

## 1                                   **BASE OM&A – NUCLEAR OPERATIONS**

### 2 3   **1.0    PURPOSE**

4   This evidence presents nuclear base OM&A expense for the historical period, bridge year,  
5   and test period (excluding OM&A expense for Darlington Refurbishment).

### 6 7   **2.0    OVERVIEW**

8   The nuclear base OM&A expense for 2013-2021 is provided in Ex. F2-2-1 Table 1. OPG is  
9   requesting approval of base OM&A expense of \$1,210.6M in 2017, \$1,226.0M in 2018,  
10  \$1,248.4M in 2019, \$1264.7M in 2020 and \$1,276.3M in 2021. The average annual increase  
11  over the test period is 1.24 per cent.

12  
13  The modest increases in the face of labour and material cost escalation reflect a continued  
14  focus on controlling staff levels, cost discipline and work reduction or elimination through re-  
15  prioritizing and streamlining work. OPG continues to implement various value for money,  
16  fleet wide and site initiatives to reduce costs as part of a focus on continuous improvement.

17  
18  OPG's staff resource plan forecasts an increase in Nuclear regular staff FTEs (excluding  
19  Darlington Refurbishment) in 2016 to ensure resources are available following a period of  
20  higher than budgeted attrition. Thereafter, FTEs experience a net decline over the test period  
21  (Ex. F2-1-1 Table 3).

### 22 23  **3.0    BASE OM&A BACKGROUND**

24  Base OM&A provides the main source of funding for operating and maintaining the nuclear  
25  stations in support of:

- 26       • the ongoing production of electricity from the operating nuclear units;
- 27       • ensuring the safe operation of the plants;
- 28       • improving the reliability of the nuclear assets, and
- 29       • ensuring compliance with applicable legislation and nuclear regulatory requirements.

### 30 31  **3.1    Base OM&A Description by Function and Resource Type**

1 This evidence is substantially the same as that provided in Ex. F2-2-1 in OPG's last rates  
2 application (EB-2013-0321).

3  
4 Base OM&A cost information for 2013 through 2021 is presented by station and support  
5 function in Ex. F2-2-1 Table 1. The station and support functions are described in Attachment  
6 1 to this exhibit.

7  
8 Details of base OM&A costs by function for 2013 through 2021 are provided in Ex. F2-2-1  
9 Tables 3 through 14. Exhibit F2-2-1 Tables 3 through 7 (i.e., for the 2017-2021 period) show  
10 that the majority of test period station base OM&A costs are in the Operations and  
11 Maintenance functions, reflecting the significance of these core activities to ongoing station  
12 performance. Within the Nuclear support divisions, the largest cost is in Nuclear Engineering,  
13 primarily for ensuring plant safety and reliability.

14  
15 In addition to the operational functions described in Attachment 1, Nuclear base OM&A also  
16 funds the following:

- 17 • The cost of regular staff supporting the execution of planned outages, with the  
18 exception of Inspection and Maintenance Services ("IMS"). The cost of IMS regular  
19 staff involved in the execution of planned outages is charged directly to outage  
20 OM&A.
- 21 • All costs for forced outages, planned derates and forced derates. Forced outages, in  
22 particular, can require significant effort and materials to address the cause of the  
23 outage and return a unit to operation. As forced outages are unplanned events for  
24 which no budget is provided, other base OM&A work must be deferred to  
25 accommodate them (see Ex. F2-4-1 for further details on outage costing).
- 26 • An inventory obsolescence provision.

27  
28 Base OM&A cost information is presented by standard OPG resource types in Ex. F2-2-1  
29 Table 2, which indicates that OPG staff labour is the most significant contributor to base  
30 OM&A costs, representing approximately 70 per cent of base OM&A. The resource types are  
31 as follows:

