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Cost Allocation Review
Ontario Power Generation

Report prepared by
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1 INTRODUCTION AND BACKGROUND

Ontario Power Generation Inc. ("OPG") retained Elenchus Research Associates ("Elenchus") to assess the consistency of its cost allocation methodology for shared operations, maintenance and administration ("OM&A") costs and capital assets, and its application, with that reflected in the payment amounts set by the Ontario Energy Board ("OEB") in EB-2013-0321 and EB-2016-0152, including certain updates and refinements subsequently made to the methodology. Elenchus conducted its review of the cost allocation methodology as applied to OPG's Amended 2020-2026 Business Plan ("Business Plan"). Elenchus understands that the Business Plan will underpin OPG's upcoming five-year nuclear rate application to the OEB.

1.1 OPG ORGANIZATIONAL STRUCTURE

OPG is an Ontario-based electricity generation company whose principal business is the generation and sale of electricity. OPG utilizes a cost allocation methodology to allocate the company's centre-led support and administrative services ("Corporate Support"), enterprise operations and project support ("Operations Support") and other common OM&A costs (together, "Central and Common Costs") across its operations.

In particular, the cost allocation methodology allocates Central and Common Costs to the Company's core electricity generating businesses, being Nuclear and Renewable Generation ("RG")[1] and, within Nuclear and RG, among specific generating facilities or groups of generating facilities. The cost allocation methodology also allocates applicable Central and Common Costs to the company's operations carried out through wholly-owned subsidiaries, including Atura Power, Eagle Creek Renewable Energy ("Eagle Creek") and Laurentis Energy Partners ("LEP"), as well as energy trading and other unregulated non-generation activities.[2]

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[1] Renewable Generation was formerly known as Hydro-Thermal Operations in EB-2013-0321. Following a recent organizational realignment discussed below, the RG organization is now known as Renewable Generation & Power Marketing.

[2] Use of terms "regulated" and "unregulated" in this report refers to regulation by the OEB as it relates to payment amounts OPG receives for electricity generation from its facilities.

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Where applicable, OPG's businesses are also charged cost-based Asset Service Fees ("ASFs") for the use of certain corporate-level or joint-use assets owned and operated by the company.[3] The ASFs are in turn distributed amongst specific generating facilities or groups of generating facilities as appropriate.

The Nuclear business comprises the company's Darlington and Pickering nuclear generating stations located in Ontario, both of which are regulated by the OEB. The RG business is organized in two regional operations groups ("Regions") and comprises 54 regulated hydroelectric generating stations and 15 unregulated hydroelectric, thermal and solar generating facilities, all of which are located in Ontario. Atura Power operates a fleet of unregulated combined cycle gas-fired generating stations in Ontario acquired by the company over 2019 and 2020. Eagle Creek operates a fleet of hydroelectric facilities in the United States acquired by OPG over 2018 and 2019. LEP operates an unregulated engineering, technical services and isotopes business. Each of the RG Regions comprises both regulated and unregulated stations.[4]

OPG informed Elenchus that there have been organizational changes at OPG since the EB-2016-0152 OEB proceeding, including a recent organizational realignment in the second half of 2020 ("2020 Organizational Realignment"). These changes are reflected in the Business Plan, and in the OPG functional structure used to present the cost allocation results in this report. The organizational changes are discussed in greater detail in section 4.2 of this report.

OPG also informed Elenchus that, beyond the 2020 Organizational Realignment, there are no significant changes to the functional structure of Corporate Support and Operations Support contemplated in the Business Plan, including through the planned shutdown of the Pickering nuclear station, which would impact the allocation of costs between OPG businesses.

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[3] A portion of the costs charged through ASFs is included in Corporate Support costs, denoted with "Asset Service Fees" as the distribution method in Exhibit A.

[4] Regional groups were formerly referred to as plant groups in EB-2013-0321

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A summary of generating facilities or groups of generating facilities, subsidiaries and other businesses to which Central and Common Costs are allocated based on OPG's Business Plan can be found in Table 1 below.

Table 1: Summary of Cost Allocation Sites

Nuclear Generation	Regulated	Pickering
		Darlington
Renewable Generation	Regulated & Unregulated	Eastern Region
		Western Region
Other Business	Unregulated	Laurentis Energy Partners
		Eagle Creek
		Atura Power
		Energy Trading
		Other

Additionally, OPG allocates costs between regulated and unregulated sites within each RG Region, as discussed further in section 5.0 of this report.

OPG's Corporate Support costs are categorized across the following centre-led support functions:[5]

- Chief Information Office (i.e., information technology group)[6]
- Supply Chain
- Real Estate[7]
- Finance[8]
- Environment, Health & Safety
- Human Resources

[5] The categories are presented in the manner OPG has identified for the upcoming nuclear rate application. Organizationally, a number of these functions (Chief Information Office, Supply Chain, Real Estate, Environment, Health & Safety, Human Resources, and Regulatory Affairs) report into the Chief Administrative Officer and form part of the broader Chief Administrative Office organization. The Chief Administrative Officer office is included within Executive Operations.

[6] Inclusive of costs for a major IT outsourcing contract.

[7] Inclusive of lease and utilities costs incurred on behalf of the corporate enterprise.

[8] Inclusive of Assurance and Enterprise Risk Management functions.

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- Corporate Office, comprising Law, Corporate Affairs[9], Corporate Business Development & Strategy[10], Regulatory Affairs, and Executive Operations.
- A summary of Corporate Support costs based on OPG's 2020-2026 Amended Business Plan can be found in Table 2 below.

Table 2: Summary of Corporate Support Service Provider Organizations ($M)[11]

Department/Category	Primary Departments or Services	2021-26 Bus Plan (Avg per year)	% of Total
Chief Information Office	Cyber Security, IT Projects, IT Services, Outsourced Services, Telecom/Hardware/Software, Shared Services	$ 170.3	37.6%
Supply Chain	Supply Chain Services, Supply Chain Materials	$ 42.8	9.4%
Real Estate	Real Estate Services, Projects & Accommodations, Leases & Utilities, Nuclear Facility Services	$ 77.7	17.2%
Finance	Assurance, Controllership, Fund Management, Treasury	$ 46.0	10.1%
Environment, Health & Safety	Environment, Health & Safety	$ 24.4	5.4%
Human Resources	Compensation & Benefits, Talent Management & Leadership Development, Recruitment, Labour Relations, HR Support, Enterprise HR Strategy	$ 27.5	6.1%
Corporate Centre	Executive Operations, Law, Regulatory Affairs, Regulatory Proceedings and OEB Fees, Corporate Affairs, Corporate Business Development & Strategy	$ 64.3	14.2%
Total Corporate Support Costs		$ 453.0	100.0%

OPG's Operations Support costs are categorized across the following enterprise operations and project support functions:[12]

- Enterprise Engineering
- Integrated Fleet Management
- Security & Training[13]
- Enterprise Projects[14]

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9 Inclusive of Indigenous Relations function.

10 Organizationally, Corporate Business Development & Strategy reports into the Chief Strategy Office, along with several group included within Operations Support (see footnote 14). Chief Strategy Officer office is also included within Operations Support.

11 Shown excluding costs charged through ASFs

12 The categories are presented in the manner OPG has identified for the purposes of the upcoming nuclear rate application. Organizationally, a number of these functions (Nuclear Waste Management, Nuclear Decommissioning Strategies, New Nuclear Development, and Commercial Services) report into the Chief Strategy Officer and form part of the broader Chief Strategy Office organization.

13 Organizationally, Security & Training reports into SVP, Darlington.

14 Inclusive of Darlington Refurbishment.

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- Other support, including Energy Markets, Dam Safety & Water Resources,[15] New Nuclear Development, Nuclear Waste Management, Nuclear Decommissioning Strategies, and Commercial Services

A summary of the Operations Support costs based on OPG's Business Plan can be found in Table 3 below.

Table 3: Summary of Operations Support Service Provider Organizations ($M)

Department/Category	Primary Departments or Services	2021-26 Bus Plan (Avg per year)	% of Total
Enterprise Engineering	Inspection & Reactor Innovation, Central Engineering, Design & Project Engineering, Station Engineering	$ 231.8	46.4%
Integrated Fleet Management	Generation Strategy & Innovation, Nuclear Oversight, Nuclear Regulatory Affairs & Stakeholder Relations	$ 65.2	13.1%
Security & Training	Security & Emergency Services, Nuclear Training	$ 140.5	28.1%
Enterprise Projects	Nuclear Refurbishment, Renewable Generation Projects, Project Assurance & Contract Management, Nuclear Projects, Enterprise Project Management Office	$ 25.0	5.0%
Other Operations Support	Dam Safety & Water Resources, Energy Markets, Renewable Generation Training, Commercial Services, Nuclear Waste Management	$ 36.8	7.4%
Total Operations Support Costs (Base OM&A)		$ 499.3	100.0%

Central and Common Costs also include centrally-held costs, which are enterprise-wide costs that are recorded centrally by OPG for reasons such as record-keeping efficiency and oversight. A summary of the centrally-held costs based on OPG's Business Plan can be found in Table 4 below.

