INDEPENDENT STUDIES

1.0 INDEPENDENT ASSSESSMENT OF OPG'S PREPAREDNESS TO REFURBISH UNITS 3, 1, AND 4

In EB-2016-0152, Pegasus Global Holdings, Inc. ("Pegasus-Global") was retained to provide an independent and objective assessment of OPG's plan and approach to the execution of the Darlington Refurbishment Program ("DRP" or "Program"). Pegasus-Global concluded that OPG had reasonably and prudently prepared for its execution of the DRP, and that the extensive pre-execution planning that was undertaken by OPG positioned it to have a successful execution of the Program.[1]

In April 2019, OPG retained Pegasus-Global to provide an independent and objective assessment of OPG's project management approach and preparedness with respect to the planned refurbishment of Units 3, 1, and 4 (the "Remaining Units"), including: (1) whether the planning for the Remaining Units appropriately considered unit-over-unit scope differences and incorporated lessons learned from the execution of the Unit 2 refurbishment to demonstrate unit-over-unit improvement; and, (2) whether Pegasus-Global's prior EB-2016-0152 assessment and conclusions continue to be applicable for the Remaining Units (the "Assessment").

Pegasus-Global concluded that, consistent with OPG's approach to the planning for the execution of the Unit 2 refurbishment, OPG's approach for executing the Remaining Units aligns with the approach typically used on other megaprograms and in several areas exceeds what Pegasus-Global has observed on other megaprograms of similar magnitude, scale and complexity. Further, Pegasus-Global concluded that unit-over-unit scope changes and unit-over-unit expected efficiency improvements based on the incorporation of lessons learned have been appropriately accounted for by OPG in its planning for execution of the Remaining Units, including within the cost estimates and schedules. Therefore, Pegasus-Global expects

[1] EB-2016-0152, Ex. D2-2-11, Attachment 3.

OPG to realize these unit-over-unit improvements. Pegasus-Global's testimony is included in Attachment 1. The Engagement Letter for Pegasus-Global is included as Attachment 2.

2.0 INDEPENDENT COST ESTIMATE OF THE AS-BUILT D2O STORAGE PROJECT

In September 2019, Bates White Economic Consulting ("Bates White") was retained to complete an estimate of the cost to design, engineer, construct and commission the as-built Heavy Water Storage and Drum Handling Facility ("D2O Storage Project") at OPG's Darlington Nuclear Generating Station taking into consideration:

1. the D2O Storage Project's location and functionality,
2. impacts of working within the protected area of the Darlington site,
3. the timing of construction,
4. environmental issues at the site, and
5. all applicable construction codes and nuclear regulatory requirements.

In developing the cost estimate, Bates White assumed it had perfect knowledge of project scope, design requirements, and actual site conditions. The Bates White team produced its cost estimate using methods that would be appropriate before construction was undertaken, but after all environmental studies and requisite permits had been obtained for the overall refurbishment project.

Bates White concluded that the estimated total cost of the D2O Storage Project, based on this perfect knowledge, is $517.7M. The total cost of $517.7M represents Bates White's mean or maximum-likelihood estimate, and comprises: the contractor's cost to engineer, procure, and construct the facility; the owner's cost to manage the contract, oversee the engineering and construction effort, and commission the facility; and, the owner's cost for financing and closing out the construction project. Bates White's Class 2 estimate is accurate within 15% above and 10% below the expected cost for the D2O Storage Project of $517.7M. On a P90 basis, Bates White's estimate of the D2O Storage Project is $576.5M. Bates White's report is included as Attachment 3. The Engagement Letter for Bates White is included as Attachment 4.

ATTACHMENTS

Attachment 1:	Pegasus Global Holdings, Inc. – Testimony of Dr. Patricia D. Galloway
Attachment 2:	Pegasus Global Holdings, Inc. Engagement Letter
Attachment 3:	Bates White Economic Consulting – Report: Construction Cost Estimate for the Darlington Nuclear Generating Station D2O Storage Project
Attachment 4:	Bates White Economic Consulting Engagement Letter