- 1       **1. Labour:** The salary and benefits cost of OPG full-time regular staff, non-regular staff  
2       and part-time staff. Base OM&A labour costs are derived using standard labour rates  
3       for job families within Nuclear. In addition to base salary and statutory benefits (e.g.  
4       EI, CPP), these standard labour rates include a component for pension and other  
5       post employment benefits earned by employees for current service (discussed in Ex.  
6       F4-3-2) as well as a component for current employee health, dental and other  
7       benefits provided during employment.
- 8       **2. Overtime:** The incremental pay for work outside of core hours, for example during  
9       forced outages or urgent repairs.
- 10      **3. Augmented Staff:** External personnel providing specialized expertise (e.g.,  
11      engineering) to supplement internal capability and/or to fill temporary vacancies.
- 12      **4. Other Purchased Services:** The costs of specialized external services, including  
13      construction and maintenance services, personal protective equipment, laundry  
14      services, and specialized technical services (e.g., nuclear safety analysis, research  
15      and development, and specialized testing services).
- 16      **5. Materials:** The costs of all consumables, replacement parts, and associated  
17      transportation service costs supporting station operations (e.g., ongoing maintenance  
18      and repair work).
- 19      **6. License Fees:** The cost of licensing-related fees paid to the Canadian Nuclear Safety  
20      Commission (“CNSC”).
- 21      **7. Other Costs:** Costs for miscellaneous items such as travel and utility expenses  
22      (water, sewage, and electricity for administration buildings) and inventory  
23      obsolescence provision.

24  
25      In order to operate the nuclear facilities safely, reliably and efficiently, OPG uses incremental  
26      short-term labour resources to address temporary staffing shortages. Incremental labour  
27      resources used by OPG include overtime, temporary staff (e.g., non-regular staff) and  
28      external contractors. Three primary factors drive the use of incremental short-term labour  
29      resources in Nuclear: 1) to meet peak work requirements, 2) to maintain coverage for key  
30      staff positions in accordance with licensing requirements, and 3) to complete priority work  
31      impacted by short term or unexpected staff shortages due to factors such as temporary

1 vacancies, maternity leaves or vacations. The selection of which incremental labour resource  
2 to employ is an ongoing resource optimization and balancing process and depends on the  
3 specific circumstances at the time. For example, OPG uses base OM&A overtime to maintain  
4 coverage of key positions (e.g., authorized nuclear operators) and provide backup for absent  
5 staff so as to maintain minimum staff complement on each shift.

6  
7 The 2013 Ontario Auditor General Report recommended that OPG should decrease  
8 overtime costs for outages by planning outages and arranging staff schedules in a more  
9 cost-beneficial way, and review other ways to minimize overtime. Nuclear has since  
10 implemented changes in crew shift schedules, resulting in reduced overtime during  
11 outages, and enhanced controls have been implemented to monitor overtime and take  
12 actions to ensure that overtime is used only when it is the most efficient form of incremental  
13 labour. The 2015 Ontario Auditor General Report concluded that its 2013 recommendations  
14 had been fully implemented based on these actions<sup>1</sup>, noting that OPG has implemented  
15 new policies to strengthen its overtime pre-approval process, ensure overtime approvals  
16 are carried out as per the approval authority and to facilitate the monitoring and tracking of  
17 overtime worked so as to minimize overtime costs<sup>2</sup>.

### 18 19 **3.2 Major Objectives and Focus Areas**

20 The 2016-2018 Corporate Business Plan, and the three-year financial projection for 2019-  
21 2021 which has been prepared on a consistent basis with the 2016-2018 Corporate Business  
22 Plan, identify specific objectives and focus areas that impact base OM&A costs. These  
23 include initiatives discussed in Ex. F2-1-1 section 3.5 (Human Performance, Equipment  
24 Reliability, Outage Performance, Parts Improvement, Inventory Reduction and Workforce  
25 Planning and Resourcing) designed to achieve the nuclear performance targets for safety,  
26 reliability, value for money and human performance, which will be largely executed by base  
27 OM&A resources. Base OM&A resources will also be employed for inspection and  
28 maintenance and project support to address life cycle aging of equipment at Darlington to

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<sup>1</sup> 2015 Ontario Auditor General Report, p. 631.

<sup>2</sup> 2015 Ontario Auditor General Report, p. 627.

1 ensure safe and reliable operation before, during, and after refurbishment as well as similar  
2 support at Pickering as part of OPG's plan to operate Pickering until 2022/2024.

3  
4 **3.3 Base OM&A Trends**

5 Base OM&A is forecast to increase year over year by 0.73 per cent in 2017, 1.27 per cent in  
6 2018, 1.83 per cent in 2019, 1.31 per cent in 2020 and 0.92 per cent in 2021. Exhibit F2-2-1  
7 Table 1 demonstrates that cost containment is relatively consistent across the stations and  
8 support functions, with all functions exhibiting flat costs or modest increases in the test period  
9 until 2019. An explanation of period-over-period variances in base OM&A is provided in Ex.  
10 F2-2-2.