[15] Organizationally, Energy Markets and Dam Safety & Water Resources report into SVP, Renewable Generation & Power Marketing. SVP, Renewable Generation & Power Marketing office is also included within Operations Support.

Table 4: Summary of Centrally Held Costs ($M)

Department/Category	Primary Departments or Services	2021-26 Bus Plan (Avg per year)	% of Total
Pension / OPEB Centrally Held	Pension / OPEB Centrally Held	$ (21.5)	-25.8%
Insurance	OPG-Wide Insurance, Nuclear Insurance	$ 59.3	71.3%
Employee Performance Incentives	Employee Performance Incentives	$ 31.3	37.6%
Other	Fiscal Calendar Adjustment, Vacation Accrual/Banked Time, Pension Guarantee Fee, Other	$ 14.1	17.0%
Total Centrally Held Costs		$ 83.2	100.0%

1.2 OPG Cost Allocation Methodology

OPG's cost allocation methodology allocates Central and Common Costs using direct assignment where reasonably possible. Direct assignment comprises specific identification or estimation of resources (or portions of resources) that are spent on a particular business or generating facility. In cases where specific identification or estimation is not reasonably possible, costs are allocated to businesses and generating facilities using cost drivers based on cost causation, which are formulaic in nature.

ASFs are determined using the principles of cost causation and primarily apply to corporate information technology ("IT") and real estate assets, as well as certain joint-use assets within RG operations. In addition, OPG is applying an ASF for the use of its regulated nuclear assets by LEP for the purpose of producing the Molybdenum-99 isotope in the Darlington reactors ("Moly-99 ASF"). The ASFs generally and the Moly-99 ASF in particular are discussed further in section 4.3 of this report.

OPG's allocation methodology for Central and Common Costs has been previously reviewed by an independent expert in each of 2006, 2010 and 2013 in support of the company's respective payment amounts applications to the OEB. These reports were filed by OPG in EB-2007-0905, EB-2010-0008 and EB-2013-0321, respectively. The OEB's reviews in these prior applications concluded that the cost allocation methodology used by the company was appropriate.

In particular, in the most recent review conducted in 2013, the cost allocation methodology study, which was adopted by the OEB, concluded that "OPG's cost allocation methodology is appropriate for OPG and "meets current best practices and is

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consistent with cost allocation precedents established by the OEB."[16] The review also concluded that the Corporate Support costs are "prudently incurred for the benefit the [s]ervice [r]ecipients (and other users), to enable them to meet the needs of the Ontario ratepayers served by OPG" and that the allocation of these costs "meets the OEB's 3-prong test".[17] With respect to ASFs, the 2013 review concluded that "OPG's approach remains reasonable based on the operation of OPG's business and the principles of cost causality."[18]

In the most recent payment amounts proceeding, EB-2016-0152, OPG applied the same cost allocation methodology as reviewed by the independent expert in 2013. The OEB accepted OPG's cost allocation methodology in setting payments amounts in each of EB-2007-0905, EB-2010-0008, EB-2013-0321 and EB-2016-0152.

2 ELENCHUS APPROACH TO COST ALLOCATION METHODOLOGY REVIEW

Elenchus undertook the following actions as part of Elenchus' review of OPG's cost allocation methodology:

- Reviewed publicly available information and received briefings from OPG staff to understand OPG's business and organization, including any changes since EB-2016-0152;
- Reviewed prior evidence filed with the OEB on OPG's cost allocation methodology and past OEB decisions on OPG's payment amounts as they relate to cost allocation methodology (including ASFs);
- Conducted meetings with OPG staff in order to validate that the cost allocation methodology currently used is consistent with the methodology reviewed and

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[16] *Review of Cost Allocation Methodology for Centralized Services and Common Costs*, HSG Group Inc., August 23, 2013, EB-2013-0321, Exhibit F5, Tab 5, Schedule 1, pp. 22 and 26.

[17] *Ibid.*, pp. 22, 26

[18] *Ibid.*, p. 25

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accepted by the OEB in prior proceedings and to identify any changes made to the methodology since EB-2016-0152;

- Received and reviewed briefings and documentation from OPG staff responsible for business planning and cost allocation oversight related to the cost allocation methodology (including ASFs) and the Business Plan, including any changes made to the methodology since EB-2016-0152;
- Evaluated changes to the cost allocation methodology made since EB-2016-0152 identified through the above work, including the Moly-99 ASF;
- Prepared this report that documents the work undertaken by Elenchus and Elenchus' findings.

3 ELENCHUS WORK

This section provides more details on the work undertaken by Elenchus.

3.1 REVIEW OF PRIOR OEB EVIDENCE

Elenchus reviewed the following evidence filed in prior OEB proceedings to familiarize himself with the cost allocation methodology accepted by the OEB:

- *Report to Ontario Power Generation Inc. Regarding Corporate Allocation Methodology Review*, R.J. Rudden and Associates, April 30, 2006, EB-2007-0905, Exhibit F4, Tab 1 Schedule 1
- Report to Ontario Power Generation Inc. Regarding Review of Centralized Support and Administrative Cost Allocation Methodology Review, Black and Veatch, March 5, 2010, EB-2010-0008, Exhibit F5, Tab 2, Schedule 1
- *Review of Cost Allocation Methodology for Centralized Services and Common Costs*, HSG Group Inc., August 23, 2013, EB-2013-0321, Exhibit F5, Tab 5, Schedule 1.
- Allocation of Support Services Costs, May 27, 2016, EB-2016-0152, Exhibit F3, Tab 1, Schedule 1

- Allocation of Support Services Costs, September 27, 2013, EB-2013-0321, Exhibit F3, Tab 1, Schedule 1.
- Base OM&A - Regulated Hydroelectric, September 27, 20163 EB-2013-0321, Exhibit F1, Tab 2, Schedule 1.
- Allocation of Corporate Costs, May 26, 2010, EB-2010-0008, Exhibit F3, Tab 1, Schedule 1.
- Allocation of Corporate Costs, November 30, 2007, EB-2007-0905, Exhibit F3, Tab 1, Schedule 1.

3.2 ELENCHUS MEETINGS WITH OPG STAFF

Elenchus held several meetings with OPG staff in order to confirm that the cost allocation methodology for Central and Common Costs (including ASFs) used by OPG is consistent with the OEB approved cost allocation methodology, to review the changes made since EB-2016-0152, and to review the Moly-99 ASF.

Some of the questions raised at these meetings were:

- What is the organizational structure of OPG as set out in the Business Plan compared to 2013 and 2016?
- What are the common corporate and business level functions, services and costs of OPG compared to 2013 and 2016?
- What OPG assets are subject to regulation compared to 2013 and 2016?
- What are OPG's unregulated assets and businesses compared to 2013 and 2016?
- Is there updated documentation for the cost allocation methodology consistent with the basis applied to the Business Plan?
- What changes has OPG introduced to the cost allocation methodology since 2013 and 2016 that accommodate the changes in OPG's regulated and unregulated businesses and/or as set out in the Business Plan? What is the rationale for those changes?
- What changes has OPG introduced to the cost allocation methodology since 2013 and 2016 in response to the changes in the common corporate and business level

functions, services and costs as set out in the Business Plan? What is the rationale for those changes?

- What other changes has OPG introduced to the cost allocation methodology since 2013 and 2016? What is the rationale for those changes?
- Are there changes to how the cost allocation methodology is applied and administered?
- What are the results of the cost allocation methodology applied to the Business Plan?
- What is the nature of the arrangement for the production of Molybdenum-99 at OPG's Darlington reactors by LEP?

Elenchus held meetings with OPG staff specifically to understand the changes that were introduced as part of the Business Plan in the context of the 2020 Organizational Realignment, and any impacts of these changes on the cost allocation methodology.

4 ELENCHUS FINDINGS

Based on our review of prior evidence filed with the OEB on OPG's cost allocation methodology, review of internal documentation and the various meetings conducted with OPG staff, Elenchus has made the findings outlined below.

The findings are organized in three sections. Section 4.1 addresses changes to the cost allocation methodology made to OPG unrelated to the 2020 Organizational Realignment. Section 4.2 discusses the implications of the 2020 Organizational Realignment on the cost allocation methodology. Section 4.3 outlines Elenchus' findings with respect to the Moly-99 ASF.

