it merged with Constellation Energy Group in 2012 and acquired electric utility PEPCO in 2016. The company itself is the result of a merger in 2000 and most of the current operating subsidiaries and even many individual generating stations under Exelon Generation were the result of M&A.
Organizational Structure Insights	• Exelon has a separate CEOs/Presidents for each major operating subsidiary. The rate-regulated utilities are organized together under Exelon Utilities, separate from the non-regulated operations. • Energy trading operations are within Constellation along with its broader competitive retail supply of power, natural gas and energy products and services for homes and businesses. • Core corporate services (ex. finance, HR, legal, etc.) are shared between the businesses, as evidenced by the executive organizational structure and departments that make up Exelon Business Services Company.	



United States (Various): FirstEnergy Corp. (FE)

Company Overview Utility Website Annual Report (2018)	*Ownership*: Public Investor Owned Utility			
	Revenue: $11.3 B	Asset Base: $40.1 B	Load Served: 151.8 TWh	Peak Demand: 34.7 GW
	Net Income: $1.0 B	Employees: 12,494	Customers: 6,111,000	Energy Sales: 20.2 TWh
	Profile: An Eastern US energy company headquartered in Akron, Ohio. It is primarily involved in the transmission and distribution of electricity across the PJM region in the Midwest and Mid-Atlantic. FE has operations in Ohio, Pennsylvania, West Virginia, Maryland and New Jersey. FirstEnergy recently restructured under Chapter 11 of the United States Bankruptcy Code, exiting its non-regulated business segments. The former affiliates FirstEnergy Solutions Corp. (FES) and FirstEnergy Nuclear Operating Company (FENOC) are owned by their creditors as part of bankruptcy settlements, with FE having no financial interest in these companies.			
	Supply Mix: Total generation portfolio of 3,790 MW. About 82% coal-fired and 18% hydroelectric. The majority, about 95%, of FE's generating capacity is owned or contractually controlled by subsidiary Monongahela Power Company (MP) in West Virginia.			
	Other: There are currently eleven FE operating subsidiaries and a corporate services company, FirstEnergy Service Company. ○ FirstEnergy Transmission, a rate regulated transmission company that owns American Transmission Systems (ATSI), Trans-Allegheny Interstate Line Company (TrAIL), AET PATH Company, and Mid-Atlantic Interstate Transmission (MAIT); and ○ Ten regulated utilities, MP, Potomac Edison Company (PE) in MD and VA, West Penn Power Company (WP) in PA, Jersey Central Power & Light Company (JCP&L), Metropolitan Edison Company (ME) in PA, Pennsylvania Electric Company (PE), Ohio Edison Company (OE), Cleveland Electric Illuminating Company and the Toledo Edison Company (TE).			
Mandate	FirstEnergy is committed to being a forward-thinking electric utility powered by a diverse team employees committed to making customers' lives brighter, the environment better and communities stronger.			
Primary Legislative & Policy Direction	*Electricity Deregulation* - Resulting from electricity restructuring in the late 1990s, there are fully competitive retail markets in MD, OH, PA and NJ. Similar in both states, the New Jersey *Electric Discount and Energy Competition Act of 1999* and Maryland *Electric Utility Industry Restructuring Act of 1999* required that the vertically integrated utilities in these states divest their generation businesses. West Virginia does not have retail competition and utilities continue to be vertically integrated and retain ownership of generation. Thus, the MP generation assets described above.			
	Renewable Portfolio Standards - Standards vary by state and are generally less important in FE service territories. Nonetheless, NJ and MD have 50% by 2030 RPS and PA an 18% by 2021 Alternative Energy Portfolio Standard to which it most comply as a load serving entity. West Virginia does not have an RPS. Notably, Ohio enacted H.B. 6 in July 2019 to sunset its 12.5%			

	RPS by 2027 as well as offer financial support to nuclear (owned by FES) and coal units in the state.	
Regulation	Retail rates, conditions of service and other matters regarding FE's ten regulated utilities are all regulated by their respective state public utility commissions. The Federal Energy Regulatory Commission (FERC) regulates interstate wholesale sales, transmission of electric power, utility accounting, reliability standards and other matters applicable to FE including the construction and operation of hydroelectric projects.	
Growth Initiatives	Capital Assets	Across its companies FE plans to invest $11-12 B (USD) from 2018 to 2021 in regulated distribution (about $1.2 B annually), transmission upgrades (about $1.7 B annually) and other corporate expansion.
	Energy Trading	FE engages in energy trading including derivative contracts, primarily to manage the risk of energy price volatility. This is a limited component of FE's business.
	Commercial Partnerships	A joint partner with PSEG on the operational, 420 MW Yards Creek Pumped Storage Hydroelectric project in NJ through subsidiary JCP&L. FE also holds a 16% interest, 487 MW, in the 3,003 MW Bath County pumped storage in VA, which is majority owned by Dominion Energy and LS Power Group. Neither generation facilities are recent developments. FE is mainly focused on being a pure rate-regulated electric utility and has limited recent partnerships.
	M&A	The FE operating companies are generally the result of M&A. The company was founded as a merger of Ohio and Pennsylvania utilities in 1997. FE doubled in size in 2001 when it acquired GPU Inc., the former parent company of JCP&L, PE and ME, for $4.5 B (USD). Furthermore, FirstEnergy merged with Allegheny Energy in 2011 to add the additional utilities in WV, MD, VA and PA.
Organizational Structure Insights	• Following the bankruptcy of its former affiliates FES and FENOC and a shift in its corporate strategy to focus on the regulated business, FirstEnergy has recently restructured. • FE has separate presidents for the five key states in which FE has T&D operations under a President of FirstEnergy Utilities, with further Regional Presidents for the utility subsidiaries. This jurisdictional organization works well for states like OH and PA where FirstEnergy has multiple smaller operating utilities. • FirstEnergy's Transmission and Distribution businesses are integrated. The Senior Vice President and President, FirstEnergy Utilities is responsible for the 10 electric utility companies as well as FE's transmission assets and investments. All of these operating companies are rate-regulated. • FirstEnergy Services Corporation provides legal, financial, regulatory affairs, HR, marketing and strategy services to the various FE operating companies and has over 38% of FE's total employees and is by far the largest employer of the FE affiliates.	


CEO
SVP, Strategy
SVP, Product Development, Marketing, Branding
SVP, External Affairs
SVP, Chief HR Officer
SVP and President of First Energy Utilities
SVP, Corporate Services and Chief Information Officer
SVP, Chief Financial Officer
SVP, General Counsel
VP, Rates and Regulatory Affairs
VP Investor Relations
President of Ohio Operations
President of Pennsylvania Operations
President of Jersey Central Power and Light Company
President of West Virginia Operations
President of Maryland Operations
VP Controller and Chief Accounting Officer
Deputy General Counsel, Corporate Secretary, Chief Ethics Officer

Appendix 2

Government of Newfoundland and Labrador Commitment Letter

Newfoundland Labrador

Government of Newfoundland and Labrador
Office of the Premier

October 18, 2011

Mr. Edmund J. Martin
President and CEO
Nalcor Energy
500 Columbus Drive
St. John's, NL
A1B 0C9

Dear Mr. Martin:

This letter outlines the objectives and intentions of the Government of Newfoundland and Labrador (the "Government") in support of the Lower Churchill Projects (the "Projects") being undertaken by Nalcor Energy ("Nalcor") in association with Emera Inc. ("Emera") and its subsidiaries, as described below.

The Projects are:

- The Muskrat Falls generation facility ("MF") and Labrador transmission assets ("LTA"), comprising a 345 kV HVAC transmission interconnect between MF and Churchill Falls, which Nalcor will be responsible to develop;
- The Labrador-Island Link, a HVDC transmission line connecting the Island of Newfoundland to generation facilities in Labrador, including any associated upgrades to the island interconnected system funded as part of this project component (the "LIL"). Nalcor will develop the LIL and provide Emera with an opportunity to invest in it; and
- The Maritime Link, a HVDC transmission line connecting the Island interconnected system to Nova Scotia (the "ML"). Emera or an entity which it controls and Nalcor will jointly develop the ML. In exchange for Emera funding 100% of the construction cost of the ML, and providing Nalcor with long-term transmission services over the ML, Nalcor will provide approximately 1 TWh of energy annually to Nova Scotia for 35 years.

The Government is committed to supporting the development of the Projects as a matter of Government policy of the highest importance, consistent with its *2007 Energy Plan*. To that end, upon the final sanctioning of the Projects, Government's policy will be to revise the framework governing the electricity industry in the Province to align that

framework with the requirements of the successful completion of the Projects. As part of this process, Government is committed to do the following:

1. Approve the creation of those subsidiaries or entities controlled by Nalcor which are required in order to facilitate the development and operation of MF, the LIL and the LTA, and to ensure Nalcor and existing and new subsidiaries or entities have the authorized borrowing powers required to implement the Projects and meet any related contractual or reliability obligations.

2. Provide the base level and contingent equity support that will be required by Nalcor to support successful achievement of in-service for MF, the LTA and the LIL, in cases with and without the participation of Emera.

3. Ensure that, upon MF achieving in-service, the regulated rates for Newfoundland and Labrador Hydro ("NLH") will allow it to collect sufficient revenue in each year to enable NLH to recover those amounts incurred for the purchase and delivery of energy from MF, including those costs incurred by NLH pursuant to any applicable power purchase agreement ("PPA") between NLH and the relevant Nalcor subsidiary or entity controlled by Nalcor that will provide for a recovery of costs over the term of the PPA and relate to:

   (a) initial and sustaining capital costs and related financing costs (on both debt and equity), including all debt service costs and a defined internal rate of return on equity over the term of the PPA;

   (b) operating and maintenance costs , including those costs associated with transmission service for delivery of MF power over the LTA (as described further in 5 below);

   (c) applicable taxes and fees;

   (d) payments pursuant to any applicable Impact & Benefit agreements;

   (e) payments pursuant to the water lease and water management agreements; and

   (f) extraordinary or emergency repairs.

