CAPITAL PROJECTS – SUPPORT SERVICES

1.0 PURPOSE

This evidence provides descriptions and listings of capital projects, business case summaries, and in-service additions for OPG's Support Services' projects that support the regulated facilities.

As discussed in Ex. D3-1-1, since EB-2016-0152, OPG has initiated corporate strategies for Information Technology and Real Estate to enable the company to meet its post-Pickering cost structure and OM&A targets. These corporate strategies have resulted in OPG undertaking a number of new capital projects not previously identified in EB-2016-0152. In addition, this exhibit sets out the capital projects underpinning these strategies that form part of the IR term capital budgets presented in Ex. D3-1-1.

2.0 CAPITAL PROJECTS LISTING

OPG has used a tiered structure for reporting all capital projects. Information is presented for projects which have budgeted expenditures or in-service amounts during the 2022-2026 IR term.

The following information is provided for capital projects being undertaken by OPG's corporate groups:

- Tier 1: For projects with a total cost of $20M or greater, summary level information is provided in Ex. D3-1-2, Table 1a through 1b (Section 3.0 below).
- Tier 2: For projects with a total cost of $5M to $20M, summary level information is provided in Ex. D3-1-2, Tables 2a through 2d (Section 4.0 below).
- Tier 3: For projects with a total cost of less than $5M, aggregated information is provided in Ex. D3-1-2, Table 3 (Section 5.0 below).

There is also an unallocated IT project portfolio category. As discussed in Ex. D3-1-1, OPG will review the project portfolio on an annual basis to prioritize projects for execution each year. OPG expects that during the IR term, current projects being developed or other projects to be

identified, as new IT tools, innovations, and cybersecurity needs arise, will form part of the projects prioritization process, ultimately reducing the unallocated portfolio to zero.

3.0 TIER 1 CAPITAL PROJECTS

There are four Tier 1 capital projects with costs greater than $20M comprising two categories: Ongoing Projects from EB-2016-0152 and New Projects approved since EB-2016-0152. Exhibit D3-1-2, Table 1a presents the Tier 1 projects by the IT group and Real Estate groups discussed below. Business case summaries, where available, are provided in Attachments to this exhibit, and also listed in Ex. D3-1-2, Table 6.

3.1 Ongoing Projects from EB-2016-0152

Cyber Security – CSA N290.7 is an ongoing regulatory compliance program comprised of separate projects. The primary purpose of the program is to mitigate cyber security risks at each nuclear site by complying with Canadian Nuclear Safety Commission Action Items 2008-13-05 and 2008-04-08 to address vulnerabilities of Critical Cyber Assets identified in a self-assessment as part of the Canadian Standard Association N290.7 Cyber Security Standard. In EB-2016-0152, OPG had forecast the first of these projects as a Tier 2 project. With increased cybersecurity regulatory requirements, this project has since become a program of distinct projects to address discrete regulatory requirements as and when issued. The program started in 2017 and is expected to be completed in 2025 at an estimated cost of $40.7M.

3.2 New Projects

The **SAP Payroll Upgrade** is a sustaining project with the objective of upgrading the existing SAP Payroll system used at OPG, for which vendor support is expected to expire during the IR term. This project plans to start in 2024 with an estimated cost of $27.0M. Planned final in-service date is 2025.

The **700 University Workplace Transformation** project was not included in EB-2016-0152 but was completed in 2019 with a cost of $20.9M. This project reduced OPG's footprint at 700 University from five floors to two floors, largely enabled by transitioning to a 'free address' workspace. This has resulted in greater collaboration in the workplace, as well as reduced

operating and maintenance costs. This project has also enabled OPG to develop its Workplace Transformation expertise while it continues to execute other like projects over the bridge and IR term at other core OPG offices.

The **Clarington Corporate Campus** project includes the construction of a new corporate campus facility in Clarington adjacent to the current Darlington Energy Complex. This new building will be designed to accommodate at least 1,250 employee workstations and will function as OPG's new corporate head office. This initiative targets a reduction in square footage per employee in alignment with current industry standards, while providing a new workplace design that encourages and supports innovation, collaboration, and agility across OPG. This project is estimated to cost [redacted] with a planned final in-service date in 2025.

4.0 TIER 2 CAPITAL PROJECTS

There are 34 Tier 2 projects comprising three categories: Completed/Deferred Projects from EB-2016-0152; Ongoing Projects from EB-2016-0152; and New Projects approved since EB-2016-0152.

