Board Staff Interrogatory #144

Interrogatory

Reference:
Exhibit D2 / Tab 2 / Schedule 7 / p. 1
Exhibit D2 / Tab 2 / Schedule 7 / Attachment 1 / p. 4

Preamble:

The first reference above states that the Unit 1 Execution Estimate (U1EE) is forecast to be completed in November 2021 and Unit 4 Execution Estimate (U4EE) is forecast to be completed in May 2023.

The second reference above shows that, according to the High Confidence Schedule (Final U3EE), refurbishment of Unit 1 and Unit 4 is planned to start in February 2022 and September 2023, respectively. According to the same schedule, Unit 3 refurbishment completion is expected in January 2024.

Question(s):

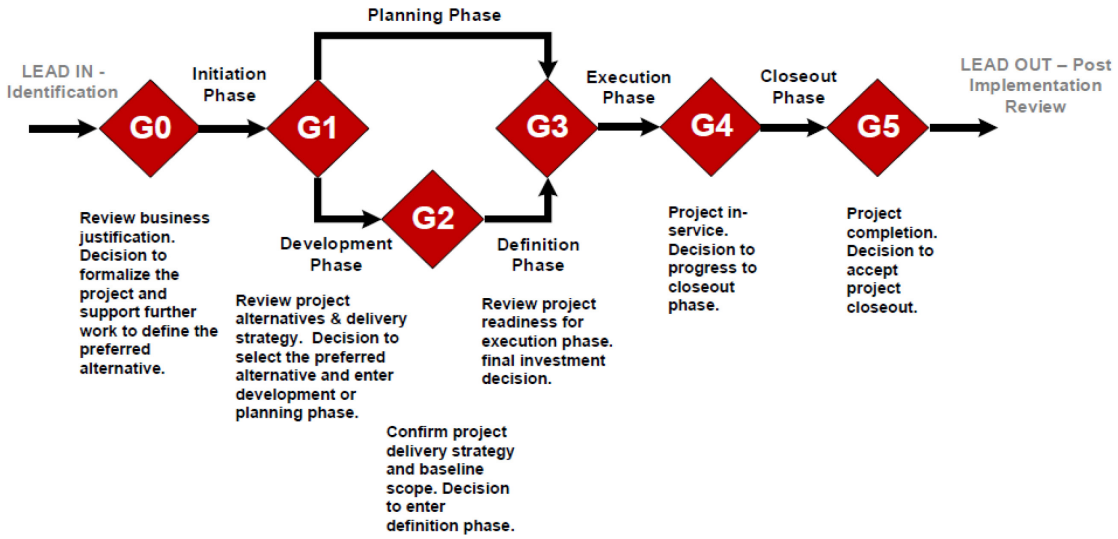
a) What is the general rationale for the timing of U1EE and U4EE? Does OPG anticipate this timing will allow for the incorporation of lessons learned from Unit 3 refurbishment, even though U1EE and U4EE will be issued before Unit 3 refurbishment is complete?

Response

a) OPG's pre-filed evidence included its Project Phase Gate Management Governance, OPG-MAN-00120-0019-NA-R000, filed as Ex. D2-2-3, Attachment 1. An updated version is filed as Ex. L-D2-01-AMPCO-016, Attachment 1. In that document, OPG's Scalable Project Delivery Model, Project Life Cycle Phases, the concept of project gates and the manner in which OPG plans, manages and monitors the Project Phase Gating process are all explained.

   See Figure 1 of Ex. D2-2-3, Attachment 1 (duplicated below for ease of reference) for a summary of Project Life Cycle Phases and project gates. As per Figure 1, projects move from the Definition Phase to the Execution Phase by progressing through Gate 3. After progression through Gate 3, approval for the full release of funds to execute the project is sought from the OPG Board of Directors (for those projects requiring OPG Board approval).

Figure 1: Project Life cycle Phases & Gates



The Darlington Refurbishment Program ("DRP") is a mega-program which, based on the scalable project delivery model, is subject to the most stringent requirements for phase gate planning, management and monitoring. As a Program, the DRP transitioned from Definition Phase to the Execution Phase at the time of OPG Board Approval of the Release Quality Estimate ("RQE") in November 2015. However, because each unit within the Program proceeds to execution at a different time, a decision was made that, subsequent to the RQE, but prior to seeking approval from the OPG Board of Directors to move to the Execution Phase of each unit, there would be a unit Execution Estimate ("EE"). Each unit's EE serves as a "final check" of the forecast cost and schedule for the refurbishment of that unit. At each unit's EE, the cost and schedule for the remainder of the Program is also refreshed incorporating any lessons learned from the prior units' execution, serving as confirmation of the estimate to complete ("EAC") of the Program.

Because the unit EEs serve as the budget and schedule against which performance on that respective unit's refurbishment outage is measured, OPG plans to have each unit's EE finalized close to the start of that respective unit's refurbishment outage to allow planning to be completed, including incorporation of lessons learned from preceding unit(s)' execution. Thus:

1. The Unit 2 EE ("U2EE") was completed in, and approved by, OPG's Board of Directors, in August 2016, two months before the start of the Unit 2 refurbishment outage.
2. The Unit 3 EE ("U3EE") was completed in, and approved by OPG's Board of Directors, in August 2020, the month prior to the start of the Unit 3 refurbishment outage.

3. The plan is to complete the Unit 1 EE ("U1EE") and seek approval from the OPG Board in November 2021, four months before the start of the Unit 1 refurbishment outage in February 2022.
4. The plan is to complete the Unit 4 EE ("U4EE") and seek approval from the OPG Board in May 2023, four months before the start of the Unit 4 refurbishment outage in September 2023.

The timing of the U1EE and the U4EE will allow for Lessons Learned from the Unit 3 refurbishment to be incorporated. Firstly, because the Unit 2 refurbishment is complete, all Lessons Learned from the Unit 2 refurbishment have already been incorporated into the planning for the Units 3, 1, and 4 refurbishments. Secondly, OPG does not wait until a refurbishment outage is completed before assessing the Lessons Learned and incorporating those Lessons Learned into the subsequent units. OPG holds Lessons Learned sessions after each set of activities, gathers those Lessons Learned and incorporates them into both the planning and execution of the subsequent units. Because Unit 3 will have been in its refurbishment outage for approximately 13½ months by the time of the U1EE and for approximately 32½ months by the time of the U4EE, all of the Lessons Learned from those first 13½ and 32½ months will have been made available and will have been incorporated into the U1EE and U4EE respectively.

See Ex. D2-2-3, Section 4 for a full discussion of OPG's Lessons Learned process. OPG's process is to continue to gather and apply Lessons Learned from the prior units' work activities to apply to the same or similar work activities on the subsequent units, right up until the start of execution of those same or similar work activities. Please see Ex. D2-2-8, Section 2.2.1.1, pp. 8-10 for an explanation of how OPG has organized into project-centric teams and is using specialized work teams to facilitate the on-going and efficient implementation of Lessons Learned in the work of the subsequent units, despite the overlapping execution schedules.