4.1 CHANGES TO COST ALLOCATION METHODOLOGY

OPG has implemented certain updates and refinements to the cost allocation methodology since it was reflected in the payment amounts set in EB-2016-0152. The main changes to the methodology are reviewed in the following sections. Having considered these updates and refinements, Elenchus finds that there have been no

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material changes to the overall design or application of OPG's cost allocation methodology and OPG's cost allocation methodology continues to be consistent with the principles and approaches reviewed in prior OEB proceedings and regulatory best practices.

In particular, the methodology continues to reflect the nature of OPG's business including provision of centre-led services and common operating costs, where possible directly assigning the costs to OPG businesses or facilities. For shared costs that cannot be assigned directly, cost drivers continue to be based on causal relationships and applied in a standardized manner, taking into account the practicality of obtaining and maintaining the necessary data and the stability of the data over time. Cost allocations continue to be applied at the level of detail corresponding to major cost categories within the company's accounting records, follow an established stakeholdering and documentation process as part of the annual corporate business planning cycle, and are maintained and administered by dedicated resources through a centralized cost allocation model and tools.

Direct assignment of Central and Common Costs continues to comprise specific identification of costs to a particular business or generating facility as well as management estimation of resources (or portions of resources). Management estimation continues to be informed by an established annual departmental review and challenge process.

Where costs are not directly assigned, the primary cost driver used under OPG's cost allocation methodology continues to be the blend of planned OM&A costs and capital expenditures ("OM&A/Capital"), other than for human resources and IT related costs. Human resources related costs (where not directly assigned) continue to be allocated using a labour resource based cost driver and IT related costs (where not directly assigned) are allocated using an IT end user cost driver, as discussed below. The cost drivers are applied in a consistent manner.

4.1.1 Greater Use of Specific Assignment

As noted earlier, OPG's cost allocation methodology is designed to directly assign shared costs, where possible, either through specific identification or management estimation of

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resources. Elenchus observed that OPG has been able to increase the use of direct assignment via specific identification, over management estimation, in its cost allocation methodology. This reflects increased granularity in the manner in which OPG is tracking and recording its shared costs in the underlying accounting records. For example, costs of certain leased properties were previously distributed by management estimate, however, now OPG is using a specific identification method for each of these sites.

Elenchus supports the increased use of direct assignment via specific identification which, by definition, yields more precise and objective cost allocation results.

4.1.2 New Unregulated Cost Distribution Sites

OPG has updated its cost allocation methodology to incorporate three additional unregulated businesses to which to allocate applicable Central and Common Costs, being Atura Power, Eagle Creek and LEP. While each of these wholly-owned subsidiary entities separately maintain or specifically source its work workforce and support and administrative resources, OPG has allocated the cost of certain corporate-level resources to these operations in recognition of its oversight and ownership role for these businesses. For example, OPG has allocated to these unregulated businesses the costs of: certain Finance departments responsible for the consolidation of subsidiaries' business planning and financial results, OPG executives serving on subsidiaries' boards of directors, and certain governance and risk management functions.

Elenchus finds that the allocation of OPG's oversight and ownership costs to the subsidiaries follows existing cost drivers for the applicable Central and Common Costs and is consistent with how these costs are allocated to OPG's other unregulated and regulated businesses.[19] Elenchus also finds OPG's process effective for allocating costs of the specific departments within Central and Common Costs to the three unregulated

[19] For example, Corporate Governance & Corporate Secretary department costs were allocated to the oversight of the unregulated businesses using the OM&A/Capital allocator in the same manner that they were allocated to the Nuclear and RG businesses. To accomplish this, an estimate of future OM&A and capital costs for each of the unregulated subsidiaries was added to those of the Nuclear and RG businesses to determine an overall allocation base.

subsidiaries, which took into account the nature of the departments' work and the structure of the subsidiaries' operations.

Elenchus also understands that unregulated subsidiaries may purchase specific labour services or resources from OPG, on a cost basis. In those circumstances, Elenchus confirmed that a commensurate portion of Central and Common Costs, corresponding to an estimate of such costs for the transferred labour resources is charged or otherwise attributed to the unregulated subsidiaries. For administrative efficiency of the cost allocation process, OPG intends to use a standard overhead allocation rate to charge these costs, set at approximately 30% over the upcoming nuclear rate application period.[20]

Elenchus finds the use of the standard overhead allocation rate to be an appropriate and effective mechanism for administering the cost allocation impact for transferred labour resources. Elenchus has reviewed the methodology for developing the allocation rate and finds that it reasonably captures the profile of Corporate Support and Operations Support department costs that would be associated with supporting transferred labour resources in line with OPG's cost allocation methodology and the cost causality principle.

Overall, Elenchus concludes that, between the use of corporate oversight allocations and an overhead allocation rate for transferred labour resources, OPG has reflected the impact of the unregulated subsidiaries in the cost allocation methodology in a manner that reasonably separates costs between regulated and unregulated businesses.

4.1.3 Labour Dollars versus Full Time Equivalents Cost Driver

OPG's methodology uses a labour resource related cost driver to allocate human resources related costs that are not directly assigned, primarily within the Human Resources function. OPG has now replaced planned full time equivalent employees ("FTEs"), a physical cost driver, with planned labour cost dollars, a financial cost driver, as the labour resource related allocator. The use of a financial driver over a physical one

[20] The costs of management performance incentives, as applicable, will be charged in addition to the standard overhead allocation rate.

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allows for greater automation of OPG's cost allocation model by leveraging a direct data linkage to the company's financial systems.

Elenchus finds the use of labour cost dollars to be a reasonable application of the cost causality principle for OPG's human resources related costs, taking into account the practical considerations of obtaining and maintaining the necessary data. The financial cost driver has the effect of weighting FTE's by their relative cost, resulting in a more precise driver for the Human Resource function costs that are being allocated.

4.1.4 Chief Information Office

Under OPG's methodology, certain IT related costs for IT outsourced services, CIO support and common IT projects as part of the Chief Information Office organization were previously treated as directly assigned using management estimation, while others were allocated on the basis of the number of IT end users and related information.[21] As both the estimation process and the allocators used were ultimately informed, to a large extent, by management's knowledge of IT end users distribution, OPG has updated the methodology to allocate these costs using a common IT end users allocator.

Elenchus supports this change because it promotes greater consistency and transparency in the application of the methodology, while simplifying its administration. Elenchus finds that the IT end users cost driver appropriately reflects cost causality for these costs.

4.1.5 Use of Internal Cost Drivers

As part of an effort to enhance the efficiency of the cost allocation process, OPG has removed the use of internal cost drivers and now solely uses external cost drivers[22].

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[21] OPG has advised Elenchus that while a number of IT cost categories were identified as being subject to direct allocation in the 2013 independent cost allocation review, they were in fact primarily subject to management estimation.

[22] For the centrally-held pension and OPEB costs, OPG continues to use an internal re-allocation approach, whereby a portion of the costs is first assigned to each Corporate Support function based on their respective direct pension charges and then re-allocated to OPG businesses in proportion to how overall Corporate Support functions costs have been distributed under the cost allocation methodology.

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External cost drivers are based on data that are independent of the cost allocation process, whereas internal cost drivers are based on values derived as part of it. Internal cost drivers were used by OPG to allocate certain Corporate Support costs in proportion to how other such costs were allocated. For example, the cost of the Chief Financial Officer office used to be allocated in proportion to how all other Finance department costs were assigned.

The use of internal cost drivers requires an iterative calculation process due to computational inter-dependencies, resulting in incremental time, complexity and manual effort to the cost allocation model. To eliminate the iterative calculations and simplify processes, OPG has now replaced internal allocators with corresponding external cost drivers. In the above example, the Chief Financial Office is now allocated using the OM&A/Capital allocator, which is also used for other Finance costs. Elenchus has reviewed the resulting changes to the cost allocation methodology and finds them to be reasonable.

4.1.6 Employee Incentives

OPG records the costs of management employee incentives under its corporate plans centrally. In the cost allocation methodology applied in prior OPG rate proceedings, these centrally-held costs were allocated based on the distribution of management incentive payments across the OPG businesses in the most recent historical year. This approach was considered to be a direct allocation method.

In conjunction with adopting the labour cost dollars allocator for human resource related costs (section 4.1.3 above), OPG has modified the allocation methodology to assign management employee incentive costs on the basis of planned management labour cost dollars. This change allows for greater automation and efficiency in the cost allocation model. Elenchus finds the change to be reasonable as it recognizes the inherent uncertainty in translating the historical distribution of incentive payments to future periods as OPG's business continues to evolve.

4.1.7 Calculation of OM&A and Capital Blend Cost Driver

In computing the blended OM&A/Capital cost driver, the cost allocation methodology has historically included expenditures for capital project work performed by OPG managed resources and excluded such expenditures for work performed by external purchase services. Elenchus finds this approach to be reasonable, as the effort of most of OPG's Corporate Support functions is mainly in support of work performed by OPG managed resources.[23] This approach also supports greater stability in the cost allocations over time, given variability in the company's major project profile driven by external resources.

