PROJECT OM&A – NUCLEAR

1.0 PURPOSE

This evidence provides a description of the nuclear project OM&A budget (excluding Darlington Refurbishment) for the historical years, bridge year, and IR term.

2.0 OVERVIEW

OPG is requesting approval of forecast project OM&A expenditures during the IR term of $89.1M in 2022, $85.0M in 2023, $80.6M in 2024, $76.7M in 2025, and $62.0M in 2026, as presented in Ex. F2-3-1, Table 1.

The level of forecast project OM&A expenditures for 2020-2026 reflects work program demands. Project OM&A expenditures peak at $122.3M in 2021 and decline thereafter as Pickering approaches planned shutdown.

Since the last filing (EB-2016-0152), OPG has completed one Tier 1 OM&A project (cost >$20M). This project is discussed in Ex. F2-3-3.

3.0 PROJECT OM&A COMPONENTS

OPG's corporate policy defines a project (capital or OM&A project) as a temporary, unique endeavour undertaken outside the routine base activities of the normal work program. The final decision on whether work will be classified as a capital project or an OM&A project is based on OPG governance. A description of the initiation, review and approval process for nuclear projects, including OM&A projects, is provided in Ex. D2-1-1. OPG's capilization policy is set out in Ex. D4-1-1.

Nuclear project OM&A expenditures for 2016-2026 are shown in Ex. F2-3-1, Table 1 as Project OM&A (Portfolio) and non-portfolio projects. A description of the components of Project OM&A (Portfolio) is set out in Ex F2-3-2. Non-portfolio projects are listed separately from the Project OM&A (Portfolio) due to their extraordinary nature. There are five non-portfolio projects impacting Project OM&A in the IR term: 1) the Fuel Channel Life Extension

Project; 2) Pickering Optimized Shutdown; 3) Darlington Spacer Retrieval (i.e., Project #80112 DN X-750 Spacer Retrieval); 4) Project #83280 Darlington Annulus Spacer Life Management; and 5) Project #83926 IRI Darlington Unit 3 Fuel Channel Component Retrieval.

In addition, the Pickering Extended Operations and Fuel Channel Life Cycle Management non-portfolio projects that were presented in EB-2016-0152 have been or will be completed during the period 2016-2021.

Section 3.1 below provides additional details on the Project OM&A (Portfolio) and non-portfolio projects.

Project OM&A (Portfolio-Allocated) expenditures have also been categorized in Ex. F2-3-1, Table 2 as regulatory, sustaining or value enhancing/strategic. As indicated in Ex. F2-3-1, Table 2, the vast majority of project OM&A expenditures over the IR term relate to sustaining projects required to operate safely and maintain unit reliability.

Exhibit F2-3-3 presents further details of OM&A projects.

3.1 PROJECT OM&A EXPENDITURES

OPG's annual Project OM&A (Portfolio) and non-portfolio project expenditures are in the range of $62.0M to $122.7M for the period 2016-2026 (average is $96.4M) as shown in Ex. F2-3-1, Table 1. Project OM&A (Portfolio) and non-portfolio project expenditures over this period include the following:

- Maintaining Project OM&A (Portfolio) expenditures at Pickering to address life cycle aging of equipment and regulatory requirements to operate Pickering until the end of 2024/2025. Project OM&A (Portfolio) expenditures at Pickering begin to decline after 2017. In anticipation of the planned shutdown of Pickering by 2024/2025, with the exception of potential Infrastructure costs (e.g. minor modifications), there are no Project OM&A (Portfolio) expenditures planned for Pickering post-2022 (including amounts referenced as Portfolio Projects (Unallocated)). Infrastructure costs in the IR term decline

from $49.0M to $42.5M in 2026.

- The Fuel Channel Life Extension project is being undertaken as OPG needs to continually update its assessments of degradation mechanisms on fuel channel components. These degradation mechanisms impact OPG's ability to demonstrate fitness-for-service of the units, which is required to continue to operate these units to their planned end of life in the case of Pickering or their planned refurbishment dates in the case of Darlington. In general, this project performs research and development work to show that specific degradation mechanisms can be managed for extended life scenarios and to show what the limits are for each life limiting degradation mechanism. This work is being undertaken to support station end of life to 235,000 EFPH at Darlington and 295,000 EFPH at Pickering.
- Pickering Extended Operations was undertaken to extend the operating life of Pickering to 2022/2024 as discussed in EB-2016-0152. Total incremental base, outage and project OM&A enabling costs are forecast to be $307M,[1] consistent with the initial forecast. The project schedule has been delayed from 2020 due to changes in Pickering outage schedule and is now scheduled for completion in 2021. In addition, included in the $307M forecast are certain project expenditures that were initially forecast to be OM&A that have been reclassified as capital, as discussed at Ex. D2-1-2.[2] These projects as well as minor fixed asset acquisitions supporting Pickering Extended Operations total $35.5M.
- Pickering will be undertaking incremental outage days and work activities between 2020-2026 to enable Pickering Optimized Shutdown (Ex. F2-1-1). A portion of the $50M in enabling costs for Pickering Optimized Shutdown includes Project OM&A expenditures of $10.0M to complete the Periodic Safety Review and related projects.
- In EB-2016-0152, the OEB approved the Darlington Spacer Retrieval (i.e., Project #80112 DN X-750 Spacer Retrieval).[3] The purpose of this project, completed in 2018, was to develop tooling and the retrieval of fuel channel spacers from units undergoing refurbishment. Retrival of these fuel channel spacers will allow them to undergo further

[1] EB-2016-0152, Ex. F2-2-3, p. 6.
[2] The potential for reclassification was discussed in EB-2016-0152 L-6.5-1 Staff-119.
[3] EB-2016-0152, OEB Decision and Order, December 28, 2017. p. 23.

testing to ensure that Darllington units scheduled for refurbishment can safely operate until their planned refurbishment start dates.

- Subsequent to EB-2016-0152, OPG identified two additional non-portfolio projects: Project #83280 Darlington Annulus Spacer Life Management) and Project #83926 Darlington Unit 3 F/C Comp Retrieval. Additional details on Project #83280 Darlington Annulus Spacer Life Management can be found at Ex. F2-3-3, Section 3.1. The purpose of Project #83926 Darlington Unit 3 F/C Component Retrieval is to retrieve additional annulus spacers from Unit 3 for testing necessary to refine the model that is needed to demonstrate to the Canadian Nuclear Safety Commission continued fitness for service of Darlington Units 1 and 4 up to their respective planned refurbishment dates.

Fuel Channel Life Extension, Pickering Extended Operations, Pickering Optimized Shutdown, Darlington Spacer Retrieval, Darlington Annulus Spacer Life Management and Darlington F/C Comp Retrieval are eligibile for the Capacity Refurbishment Variance Account (see Ex. H1-1-1, section 5.6).

Further details of period-over-period comparisons of Nuclear project OM&A expenditures for 2016-2021 are provided in Ex. F2-3-2.