4. Ensure that, upon the LIL achieving in-service, the regulated rates for NLH will allow it to collect sufficient revenue in each year to enable NLH to recover those amounts incurred for transmission services, including those costs incurred by NLH pursuant to any applicable agreements between NLH, the LIL operating entity and/or the entity holding ownership in the LIL assets, that will provide for a recovery of costs over the service life of the LIL and relate to:

   (a) initial and sustaining capital costs of the LIL and related financing and debt service costs, including a specified capital structure and regulated rate of return on equity equal to, at least, a minimum value required to achieve

the debt service coverage ratio agreed to in lending agreements by the LIL borrowing entity;

(b) operating and maintenance costs;

(c) applicable taxes and fees; and

(d) extraordinary or emergency repairs;

and that any entity which is associated with the investment of Emera in the LIL will be treated as a "public utility" under the Public Utilities Act and the Electrical Power Control Act, 1994;

5. Ensure that, upon LTA achieving in-service, the regulated rates for the provision of transmission service over the LTA will provide for a recovery of costs over the service life of the LTA including initial and sustaining capital costs, operating and maintenance costs, extraordinary or emergency repairs, applicable taxes and fees and financing costs (on both debt and equity), including all debt service costs and a defined internal rate of return on equity over the term of any applicable agreement.

The means undertaken to implement these policies and objectives will be at the sole discretion of the Government, but may include legislative amendments, regulatory rulings, and orders under current legislation.

Sincerely,

KATHY DUNDERDALE
Premier

Appendix 3

Operational Opportunities Analysis

APPENDIX 3

Operational Opportunities – Combining Operations between Hydro and Newfoundland Power

Newfoundland and Labrador Hydro ("**Hydro**") aims to provide a fair and balanced assessment of the options being considered with respect to its operations and that of Newfoundland Power's. Hydro agrees with Liberty that the materiality of the benefits associated with potential future change would not likely outweigh the risks and transition needs associated with the changes being contemplated for the assets under consideration; such a change will result in limited benefit, no benefit or even negative benefit to customers. Hydro believes there are opportunities for efficiencies and enhancements which may be achieved through continued organizational improvements to its current operations and practices.

Consideration of any change must also take into account the current electrical system operating environment in Newfoundland and Labrador. The electrical system in Newfoundland and Labrador is in a period of transformative change. The integration of the Maritime Link and the Muskrat Falls Project and the future retirement of generating sources on the Island is the biggest system transition since the 1960s. The contemplation of additional transformative change introduces the potential for added cost and risk. The timing and impact of any suggested change needs to be carefully considered against the materiality of the opportunity identified, as well as the potential to gain further efficiencies in utility practices within the current structure.

Asset Transfer

In Phase Two of The Liberty Consulting Group's ("**Liberty**") engagement on the Reference on Rate Mitigation Options and Impacts, Liberty stated:

> *We eliminated consideration of transferring 230 kV and HVdc facilities, considering their criticality to overall system integrity and reliability, the need for allowing operation of LCP assets to reach a secure steady state, and the lack of Newfoundland Power operational experience with such facilities.*[1]

[1] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 6.

Hydro agrees with Liberty's position with respect to the 230 kV and HVdc facilities.

Liberty also examined the transfer of ownership of Hydro's distribution and retail operations[2] and lower voltage transmission facilities[3] to Newfoundland Power. Through its analysis, Liberty concluded that the transfer of Hydro assets to Newfoundland Power would result in negative rate consequences for customers.

> *Our analysis of the economic effects of asset transfers from Hydro to Newfoundland Power showed negative rate consequences for customers, even if we did not assume using Hydro's equity returns for rate mitigation. Hydro has significantly lower carrying costs for capital investments, even with the same rate of returns on the equity portion of its capital structure. Greater equity levels, higher debt costs, and taxation exemplify factors that make Newfoundland Power's costs higher.*[4]

Hydro's findings and analysis are consistent with Liberty's conclusion on the negative customer impact of transferring assets to Newfoundland Power.[5] A transfer of assets would result in negative rate consequences due to the difference in Newfoundland Power's level of equity in its capital structure and taxation, which result in higher carrying costs for the same assets if transferred to Newfoundland Power. Further, a transfer would likely increase dividends by Newfoundland Power to its shareholders which, unlike Hydro or Nalcor, would be out of reach for potential rate mitigation considerations.

The analysis presented by Newfoundland Power in PUB-NP-075 (1st Revision), Attachment A, compares Hydro's *embedded* cost of capital to Newfoundland Power's *incremental* cost of capital in determining the financing costs to be recovered through customer rates. Hydro disagrees with the analysis presented by Newfoundland Power. Newfoundland Power's analysis assumes that the historic high cost of debt reflected in Hydro's embedded cost of capital will no longer be required to be recovered from customers after the asset transfer to Newfoundland Power is completed and the assets transferred can all be refinanced at Newfoundland Power's incremental cost of capital.

---

[2] Island Interconnected System, Labrador Interconnected System and isolated systems in both Newfoundland and Labrador.

[3] 66 and 138 kV.

[4] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 6.

[5] PUB-Nalcor-280, at p. 17-23.

Hydro's outstanding long-term debt does not have any early retirement provisions attached to it. Therefore, Hydro will be required to continue to incur these debt costs even after the asset transfer occurs. Customers can only benefit if savings can be realized by retiring high cost debt and refinancing at lower rates available in the market, however, the cost of debt retirements must be considered in the analysis. The costs associated with refinancing higher interest debt, such as premiums and new debt issue costs, often outweigh the benefits; if refinancing was possible, it could be accomplished independent of an asset transfer. The Newfoundland Power analysis did not consider the costs of stranding high cost debt with Hydro.

Further, a comparison of the financing costs of Newfoundland Power and Hydro should be completed on a consistent basis. The analysis should either be a comparison of the embedded cost of capital for both companies or a comparison of the incremental cost of capital for both companies. A comparison of the embedded cost of capital to the incremental cost of capital presents a distorted view of the potential costs or savings associated with the asset transfer.

The contemplation of a transfer of assets from a Crown corporation to an investor-owned utility should also consider the future implications once the assets are moved outside the domain of public ownership. These include loss of public revenue stream (for direct government revenue or reinvestment back into the utility), increased customer costs associated with a higher equity level in the capital structure and taxation costs, the level of tax payments which are directed to the provincial treasury, reduced opportunity for utilization of the assets to address public policy issues, and the loss of direct operating control over the assets. An investor-owned enterprise, such as Newfoundland Power, is focused on achieving long-term sustainable growth in rate base and earnings, with financial performance primarily measured on earnings per common share and total shareholder return.[6]

Operational Transfer

In Hydro's view, the implementation of an operational agreement for distribution and retail operations and lower voltage transmission facilities has significant potential to introduce material complexity to the operating and regulatory environment, as well as additional costs – the magnitude of which are unknown at this time. This results in substantive uncertainty for all parties. It is fair to expect that Newfoundland Power, or any other interested party, would require compensation under such an

[6] "2018 Annual Report," Fortis Inc., at p. 28. Newfoundland Power is owned by Fortis Inc.

agreement; however, it remains unclear whether Newfoundland Power could operate so materially different that adequate savings would warrant such an arrangement. While Liberty indicated it has identified potential savings under such an arrangement, it is subject to significant risk.

> *We found the potential savings that would arise with a transfer of operating responsibilities to Newfoundland Power modest, and subject to significant execution risks and limitations. That imbalance led us to conclude that greater potential lies in other directions; e.g., pursuit by Hydro of a focused, comprehensive examination of its efficiency and effectiveness. We believe that undertaking such an examination promptly, objectively, and with a high level of transparency to the Board and stakeholders can produce results as or more substantial than those postulated by our Power Supply/Hydro integration.*[7]

Liberty also acknowledged that there is unfamiliarity with such operating agreements in this jurisdiction. Hydro concurs with Liberty's view that greater potential lies in pursuing efficiencies within the current utility structure.

Efficiency and Effectiveness Plan

Hydro has identified areas of strategic focus through which cost savings and efficiency improvements are being pursued. As detailed in Hydro's response to PUB-Nalcor-218, Hydro is working diligently to enhance its performance and achieve internal efficiency gains.

Outlined in this evidence is Hydro's framework for an Efficiency and Effectiveness Plan ("**Plan**"), demonstrating its commitment to secure internal efficiencies and deliver cost savings. A summary of the Plan is included as Appendix 3-A. Specific deliverables, targets and timelines to support the Plan are under development, and work in select areas has commenced. It is expected that as work on the Plan progresses, other opportunities, in addition to those currently identified in the framework, will be pursued. The groundwork for this Plan was founded in the work of Hydro's Innovation and Productivity Initiative.

[7] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 7.

Areas of Focus

The immediate areas of focus Hydro is pursuing in its Efficiency and Effectiveness Plan are:

1. Work management and execution;
2. Operational technology advances; and
3. Efficiency of Exploits operations.

In addition to these three priorities, other initial targeted areas for improvement include capital planning, contracting and procurement, and human resource management.

Hydro's Commitment

Hydro is committed to providing regular updates to the Board of Commissioners of Public Utilities ("**Board**") on the execution of this Plan, including projected deliverables, schedules, and, expected and realized savings. The Plan will evolve each year; updates will be made to the identified areas of focus on an annual basis or as per a time frame directed by the Board. Hydro commits to providing its first progress update to the Board during the second quarter of 2020.

Liberty stated that "…we believe it is reasonable to expect Hydro to be able to produce savings in the range of at least $2 million, should its management diligently pursue operational savings."[8] Hydro commits to achieve this level of savings through efficiencies and productivity gains. The timing of these savings will be estimated and communicated to the Board in the first progress update planned for the second quarter of 2020.

Underlying the successful execution of its Efficiency and Effectiveness Plan is the requirement for specific goals and targets to measure performance. Hydro will identify such measures for each Plan initiative and report on the progress associated with each in future updates to the Board.

[8] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 45.

Work Management and Execution

Liberty has identified Hydro's planning, scheduling and work management as an area of needed improvement. Through its newly established Utility Performance department,[9] Hydro has been reviewing opportunities for improvement in this area. Effective scheduling and planning improves productivity and supports good utility practice. Hydro is committed to implementing more robust planning practices over the long term and measuring accountability of these practices through key performance indicators and data measurement.

Hydro has commenced the development of a multi-year plan to identify and implement the requirements necessary to centralize its planning and scheduling functions. The plan will consider the necessary processes, procedures, tools and training required to align the planning and scheduling function with Hydro's overall asset management plan. Such an approach will support the success of work execution, while driving enhanced productivity in the delivery of safe and reliable service to customers. The plan development and implementation is anticipated to occur over a three-year period with the productivity gains expected to start in 2021 and grow beyond that time frame.