OPG has now refined the methodology to exclude external purchase services from outage and project OM&A costs when calculating the OM&A/Capital allocator, in addition to capital costs. This refinement promotes consistency in the cost allocation methodology and, for the above reasons, Elenchus finds it to be appropriate.

4.2 Impact of Organizational Changes

As noted earlier, OPG informed Elenchus that there have been organizational changes at OPG since the EB-2016-0152 OEB proceeding, including the 2020 Organizational Realignment. These changes are reflected in the OPG functional structure, cost allocation methodology and results presented in this report.

A key principle for sound cost allocations is that costs should be allocated and cost drivers selected based on cost causality for underlying activities, not the organizational structure. With the exception of the 2020 Organizational Realignment, the main organizational changes at OPG have been limited to changes in reporting relationships rather than functional accountabilities, and therefore appropriately did not necessitate consideration

[23] Although Elenchus observes that the effort of OPG's Supply Chain function is primarily driven by external procurement rather than OPG managed resources, less than 15% of Supply Chain's costs is allocated using the OM&A/Capital blended cost driver. Applying the OM&A/Capital allocator to these costs is therefore reasonable in the circumstances.

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of modifications to the cost allocation methodology.[24] Elenchus reviewed the 2020 Organizational Realignment in detail, as discussed below.

The 2020 Organizational Realignment was implemented beginning in September 2020. Primarily, the realignment focused on Operations Support groups, combining previously separate Nuclear and RG business units under the single leadership of the Enterprise Operations organization and centralizing a number of operations and project support groups. Elenchus understands that the reorganization facilitated an overall reduction in management personnel across some of the affected groups. Having reviewed the new organizational chart, Elenchus notes that, other than through the amalgamation of several RG regional groups into two Regions, the functional structure of the generating facilities themselves, including the Pickering and Darlington stations, was largely unaffected by the realignment.[25]

A number of the changes to Operations Support groups were mainly limited to changes in reporting relationships of whole departments without material changes in underlying work programs. For example:

- Nuclear Regulatory Affairs and Nuclear Oversight changed their reporting relationships to Vice President, Integrated Fleet Management, but continues supporting Nuclear facilities;
- RG Projects was transferred to report to the Chief Projects Officer, but remains focused on RG major projects;
- Inspection & Reactor Innovation changed its reporting relationship to Chief Enterprise Engineer, but continues to support the Nuclear fleet;

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[24] Some of the reporting relationship changes (prior to the 2020 Organizational Realignment) included: transferring out component functions from the former Commercial Operations and Environment organization into what is now Renewable Generation & Power Marketing and Chief Administrative Office; transfer of Nuclear Training from what is now Human Resources to Security & Training; transfer of Assurance and Enterprise Risk Management functions into Finance; transfer of Shared Financial Services from Finance to Chief Information Office; transfer of Radiation Safety from what is now Integrated Fleet Management to the Nuclear stations.

[25] Corporate Support groups were also not significantly impacted by the 2020 Organizational Realignment, largely limited to the transfer of the Indigenous Relations function from the former RG business unit to Corporate Affairs in its entirety. There was no change in the functional accountabilities or cost allocation approach for Indigenous Relations as a result.

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- Nuclear Decommissioning Strategies now reports to Chief Strategy Officer, but has had no changes in underlying work programs; and
- Security & Emergency Services and Nuclear Training divisions that now report to Senior Vice President, Darlington under a combined Security & Training organization but continue to support the fleet as previously.

For these and other instances where the change was mainly limited to the reporting relationship, it was not necessary to consider changes to the allocation of their costs, and none were made by OPG.

In other instances, the organizational changes combined former Nuclear and RG support groups into more integrated enterprise-wide Operations Support functions. In those situations, OPG considered whether the existing approaches to cost allocation needed to be adjusted to ensure that cost levels continued to be reasonable stated for the purposes of the upcoming rate application. The main functions affected are discussed in the following sections.

OPG informed Elenchus that, beyond the 2020 Organizational Realignment, there are no significant changes to the functional structure or nature of costs of Corporate Support and Operations Support contemplated in the Business Plan, including through the shutdown of the Pickering nuclear station, which would impact the allocation of costs between OPG businesses. On this basis, Elenchus believes that the existing cost allocation methodology continues to be reasonable for OPG following the Pickering shutdown. In the event functional activities, service delivery models or nature of the costs change materially after the shutdown is executed, the cost allocation methodology should be reviewed.

4.2.1 Enterprise Engineering

RG Engineering and Nuclear Engineering groups were combined into several departments within a newly established Enterprise Engineering function through the 2020 Organizational Realignment. Prior to the amalgamation, the groups primarily supported the respective businesses and, in the case of the RG Engineering group, the costs were

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assigned amongst the regulated and unregulated RG sites primarily using direct assignment based on departmental time estimates of work programs.

OPG determined that specific identification remained an appropriate basis for allocating the majority of the combined organization's costs, given that the work of the engineering departments will continue to be focused on specific generating facilities. OPG also determined that it was not in a position to develop a revised detailed 'bottoms-up' estimate of future work programs of the combined organization in the time since the realignment was announced. Accordingly, OPG used an estimate of planned work programs for the former RG Engineering and Nuclear Engineering groups in the initial business planning submissions prior to the realignment, as adjusted for any resourcing reductions resulting from the realignment, as the basis of assigning over 95% of the Enterprise Engineering costs. For the Chief Enterprise Engineer office and certain other common oversight functions within Enterprise Engineering, the OM&A/Capital allocator was applied in recognition that the engineering functions support operations and project work across the enterprise.

Elenchus finds OPG's cost allocation approach for the Enterprise Engineering function to be reasonable and in line with the cost causality principle. The approach also supports consistency by leveraging OPG's previous allocation approach for the former RG Engineering group, having taken into account the availability of data, and promotes greater stability in allocation results. Elenchus also agrees with OPG's intention to reflect updated work program estimates for the combined organization in cost allocation results of future business planning cycles.

4.2.2 Integrated Fleet Management

Certain functions within the newly formed Integrated Fleet Management organization as part of the 2020 Organizational Realignment represented transfers of whole department without significant changes in work activities and thus did not require any modifications to the cost allocation methodology. This included Nuclear Regulatory Affairs, Nuclear Oversight and certain functions within the newly formed Generation Strategy & Innovation organization. Other functions within the Generation Strategy & Innovation organization

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represented an integration of departments across former Nuclear and RG business units, with enterprise-wide fleet support mandates going forward. The costs for such departments transferred from the former RG business unit were previously allocated using a base OM&A cost driver amongst the regulated and unregulated RG sites.

OPG determined that using the base OM&A cost driver was an appropriate basis for allocating the majority of the costs of the new enterprise functions within Generation Strategy & Innovation, given that the nature of the work was similar to that undertaken by the former RG departments. For consistency, this approach was also adopted for the Vice President office within Integrated Fleet Management.

Elenchus finds OPG's cost allocation approach for the Integrated Fleet Management function to be appropriate, aligned with the cost causality principle and in line with the previous methodology accepted by the OEB. By leveraging OPG's previous allocation approach for the former RG departments where applicable, the approach promotes consistency and stability in allocations.

4.2.3 Enterprise Projects

The Enterprise Projects Organization combined project-related organizations across the business as part of the 2020 Organizational Realignment. There are no changes in the accountabilities for several of these groups, including Nuclear Refurbishment, Nuclear Projects and Renewable Generation Projects, which continue to be responsible for project execution for the corresponding businesses. Additionally, OPG did not identify any significant changes in the expected distribution of work effort for the Project Assurance & Contract Management department and certain teams within Enterprise Project Management Office, which had already assumed enterprise-wide mandates for supporting project-related activities as part of a predecessor organization. Thus, OPG made no changes to the methodology for allocating these groups' costs, being direct assignment via specific identification or management estimates, as adjusted for any resourcing reductions resulting from the realignment. For the Chief Project Officer office and certain common oversight functions within the Enterprise Project Management Office,

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OPG applied a blend of planned project OM&A costs and capital expenditures ("Project OM&A/Capital") as an allocator.

Elenchus finds OPG's cost allocation approach for the Enterprise Projects Organization to be reasonable and consistent with the cost causality principle, noting that over 80% of the costs are subject to direct assignment. Given that there were only limited changes to the scope of underlying work activities, OPG appropriately retained existing methodologies for most of the costs. Use of a more tailored Project OM&A/Capital allocator over the more generic OM&A/Capital allocator for the oversight functions results in a closer link to departmental activities and improves the cost allocation outcomes.