11

## **ATTACHMENTS**

1

2

3 Attachment 1: Nuclear Operations Function Descriptions

1  
2 **NUCLEAR OPERATIONS FUNCTION DESCRIPTIONS**  
3

4 **1.0 OPERATIONAL FUNCTIONS WITHIN THE GENERATING STATIONS**

5 At each of the generating stations, operational functions are broken down into three main  
6 components: Operations and Maintenance, Work Management, and Site and Support  
7 Services, as described below. Darlington also operates the Tritium Removal Facility.  
8

9 • Operations and Maintenance is comprised of:

- 10 ○ Operations, which operates the plant on a 24-hour basis. The CNSC approves the  
11 operations organizational structure, including mandating a minimum shift complement  
12 to address foreseeable emergency response requirements.
- 13 ○ Maintenance, which performs all activities directly related to the preventive, elective,  
14 and corrective maintenance of structures, systems, or components to address  
15 material condition issues, maintain equipment reliability, and optimize equipment life.
- 16 ○ Fuel Handling, which includes all activities in support of refuelling the reactor during  
17 unit operation; maintenance of the fuelling machines and related systems; support of  
18 outage activities requiring the fuelling machine or related systems; and management  
19 of new fuel storage.
- 20 ○ Chemistry and Environment, which includes the operation of the chemistry lab;  
21 environmental compliance and monitoring; and assistance in managing plant  
22 chemistry.
- 23 ○ Common Services (Pickering), which operates and maintains station and site support  
24 systems for the Pickering station, specifically management of heavy water and  
25 operation of facilities such as heavy water upgraders, station containment systems  
26 and radioactive waste management.

27  
28 • Work Management includes:

- 29 ○ Work Control, which ensures that corrective, elective, and preventive maintenance is  
30 planned effectively and efficiently.

- 1       ○ Outage Planning, which develops specific milestones for scope definition, long lead
- 2           materials, schedule development, and pre-requisite work.
- 3
- 4       • Site and Support Services includes:
- 5           ○ Site Vice President's office.
- 6           ○ Interface with World Association of Nuclear Operators ("WANO") and other external
- 7           parties (including the interface for Darlington refurbishment).
- 8
- 9       • Tritium Removal Facility
- 10          ○ Located at Darlington, the Tritium Removal Facility ("TRF") provides tritium removal
- 11          services to all OPG nuclear stations and third party customers (see Ex. G2-1-1).
- 12

## 13   **2.0    OPERATIONAL FUNCTIONS WITHIN THE SUPPORT DIVISIONS**

14   Support divisions are accountable for providing specialized services to the stations, as well  
15   as establishing the common procedural framework within which the stations operate.

16

17   Subsequent to EB-2013-0321, a number of changes were made to the Nuclear Support  
18   organizations. The new Decommissioning and Nuclear Waste Management organization was  
19   formed with the added mandate of preparing the Pickering station for the next phase of its life  
20   post end of commercial operations. Nuclear Services was discontinued, and Nuclear  
21   Regulatory Affairs was moved to Decommissioning and Nuclear Waste Management.  
22   Performance Improvement, Generation Planning, and Radiation Safety were moved to Fleet  
23   Operations and Maintenance, and Strategic and Business Planning was moved to Nuclear  
24   Finance.

25

26   Key functions of the support divisions are as follows:

27

28   Engineering is accountable for the following:

- 29          ○ Components Engineering; provides specialized technical support for nuclear station
- 30          components and equipment, major nuclear plant equipment (including life cycle plans



1 for steam generators and fuel channels), engineering programs, selected systems  
2 (such as real-time process computers and security), chemistry, cyber security, human  
3 factors engineering, plant information systems, and administration of the nuclear  
4 research and development program.

5 o Design Engineering provides design services such as, preparation of modifications;  
6 parts procurement support; and expert-level support on nuclear industry codes and  
7 standards for the nuclear stations and the Decommissioning and Nuclear Waste  
8 Management organization.

9 o Engineering Strategy provides strategic support to Nuclear Engineering long range  
10 planning, develops international relationships and provides strategic advice on  
11 matters relating to CANDU technology, represents OPG Nuclear with international  
12 nuclear industry bodies and oversees Nuclear Engineering projects.

13 o Nuclear Safety provides oversight of technical support provided to the stations by the  
14 Reactor Safety Engineering Departments, and specialized services in the areas of  
15 Fuel, Nuclear Safety Analysis and Probabilistic Risk Assessment.