Efficiency and Effectiveness Plan Commitment:

Work Execution and Management	Anticipated Timing
Develop and implement a multi-year plan to centralize Hydro's planning and scheduling function	2020 - 2022

Technology

Hydro believes there is significant opportunity to enhance efficiency and productivity through technological advances. Opportunity exists to reduce manual tasks, reduce direct and indirect costs, and improve other aspects of the operation on a cost-justified basis.

Hydro is currently developing a request for proposals to assess current and future opportunities for technology adoption in its utility operations. This work will form the basis of a Technology Improvement Plan to identify specific solutions and timelines for implementing technology focused on advancing operational performance and realizing long-term cost savings. The request for proposals is planned for

[9] Established as part of Hydro's Organizational Restructuring announced in June 2019 and outlined in PUB-Nalcor-218-A.

issuance early in the fourth quarter of 2019. Hydro expects there will be a wide range of solutions available which it will assess on a cost-benefit basis. A multi-year schedule will be developed to implement those projects selected; implementation timelines will be dependent on project complexity and funding availability. Hydro believes it is reasonable and prudent to pursue technology adoption in a progressive manner to enable the required process and human resource changes to occur over time.

Hydro is currently conducting a review of its installed advanced metering infrastructure ("**AMI**") to assess system performance to date and develop a plan for transitioning existing, non-automated meters to an AMI technology to realize efficiencies and savings.

Efficiency and Effectiveness Plan Commitment:

Technology	Anticipated Timing
Identify and plan for implementation of technology solutions to achieve operational advancements and efficiencies	2020 - 2021
Implement technology solutions to achieve operational advancements and efficiencies	2022-2026, ongoing[10]

Exploits Assets

The Exploits generation assets[11] play a material role in meeting both demand and capacity requirements for the Island Interconnected System. These assets represent 8.5% of Hydro's firm hydraulic generating capacity and 12% of Hydro's installed hydraulic generating capacity. Further, in a typical year, Exploits is expected to produce approximately 14% of Hydro's hydraulically-produced energy.

In assessing options for the consolidation of small hydro under a single operator, the following conclusion was made by Liberty.

> *We concluded that pursuit of operational efficiencies by Hydro for Exploits operations can produce essentially the same savings as a transfer of operating responsibility to Newfoundland Power - - and without the substantial barriers and execution risk. We recommend that Hydro commit to the development and execution of a plan to achieve*

[10] Exact timing of the implementation of technology solutions will depend on execution ability and funding availability. Concerted effort to implement technology solutions will take place over the 2022-2026 period with further solutions implemented as determined.

[11] Exploits assets are owned by the Government of Newfoundland and Labrador with an operating license extended to Nalcor Energy and power purchase agreement between Nalcor and Hydro. Hydro operates and maintains the Exploits facilities on behalf of Nalcor. The asset grouping referred to as Exploits assets includes the Grand Falls, Bishop's Falls and Star Lake facilities and infrastructure.

efficiencies in Exploits operation of $2.5 million annually, with a goal to execute the plan within three years, subject to the degree of personnel dislocation required.[12]

Hydro commits to undertaking a multi-year efficiency review of the Exploits operations, targeting annual savings of $2.5 million, which is over 25% of the current Exploits annual operating budget, subject to the degree of employee dislocation that is able to be attained. Liberty suggested a three-year time frame to achieve this level of annual savings. Hydro notes that if the suggested savings are hinged on capital investments which require identification, approval, and implementation, additional time will be required. Hydro also notes that Liberty separately recommended a three- to five-year time frame in its report[13] for such savings to be sought and implemented. In consideration of the capital budget funding and resulting project execution which may be necessary to achieve the suggested savings, Hydro proposes to identify, propose, obtain approval (as required for expenditures) and implement changes to the Exploits operations over a three- to five-year period. To achieve such a significant reduction in expenses at Exploits, material operational changes to the Exploits operation are required. Hydro will report to the Board on the plans and execution of such changes to ensure the Board is informed on projected outcomes of operational changes.

To date, due to the existing ownership structure and uncertainty surrounding future ownership, there have been constraints on achieving advancements in the Exploits operations. Hydro's actions to date are not indicative of future state operations; opportunities for efficiency improvements exist. On a cost-justified basis, such improvements and the associated benefits are considered part of the longer term plan for these assets, as is acquisition of the assets from the Government of Newfoundland and Labrador. Hydro anticipates filing an application to the Board for acquisition of the Exploits assets later in 2019.

[12] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 58.
[13] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 63.

Efficiency and Effectiveness Plan Commitment:

Exploits Assets	Anticipated Timing
Develop and implement a multi-year efficiency review of the Exploits assets	2020-2024[14]

Capital

Hydro continues to enhance its capital planning approach, particularly in light of the rate pressures in the province at this time. In response to the pending rate pressures, Hydro began increased scrutiny of the future five-year capital spending plan in 2018 to take costs out of the five-year plan, aiming to contribute to rate mitigation. This occurred again in 2019, and the five-year forecasted capital expenditure for the next five years is forecasted to be 34% or approximately $250 million less than the five-year plan developed two years ago.[15] Hydro intends to, at a minimum, maintain this reduced level of expenditure or continue to find areas to reduce costs, where possible, in the future. Hydro is cognizant of the necessity of appropriate capital spending and will closely monitor the effects of this reduced plan, while monitoring asset condition and reliability and being responsive to major customer growth needs. Hydro will take prudent steps to adjust capital in subsequent years should it be justified to seek additional funds.

Liberty has stated:

> *Similarly, with Hydro and Newfoundland Power expecting to spend about $0.5 billion dollars on capital in the 2020-2024 period, it should be noted that only moderate reductions in the those amounts will produce revenue requirements reductions equal to or greater than savings coming from combinations between the two companies.*[16]

[14] Timing to implement and execute may evolve based on outcome of application to purchase assets as new operating and capital budgets will be required to be reviewed by the Board and intervenors.
[15] Reflects Board approved capital amounts for the year requested and budgeted supplemental amounts, less growth projects (e.g., TL 266, TL 267 and Muskrat Falls to Happy Valley Interconnection Project). Supplemental totals are net of Contribution in Aid of Construction amounts.
[16] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 45.

> *Reductions in the amount of capital spending will reduce revenue requirements as much or greater than those attainable through reorienting the long-standing division of responsibility that exists in the Province for providing electricity service.*[17]

Hydro agrees with Liberty that there are opportunities for savings in capital investment provincially. Hydro has commenced work on this front and continues to pursue capital efficiency as a corporate priority.

Efficiency and Effectiveness Plan Commitment:

Capital	**Anticipated Timing**
Maintain a focused Capital Planning Approach to balance capital investment with cost management and reliability	Annual review as part of planning for Capital Budget Application

Contracting & Procurement

Hydro recognizes there are potential benefits in joint purchasing power. Currently, Hydro and Nalcor utilize the Government of Newfoundland tender pricing for long-term supply agreements, where it is least cost. As well, Nalcor and Hydro have a number of contracts in place that apply to all Nalcor lines of business (e.g., travel management, rental cars, personal protective equipment, and electrical supplies). Procurement is a consolidated function within the Nalcor group of companies; it is a service provided by Hydro.

Liberty suggested that the common pursuit of contracting and procurement may prove productive; however, it also recognized a significant barrier in the legislative purchasing requirements under which Hydro operates. Liberty stated "We believe that there would be benefit in the completion of more analysis of the potential savings, which, if they prove significant, may lead to reconsideration of the current policy barrier to achieving them."[18]

[17] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 7.
[18] "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities," The Liberty Consulting Group, September 3, 2019, at p. 62.

In addition to Hydro exploring further internal[19] consolidated procurement opportunities including updating and increasing its long-term supply agreements (for materials) and master standing agreements (for services), Hydro is open to exploring opportunities with Newfoundland Power to determine which, if any, activities may benefit from joint procurement. Determining a realistic level of savings is critical and requires detailed analysis which has not been conducted to date. Hydro believes that the Public Procurement Act provides for a fair and transparent process to purchase goods and/or service that may have the potential to be procured jointly. Hydro is open to exploring solutions to potential policy barriers if it is determined that sufficient savings for customers can be achieved.

Efficiency and Effectiveness Plan Commitment:

Contracting and Procurement	**Anticipated Timing**
Explore new opportunities for joint and consolidated procurement opportunities	2020-2022 (and beyond)

Human Resource Management

Hydro understands the need to be more efficient and productive to deliver benefits to its customers. Since 2016, Hydro has committed to rigorously manage and approve any replacement or new full-time equivalents ("**FTE**") at the highest executive levels. Labour requirements are actively managed and monitored through ongoing monthly reporting, which examines labour costs including overtime utilization; this oversight informs hiring decisions.

Hydro values its employees and understands the pressure on its workforce to meet customer demand and deliver least-cost, reliable service. As part of Hydro's commitment to reduce costs by at least $2 million on an annual basis, Hydro commits to reducing FTEs. To achieve the targeted cost reductions, Hydro will endeavor to minimize the impact of any transition over the coming years by making reductions through attrition based on its current workforce demographics. In examining the current workforce, there are an adequate number of employees eligible to retire in the coming five years to contribute to the annual cost savings targeted, with 8% eligible to retire at the end of 2019. It would not be appropriate or prudent to assume that all 8% of employees will avail of their retirement eligibility and, further, some employee functions will be required to continue for safe and reliable service delivery.

[19] Internal opportunities refer to opportunities both within Hydro alone, as well as joint and consolidated opportunities with other Nalcor lines of business.

However, it is reasonable to assume that some portion of those positions that will become vacant upon retirement will not be filled and, therefore, removed from the structure; this can be achieved through options such as reallocation of work or technology adoption. With each retirement or voluntary resignation, there is opportunity to review whether a role should be filled. Using this process, Hydro minimizes employee impacts through managed reductions while achieving required efficiencies and avoiding costs associated with forced workforce reductions.

Human Resource Management	**Anticipated Timing**
Manage FTE reductions primarily through attrition	Ongoing

Hydro continues to work diligently to effect organizational change to ensure its practices reflect those of a well-run electrical utility and support the provision of safe, least-cost, reliable service to meet the needs of customers within the province.