4.3 Asset Service Fees

As noted earlier, OPG utilizes cost-based ASFs to charge its businesses for the use of certain corporate-level or joint-use assets owned and operated by the company, including RG assets used by both regulated and unregulated facilities. ASFs are determined using the principles of cost causation and are included as operating costs of the regulated businesses for the purposes of setting OPG's payment amounts. ASFs are typically applied in instances where no one business receives greater than 90% beneficial use for a particular asset, with assets providing greater than 90% beneficial use to a single business continue to be allocated wholly to that business.

Through this review, Elenchus confirmed that the methodology used by OPG to determine and apply the AFSs remains unchanged from prior OEB proceedings. Namely, the calculation of the ASFs continues to be based on the depreciation expense, return component and applicable operating costs (which, in the case of real estate assets, includes property taxes) for the underlying assets, with each of these components apportioned to the businesses using applicable cost drivers. Elenchus believes that OPG's ASF approach remains reasonable given the operation of the OPG's business and is consistent with the cost causality principle.

OPG informed Elenchus that there are some planned changes in the company's real estate footprint subject to the ASFs in the Business Plan, including construction of a new corporate campus. Elenchus believes that applying the current ASF approach to the

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Clarington campus would be consistent with OPG's past practice for similar real estate assets, given that the campus will house a mix of resources in support of both regulated and unregulated operations.

4.3.1 Molybdenum-99 Asset Service Fee

In the upcoming rate application, OPG has indicated that it will reflect a new category of ASF, for the use of its regulated nuclear assets by LEP for the purpose of producing the Molybdenum-99 isotope in the Darlington reactors.

The calculation of the Moly-99 ASF is based on the depreciation expense and return component for the applicable Darlington reactor assets being used to produce Molybdenum-99. The depreciation expense and return components are apportioned between the Nuclear generation business and LEP using the relative undepreciated book value of investments into the Darlington generation assets and the Molybdenum-99 reactor modifications. OPG computed the Moly-99 ASF to be as shown in Table 5 below using this methodology, based on the assumptions in the Business Plan.

Table 5: Molybdenum-99 Asset Service Fee

$ million	2022	2023	2024	2025	2026
Darlington Unit 2	$2.3	$2.2	$2.0	$1.9	$1.7
Darlington Unit 3				$1.6	$1.5

In Elenchus' opinion, OPG's Moly-99 ASF methodology is reasonable and aligns with sound cost allocation principles:

- It rationally attributes a relative cost of the Darlington assets being contributed to the Molybdenum-99 production process, in line with the cost causality principle;
- Given the recency of the Darlington refurbishment investment and the Molybdenum-99 modifications, the use of undepreciated book cost is a reasonable proxy of relative economic value for the reactor use, for cost allocation purposes;

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- Its approach to component calculations is consistent with those of the ASFs for OPG's other joint-use assets and therefore has been previously reviewed in prior OEB proceedings; and
- By utilizing available information tied to underlying accounting records, the Moly-99 ASF calculation is transparent, replicable and easy to administer.

5 COST ALLOCATION RESULTS

A full summary of OPG's methodology for allocation of shared operating costs to the sites set out in Table 1 above can be found in Appendix A, based on the Business Plan.

Table 6 below provides a higher level summary of the cost allocations for Corporate Support and centrally-held costs, by method of cost distribution, as applied to the Business Plan.

Table 6: Summary of Corporate Support and Centrally Held Cost Allocation[26]

Cost Distribution Method	Corporate Support Services	Centrally Held Costs	Total
Direct Assignment - Specific	30.0%	92.6%	48.7%
Direct Assignment - Management Estimate	19.1%	-0.1%	13.2%
Direct Assignment - Pension/OPEB Centrally Held		-6.3%	-2.4%
Allocation- Pension/OPEB Centrally Held		-1.2%	-0.5%
Physical Cost Drivers	25.3%		17.5%
Financial Cost Drivers	25.6%	15.0%	23.5%
TOTAL	**100.0%**	**100.0%**	**100.0%**

Note - Blended financial cost drivers (i.e. OM&A/Capital) are included in Financial Cost Drivers

Certain Central and Common costs may be directly assigned via specific identification or management estimate to the Nuclear business as a whole, rather than specifically to the Pickering or Darlington station. In those instances, the cost allocation methodology

[26] Shown excluding costs charged through ASFs

further apportions the costs between the two sites using the number of generating units (i.e., six at Pickering and four at Darlington).

For the RG business, Central and Common Costs are directly assigned (via specific identification or management estimate) to each RG Region, rather than to an individual facility. To further allocate these costs between regulated and unregulated sites within a Region, the methodology uses direct base OM&A costs for each of the Region's sites. This approach is unchanged from the methodology applied in EB-2013-0321, the last proceeding to set cost-based payment amounts for OPG's regulated hydroelectric generation.

Finally, as noted earlier, OPG continues to attribute direct OM&A costs of each RG Region ("RG Region Common Costs") between regulated and unregulated facilities. For example, this would include the costs of a Vice President responsible for the Region's overall operations. More granularly, a particular work centre within a Region may perform maintenance on a mix of regulated and unregulated facilities. Consistent with the overall cost allocation methodology, OPG uses direct assignment for these RG Region Common Costs to facilities or groups of facilities, where reasonably possible. Where use of a cost driver is required, OPG continues to use station capacities (i.e. Maximum Capacity Rating or MCR) for the applicable facilities within each Region as the basis for allocation.[27] This approach has been in place since it was originally applied by OPG in the EB-2013-0321 proceeding. Elenchus finds the continued use of the MCR allocator to be reasonable and aligned with the cost causality principle. In particular, the use of the allocator recognizes the fact that smaller stations and associated dams require less effort to maintain. Use of MCR also promotes stability in allocation outcomes over time.

The methodology for allocating RG Region Common Costs is summarized in Table 7 below:

[27] When allocating within unregulated (i.e., contracted) facilities, OPG also follows any applicable contractual stipulations.

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Table 7: Allocation Methodology for RG Region Common Costs

RG Region Common Costs	Cost Distribution Method
Operations Group Headquarters	
VP Office and Regional Support	Allocated - Maximum Capacity Rating (across the Region)
Operations Centres	
Operations / Control Centre Common/Water Mngmt	Allocated - Maximum Capacity Rating (for stations serviced)
Production	Allocated - Maximum Capacity Rating (for stations serviced)
Service / Work Centres	
Station Maintenance	Direct Assignment - Specific Identification
Dam Maintenance and Operations	Allocated - Maximum Capacity Rating (for stations serviced)
Common Costs	Allocated - Maximum Capacity Rating (for stations serviced)

6 ELENCHUS' OPINION

Elenchus finds that OPG's current cost allocation methodology, including the use of asset service fees, is consistent with the methodology reflected in the OPG payment amounts set by the OEB in EB-2013-0321 and EB-2016-0152 and with best practices as set out in the most recent independent review of the methodology in EB-2013-0321. Elenchus finds that the methodology has been appropriately applied based on the Business Plan. Elenchus is also satisfied that, where necessary, the cost allocation methodology has been appropriately modified to reflect the 2020 Organizational Realignment. Based on the Business Plan, Elenchus believes that the current cost allocation methodology should continue to be reasonable for OPG following the Pickering shutdown.

Elenchus finds the updates and refinements made to the cost allocation methodology since EB-2016-0152 to be reasonable and appropriate. These changes represent overall improvements to the methodology. The changes appropriately reflect the evolution of OPG's business inclusive of adding new unregulated operations, make better use of available data, and enhance the consistency and efficiency of the cost allocation process. Where new allocators are used, they are aligned with the cost causality principle and improve or maintain the overall accuracy of the methodology.

Elenchus also believes that OPG's use of asset service fees continues to be reasonable given the operation of the business and is consistent with the cost causality principle. This applies to the new asset service fee for the use of Darlington reactors to produce Molybdenum-99, which Elenchus finds to be reasonable and aligned with sound cost allocation principles.