16 o Nuclear Waste provides engineering strategies for the efficient and effective  
17 management of used fuel and Low and Intermediate Level Waste (“L&ILW”), and  
18 safety assessments of Nuclear Waste Management facilities and transportation  
19 systems.

20 o Station Engineering is responsible for specifying engineering requirements,  
21 concurrence to schedule and acceptance of engineering products and services  
22 provided to support safe operation of the plant. It also ensures the Safety Operating  
23 Envelope and the Design and Licensing Basis for the plant are maintained by  
24 exercising prescriptive authority for the definition of operating and outage scope of  
25 work associated with these basis documents.

26  
27 Projects and Modifications is accountable for executing or managing the execution of the  
28 majority of project work carried out at the generating stations and associated sites. Project  
29 work (in contrast to base OM&A work) is discussed in Ex. D2-1-1. While the Projects and  
30 Modifications function is primarily funded by project OM&A and capital (Ex. F2-3-1 and Ex.

1 D2-1-1, respectively), Projects and Modifications also provides a limited amount of  
2 operational support to the stations which is funded by base OM&A.

3  
4 Fleet Operations and Maintenance drives improvement across the Nuclear fleet by  
5 developing, implementing and monitoring nuclear-wide programs and procedures for the  
6 nuclear stations in the areas of Operations, Maintenance, Outage, Work Management, and  
7 Human Performance. In addition, this group is accountable for radiation protection  
8 programming and services including assistance with radiation protection during plant  
9 operation and maintenance activities, and administration of the program for keeping radiation  
10 As Low As Reasonably Achievable (“ALARA”). It is also responsible for nuclear fleet wide  
11 improvement and generation planning.

12  
13 Security and Emergency Preparedness provides security services for nuclear sites and  
14 facilities (and across OPG), and ensures compliance with all CNSC security requirements.  
15 Emergency Preparedness and Fire Protection services are also included within this division.

16  
17 Inspection and Maintenance Services (“IMS”) is accountable for providing inspection and  
18 maintenance services to supplement those carried out by station staff, where the nature of  
19 the skills or equipment required makes the work more effectively managed as a centralized  
20 function. The direct costs associated with the provision of inspection and maintenance  
21 services during outages are included in outage OM&A costs (Ex. F2-4-1). IMS indirect costs  
22 such as administration are included in base OM&A as are the provision of inspection and  
23 maintenance services during normal (i.e. non-outage) operation.

24  
25 Decommissioning and Nuclear Waste Management is accountable for the safe and cost  
26 effective shutdown and safe storage of Pickering and the strategic aspect of Pickering end of  
27 commercial operations. It is also accountable for the management of radioactive waste and  
28 used fuel at the stations, as well as conventional waste and transportation service for the  
29 stations. Base OM&A includes the costs associated with managing recycled conventional  
30 wastes and providing conventional waste transportation services for all stations.

1 Expenditures to manage radioactive waste and used fuel management operations are  
2 funded by Nuclear Liabilities (see Ex. C2-1-1). Decommissioning and Nuclear Waste  
3 Management is also accountable for developing/maintaining the regulatory programs for the  
4 nuclear divisions, including licencing and environmental assessments.

5

6 Other Support is an aggregate of a number of smaller functions including centralized or fleet-  
7 wide costs for services required to manage the Nuclear business that are not directly  
8 attributable to any one plant or support organization. Typical costs include executive office,  
9 inventory adjustments and standard labour price variances that are captured at the  
10 aggregate level as opposed to the Nuclear stations and support groups.

11

Table 1  
Base OM&A - Nuclear (\$M)