Appendix 3A

Hydro's Efficiency and Effectiveness Plan Framework

Area of Focus	Commitment	Anticipated Timing
Work Execution and Management	Develop and implement a multi-year plan to centralize Hydro's planning and scheduling function	2020 - 2022
Technology	Identify and plan for implementation of technology solutions to achieve operational advancements and efficiencies	2020 - 2021
	Implement technology solutions to achieve operational advancements and efficiencies	2022-2026, ongoing[1]
Exploits Assets	Develop and implement a multi-year efficiency review of the Exploits assets	2020-2024[2]
Capital	Maintain a focused Capital Planning Approach to balance capital investment with cost management and reliability	Annual review as part of planning for Capital Budget Application
Contracting and Procurement	Explore new opportunities for joint and consolidated procurement opportunities	2020-2022 (and beyond)
Human Resource Management	Manage FTE reductions primarily through attrition	Ongoing

[1] Exact timing of the implementation of technology solutions will depend on execution ability and funding availability. Concerted effort to implement technology solutions will take place over the 2022-2026 period with further solutions implemented as determined.
[2] Subject to asset acquisition date.

Appendix 4

FTE Review and Power Advisory Report – *Extended Review of the Liberty Consulting Group Executive Analysis and Results*

Appendix 4

Review of Liberty FTE Analysis

This Appendix addresses the Reduction of FTEs suggested by The Liberty Consulting Group ("**Liberty**") in its Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities ("**Report**"). It has been arranged by group or the nature of services provided.

Liberty performed a review of organizational charts provided by Nalcor/Hydro but has not provided updated charts, making it difficult to assess the recommendations and impacts. The organizational charts used by Liberty might not be reflective of the actual current positions in Nalcor or Hydro. Some vacancies have been filled, some positions have become vacant and not been filled. A few new positions have been added where the need was identified.

The work performed by Liberty to arrive at its conclusions did not appear to include an analysis of workloads, spans of control or skillsets.

Vacancies occur through normal transiency in positions. This means, FTE counts on an organizational chart are not a perfect match for the actual salary costs and actual human resources in place and, for Hydro, the forecasted balance is reflected in a vacancy allowance of 55 FTEs.[1] While at any moment in time there will be vacant positions, this does not mean that those positions are not needed and arbitrary decisions should not be made with respect to those positions that happen to be vacant at any instance.

Recently, there has been a high degree of internal focus and time spent on events initiated by external stakeholders, including (i) the Auditor General's audit, (ii) the Public Utilities Board Reference Question review, and (iii) the Muskrat Falls Inquiry. The result has been significant allocation of time and attention away from operations. With each of those activities soon coming to a close, an opportunity exists to refocus and rebalance resources to supporting the business in line with best utility practices.

[1] In ORDER NO. P.U. 16(2019), the Board accepted the settlement agreement proposal that Hydro utilize a vacancy allowance based on 55 FTEs.

Engineering

Liberty concluded that a net reduction of 21 FTEs could be achieved by combining Engineering Services for both Hydro and Power Supply into one group. Both Hydro and Power Supply believe a detailed analysis is required before a recommendation can be made on the effectiveness of a consolidated Engineering Group and reduction in FTE complement.

Hydro and Power Supply continue to collaborate to identify areas where shared resources between both Engineering Services groups can provide cost savings without jeopardizing objectives. Examples include a shared Drafting Services Group and shared Information Technology and Operating Technology Groups. Both Hydro and Power Supply are also committed to developing engineering expertise and sharing information between the two groups to ensure efficient, cost-effective support to the respective Operations groups. Seeking such opportunities will continue.

Both Hydro and Power Supply are of the opinion that a detailed analysis with respect to FTE complement is required, the scope of which would include, but not be limited to:

- cost of the existing separate Hydro and Power Supply Engineering structure vs. a combined Engineering structure;
- Financial, legal and operational limitations of a combined Engineering structure as it relates to the regulated and unregulated divisions of Nalcor;
- Review of existing and future workloads, given Power Supply assets age particularly at Churchill Falls and its growing capital program; and
- optimization of the preferred Engineering structure considering workloads of both current Engineering teams, spans of control and skillset.

Refer to PUB-Nalcor-235

Transmission

The new transmission assets associated with the Muskrat Falls Project ("**MFP**") will enable energy from the Muskrat Falls generating station to flow into and through the Newfoundland and Labrador interconnected system. These assets are crucial for the reliable supply of power to Hydro and its customers. Ensuring Power Supply has the resources, knowledge, skills, and focus appropriate to execute the operation and maintenance of these assets is crucial to longer term reliable operations, in

particular with respect to the HVdc assets. Nalcor and Hydro believe a separate Power Supply transmission team increases focus and accountability for the specific needs of the new asset base with related accountability, while allowing Hydro to continue to managing its significant and aging assets.

The technology deployed in many of the installations associated with the MFP at Churchill Falls, Muskrat Falls, Soldiers Pond, the transition compounds, and telecom repeater stations is largely new to the organization and is vendor-specific. As such, it requires a specific skillset not currently held within Nalcor or Hydro. The ability to ensure these are developed and sustained within the front-line workforce and management team has been a primary focus in developing the Power Supply transmission team. While this skillset could have been developed within Hydro, Nalcor believes that dedicated teams involved with construction and commissioning would be best suited to continue with future operation and maintenance and that the team in Power Supply provided such continuity for the large and varied added assets.

In designing Power Supply, care was taken to avoid duplication of teams and work that existed within Hydro. Much work has been completed between the two companies to identify and execute cost synergies, including (i) an agreement under which Hydro provides support of emergency response at remote Power Supply sites such as Shoal Cove and Forteau, (ii) remote monitoring and support on Power Supply telecoms infrastructure and repeater sites, (iii) agreement with Churchill Falls (Labrador) Corporation ("**CF**") under which CF staff, who reside nearest to the assets, support the MFP assets in central Labrador, including the 315 kV line between Churchill Falls and Muskrat Falls.

Hydro and Power Supply believe cost savings would be limited to vegetation management and core line work should transmission services be consolidated in one organization. Given the vast geography of the new land rights and work scope for Power Supply line crews, we do not believe the cost savings (if any) outweigh the benefits arising from maintaining a separation transmission function within Power Supply for the LIL and LTA operations. Refer to PUB-Nalcor-234.

Generation (Large Hydro)

Liberty has recommended a consolidation under the direction of one operational leader of the provincial large hydro stations, Churchill Falls, Muskrat Falls and Bay d'Espoir, as a means to improve efficiency

within Nalcor and Hydro. Liberty estimates an approximate maximum resulting annual savings of $500,000.

Churchill Falls, Muskrat Falls and Bay d'Espoir are critical generation plants in the province, forming the backbone for reliable supply to customers.

Muskrat Falls and Churchill Falls are geographically close and utilize the same water system. Maintaining interconnected management and operations at these two facilities is supported by Nalcor and Hydro and is believed to be critical to their future success. Nalcor believes further combination of Bay d'Espoir under the same executive with Muskrat Falls and Churchill Falls comes with risk of reducing oversight of all three assets at a time when new and complex generation units are coming online and is not appropriate or prudent. Doing so introduces unnecessary risk, especially from a reliability perspective, in return for what may be minimal cost savings.

Liberty appropriately acknowledges Nalcor's position that Churchill Falls has a unique governance structure with the involvement of Hydro-Québec ("**HQ**") as an owner with representation on the Board of Directors. Most material changes will require consultation and potentially approval of HQ. Should the combination of large hydro be considered as suggested by Liberty, a detailed legal review of various CF(L)Co agreements and legislation is required to determine (i) if implementation of recommendations is even possible, and (ii) resulting costs, risks and barriers that might offset potential savings.

Finance

Liberty has indicated an opportunity exists to combine Hydro, Nalcor Corporate and Power Supply accounting and other finance-related functions in a manner that would reduce the need for 14 FTE's. Liberty also proposed the elimination of seven vacant FTE in the areas of Supply Chain and Information Technology, which also fall under the Finance organization. Nalcor and Hydro are not aware of any workload or process reviews conducted by Liberty that would assist in assessing impact of eliminating 14 positions (i.e., approximately 20% of the Finance team).

Finance continues to seek efficiencies in costs on an annual basis, including reduction of FTE's. The CFO led a review in 2018 that impacted Corporate Accounting, Treasury, Financial Planning, Commercial and Strategy, Risk, Insurance & IT. The purpose was to right-size the group to align with changes in the

organization. The focus was identifying the right positions, assessing the need for vacant positions and redeploying resources where possible. As a result of the reorganization, four FTE's were eliminated or combined within Nalcor's Treasury and Financial Planning group in late 2018. Nalcor already expects to see further reductions upon MFP transitioning from construction to operations in 2020. These anticipated reductions were provided to Liberty and appear to form the basis of the six FTEs noted on page 75 of their Report.

For historical context, it is also important to note that prior to 2016, Nalcor operated in a 'matrix' structure under which all common services were delivered centrally. Liberty suggests a return to this structure for the Finance organization. When Hydro's regulated operations were split from Nalcor's unregulated operations, separate Finance/Accounting teams were established. However, in doing so, two positions were added to Hydro's Accounting group, and no positions were added by Nalcor and Power Supply Finance.

There remain a number of areas within Finance where the nature of the work and associated cost effectiveness allow for a shared services approach to continue. These include:

- Risk management, systems and policy development;
- Transactional cash management is provided centrally by Hydro to all lines of business;
- Insurance management and administration;
- Tax administration and compliance;
- Accounting system administration & management, including central administration and management of accounting, reporting, budgeting and forecasting systems (JD Edwards);
- Financial reporting research and certain financial reporting such as the MD&A; and
- Corporate financial planning systems/models used by Investment Evaluation and Financial Planning.

It is also important to consider particularly within Finance, that there are unique requirements associated with supporting a regulated utility business. These include:

- All intercorporate transactions must be fully transparent, prudent and provide demonstrable benefits to the utility and its customers. The Board indicated that intercorporate transactions "should only be entered into insofar as they do not compromise the operational or managerial integrity of the utility" (PU 49(2016) page 37, lines 10-12). A combining of corporate

administrative groups will require additional effort to provide detailed time tracking on an individual basis (including hours and services rendered). Regular, detailed quarterly reporting to the Board of these intercorporate transactions will also be required; and

- Hydro's financial accounting, planning and reporting are driven by its regulatory construct, orders and standards. A complete and current familiarity with the impacts, restrictions and effects of regulation is required to advise Hydro's financial accounting and reporting. This is a unique and specialized skill set. This requires more resources than a non-regulated business (e.g. cost of service accounting, customer rate development and deferral accounts).

