UNDERTAKING JT3.5

Undertaking

TO PROVIDE FURTHER DETAIL TO THE INFORMATION IN STAFF 18 RELATED TO COVID IMPACTS.

Response

This undertaking response is with reference to Tr. Tech. Conf., May 7, 2021, pp. 41-43 seeking (a) further information regarding OPG's breakdown of the forecasted $150M DRP-related COVID-19 costs, and (b) the difference in COVID-19 impacts as between DRP and Nuclear Operations capital projects.

a) The majority of the COVID-19 cost impacts on the DRP were forecast to occur in 2020, as a result of the deferral of the start date of the Unit 3 refurbishment outage. As noted in Ex. L-A2-02-Staff-018 (a), the primary driver of these impacts was costs required to re-plan and ensure readiness for the Unit 3, 1 and 4 (Remaining Units) refurbishment. With reference to Ex. L-A2-02-Staff-018, Chart 1, OPG provides the following additional detail for the cost impacts:

- **Project Management Team Costs and Direct and Indirect Labour Costs (Lines 1 and 2 of Ex. L-A2-02-Staff-018, Chart 1)**: The start date of the Unit 3 refurbishment outage was deferred by four months with very short notice (6 weeks prior to the start of the refurbishment outage). Given the short duration of the planned deferral, it was critical to manage the risks around the readiness to commence the Unit 3 refurbishment at the new start date, and particularly the need to ensure the availability of highly specialized and trained resources. This was especially crucial for the Retube and Feeder Replacement Major Work Bundle, which is the largest work bundle and where the majority of the work occurs on the critical path of the refurbishment outage.

  In managing the above risks, OPG considered multiple factors with a view to minimize the cost and disruption impact of COVID-19 to the DRP. These included assessing what work could safely continue (e.g. engineering deliverables), the effort required to re-plan the Remaining Units' refurbishment outages, the costs of retaining resources and maintaining facilities, and the costs of demobilization and remobilization of the workforce.

- **Interest, Escalation and Estimated Productivity Impacts (Line 4 of Ex. L-A2-02-Staff-018, Chart 1)**: This line is comprised of: (i) incremental interest costs that arise from the deferral of the scheduled start and end dates for Remaining Units as the later in-service dates (by four months on each unit)

result in continued accumulation of interest on expended capital, including the DRP cost impacts of COVID-19; (ii) incremental escalation that arises from the deferral of the cost flows on Remaining Units associated with the schedule deferral; and (iii) estimated productivity impacts of COVID-19 protocols as described further below.

b) As stated in Ex. L-A2-02-Staff-018, part f), OPG considers that there are no impacts to the proposed 2022-2026 rate base amounts associated with COVID-19 as it relates to Nuclear Operations capital projects. This reflects the fact that OPG has managed such impacts to date within existing project portfolio budgets, based on assessment of business needs. Discussed below are the main factors of the significantly differing degree of COVID-19 impacts as between DRP and the Nuclear Operations projects portfolio:

- **Project Scale and Complexity**: The proportionate impact of COVID-19 on DRP is larger than on the Nuclear Operations projects because of the size and complexity of DRP. The DRP is a suite of projects executed in an integrated manner. Dismantling and re-building a reactor, installation of digital controls on the turbine-generator set and rewinding the generator stator are examples of large scale, highly technical work scopes which require specially trained staff. By contrast, the individual projects within the Nuclear Operations portfolio are generally smaller in comparison to DRP projects. Thus, there was $8.4M recorded as COVID-19 impacts to the cost of Nuclear Operations projects in 2020, compared to a majority of $150M for the DRP.[1] Further, interest cost impacts associated with the portfolio projects that were deferred are minimal, compared to estimated interest costs for the DRP of $28M.

- **Project Timing and Reallocation of Resources**: As noted above, at the time of the declaration of a state of emergency in March 2020, DRP was only six weeks from the start of the refurbishment outage on Unit 3. There were limited opportunities to divert resources as the project was about to enter execution. Retention of highly specialized and trained staff was evaluated to be less costly to the DRP than laying off with the intention of rehiring and training replacement staff later. For Nuclear Operations projects, in consideration of employees' safety and ongoing station reliability, OPG suspended certain projects in the construction phase (22 in total) as part of its response to the pandemic. Nuclear Operations projects that were in the definition phase were not suspended and did not incur incremental costs. OPG was able to re-allocate specially trained staff from suspended Nuclear Operations projects to other projects in the definition and planning phases, thus avoiding incremental costs.

[1] As noted in Ex. L-A1-02-Staff-018, part b), the actual amount of COVID-19 impacts incurred for DRP in 2020 was $82.2M.

- **Training and Field Work Execution**: DRP conducts on-boarding, classroom training and mock-up training of large groups of trades staff in advance of each major work series. As well, much of the DRP field work is conducted in workspaces where close and prolonged contact between trades staff is difficult to avoid, e.g., at the face of the reactor or at the feeder cabinet. As a result of COVID-19 protocols such as reduced occupancy and mask usage, productivity impacts were forecast for the DRP. While the same COVID-19 protocols are in place for the Nuclear Operations projects, the nature of training and execution of these projects is such that large trades complements are not routinely trained in classroom settings. For instance, many of the trades that perform Nuclear Operations projects work are dedicated to OPG, and are already trained on the plant systems, requiring minimal on-boarding and training compared to the DRP. Additionally, part of the field work on the Nuclear Operations projects is conducted by small groups of trades in open areas of the nuclear stations, resulting in fewer productivity impacts as a result of COVID-19 protocols.