4.1 Completed/Deferred Projects from EB-2016-0152

Exhibit D3-1-2, Table 2a presents five Tier 2 projects that were completed by the IT group and Real Estate group discussed in Sections 4.1.1 and 4.1.2, respectively.

4.1.1 IT

The **Microsoft Windows Server Upgrade** was a sustaining project to support OPG's applications and servers as part of the company's asset lifecycle plan. The project started in 2015 and it was completed in 2017 at a cost of $7.4M.

Mainframe Purchase was a sustaining project for OPG to acquire two new mainframes as part of the IT asset lifecycle plan. It started in 2015 and it was completed in 2017 at a cost of $5.2M.

Storage Purchase was a sustaining project to enable OPG to acquire new storage equipment as part of the IT asset lifecycle plan. It started in 2015 and it was completed in 2017 at a cost of $6.6M.

The **Security and Emergency Services (SES) P25 Interoperability Radio System (SIRS)** was a regulatory project to restructure the integrated digital enhanced network for vendor support in order to provide wireless voice communication systems at the nuclear sites. The project started in 2016 and is expected to be complete in 2020 at a cost of $10.1M.

4.1.2 Real Estate

The **Darlington Nuclear Generating Station Site Road and Bridge Repair and Rehabilitation** was a sustaining project to conduct repairs at the Holt Road and Park Road at the Darlington site. The project started in 2016 and it was completed in 2018 at a cost of $7.4M.

4.2 Ongoing Projects from EB-2016-0152

Exhibit D3-1-2, Table 2a presents three ongoing Tier 2 projects being carried out by the IT group discussed in Section 4.2.1.

4.2.1 IT

Asset Suite Upgrade is a sustaining project for an enterprise resource management system used to support work management processes including materials management and plant maintenance across OPG. This project started in 2020 and is expected to be complete by 2022 at an estimated cost of $15.0M. Planned final in-service date is 2022.

Tempus Lifecycle Upgrade is a sustaining project with the objective of upgrading or migrating the existing software application to a web-based time entry system that is accessible remotely. The project started in 2017 at an estimated cost of $17.8M. Planned final in-service date is December 2020.

Energy Market Application Refresh Program is a regulatory project with the objective of upgrading a number of applications that support business activities from trading to outage

management. Many of these custom built applications are at end of life with respect to technology or vendor support. The project started in 2020 with an estimated cost of $9.7M. Planned final in-service date is 2023.

4.3 New Projects

Exhibit D3-1-2, Tables 2b through 2d, presents 26 Tier 2 projects that are being undertaken by the IT and Real Estate groups discussed in Section 4.3.1 and 4.3.2, respectively.

4.3.1 IT

Documentum Implementation was a sustaining project to implement a new enterprise content management system, Documentum, to replace the Curator/CorDoc content management application, which reached its end of life and is no longer supported by the vendor. The project started in 2016 and was completed in 2019 at a cost of $9.4M.

The **SAP ECC 6.0 Upgrade** was a sustaining project to upgrade from the SAP 4.7 enterprise resource planning system to the 6.0 version to ensure continued support by the vendor in the areas of Finance, Human Resources, Payroll and Real Estate, and to address security vulnerabilities. The project started in 2015 and was completed in 2018 at a cost of $6.3M.

Microsoft SharePoint Upgrade was a sustaining project to upgrade the outdated SharePoint 2007 software. The new version reduces onsite servers, storage, and ongoing support resource requirements. This project was to ensure existing infrastructure would be compatible with the new Microsoft Enterprise Agreement for the SharePoint Upgrade. The project started in 2016 and it was completed in 2019 at a cost of $6.2M.

The **Wireless Improvement Program** was a sustaining project that deployed a company wide Wi-Fi network to OPG-occupied office spaces, buildings and sites. The project started in 2017 and it is expected to be was completed in 2020 at a cost of $9.2M.

The **Network Segmentation Campus Switch Replacement** is a sustaining project to replace obsolete network hardware. The project started in 2017 and is expected to be complete in 2023 at an estimated cost of $14.9M.

The **Windows 10 Project (Windows 7 Lifecycle Upgrade)** was a sustaining project to mitigate the risk of utilizing an outdated operating system. Implementing Windows 10 helps ensure safe day-to-day operation. This project was to ensure existing infrastructure would be compatible with the new Microsoft Enterprise Agreement for the Windows upgrade. The project started in 2017 and was completed in 2019 at a cost of $9.7M.