Corporate Services

As part of its discussion regarding the reorganization of Corporate Services in 2016, Liberty did not acknowledge there was no increase in FTEs (Refer to PUB-Nalcor-140). Since that time, the Nalcor Corporate Services team has increased its responsibility and accountability with the addition of new assets, particularly in the areas of creation of safe work methods, monitoring of environmental commitments, management of Indigenous Benefits Agreement (IBA) commitments, and administration and implementation of the new collective bargaining agreement with IBEW 1615.

The intent of the current structure is that dedicated support is available to the regulated business, supporting its mandate of providing safe, reliable least cost power to customers. Each line of business has its own focus and planning requiring the support of a dedicated team. In building the Corporate Services team to support the transition of new MFP assets, most resources came from the current complement of FTEs and any additional FTEs were justified based on requirements within the operation. For example, Hydro added an Occupational Nurse, a position added on the basis of cost justification despite it being an additional FTE.[2] This nurse is managing the attendance support program and associated case load. Those additions were separate and unrelated to the 2016 reorganization.

The assumptions Liberty utilized in identifying efficiencies within Corporate Services are the same as those used within the Finance function, and are not appropriate or valid in the absence of a thorough consultation process with the organization. The assumption that vacancies on an organizational chart can be eliminated without understanding of the significance of the positions or based on a workload

[2] The 2018 attendance support program delivered a productivity gain of $340,000 (reflecting a reduction in sick leave utilization compared to 2017 sick leave utilization) and resulted in an overtime replacement cost reduction at $260,000 lower than 2017 costs.

assessment within the business leads to flawed recommendations. Vacancies are constantly shifting as people leave roles and those positions may be critical to the business and have to be filled. Many of the vacant positions identified by Liberty have since been filled for this reason.

Executive/Leadership

On arrival in 2016, President & CEO, Stan Marshall, instituted organizational changes at the Executive level to bring greater focus and clarity to the mission at hand. He organized to have the following executive team and direct reports:

1. President, Hydro;
2. Executive Vice President, Power Supply;
3. Executive Vice President, Power Development;
4. Executive Vice President, Corporate Services & Offshore Development; and
5. Executive Vice President, Finance & CFO.

With the decision to refocus the Oil & Gas organization as a separate Crown corporation, the EVP Corporate Services & Offshore Development has been redeployed to the new entity, and as a result the two Senior Vice Presidents (Corporate Services & CHRO and Chief Legal Officer & Corporate Secretary) that reported to this EVP role now report to the CEO.

1. The President of Hydro's primary objective is to serve the regulated business and interests of its stakeholders, most notably the ratepayers of the province. This position requires its own dedicated leadership team.[3]

2. The EVP, Power Supply mandate is twofold:
   (1) to complete the transmission build of the MF project; and
   (2) to run the existing unregulated operations, optimize the provinces water resources and to market excess energy.

   Power Supply also requires its own dedicated leadership team. MFP was in effect two projects (Transmission and Generation) and was too large and complex for one Executive team. Ongoing legal matters impacting CF, work required in anticipation for 2041 and expiry of the HQ power contract, and the need for water optimization to maximize value, requires a dedicated team in

[3] Hydro completed a reorganization in 2019 that resulted in one less Vice President and one less Director in Hydro.

the non-regulated business at Nalcor. With the construction project nearing completion, the focus on export electricity sales and potential new developments will quickly become a key priority. With completion of MFP, the positions of VP Transition To Operations and VP Project Delivery are expected to be eliminated.

3. The EVP, Power Development is responsible for the construction of the MF generation project and is expected to be eliminated post-completion of MFP.

4. The EVP Finance & CFO as well as the Senior Vice President Corporate Services & CHRO and Senior Vice President, Chief Legal Officer & Corporate Secretary have primary responsibility for all corporate services through Nalcor and its subsidiaries with the exception of Hydro.

This organizational structure was implemented to meet Nalcor's objectives and Nalcor believes it is the expectation of customers and the people of the Province to ensure it achieves those objectives, in particular to mitigate risks to MFP completion under current cost and schedule. This executive structure was designed meet those objectives and resulted in improved performance with both cost and schedule. It has provided a singular executive focus for Hydro and the ratepayers and minimizes risks of cross subsidization of competitive operations by the regulated operation. Finally, it is a structure that can now be leveraged without unnecessary modification to maximize successful delivery on the mission of the organization, post-MFP.

Liberty's Figure V.4 (page 80 of its Report) "Current Nalcor Energy Top-Level Organizational Structure" is not an accurate characterization of Top-Level positions. Rather, the top level structure consists of the CEO and his direct reports. The leadership teams of both Hydro and Power Supply are accurately reflected, and represent dedicated senior leadership necessary to run lines of business of this size and scope. Their titles are Vice President and their compensation is a reflection of the job duties they have been assigned and supported by external 3rd party compensation reviews (KFHG Report). These positions are consistent with other utilities in Canada with subsidiary company structures, even if the job titles are different (Power Advisory Report – Appendix B).

The remainder of the positions outlined in Figure V.4 are primary leaders at the Director and Senior Manager level, primarily in the functional services areas, to reflect the areas of responsibility within

those functional domains. There are other leaders at the same levels within the utility operations not illustrated in the chart. Nalcor and Hydro combined have approximately 5% of its workforce dedicated to these leadership roles.

There are other positions also listed on the charts that provide administrative support that have been captured by Liberty as leadership positions.

The statement that there is substantial overlap at the senior management level is incorrect. Any form of integration or reorganization will not result in less leaders, just different roles, titles and spans of control, with no clear known impact on compensation until compensation consultants assess the new structure.

The use of "Officer" comparisons is not reflective of the executive structure of the company. It is also hard to fully understand where the data is coming from as Liberty has not provided any source data (unlike in other sections of their report).

Job titles within any organization can have substantially different meaning. Without a review of executive management, in comparison to other utilities with the same asset base, number of legal entities, mandate, etc., these conclusions are oversimplified and not well founded. The KFHG consultants did a thorough review of the job accountabilities and responsibilities in the formation of the current executive construction and compensation.

Finally, there are many factors that the CEO and Board of Directors must take into consideration when the creating a leadership team, a including:

- Succession Planning (4 of the top 6 leaders are either eligible or near eligible to retire);
- Leadership Pipeline (preparing future leaders to take on required accountability);
- Recruitment Challenges (reputation, compensation, 2 of 6 came out of retirement);
- Retention (upcoming and pending retirements);
- Capacity and Capabilities of the team;
- Step change in complexity (interconnection, regulation), ongoing challenges, new technology (HVDC), and size (adding 12.7B in assets), etc.; and
- Engagement/Demands of external stakeholders.

Extended Review of The Liberty Consulting Group Executive Organization Analysis and Results

Prepared for:

Nalcor Energy

September 19, 2019

Power Advisory LLC
55 University Avenue, Suite 605
Toronto, ON M5J 2H7
+1. 978-369-2465
poweradvisoryllc.com

TABLE OF CONTENTS

1. Scope of Executive Organization Analysis Review 1

1.1 Key Findings 1

2. Characterization of Executive Organization 2

2.1 Liberty Lacks Transparent Definition of Executive 2

2.2 Liberty Uses Executive Inconsistently & Departs from Business Norms 2

2.3 Liberty Lacks Citation or Description of Source for Officer Values 3

3. Determination of Executives ("Officers") Data Values 4

3.1 Methodologies for Determining Executives in Organizational Structures 4

3.2 Nalcor Executive Organization 5

3.3 Utility Peer Group Executive Values 6

4. Crown Electric Corporation Data Values and Metrics 10

4.1 Analytical Basis for Executive Organization Comparison 10

4.2 Validation of Data Values 10

4.3 Canadian Crown Corporation Peers 11

4.4 Comparison Metrics 11

5. Executive Organization Analysis Results 12

6. Conclusion 13

1. SCOPE OF EXECUTIVE ORGANIZATION ANALYSIS REVIEW

This report offers an extended review of The Liberty Consulting Group (Liberty) executive organization analysis and results in Chapter V of their Phase Two Final Report (Final Report).[1] Substantial changes to the Nalcor executive organization is one element of the proposed integration of Newfoundland and Labrador Hydro (NLH) and Power Supply (the focus of Chapter V of the Liberty report). Specifically, Section H is their analysis of the current Nalcor executive organization structure relative to a selected peer group of Canadian Crown electric corporations. The ultimate assertion of Liberty is that the "executive organization of Nalcor is unusually large and complex for such a comparatively small utility operation" and that this justifies the elimination of a significant number of top-level executive positions as part of broader organizational changes.[2]

While it is important to consider the efficiency of Nalcor's organizational structure, there are severe flaws and omissions in Liberty's executive organization analysis of Nalcor relative to the peer group of Crown electric corporations. These limitations should be considered before any decisions are made on the basis of the Liberty analysis. Power Advisory offers both direct critique of this Chapter V Section H of the Final Report and additional context to inform consideration of the current Nalcor executive organization structure.

1.1 Key Findings

Power Advisory finds a number of issues with the Liberty executive organization analysis ranging from specific utility data values and the calculation of the comparison metrics to the overall framing of executive. Some of the key findings of this report include:

- Officers is not a viable comparison if trying to determine the appropriate leadership in an organization and must be clearly defined;
- Liberty lacks a description of its methodology, proper sourcing and a strong analytical basis for its comparison metrics;
- Particularly the "officers" data values can not be consistently replicated by Power Advisory or the overall results validated;
- The analysis does not consider the relative workload, geographic footprint, business diversity, governance and objectives of Nalcor or common organizational design principles in drawing conclusions on its executive organization;
- Broader organizational and business effects should be considered before a substantial number of "executives" are eliminated.

[1] The Liberty Consulting Group "Final Report on Phase Two of Muskrat Falls Project Potential Rate Mitigation Opportunities" September 3, 2019, p. 79-83.

[2] Ib id., p.82

2. CHARACTERIZATION OF EXECUTIVE ORGANIZATION

The driver of Liberty's analysis is the concept of executive organization. The number of executive "officers" is the basis for the utility comparison metrics and the Liberty conclusions.

2.1 Liberty Lacks Transparent Definition of Executive

However, nowhere in the Final Report is executive defined or a methodology for determining who constitutes an executive outlined. This is problematic for the peer group analysis because executives beyond a few common top executives vary widely by organization. Without a consistent understanding of how Liberty has defined "executive" it is difficult to determine that the median and average peer comparisons presented are fair.