APPENDIX A

Group	Department / Category		Activity % of Department	Department's Distribution to Business Sites			
				Direct Assigment		Allocated	
				Method	%	Cost Driver	%
CIO	CIO Support	Chief Information Officer Office	1.8%	Management Estimate	0.0%	Physical - LAN IDs Financial - OM&A/Capital	1.8%
		Cyber Security	2.5%	Specific / Management Estimate	0.0%	Physical - LAN IDs	2.5%
		IT Strategy & Enterprise Architecture	2.4%	Management Estimate	0.0%		2.4%
		IT Services	6.5%	Specific / Management Estimate	0.1%		6.4%
		Telecom/Hardware/Software	22.7%		1.4%		21.3%
		Information Management Execution	2.2%	Management Estimate	0.0%		2.2%
		Primary Pay	0.4%		0.0%		0.4%
	Subtotal		*38.6%*		*1.6%*		*37.1%*
	IT Outsourced Services		30.3%	Management Estimate	0.2%	Physical - LAN IDs	30.1%
	IT Projects		14.9%	Specific / Management Estimate	4.4%	Physical - LAN IDs Financial - OM&A/Capital	10.4%
	Shared Services	Financial Services	2.5%	Management Estimate	0.4%	Financial - OM&A/Capital	2.2%
		Pay Services and Support	3.6%		0.0%	Financial - Labour $	3.6%
		VP Office and Systems & Reporting	2.4%		0.0%	Financial - OM&A/Capital	2.4%
		HR Service Centre	1.6%		0.0%	Financial - Labour $	1.6%
		Business Information Management	6.0%	Management Estimate	4.9%	Financial - OM&A/Capital	1.0%
	Subtotal		*16.2%*		*5.3%*		*10.9%*
	Total		*100.0%*		*11.5%*		*88.5%*
SUPPLY CHAIN	Chief Supply Officer Office		2.8%		0.0%	Financial - OM&A/Capital	2.8%
	Supply Chain Services		34.2%	Specific / Management Estimate	25.4%		8.8%
	Supply Chain Materials		61.9%		61.1%		0.8%
	Primary Pay		1.1%		0.0%		1.1%
	Total		*100.0%*		*86.5%*		*13.5%*
REAL ESTATE	VP Office		1.4%		0.0%	Financial - OM&A/Capital	1.4%
	Real Estate Services		4.8%	Specific / Management Estimate	4.5%		0.3%
	Projects & Accommodations		5.2%		3.6%	Financial - OM&A/Capital Physical - # of Nuc Generating Units	1.6%
	Leases and Utilities		34.9%		34.8%	Financial - OM&A/Capital	0.1%
	Nuclear Facility Services		50.0%	Specific	50.0%		0.0%
	Kipling Ave. Property		1.1%	Asset Service Fees	0.9%	Financial - OM&A/Capital	0.3%
	Wesleyville Property		0.4%		0.4%		0.0%
	Clarington Property		1.8%		1.8%		0.0%
	Primary Pay		0.4%		0.0%	Financial - OM&A/Capital	0.4%
	Total		*100.0%*		*95.9%*		*4.1%*
FINANCE	VP Office and Internal Audit		10.1%	Management Estimate	3.5%	Financial - OM&A/Capital	6.6%
	Enterprise Risk Management		2.1%		0.7%		1.4%
	Chief Financial Officer and Chief Controller Offices		3.4%		0.0%		3.4%
	Operations Controllership		32.3%	Specific / Management Estimate	23.3%		9.0%
	Business Planning & Reporting		18.7%	Management Estimate	2.3%		16.4%
	Income Tax		5.9%		0.1%		5.9%
	External Reporting & Accounting Policy and Audit Fees		13.6%	Specific / Management Estimate	0.9%		12.7%
	Fund Management		3.8%		0.0%		3.8%
	Treasury		9.6%	Specific / Management Estimate	2.8%		6.8%
	Primary Pay		0.4%		0.0%		0.4%
	Total		*100.0%*		*33.6%*		*66.4%*
ENVIRONMENT, HEALTH & SAFETY	Environment, Health & Safety		99.4%	Management Estimate	44.3%	Financial - OM&A/Capital	55.2%
	Primary Pay		0.6%		0.0%		0.6%
	Total		*100.0%*		*44.3%*		*55.7%*
HUMAN RESOURCES	SVP Human Resources Office		3.4%		0.0%	Financial - Labour $ Financial - OM&A/Capital	3.4%
	Compensation & Benefits		9.4%		0.0%	Financial - Labour $	9.4%
	Recruitment		17.5%		0.0%		17.5%
	Labour Relations		16.3%	Management Estimate	4.6%		11.8%
	Nuclear Stations & Project HR Support		13.5%		13.5%		0.0%
	Corporate & RG HR Support		10.1%		0.0%	Financial - Labour $ Financial - Labour $ (RG only)	10.1%
	Talent Management & Leadership Development		23.6%		0.0%	Financial - Labour $	23.6%
	Enterprise HR Strategy		6.1%	Specific	0.0%		6.1%
	Primary Pay		0.2%		0.0%		0.2%
	Total		*100.0%*		*18.1%*		*81.9%*

Group	Department / Category		Activity % of Department	Department's Distribution to Business Sites			
				Direct Assigment		Allocated	
				Method	%	Cost Driver	%
CORPORATE CENTRE	Executive Operations	Chief Executive Officer Office	42.26%		0.00%	Financial - OM&A/Capital	42.26%
		Chief Administrative Officer Office	57.25%		0.00%		57.25%
		Primary Pay	0.49%		0.00%		0.49%
	Total		*100.00%*		*0.00%*		*100.00%*
	Corporate Affairs	Brand Management	50.58%	Specific / Management Estimate	21.33%	Financial - OM&A/Capital	29.25%
		Stakeholder Relations & Government Affairs	22.17%	Management Estimate	13.09%		9.08%
		Corporate Communications	16.75%	Specific / Management Estimate	11.89%		4.85%
		Indigenous Relations	10.15%	Management Estimate	10.15%		0.00%
		Primary Pay ~~Rel & Comm~~	0.34%		0.00%	Financial - OM&A/Capital	0.34%
	Total		*100.00%*		*56.47%*		*43.53%*
	Regulatory Affairs	Regulatory Affairs	49.24%	Management Estimate	20.21%	Financial - OM&A/Capital	29.03%
		Regulatory Proceedings and OEB Fees	50.76%		26.52%		24.24%
	Total		*100.00%*		*46.73%*		*53.27%*
	Law	Law Division	71.81%	Management Estimate	20.58%	Financial - OM&A/Capital	51.22%
		Corporate Governance & Corporate Secretary	22.42%		4.19%		18.22%
		Ethics & Equity	5.76%		0.00%		5.76%
		Primary Pay Law/CG/ER	0.02%		0.00%		0.02%
	Total		*100.00%*		*24.78%*		*75.22%*
	Corporate Business Development & Strategy	Finance, Commercial & Model Dev Support	25.06%	Management Estimate	11.14%	Financial - OM&A/Capital	13.92%
		Electrification Development	29.29%		29.21%		0.08%
		SVP Office and Corporate Strategy	27.50%		10.43%		17.07%
		Business Development	18.16%	Specific / Management Estimate	15.87%		2.28%
	Total		*100.00%*		*66.65%*		*33.35%*
ENTERPRISE ENGINEERING	Chief Enterprise Engineer (CNE) Office and Industry Membership Fees		9.56%	Specific / Management Estimate	9.46%	Financial - Base OM&A	0.10%
	Inspection & Reactor Innovation		22.07%		21.32%	Financial - OM&A/Capital	0.75%
	Central Engineering		30.48%		27.70%	Financial - OM&A/Capital Physical - # of Nuc Generating Units	2.78%
	Design & Project Engineering		18.18%		18.14%	Physical - # of Nuc Generating Units	0.04%
	Station Engineering		19.71%		19.21%	Financial - OM&A/Capital	0.50%
	Total		*100.00%*		*95.83%*		*4.17%*
INTEGRATED FLEET MANAGEMENT	VP Office		0.86%	Specific	0.00%	Financial - Base OM&A	0.86%
	Generation Strategy & Innovation		21.86%	Management Estimate	10.27%		11.60%
	Nuclear Oversight		9.43%	Specific / Management Estimate	9.43%		0.00%
	Nuclear Regulatory Affairs & Stakeholder Relations		67.85%		67.85%		0.00%
	Total		*100.00%*		*87.54%*		*12.46%*
SECURITY & TRAINING	Nuclear Training		37.23%	Specific / Management Estimate	37.23%		0.00%
	VP Office and Security & Emergency Services		62.77%		62.60%	Financial - OM&A/Capital	0.17%
	Total		*100.00%*		*99.83%*		*0.17%*
ENTERPRISE PROJECTS	Chief Project Officer Office		11.94%	Management Estimate	4.92%	Financial - OM&A/Capital (Projects only)	7.02%
	Nuclear Refurbishment		30.85%	Specific / Management Estimate	30.85%		0.00%
	Renewable Generation Projects		5.77%		0.00%	Financial - Base OM&A (RG only)	5.77%
	Project Assurance & Contract Management		5.25%	Management Estimate	5.25%		0.00%
	Nuclear Projects		19.62%	Specific / Management Estimate	19.62%		0.00%
	Enterprise Project Management Office		26.57%		23.24%	Financial - OM&A/Capital (Projects only)	3.33%
	Total		*100.00%*		*83.88%*		*16.12%*
OTHER OPERATIONS SUPPORT	Dam Safety & Water Resources		12.62%	Management Estimate	0.52%	Financial - Base OM&A (Hydro only)	12.10%
	Energy Markets		43.44%		38.79%	Financial - OM&A/Capital	4.65%
	Chief Operating Officer and Chief Strategy Officer Offices		9.70%		0.00%	Financial - Base OM&A	9.70%
	SVP Renewable Generation Office and RG Central Costs		5.87%	Specific / Management Estimate	4.15%	Financial - Base OM&A (RG only)	1.72%
	Renewable Generation Training		16.70%		0.00%		16.70%
	Commercial Services		3.03%	Specific / Management Estimate	3.03%		0.00%
	Nuclear Decomissioning Strategy		0.91%	Specific	0.91%		0.00%
	Nuclear Waste Management		7.72%	Management Estimate	7.72%		0.00%
	Total		*100.00%*		*55.13%*		*44.87%*
CENTRALLY HELD	Pension / OPEB Centrally Held		-25.85%	Direct Pension Charges	-21.63%	Financial - Labour $ (Corp. Support Only)	-4.21%
	Insurance	OPG-Wide Insurance	42.16%	Specific	42.03%	Financial - Other	0.13%
		Nuclear Insurance	29.09%		29.09%		0.00%
	Employee Performance Incentives		37.64%		0.00%	Financial - Management Labour $	37.64%
	Other	Fiscal Calendar Adjustment	-0.25%		0.00%	Financial - Labour $	-0.25%
		Pension Guarantee Fee	2.81%		0.00%		2.81%
		Vacation Accrual/Banked Time	5.95%		0.00%		5.95%
		Other	8.45%	Specific	9.62%		-1.17%
	Total		*100.00%*		*59.11%*		*40.89%*