Line No.	Function	2013 Actual	2014 Actual	2015 Actual	2016 Budget	2017 Plan	2018 Plan	2019 Plan	2020 Plan	2021 Plan
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	<b>Stations</b>									
1	Darlington NGS	277.8	280.1	298.9	314.7	303.1	310.0	318.3	323.1	320.1
2	Pickering NGS	402.3	431.1	425.1	452.1	459.4	469.4	474.1	472.4	478.3
3	Pickering Continued Operations	9.9	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Pickering Extended Operations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	<b>Total Stations</b>	690.0	717.2	724.0	766.8	762.5	779.4	792.5	795.5	798.4
	<b>Support<sup>1,2</sup></b>									
6	Engineering	148.8	147.6	161.6	178.0	178.5	180.5	183.8	187.5	191.8
7	Projects & Modifications	7.4	6.9	6.3	7.4	6.8	5.8	5.8	5.9	4.0
8	Nuclear Services	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Fleet Operations and Maintenance	30.5	61.7	63.3	71.0	66.2	63.2	64.6	65.5	66.1
10	Security and Emergency Services	79.9	75.7	81.8	93.9	91.0	91.2	93.4	95.5	98.0
11	Inspection & Maintenance Services	35.4	34.2	34.0	47.2	44.2	42.4	44.2	49.6	52.7
12	Decommissioning & Nuclear Waste Mgmt	0.0	40.0	45.4	49.9	51.8	54.0	54.5	55.6	55.8
13	Other Support	60.7	43.8	43.3	(12.3)	9.6	9.6	9.7	9.7	9.5
14	<b>Total Support</b>	437.7	409.9	435.6	435.0	448.1	446.6	455.9	469.2	477.9
15	<b>Total Base OM&amp;A</b>	1,127.7	1,127.1	1,159.6	1,201.8	1,210.6	1,226.0	1,248.4	1,264.7	1,276.3

## Notes:

- 1 Nuclear Support Divisions includes Base OM&A expenditures for Pickering Continued Operations of \$1.6M in 2013 and \$1.3M in 2014.
- 2 Nuclear Support Divisions includes Base OM&A expenditures for Pickering Extended Operations of \$11.0M in 2016 and \$1.0M in 2017.

Numbers may not add due to rounding.

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 Exhibit F2  
 Tab 2  
 Schedule 1  
 Table 2

Table 2  
Base OM&A - Nuclear (\$M)

Line No.	Resource Type	2013 Actual	2014 Actual	2015 Actual	2016 Budget	2017 Plan	2018 Plan	2019 Plan	2020 Plan	2021 Plan	Test Period Percentage <sup>1</sup>
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1	<b>Labour<sup>2</sup></b>	832.4	827.1	834.0	844.7	859.0	846.9	874.3	885.0	887.9	69.9%
2	<b>Overtime<sup>2</sup></b>	48.6	46.7	54.5	47.8	46.1	46.5	46.1	47.4	47.8	3.8%
3	<b>Augmented Staff</b>	3.1	3.6	4.4	3.3	4.5	3.5	3.0	2.6	1.6	0.2%
4	<b>Materials</b>	85.1	73.4	83.4	70.5	68.4	68.2	68.5	71.1	70.8	5.6%
5	<b>License</b>	34.2	32.6	34.5	36.4	37.2	38.7	39.6	40.2	40.6	3.2%
6	<b>Other Purchased Services</b>	100.0	98.7	108.4	164.1	161.1	185.1	180.8	178.3	187.3	14.3%
7	<b>Other</b>	24.3	44.9	40.3	35.0	34.2	37.0	36.2	40.2	40.3	3.0%
8	<b>Total Base OM&amp;A</b>	1,127.7	1,127.1	1,159.6	1,201.8	1,210.6	1,226.0	1,248.4	1,264.7	1,276.3	100.0%

Notes:

- 1 Test Period Percentage = Sum of Test Period Resource Costs divided by Sum of Test Period Base OM&A.
- 2 Includes Regular and Non-Regular staff.

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 3

Table 3  
Nuclear Base OM&A by Function (\$M)  
Plan - Calendar Year Ending December 31, 2021

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			655.5
2	- Operations	97.5	121.0	218.5
3	- Maintenance	164.8	272.2	436.9
4	Work Management	11.3	23.2	34.5
5	Site and Support Services	24.4	62.0	86.4
6	Tritium Removal Facility	22.1	0.0	22.1
7	Pickering Extended Operations	0.0	0.0	0.0
8	<b>Total Stations</b>	320.1	478.3	798.4
	<b>Support</b>			
9	Engineering			191.8
10	Projects & Modifications			4.0
11	Nuclear Services			0.0
12	Fleet Operations and Maintenance			66.1
13	Security and Emergency Services			98.0
14	Inspection & Maintenance Services			52.7
15	Decommissioning & Nuclear Waste Mgmt			55.8
16	Other Support			9.5
17	<b>Total Support</b>	0.0	0.0	477.9
18	<b>Total Base OM&amp;A</b>	320.1	478.3	1,276.3

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 4

Table 4  
Nuclear Base OM&A by Function (\$M)  
Plan - Calendar Year Ending December 31, 2020