The questions around what constitutes an executive are numerous. Title alone is not a reliable bright line. For example, where some organizations use Vice President others may use Director or Senior Manager for the same responsibilities. When there are common titles within an organization it may not be the case that all Directors, or a different common title, represent a part of the executive organization. Titles also do not necessarily reflect equivalent compensation, in fact sometimes titles are offered in lieu of increases in compensation. Comparing executive numbers is further complicated by electric utilities with greater number of affiliates than others. Should companies with more diverse business segments and strategic mandates have all affiliate leaders counted or just those at a certain level? These are just some of the questions left unanswered by Liberty's lack of a transparent definition of executive. Nuances around the determination of the number of executives in an organization are discussed below, particularly in Section 3.1.

2.2 Liberty Uses Executive Inconsistently & Departs from Business Norms

Liberty switches between "executive positions", "officers", "senior management", "top executives" and "top-level executives" while sometimes appropriately meaning different things and other times referring to the same. The Nalcor organization chart presented by Liberty is labeled "Current Nalcor Top-Level Organization Structure" but is broader than what is meant by top-level organization elsewhere in their report.[3] "Officers" is presumably the Liberty proxy for executives as it is used in the comparison tables and carried through the quantitative peer analysis. Yet, officer is not an unambiguous term, or even used when discussing the current Nalcor executive organization.

In the business community it is common to think of an executive as a person that is responsible for the strategic direction and performance of an organization or business unit. Typically, these individuals are direct reports of the President or CEO, who is responsible for the overall strategic

[3] Ib id. Figure V.4 p.80

direction and performance of the organization. In a sense, executives are the leader's lieutenants in the various business units, as well as their leader. Executives are typically selected by the CEO in consultation with a Board of Directors. An officer on the other hand is a person empowered by the Board of Directors to act on behalf of the corporation and to enter into contracts on its behalf. Sometimes the roles are combined, but this is not always the case. For example, a Corporate Secretary is almost always an officer of a corporation but is not usually an executive team member unless the role of corporate secretary is combined with another role, such as Vice-President Legal. As another example, a Director of Procurement is sometimes an officer because their role requires them to enter into contracts on behalf of the corporation, but this is not really an executive role and is more an operational line managerial role. Conflating the ideas of executive and officer like Liberty has done potentially skews the results of its analysis and departs from business organizational norms.

In light of this ambiguity and use of "officer" for executive, officer could have a strict meaning of just those positions with officer in the title. Examples include CEO, Chief Information Officer, Chief Accounting Officer, Chief Human Resources Officer and so on. However, all officers are not per say part of the executive organization and Vice-Presidents and even Directors, roles which are common for the heads of business units and more likely to be executives, would be excluded. This does not appear to have been the methodology of Liberty (as will be discussed in Section 3).

2.3 Liberty Lacks Citation or Description of Source for Officer Values

Liberty is more transparent in where it draws other data for their executive organization analysis. Particularly operating expenses, which are said to be from audited annual reports and exclude costs such as depreciation and amortization, finances, taxes and exploration that impact resource requirements less directly. There are still some flaws with this data, as is discussed in Section 4. Nonetheless, when it comes to the "Officers" data no identification of source is made let alone references provided for the individual values. In effect it is unclear from where Liberty draws the executive numbers for its executive organization analysis, making it impossible to directly validate the analysis.

If the source is also audited annual reports, presumably corresponding to the reporting year for which the other values are drawn, that still is an unclear source. Electric utilities often do not include organizational charts in their annual reports, especially to the level of detail of the one used for Nalcor (Liberty Figure V.4). This is true for the four-utility peer group selected in their analysis. However, there are listings of key executives and compensation to varying degrees in electric utility annual reports. These tend to be "top-level" executives versus the more expansive sense of executives or officers that appears to have been applied to the analysis of Nalcor's current organization. A simple listing of executives does not offer the same relational information as an organization chart. How a utility lists its executives in an annual report is also typically a self-identification that does not conform to a common standard across utilities. These are some of the very issues that Power Advisory observed in its North America utility jurisdictional scan and discusses further in the next section.

3. DETERMINATION OF EXECUTIVES ("OFFICERS") DATA VALUES

Considering Liberty's lack of a clear definition of executive, missing sourcing and inconsistent language, their determination of "officers" is far from transparent. In this section Power Advisory outlines several factors that should be considered when determining the number of executives in an organization and provides indicative executive counts for Nalcor and the peer utilities. The counts are based on simplified assumptions that seek to put Liberty's data values in context. More thorough methods would require a level of effort outside the scope and constraints of our review. By considering the number of "officers" in each of these organizations, this is not to say that the comparison metrics utilized by Liberty are an appropriate framework to establish Nalcor's executive organizational structure (see Section 4 and 5 for more).

3.1 Methodologies for Determining Executives in Organizational Structures

The number of executives is partially a function of the size of a company in terms of employees, products and services, customers, revenues and expenses.[4] These are things that Liberty attempted to normalize for with its crown utility data values and metrics. More fundamentally, the number of executives is properly going to reflect the organizational mandate of the company whether Crown or investor owned. The broader the mandate, and as a result the likely number of business segments and/or affiliates, the more executives. This is supported by the span of control of a single executive needing to be focused enough that is reasonably manageable. At the same time a larger or smaller company should not per se have a proportionally greater or lesser number of executives. There are a certain number of executives required to operate a given business, based on its mandate, size, products and services, geography and legal construction/governance. To the extent that executives are those responsible for the strategic direction and performance of an organization (as we suggest in Section 2.2) there is also a limit on the number of executives that a company would have, and their titles or level of responsibility may be correspondingly different. If executives are to report directly to the President or CEO there are only so many executives it may be efficient to have.

With these nuances in mind there several ways an executive could be distinguished (i.e. the number of "officers" counted in the context of Liberty's analysis). The possible methodologies include by reporting structure, relative weighted compensation, level of senior managerial responsibility, comparison of functional job duties, solely job title or a combination of factors. Most require a level of judgment that should be transparent as well as come with their own limitations. Power Advisory is not aware of a commonly accepted methodology for comparing the number of executives across organizations or has Liberty presented its analysis as such.

[4] However, there are likely to be economies of scale, which would disadvantage a smaller company such as Nalcor.

Below we utilize three high-level methods of assessing the number of officers across the utility executive organizations. The three are as follows:

A. Position Title - is President, Executive Director, Officer or Vice-President including Executive Vice-President or Senior Vice-President.

B. Modified Position Title - the same position titles as above except positions with the title officer that are not top executives are excluded.

C. Reporting Structure/Business Segments - positions with a direct reporting structure to the organization leader which tend to be the primary company business segments.

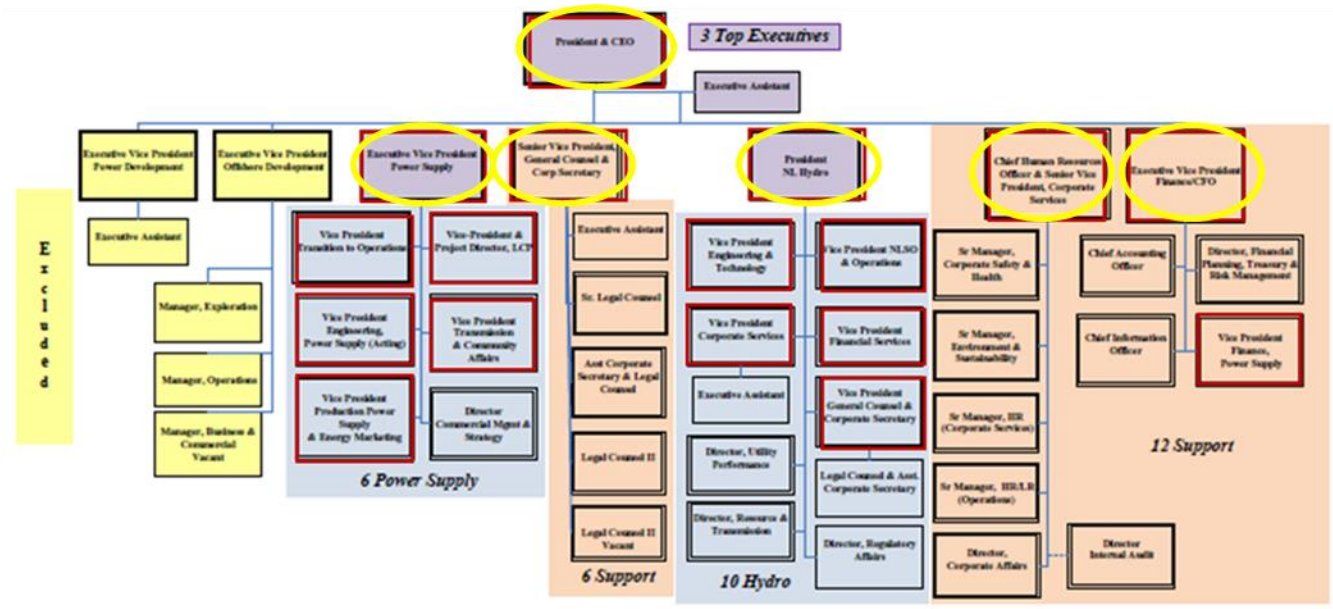
The intent of these assumptions is to understand the basis of Liberty's count of the number of officers. They are reasonable proxies for a consistent definition of executive across organizations. If conducting our own analysis instead of reviewing Liberty's, we would have completed an extended organizational theory literature review then likely included compensation and functional responsibilities in a hybrid methodology of determining the number of executives. This would require primary research at each organization to access the required data and more fully understand their organizational structures. Using only job title, which is the basis for Method A and B, is the less preferable option due to the issues discussed here and in Section 2.

3.2 Nalcor Executive Organization

The determination of what officers make up Nalcor's executive organization is not specified by Liberty. Applying the three methodologies Power Advisory outlines is not able to replicate their finding of 16 officers. The only clear assumption Liberty made is the exclusion of the Power Development and Offshore Development EVPs. This is appropriate given the future of Nalcor with the completion of LCP and separation of oil and gas development under a new Crown corporation.