NOTE: Certain Central and Common costs that are shown as directly assigned (via specific identification or management estimate) are to the Nuclear business as a whole, rather than specifically to the Pickering or Darlington station. In those instances, the cost allocation methodology further apportions the costs between the two sites using the number of generating units (i.e., six at Pickering and four at Darlington).

APPENDIX B

RESUMES OF MICHAEL ROGER AND JOHN TODD

MICHAEL J. ROGER

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ASSOCIATE, RATES AND REGULATION

Michael has over 40 years of experience in the electricity industry dealing in areas of finance, cost allocation, rate design and regulatory environment. Michael has been an expert witness at numerous Ontario Energy Board proceedings and has participated in task forces dealing with his areas of expertise. Michael is a leader and team player that gets things done and gets along well with colleagues.

PROFESSIONAL OVERVIEW

Elenchus **2010 - Present**
Associate Consultant, Rates & Regulation

- Provide guidance on the Regulatory environment in Ontario for distributors and other stakeholders, with particular emphasis on electricity rates in Ontario and the regulatory review and approval process for cost allocation, rate design and special studies such as Working Capital Allowance and shared services studies. Prepare and defend related evidence. Appear as expert witness at regulatory proceedings.
- Some of the clients that Michael provides advice include: Hydro Quebec Energy Marketing Inc., GTAA, Ontario Energy Board, City of Hamilton, Hydro One Transmission, Powerstream, Hydro Ottawa, Veridian, SaskPower, British Columbia Utilities Commission and APPrO.

Hydro One Networks Inc. **2002 - 2010**
Manager, Pricing, Regulatory Affairs, Corporate and Regulatory Affairs

- In charge of Distribution and Transmission pricing for directly connected customers to Hydro One's Distribution system, embedded distributors and customers connected to Hydro One's Transmission system.
- Determine prices charged to customers that conform to guidelines and principles established by the Ontario Energy Board, (OEB).
- Provide expert testimony at OEB Hearings on behalf of Hydro One in the areas of Cost Allocation and Rate Design.
- Keep up to date on Cost Allocation and Rate Design issues in the industry.

- Ensure deliverables are of high quality, defensible and meet all deadlines.
- Keep staff focused and motivated and work as a team member of the Regulatory Affairs function. Provide support to other units as necessary.

Ontario Power Generation Inc. **1999 - 2002**
Manager, Management Reporting and Decision Support, Corporate Finance

- Produce weekly, monthly, quarterly and annual internal financial reporting products.
- Input to and coordination of senior management reporting and performance assessment activities.
- Expert line of business knowledge in support of financial and business planning processes.
- Coordination, execution of review, and assessment of business plans, business cases and proposals of an operational nature.
- Provide support to other units as necessary.
- Work as a team member of the Corporate Finance function.

Ontario Hydro **1998 - 1999**
Acting Director, Financial Planning and Reporting, Corporate Finance

- Responsible for the day to day operation of the division supporting the requirements of Ontario Hydro's Board of Directors, Chairman, President and CEO, and the Chief Financial Officer, to enable them to perform their due diligence role in running the company.
- Interact with business units to exchange financial information.

Financial Advisor, Financial Planning and Reporting, Corporate Finance **1997**

- Responsible for co-ordinating Retail, Transmission, and Central Market Operation divisions' support of Corporate Finance function of Ontario Hydro to ensure financial information consistency between business units and Corporate Office, review business units compliance with corporate strategy.
- Provide advice to Chief Financial Officer and Vice President of Finance on business unit issues subject to review by Corporate Officers.
- Participate or lead task team dealing with issues being evaluated in the company.
- Supervise professional staff supporting the function.
- Co-ordinate efforts with advisors for GENCO and Corporate Function divisions to ensure consistent treatment throughout the company.

Section Head, Pricing Implementation, Pricing **1986 - 1997**

- Responsible for pricing experiments, evaluation of marginal costs based prices, cost-of-service studies for municipal utilities, analysis and comparison of prices in the electric industry, rate structure reform evaluation, analysis of cost of servicing individual customers and support the cost allocation process used to determine prices to end users.

- Responsible for the derivation of wholesale prices charged to Municipal Electric Utilities and retail prices for Direct Industrial customers, preparation of Board Memos presented to Ontario Hydro's Board of Directors and support the department's involvement at the Ontario Energy Board Hearings by providing expert witness testimony.

Section Head (acting), Power Costing, Financial Planning & Reporting, Corporate Finance **1994 - 1995**

- Responsible for the allocation of Ontario Hydro's costs among its customer groups and ensure that costs are tracked properly and are used to bill customers.
- Maintain the computer models used for cost allocation and update the models to reflect the structural changes at Ontario Hydro.
- Participate at the Ontario Energy Board Hearings providing support and expert testimony on the proposed cost allocation and rates.
- Provide cost allocation expertise to other functions in the company.

Additional Duties **1991**

- Manager (acting) Rate Structures Department.
- Review of utilities' rates and finances for regulatory approval.
- Consultant: Sent by Ontario Hydro International to Estonia to provide consulting services on cost allocation and rate design issues to the country's electric company.

Analyst, Rates **1983 - 1986**

- In charge of evaluating different marketing strategies to provide alternatives to customers for the efficient use of electricity.
- Co-ordinate and supervise efforts of a work group set up to develop a cost of service study methodology recommended for implementation by Municipal Electric Utilities and Ontario Hydro's Rural Retail System.
- Provide support data to Ontario Hydro's annual Rate Submission to the Ontario Energy Board.
- Participate in various studies analysing cost allocation areas and financial aspects of the company.

Forecast Analyst, Financial Forecasts **1980 – 1983**

- Evaluating cost data related to electricity production by nuclear plants and preparing short term forecasts of costs used by the company. Maintain and improve computer models used to analyse the data.
- Review Ontario Hydro's forecast of customer revenues, report actual monthly, quarterly and yearly results and explain variances from budget.
- Support the development of new computerized models to assist in the short-term forecast of revenues.

Project Development Analyst, Financial Forecasts **1979 - 1980**

- In charge of developing computerized financial models used by forecasting analysts planning Ontario Hydro's short term revenue and cost forecasts and also in the preparation of Statement of Operations and Balance Sheet for the Corporation.

Assistant Engineer – Reliability Statics, Hydroelectric Generations Services **1978 – 1979**

- In charge of analysing statistical data related to hydroelectric generating stations and producing periodic report on plants' performance.

ACADEMIC ACHIEVEMENTS

1977	Master of Business Administration, University of Toronto. Specialized in Management Science, Data Processing and Finance. Teaching Assistant in Statistics.
1975	Bachelor of Science in Industrial and Management Engineering, Technion, Israel Institute of Technology, Haifa, Israel.

JOHN D. TODD

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PRESIDENT

John Todd has specialized in government regulation for over 35 years, addressing issues related to price regulation and deregulation, market restructuring to facilitate effective competition, and regulatory methodology. Sectors of primary interest in recent years have included electricity, natural gas and the telecommunications industry. John has assisted counsel in over 275 proceedings and provided expert evidence in over 150 hearings. His clients include regulated companies, producers and generators, competitors, customer groups, regulators and government.