OPG Telephone Upgrade was a sustaining project to support the implementation of a 'free address' office environment at 700 University by removing most fixed line telephones previously affixed to individual employee workstations and subsequently implementing a Skype telephone system via each individual user's laptop. The project started in 2017 and was completed in 2019 at a cost of $6.5M.

The **Reimagine Program** is a value enhancing project with the objective of seeking opportunities to leverage robotic process automation to shift Shared Services, Finance and Supply Chain away from manual activities. Reimagine also standardized processes, eliminated redundant work, and optimized existing tools. The project started in 2019 and was completed in 2020 at a cost of $17.5M.

Reimagine Program 2.0 is a value enhancing project aimed at improving the service delivery model across Shared Services, Human Resources, Finance and Supply Chain, resulting in timely fulfillment and less follow-up. The project started in 2020 and is expected to be complete in 2022 at an estimated cost of $14.0M.

The **Monitoring and Diagnostic Sensor Network** is a value enhancing project to implement sensor technology and analytics to deliver equipment health and operational information to the data repository, allowing for early detection and resolution of potential repairs. The project started in 2017 and is expected to be complete in 2021 at an estimated cost of $5.2M.

The **Enterprise Asset Management tool** is a sustaining project to enable an integrated, strategic and systematic approach to manage assets to maximize asset value. The project started in 2017 and is expected to be complete in 2021 at an estimated cost of $8.9M.

The **Training Information Management system (TIMS) II Upgrade** is a sustaining project intended to upgrade the existing Training Information Management System. It is the system of record for OPG nuclear training records, and includes managing employee credits, qualifications, and scheduled training events (classroom courses). This project plans to start in 2023 and is expected to be completed in the same year at an estimated cost of $6.0M.

The **Audio Visual Conferencing Room Refresh** is a sustaining project to upgrade the Avaya Aura conferencing equipment, the Scopia Bridge, Polycom video end points and Plantronics video conferencing equipment throughout OPG facilities that will reach end of life during the IR term. This project plans to start in 2023 and is expected to be complete in 2025 at an estimated cost of $7.5M.

The **Documentum Lifecycle Upgrade** project is a sustaining project to upgrade OPG's existing enterprise content management system, Documentum. The new release will provide enhanced performance and security, improved user experience and extended capability. This project plans to start in 2023 and is expected to be complete by 2024 at an estimated cost of $8.0M.

The **Human Resource System Replacement** a sustaining project to deploy an integrated suite of web-based human capital management applications to support OPG's HR system of record, including talent management, workforce analytics and succession planning – and pivot from disparate systems at end of life. This project plans to start in 2022 and is expected to be complete by 2023 at an estimated cost of $13.0M.

The **Nuclear Integrated Digital Enhanced Network** was a regulatory project to upgrade obsolete mobile communications technology that underpinned the day-to-day plant operation

communication, security and emergency communication within the plant, and external communication with Durham police and firefighters. The project started in 2015 and was completed in 2018 at a cost of $11.4M.

The **Pickering Wi-Fi Power House Unit 1-8** is a sustaining project to establish a broadband wireless network infrastructure within the station to facilitate direct access to the data and applications required to perform field work. The project started in 2018 and is expected to be completed in 2023 at a cost of $18.3M.

The **Darlington Wireless Program** is a sustaining project to establish wireless network infrastructures within the station to facilitate direct access to data and applications required to perform field work. The project started in 2019 and is expected to be completed in 2021 at an estimated cost of $6.4M.

The **OPG Telecom Upgrade** is a sustaining project with the objective of upgrading the Avaya Private Branch Exchange (PBX) equipment supporting the Darlington Energy Complex and includes voice loggers used by physical plant security. This project plans to start in 2023 and is expected to be complete in 2025 at an estimated cost of $7.5M.

4.3.2 Real Estate

Ground Maintenance Complex was a sustaining project that includes engineering, procurement, and construction of 2 steel buildings for storing salt, transport work equipment, snow removal equipment and ground maintenance machinery at Darlington. The project started in 2018 and was complete in 2020 at a cost of $8.6M.

Darlington Heating Ventilation and Air Conditioning (HVAC) Systems R22 Replacement is a sustaining project to conduct upgrades to the antiquated HVAC system. The project started in 2020 and is expected to be complete in 2022 at an estimated cost of $9.0M.