If strictly going by positions with the title of President, EVP, SVP or VP and the top Officers (i.e. only CEO, CFO and Chief Human Resources Officer), this suggests that there are currently 17 Nalcor officers in addition to the two excluded (Method B). See the dark red boxes in Figure 1 for an illustration of this on Liberty's Nalcor organization chart. If all officers with those titles are included it would bring the total to 19 (i.e. adding the Chief Accounting Officer and Chief Information Officer or Method A). Alternatively, the current Nalcor executive organization by reporting structure and business segment could be seen as just 6 officers (Method C). This alternative most closely aligns with how Nalcor is currently operationally organized from an executive standpoint (see the yellow circles on Figure 1 for the positions included).

Figure 1: Annotated Liberty Nalcor Executive Organization Structure



Nalcor's annual report lists the "officers" for Nalcor, Hydro and all affiliated entities. Different conclusions could be reached depending on which are considered. In the absence of a clearly described methodology, applying the three simplified Power Advisory methods to Liberty's Nalcor executive organization chart is the most holistic review that can be completed.

3.3 Utility Peer Group Executive Values

Power Advisory reviewed the four peer crown corporations selected by Liberty in our jurisdictional scan and offers representative officers data values under the three described methodologies in Table 1. Then we present organizational charts for each company.

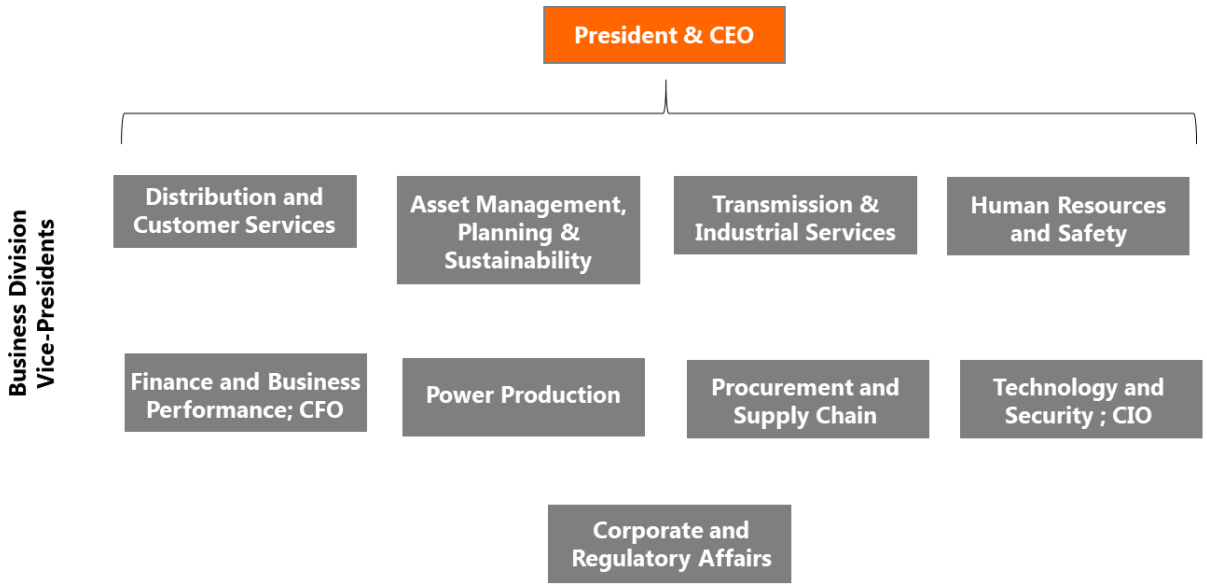
Applying the three methods of determining the number of officers, the Liberty values can not be replicated across the peer companies. In particular, it is not clear how the value of 13 officers for BC Hydro was derived. Based on our review we do not believe that there is a consistent method that can be applied to establish that number of officers in the BC Hydro executive organization.

Comparing the titles used by the respective companies it does appear that Nalcor has more Vice Presidents than the selected comparison group. As discussed, this does not mean that they are all actually executives or that some are not functionally the same as a Director at another utility. It is also divorced from the discussion of compensation (i.e. the relative operational cost). On the basis of reporting structure and business segments (Method C), Nalcor is on par with the peer group in officer numbers.

Table 1: Utility Peer Group 'Officers' Data Values

Company	Liberty Final Report	A. Position Title	B. Modified Position Title	C. Reporting Structure/Segments
SaskPower	10	10	8	6
NB Power	8	10	8	8
BC Hydro	13	17	11	9
Manitoba Hydro	8	7	7	8
Median Officers	*9*	*10*	*8*	*8*
Average Officers	*10*	*11*	*9*	*8*
Nalcor Energy	16	19	17	6