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			656.1
2	- Operations	95.6	124.1	219.8
3	- Maintenance	170.3	266.0	436.3
4	Work Management	13.5	21.1	34.5
5	Site and Support Services	22.6	61.2	83.8
6	Tritium Removal Facility	21.1	0.0	21.1
7	Pickering Extended Operations	0.0	0.0	0.0
8	<b>Total Stations</b>	323.1	472.4	795.5
	<b>Support</b>			
9	Engineering			187.5
10	Projects & Modifications			5.9
11	Nuclear Services			0.0
12	Fleet Operations and Maintenance			65.5
13	Security and Emergency Services			95.5
14	Inspection & Maintenance Services			49.6
15	Decommissioning & Nuclear Waste Mgmt			55.6
16	Other Support			9.7
17	<b>Total Support</b>	0.0	0.0	469.2
18	<b>Total Base OM&amp;A</b>	323.1	472.4	1,264.7

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 5

Table 5  
Nuclear Base OM&A by Function (\$M)  
Plan - Calendar Year Ending December 31, 2019

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			657.7
2	- Operations	91.8	133.9	225.7
3	- Maintenance	172.2	259.8	432.0
4	Work Management	13.2	20.9	34.1
5	Site and Support Services	20.4	59.5	79.9
6	Tritium Removal Facility	20.8	0.0	20.8
7	Pickering Extended Operations	0.0	0.0	0.0
8	<b>Total Stations</b>	318.3	474.1	792.5
	<b>Support</b>			
9	Engineering			183.8
10	Projects & Modifications			5.8
11	Nuclear Services			0.0
12	Fleet Operations and Maintenance			64.6
13	Security and Emergency Services			93.4
14	Inspection & Maintenance Services			44.2
15	Decommissioning & Nuclear Waste Mgmt			54.5
16	Other Support			9.7
17	<b>Total Support</b>	0.0	0.0	455.9
18	<b>Total Base OM&amp;A</b>	318.3	474.1	1,248.4



Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 6

Table 6  
Nuclear Base OM&A by Function (\$M)  
Plan - Calendar Year Ending December 31, 2018

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			644.9
2	- Operations	88.5	135.5	224.0
3	- Maintenance	167.6	253.3	420.9
4	Work Management	12.9	20.7	33.6
5	Site and Support Services	19.0	59.9	79.0
6	Tritium Removal Facility	21.9	0.0	21.9
7	Pickering Extended Operations	0.0	0.0	0.0
8	<b>Total Stations</b>	310.0	469.4	779.4
	<b>Support</b>			
9	Engineering			180.5
10	Projects & Modifications			5.8
11	Nuclear Services			0.0
12	Fleet Operations and Maintenance			63.2
13	Security and Emergency Services			91.2
14	Inspection & Maintenance Services			42.4
15	Decommissioning & Nuclear Waste Mgmt			54.0
16	Other Support			9.6
17	<b>Total Support</b>	0.0	0.0	446.6
18	<b>Total Base OM&amp;A</b>	310.0	469.4	1,226.0

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 7

Table 7  
Nuclear Base OM&A by Function (\$M)  
Plan - Calendar Year Ending December 31, 2017

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			634.7
2	- Operations	83.5	129.7	213.1
3	- Maintenance	167.8	253.7	421.5
4	Work Management	13.0	21.0	34.0
5	Site and Support Services	17.9	55.0	72.9
6	Tritium Removal Facility	21.0	0.0	21.0
7	Pickering Extended Operations	0.0	0.0	0.0
8	<b>Total Stations</b>	303.1	459.4	762.5
	<b>Support<sup>1</sup></b>			
9	Engineering			178.5
10	Projects & Modifications			6.8
11	Nuclear Services			0.0
12	Fleet Operations and Maintenance			66.2
13	Security and Emergency Services			91.0
14	Inspection & Maintenance Services			44.2
15	Decommissioning & Nuclear Waste Mgmt			51.8
16	Other Support			9.6
17	<b>Total Support</b>	0.0	0.0	448.1
18	<b>Total Base OM&amp;A</b>	303.1	459.4	1,210.6

Notes:

- 1 Nuclear Support Divisions includes Base OM&A expenditures for Pickering Extended Operations of \$1.0M.