Update of the Darlington Engineering Support Services Building ("ESSB") 2nd Floor is a sustaining project that will modernize the 2nd floor of the 20-year old building to replace

furniture and fixtures at end of life, revamp the outdated design to create an open office and comply with the *Accessibility for Ontarians with Disabilities Act* ("AODA"). This increase will enable OPG to accommodate staff presently located at 230 Westney Rd. (a leased facility), and will reduce OPG's overall leasing footprint and new build costs. This project is being planned independently from the ESSB 3rd floor as the design for this floor will have more space dedicated to individual work stations. In addition, it will allow operational experience from the 3rd floor to be captured into planning and construction of the 2nd floor. The project starts in 2021 and is expected to be complete in 2022 at an estimated cost of $10.1M.

Overhaul of the Darlington Energy Complex ("DEC") 2nd Floor is a sustaining project that reconfigures the floor to construct free address workspaces and remove obsolete equipment to increase accessibility and usage, while aligning with the new corporate head office as part of the Clarington Corporate Campus. The DEC will accommodate non-station staff (support staff who do not need to be at Nuclear or Renewable Generation stations) once the Darlington Refurbishment Program staff vacate the space. The refresh will include AODA upgrades along with free address furniture and upgraded technology to support improved collaboration. Up-front building assessments and pre-construction activities are included in the years preceding project execution as these will inform the design of both the 2nd and 3rd floors. The DEC will form part of the overall Clarington Corporate Campus ("Campus") footprint. Operational experience from this project will be incorporated into the design of the DEC 3rd floor project. Utilizing the DEC space is less expensive than the alternative of building additional new space or continuing to lease space outside of the Campus footprint. Planning the 3rd floor independently of the 2nd floor allows operational experience from the 2nd floor to be captured into plans and construction of the 3rd floor, and aligns with the space needs of the Darlington Refurbishment Program team. The project starts in 2021 and is expected to be complete in 2025 with an estimated cost of $10.2M.

Update of the Darlington ESSB 3rd Floor is a sustaining project that will modernize the 3rd floor of the 20-year old build to replace furniture and fixtures at end of life, reconfigure outdated design to create an open office and comply with the AODA. The project includes collaborative spaces for Darlington station staff. The design incorporates current AODA compliant design

and free address seating, increasing capacity by up to 30%. This increase will enable OPG to accommodate staff presently located at 230 Westney Rd. (a leased facility), and will reduce OPG's overall leasing footprint and new build costs. This project is being planned independently of the ESSB 2nd floor as the design for this floor will have more space dedicated to large group collaboration. In addition, operational experience from the 3rd floor will be captured into planning and construction of the 2nd floor. This project is also planned to align with modifications to the building support systems currently at end of life (e.g., HVAC upgrade). The project starts in 2020 and is expected to be complete in 2021 with an estimated cost of $10.4M.

Upgrade of the Pickering Administration Building is a sustaining project to refurbish the Pickering Administration Building, which is located in the protected area of station premises. This building will accommodate personnel critical to safe storage who are currently located in other buildings, which will be demolished at station end of life. Optimization of this office space through utilizing a free address design increases the building capacity up to 30% and incorporates a combination of used and new furniture and upgraded technology. The project starts in 2021 and is expected to be complete in 2022 at an estimated cost of $8.0M.

Overhaul of the Darlington Energy Complex 3rd Floor is a sustaining project to reconfigure this floor by constructing agile office workspaces and removing obsolete equipment to increase accessibility and usage, while aligning with the new corporate head office in forming part of the Campus. The DEC will accommodate non-station support staff who do not need to be located at a Nuclear or Renewable Generation station and will be available once the Darlington Refurbishment Program staff vacate the space. The DEC is part of the overall Campus footprint. The refresh will include AODA upgrades along with agile office furniture and upgraded technology to support improved collaboration. Utilizing the DEC space is less expensive than the alternative of building additional new space or continuing to lease space outside of the Campus footprint. Planning the 3rd floor independently of the 2nd floor allows operational experience from the 2nd floor to be captured into planning and construction of the 3rd floor, and aligns with the space needs of the Darlington Refurbishment Program team. The project starts in 2024 and is expected to be complete in 2025 with an estimated cost of $7.3M.

5.0 Tier 3 Capital Projects

Exhibit D3-1-2, Table 3 provides aggregated information for Tier 3 projects with a cost less than $5M. There are 203 Tier 3 projects.

ATTACHMENTS

Attachment 1:	700U Workplace Transformation – Execution Phase BCS
Attachment 2:	Clarington Corporate Campus – Developmental BCS