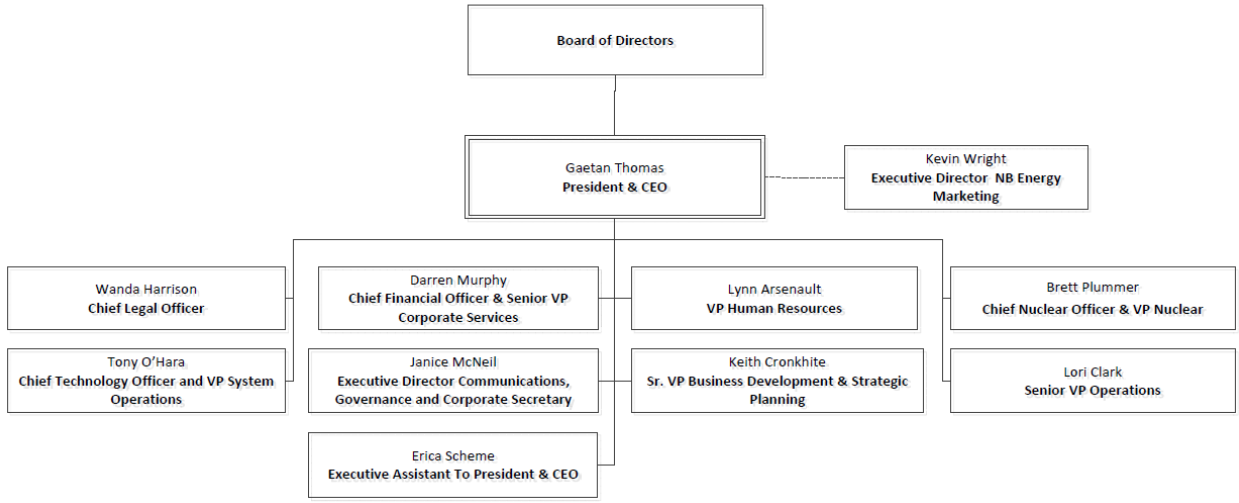
SaskPower



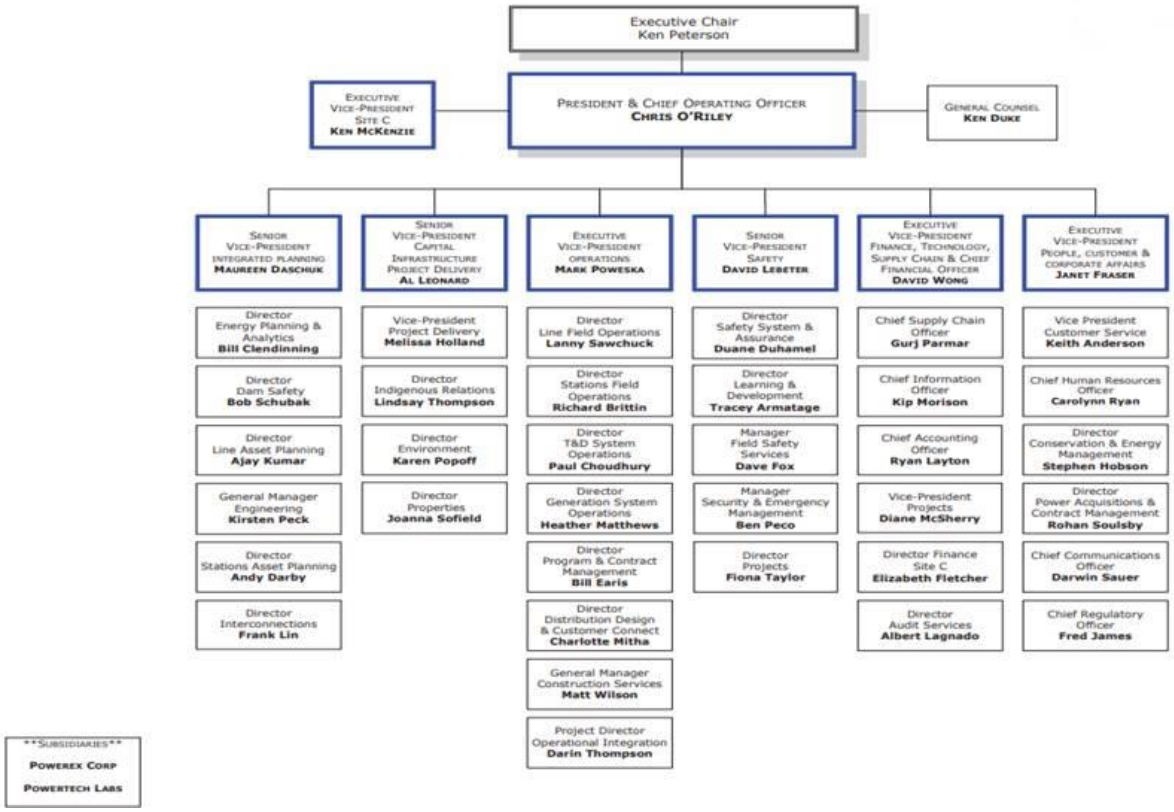
NB Power

NB Power Senior Leadership Team

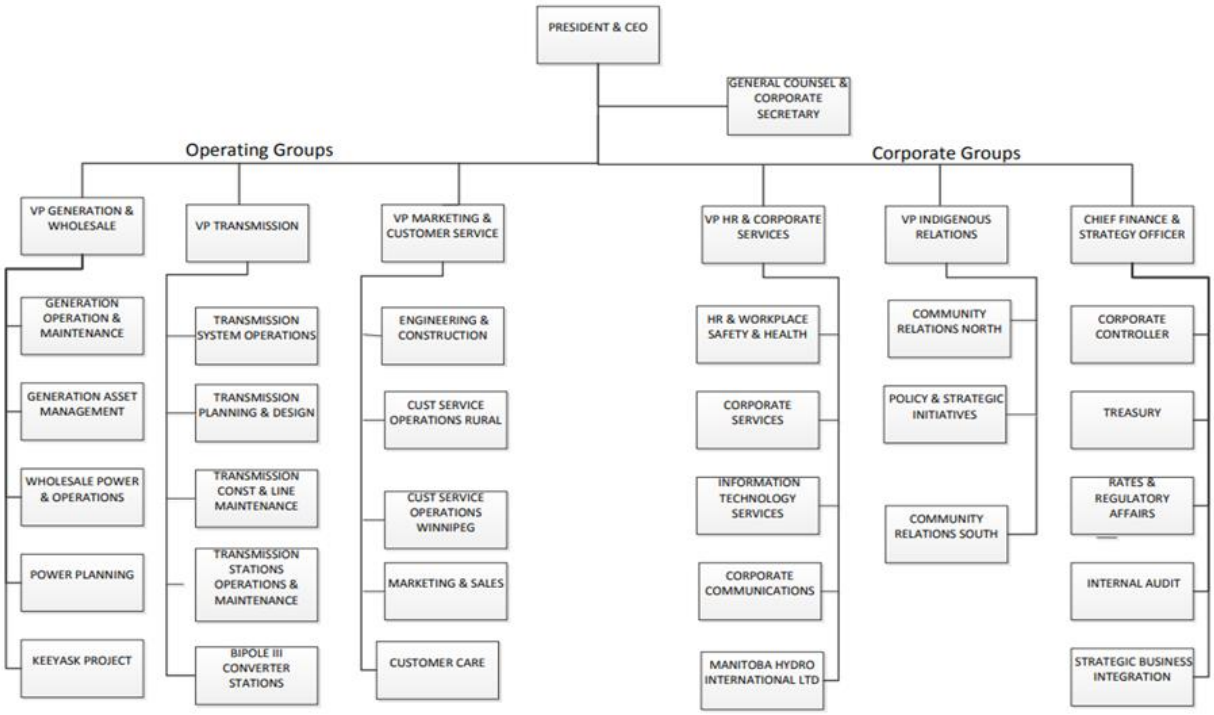
November 2018



BC Hydro



Manitoba Hydro



4. CROWN ELECTRIC CORPORATION DATA VALUES AND METRICS

Liberty selected data values of expenses (millions), sales (GWh), customers, employees and officers to produce comparison metrics of expenses, customers, employees and sales per employee and officer for Nalcor relative to the Canadian Crown electric corporation peer group. This section discusses the Liberty peer group, data value and metric selections as well as the overall analysis.

4.1 Analytical Basis for Executive Organization Comparison

The Liberty analysis of Nalcor and its recommendations on the executive organization of the merged Power Supply and Hydro units is very simplistic. It is a benchmarking exercise without deeper consideration of executive organizational effectiveness or the underlying differences between utilities, even for these relatively similar Crown corporations. Power Advisory has not observed the use of such benchmarking in reorganizations or specifically in regulatory proceedings concerning utility rate structures and mitigation. Liberty also does not attempt to consider operational costs by reviewing the relative compensation of executives at various utilities and within Nalcor even though that would more closely align with the mandate of its Phase Two report for the Board.

While using descriptive statics of average and median and attempting to construct metrics that normalize for differences has value, it also gives the impression that this analysis has a strong analytical basis. We encourage the Board and other stakeholders that may make decisions based on this analysis to ask Liberty to demonstrate the basis for its analysis including any precedent there may be. Furthermore, a peer group of only four companies is not a significant sample or a broad sectoral sampling. Presumably Liberty's rationale is to conform to the model of a "Crown corporations serving at least the vast majority of their province's residents, businesses, and institutions and on a vertically-integrated basis." Yet, Nalcor does not even fit this model and has to be considered along with part of Newfoundland Power as a proxy for distribution operations.

4.2 Validation of Data Values

In Section 3.3 Power Advisory was not able to fully validate the "officers" numbers reported by Liberty. Power Advisory also reviewed the other data values of expenses, sales, customers and employees. No indication is made of what year of comparison was used or how the data was gathered as a whole.

Generally, the 2018 annual reports for the respective companies appear to have been relied upon. For the employee data values, Liberty chose to round the numbers for the other utilities but not Nalcor. This has a modest impact on the comparison metrics. The same rounding should apply to each company if it were to be used at all. Not all of the data values presented are directly comparable, for example the Manitoba Hydro customer count includes both electric and gas customers which are not uniquely different sets of customers that can simply be added. If the

focus is electricity as the comparison suggests then it would be appropriate to use the value of about 580,000 electric customers for Manitoba Hydro instead of 862,000.

4.3 Canadian Crown Corporation Peers

The model for the Liberty executive organization analysis peer group is limited to Crown corporations serving at least the majority of their province's load on a vertically-integrated basis. If this is the model then Hydro-Québec would be natural to include. It was likely excluded due to its relatively larger size. Being a Crown corporation is different but should not have an ultimate baring on the executive organization when the underlying businesses are still similar. There may be a couple of different roles for accountability with investors versus governments in investor-owned utilities (IOUs), but the only material difference at the executive level is in how they are compensated not in the organization itself. Additional peers could have been selected that have different ownership structures, such as Nova Scotia Power (NSPI). NSPI was possibly excluded due to the number of affiliates that its parent Emera has. But that highlights the complexity of comparing utilities structures in this way and the sensitivity of the analysis to Liberty's particular construct.

4.4 Comparison Metrics

The per employee comparison of Nalcor to the peer group is generally within a closer range than the per officer metrics. This is important when, as has been discussed, Liberty's use and determination of officers is flawed including in its transparency. The conclusion that Nalcor's current structure is unusually large and complex and the recommended executive eliminations seem largely based on the officer metrics. It is also key that the most favorable comparison is on sales (GWh) which aligns with Nalcor's core business being generation. Whereas, the least favorable comparison metric is customers, which is more relevant to distribution (i.e. NP) and of poorer data quality across the comparison group.

More fundamentally, there are apparent inconsistences in the calculation of the comparison metrics. The Liberty report (Table V.7 and surrounding text) suggests that the metrics are Officers or Employees per other utility data value for Nalcor versus the median and average ratios for the peer group. For example, the reported 425% for officers and expenses is presumably the ratio of Nalcor officers per expenses (Millions) to that of the median peer values in Table V.6. However, making such calculations based on the data provided does not yield the percentage results presented as the Liberty comparison metrics. Power Advisory finds substantial differences that are upwards of 98 percentage points from the Liberty metrics, which can not just be explained by rounding. The differences are not consistent across comparison metrics. Before the metrics are accepted, we encourage the Board or other stakeholders to validate them with Liberty.

5. EXECUTIVE ORGANIZATION ANALYSIS RESULTS

The number of executives is properly going to be a function of the Nalcor organizational mandate, whether or not Power Supply and Hydro are reintegrated. The broader the mandate, the more executives would be expected because their span of control needs to be focused on a specific function in order to make it manageable. Simply selecting a team based on an overall benchmarking number, and ignoring Nalcor's mandate, could create overall organization inefficiency and might be a fundamental flaw in the design of the new organization. This is one of the primary shortcomings of Liberty's analysis and does not support their conclusion and recommendation that the Nalcor executive organization can be reduced by nine positions.

In the experience of Power Advisory staff, benchmarking against other organizations is typically the last thing you do to determine if you are "in the ballpark" in terms of what you have designed. We have never seen benchmarking as being the starting point. To design an efficient organization there are four common considerations:

1. The scope of activities the organization has to perform (i.e. the mandate)
2. Maximum/minimum span of control for managerial persons (for example a typical range of two to five);
3. The degree to which decision-making is centralized or decentralized; and
4. Whether the organization be structured based on functions performed, services delivered, or geographic area covered or a combination of these (matrix-type). Service-focused organizations like electric utilities are better designed on a service delivery basis to stay close to the customer.

The design of an organization's executive matters. It's what those inside and outside the organization pay attention to. These are the leaders that external stakeholders and internal staff will need to form relationships with. It will determine how and what business decisions are made in large measure. It can also determine how much it will cost to run the business to the degree of finer or coarser control over operations.

All of these factors need to be given consideration first before you determine the appropriate number of executives. Starting with a benchmarking survey to determine the average number of executives at similar organizations does not equate to an efficient organization. For example, it should not be the case that you do a benchmark that sates on average there are 7.8 executives and then design around this number of executives. The design should be completed reflecting the unique attributes of the organization and if you wind up with 7 executives compared to the average then you may conclude that design is reasonable. On the other hand, if your design has 36 executives then you likely need to start over. This example is not baring all the issues around the Liberty use of officer and other issues with its specific benchmark analysis. Nalcor's current organizational structure should not be so drastically altered without closer consideration of such a decision's organizational and overall business effects.

6. CONCLUSION

Liberty's executive organization analysis is severely flawed from its use of officers to the actual data values and calculations. The many limitations and omissions of its analysis should be considered before any actionable conclusions are drawn by the Board and other stakeholders. Officers is not a viable comparison if trying to determine the appropriate leadership in an organization and at the very least must be clearly defined if to be used to compare organizations. Liberty lacks a description of its methodology, proper sourcing and a strong analytical basis for its comparison metrics. While outlining more sophisticated methodologies, Power Advisory was not able to replicate the Liberty "officers" data values using simplified assumptions that appear closer to what was done. It is unclear if a consistent methodology was applied to Nalcor and the selected peer group. Overall the comparison metric results using the Liberty reported data values can not be validated. The analysis also does not consider the underlying differences between utilities such as relative workload, geographic footprint, business diversity, governance and objectives or common organizational design principles in drawing conclusions on Nalcor's executive organization. Broader organizational and business effects should be considered before a substantial number of "executives" to the order of the proposed nine positions are eliminated.

Board of Commissioners of Public Utilities

Reference to the Board

Rate Mitigation Options and Impacts
Muskrat Falls Project

Nalcor Energy & Newfoundland & Labrador Hydro – Joint Witness List

1. Stan Marshall

   - Corporate Structure and Planning for the future

2. John Dalton - Power Advisory

   - Specific topics addressed in the two Power Advisory Reports

3. Panel – Jim Haynes, Jennifer Williams, Mike Roberts, and Greg Jones

   - Operations of Nalcor (including the operations of Power Supply and Nalcor Energy Marketing) and Hydro

4. Panel – Jennifer Williams and Lisa Hutchens

   - Financial issues related to possible combination with Newfoundland Power