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 8

Table 8  
Nuclear Base OM&A by Function (\$M)  
Budget - Calendar Year Ending December 31, 2016

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			640.6
2	- Operations	88.2	123.1	211.4
3	- Maintenance	176.0	253.2	429.2
4	Work Management	13.9	20.2	34.1
5	Site and Support Services	18.8	55.6	74.4
6	Tritium Removal Facility	17.7	0.0	17.7
7	Pickering Extended Operations	0.0	0.0	0.0
8	<b>Total Stations</b>	314.7	452.1	766.8
	<b>Support<sup>1</sup></b>			
9	Engineering			178.0
10	Projects & Modifications			7.4
11	Nuclear Services			0.0
12	Fleet Operations and Maintenance			71.0
13	Security and Emergency Services			93.9
14	Inspection & Maintenance Services			47.2
15	Decommissioning & Nuclear Waste Mgmt			49.9
16	Other Support			(12.3)
17	<b>Total Support</b>	0.0	0.0	435.0
18	<b>Total Base OM&amp;A</b>	314.7	452.1	1,201.8

Notes:

- 1 Nuclear Support Divisions includes Base OM&A expenditures for Pickering Extended Operations of \$11.0M.

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 9

Table 9  
Nuclear Base OM&A by Function (\$M)  
Actual - Calendar Year Ending December 31, 2015

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			598.7
2	- Operations	88.9	111.9	200.7
3	- Maintenance	163.9	234.1	398.0
4	Work Management	13.2	18.3	31.5
5	Site and Support Services	16.2	60.8	77.0
6	Tritium Removal Facility	16.8	0.0	16.8
7	Pickering Continued Operations	0.0	0.0	0.0
8	Pickering Extended Operations	0.0	0.0	0.0
9	<b>Total Stations</b>	298.9	425.1	724.0
	<b>Support</b>			
10	Engineering			161.6
11	Projects & Modifications			6.3
12	Nuclear Services			0.0
13	Fleet Operations and Maintenance			63.3
14	Security and Emergency Services			81.8
15	Inspection & Maintenance Services			34.0
16	Decommissioning & Nuclear Waste Mgmt			45.4
17	Other Support			43.3
18	<b>Total Support</b>	0.0	0.0	435.6
19	<b>Total Base OM&amp;A</b>	298.9	425.1	1,159.6

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 10

Table 10  
Nuclear Base OM&A by Function (\$M)  
OEB Approved<sup>1</sup> - Calendar Year Ending December 31, 2015

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			613.7
2	- Operations	89.6	121.6	211.2
3	- Maintenance	157.9	244.6	402.5
4	Work Management	15.0	18.3	33.3
5	Site and Support Services	18.4	52.7	71.1
6	Tritium Removal Facility	17.8	0.0	17.8
7	Pickering Conitnued Operations	0.0	0.0	0.0
8	<b>Total Stations</b>	298.8	437.1	735.9
	<b>Support</b>			
9	Engineering			149.7
10	Projects & Modifications			5.8
11	Nuclear Services			73.7
12	Fleet Operations and Maintenance			26.1
13	Security and Emergency Services			83.6
14	Inspection & Maintenance Services			35.3
15	Decommissioning & Nuclear Waste Mgmt			0.0
16	Other Support			43.9
17	<b>Total Support</b>	0.0	0.0	418.1
18	<b>Total Base OM&amp;A</b>	298.8	437.1	1,154.0

Notes:

- 1 As OEB Approved adjustments shown on Ex. F2-1-1 Table 2 were made at the aggregate Nuclear OM&A level, the figures presented here are 2015 Plan (from EB-2013-0321) rather than 2015 OEB Approved.

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 11

Table 11  
Nuclear Base OM&A by Function (\$M)  
Actual - Calendar Year Ending December 31, 2014

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			580.9
2	- Operations	79.6	108.4	188.1
3	- Maintenance	153.1	239.7	392.8
4	Work Management	13.0	18.4	31.4
5	Site and Support Services	18.8	64.6	83.3
6	Tritium Removal Facility	15.6	0.0	15.6
7	Pickering Continued Operations	0.0	6.0	6.0
8	<b>Total Stations</b>	280.1	437.1	717.2
	<b>Support<sup>1</sup></b>			
9	Engineering			147.6
10	Projects & Modifications			6.9
11	Nuclear Services			0.0
12	Fleet Operations and Maintenance			61.7
13	Security and Emergency Services			75.7
14	Inspection & Maintenance Services			34.2
15	Decommissioning & Nuclear Waste Mgmt <sup>2</sup>			40.0
16	Other Support			43.8
17	<b>Total Support</b>	0.0	0.0	409.9
18	<b>Total Base OM&amp;A</b>	280.1	437.1	1,127.1

Notes:

- 1 Nuclear Support Divisions includes Base OM&A expenditures for Pickering Continued Operations of \$1.3M.
- 2 Beginning in 2014, Decommissioning & Nuclear Waste Management is reported separately rather than being included under "Other Support".