PROFESSSIONAL OVERVIEW

Founder of Elenchus Research Associates Inc. (Elenchus) 2003

- ERAI was spun off from ECS (see below) as an independent consulting firm in 2003. There are presently twenty-five ERAI Consultants and Associates. Web address: www.elenchus.ca

Founded the Canadian Energy Regulation Information Service (CERISE) 2002

- CERISE is a web-based service providing a decision database, regulatory monitoring and analysis of current issues on a subscription basis. Staff are Rachel Chua and rotating co-op students. Web address: www.cerise.info

Founded Elenchus (Econalysis) Consulting Services, Inc. (ECS) 1980

- ECS was divested as a separate company in 2003

EDUCATION

1975 Masters of Business Administration (Economics and Management Science), University of Toronto

1972 Bachelors of Applied Science (Electrical Engineering), University of Toronto

PRIOR EMPLOYMENT

Ontario Economic Council, Research Officer (Government Regulation) 1978 - 1980

Research Assistant, Univ. of Toronto, Faculty of Management Studies 1973 - 1978

Bell Canada, Western Area Engineering 1972 – 1973

REGULATORY/LEGAL PROCEEDINGS

Before the Ontario Energy Board

John Todd has provided expert assistance in more than 65 proceedings before the Ontario Energy Board from 1991 to 2020. He has presented evidence in more than 25 of these cases. Recent cases include rate applications for the EPCOR Natural Gas LP (and the predecessor company NRG) and evidence on the *Cost Allocation and Rate Design for the IESO Usage Fee* for the Independent Electricity System Operator.

Before the Public Utilities Board of Manitoba

John has provided expert assistance in a total of 46 proceedings before the Public Utilities Board of Manitoba from 1990 to 2020. He has presented evidence in 23 of these cases. He was retained by the Manitoba Public Utilities Board as an Independent expert consultant to review aspects of Manitoba Hydro's Needs for and Alternatives to (NFAT) its Preferred Development Plan. He also served as a Board advisor for the Review of Efficiency Manitoba's 2020-2023 DSM Plan.

Before the British Columbia Utilities Commission

John has provided expert assistance in more than 30 proceedings before the British Columbia Utilities Commission from 1993 to 2018. He has presented evidence in ten cases. Recently he was retained (with Michael Roger) by the BCUC as its independent expert consultant to review FortisBC Energy Inc. cost allocation and rate design methodology.

Before the Régie de l'énergie

John has provided expert assistance in more than ten proceedings before the Régie de l'énergie from 1998 to 2020. He has presented evidence in nine of these cases. He was retained with Cynthia Chaplin to prepare *Report for the Régie de l'énergie, Performance Based Regulation: A Review of Design Options as Background for the Review of PBR for Hydro Quebec Distribution and Transmission Divisions.* He is currently engaged in another cost allocation review project for the Régie as an independent expert reviewing the cost allocation methodology of Energir.

Before the Alberta Utilities Commission (and formerly the Alberta Energy and Utilities Board)

John has provided expert assistance in of five proceedings before the Alberta Utilities Commission and its predecessor since 2000. He was most recently engaged in rate design work for an Alberta utility.

Before the Newfoundland & Labrador Board of Commissioners of Public Utilities

John has provided expert assistance in a total of nine proceedings from 2005 to 2015. He has presented evidence in three cases. The most recent proceeding he participated in was the *Newfoundland Power, 2016 Deferred Cost Recovery Application* case.

Before the New Brunswick Energy and Utilities Board

John has provided expert assistance in a total of nine proceedings before the New Brunswick Energy and Utilities Board from 2007 to 2019. He has presented evidence in three cases. The most recent proceeding he participated in was the *2019-20 General Rate Application* and is currently assisting NB Power with additional cost allocation and rate design issues

Before the Nova Scotia Utility and Review Board

John has provided expert assistance in a total of nine proceedings before the Nova Scotia Utility and Review Board from 2008 to 2019. He has presented evidence in four cases. The most recent proceeding he participated in was *Efficiency One, Updated Cost Allocation Methodology.*

Before the National Energy Board (NEB)

John has provided expert assistance in one proceeding before the NEB, during 1999. The proceeding was in regards to *BC Gas, Southern Crossing Project.*

Before the Canadian Radio-television and Telecommunications Commission (CRTC)

John has provided expert assistance in 47 proceedings before the Canadian Radio-television and Telecommunications Commission from 1990 to 2020. He has presented evidence in 13 of these cases. The participated in a *Review of Basic Telecommunications Services, Consultation CRTC 2015-134* and prepared evidence was filed in the current Review of the Approach to Rate Setting for Wholesale Telecommunications Services (CRTC 2020-131).

Before the Ontario Securities Commission

John provided expert assistance on behalf of the Director of Investigation and Research, Combines Investigation Act in four proceedings before the Ontario Securities Commission from 1981 to 1985. He presented evidence in each case including evidence on Industry structure and the form of regulation in the OSC's *Securities Industry Review.*

Before the Ontario Municipal Board

John has provided expert evidence and assistance in two proceedings before the Ontario Municipal Board in 1992 and 1995. In 1995, he assisted in a case regarding an *Appeal of Boundary Expansion by Lincoln Hydro and Electric Commission*, with an affidavit prepared on the tests for boundary expansions.

Before the Supreme Court of Ontario

John has presented evidence in one proceeding before the Supreme Court of Ontario, in 1990. The case related to the *Challenge of the Residential Rent Regulation Act (1986) under the Canadian Charter of Rights and Freedoms.* Evidence: The impact of rent regulation on Ontario's rental housing market.

Before the Saskatchewan Court of Queen's Bench

John has presented evidence in one proceeding before the Saskatchewan Court of Queen's Bench, in 1993. The evidence was regarding market dynamics and competition policy. John (with Michael Roger) has also conducted the two most recent reviews of SaskPower's cost allocation methodology and presented the results to the Saskatchewan Rate Review Panel.

Non-Hearing Processes

John has provided expert assistance more than a dozen non-hearing processes since 1997 to the following Ontario Energy Board, British Columbia Gas, the British Columbia Utilities Commission, the New Brunswick Department of Energy, SaskPower, the Government of Vietnam, and more.

Commercial Arbitrations and Lawsuits

John has provided expert assistance in six commercial arbitrations and lawsuits between 2004 and 2015.

Facilitation Activities

John has undertaken numerous strategic planning and visioning sessions (some with co-facilitators) for the Executive and/or Board of Directors of regulated companies between 2000 and 2020. He has also facilitated six stakeholder processes for regulators and utilities from 2000 through 2017.

Other Regulatory Issues Researched

John has completed (with collaborators in some cases) over 20 studies for industry associations, regulators, utilities and other entities outside of hearing processes

SELECTED PRESENTATIONS

- Utility Cost Recovery in an Era of Ageing Infrastructure, Technological Change and Increasing Customer Service Expectation, CEA Legal Comm. & Regulatory Innovations Task Group (June 2016)
- Productivity Benchmarking Panel at the CEA Electric Utility Workshop (May 2016)
- Funding Utility Innovation at the CEA Electric Utility Workshop (May 2016)
- MEARIE Training Program, Regulatory Essentials for LDC Executives (several years)
- Issue in Regulatory Framework for Tenaga Nasional Berhad, Indonesia (with Cynthia Chaplin & London Economics) (2015)
- Witness Training for electric utilities 2014 - 2020
- "Innovations in Rate Design", CAMPUT Training Session, Annually 2010-2013
- "Cost of Service Filing Requirements" (2010) 2nd Annual Applications Training for Electricity Distributors, Society of Ontario Adjudicators and Regulators in cooperation with the OEB
- "Green Energy Act" (2010) 2nd Annual Applications Training for Electricity Distributors, Society of Ontario Adjudicators and Regulators in cooperation with Ontario Energy Board
- "Rate Design", CAMPUT Training Session, Annually 2009- 2013
- "How to Build Transmission and Distribution to Enable FiT: The Role of Distributors", EUCI Conference on Feed in Tariffs, Toronto, Sept. 2009
- "Distributor Mergers and Acquisitions: Potential Savings", 2007 Electricity Distributors Assoc.
- "Beyond Borders" Regulating the Transition to Competition in Energy Markets (with Fred Hassan), EnerCom Conference March 2006.

SELECTED OTHER ACTIVITIES

- Chairman of the Board of Directors of the Ontario Energy Marketers Association (formerly the Direct Purchase Industry Committee) and Executive Director of the Association.
- Former invited participant in the Ontario Energy Board's External Advisory Committee.
- Former Member of the Board of Directors of East Toronto Community Legal Services.
- Organizing Committee for the Concert for Inclusion in support of ParaSport Ontario
- Numerous appearances on CBC radio and television commenting on energy industry issues, competition, regulation and mergers in the Canadian economy.

CLIENTS

Over seventy private sector companies, including utilities

Fifteen industry and other associations

Over thirty 30 consumers' associations and legal clinics

Government

- Five Regulatory Tribunals
- Six Federal departments
- Fourteen Provincial departments, commissions and agencies
- Thirteen municipal and other departments/entities