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 12

Table 12  
Nuclear Base OM&A by Function (\$M)  
OEB Approved<sup>1</sup> - Calendar Year Ending December 31, 2014

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			599.4
2	- Operations	85.8	114.2	200.0
3	- Maintenance	155.9	243.6	399.5
4	Work Management	12.9	18.6	31.5
5	Site and Support Services	18.4	52.0	70.4
6	Tritium Removal Facility	16.5	0.0	16.5
7	Pickering Continued Operations	0.0	11.2	11.2
8	<b>Total Stations</b>	289.5	439.5	729.0
	<b>Support<sup>2</sup></b>			
9	Engineering			152.2
10	Projects & Modifications			5.4
11	Nuclear Services			73.9
12	Fleet Operations and Maintenance			27.6
13	Security and Emergency Services			85.0
14	Inspection & Maintenance Services			35.7
15	Other Support			42.3
16	<b>Total Support</b>	0.0	0.0	422.1
17	<b>Total Base OM&amp;A</b>	289.5	439.5	1,151.1

Notes:

- 1 As OEB Approved adjustments shown on Ex. F2-1-1 Table 2 were made at the aggregate Nuclear OM&A level, the figures presented here are 2014 Plan (from EB-2013-0321) rather than 2014 OEB Approved.
- 2 Nuclear Support Divisions includes Base OM&A expenditures for Pickering Continued Operations of \$1.4M.

Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 13

Table 13  
Nuclear Base OM&A by Function (\$M)  
Actual - Calendar Year Ending December 31, 2013

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			561.9
2	- Operations	75.8	104.1	179.9
3	- Maintenance	153.5	228.6	382.1
4	Work Management	15.5	19.2	34.6
5	Site and Support Services	15.6	50.4	66.0
6	Tritium Removal Facility	17.5	0.0	17.5
7	Pickering Continued Operations	0.0	9.9	9.9
8	<b>Total Stations</b>	277.8	412.2	690.0
	<b>Support<sup>1</sup></b>			
9	Engineering			148.8
10	Projects & Modifications			7.4
11	Nuclear Services			75.0
12	Fleet Operations and Maintenance			30.5
13	Security and Emergency Services			79.9
14	Inspection & Maintenance Services			35.4
15	Other Support			60.7
16	<b>Total Support</b>	0.0	0.0	437.7
17	<b>Total Base OM&amp;A</b>	277.8	412.2	1,127.7

Notes:

- 1 Nuclear Support Divisions includes Base OM&A expenditures for Pickering Continued Operations of \$1.6M.



Numbers may not add due to rounding.

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Exhibit F2

Tab 2

Schedule 1

Table 14

Table 14  
Nuclear Base OM&A by Function (\$M)  
Budget - Calendar Year Ending December 31, 2013

Line No.	Function	Darlington NGS	Pickering NGS	Total
		(a)	(b)	(c)
	<b>Stations</b>			
1	Operations & Maintenance			574.1
2	- Operations	79.8	99.7	179.5
3	- Maintenance	158.5	236.0	394.6
4	Work Management	16.1	19.9	36.0
5	Site and Support Services	18.0	52.4	70.4
6	Tritium Removal Facility	18.3	0.0	18.3
7	Pickering Continued Operations	0.0	12.6	12.6
8	<b>Total Stations</b>	290.7	420.8	711.4
	<b>Support<sup>1</sup></b>			
9	Engineering			153.4
10	Projects & Modifications			6.6
11	Nuclear Services			75.1
12	Fleet Operations and Maintenance			30.2
13	Security and Emergency Services			84.2
14	Inspection & Maintenance Services			36.5
15	Other Support			42.3
16	<b>Total Support</b>	0.0	0.0	428.2
17	<b>Total Base OM&amp;A</b>	290.7	420.8	1,139.6

Notes:

- 1 Nuclear Support Divisions includes Base OM&A expenditures for Pickering Continued Operations of \$1.9M.