

Chris G. Paliare
Ian J. Roland
Ken Rosenberg
Linda R. Rothstein
Richard P. Stephenson
Nick Coleman
Donald K. Eady
Gordon D. Capern
Lily I. Harmer
Andrew Lokan
John Monger
Odette Soriano
Andrew C. Lewis
Megan E. Shortreed
Massimo Starnino
Karen Jones
Robert A. Centa
Nini Jones
Jeffrey Larry
Kristian Borg-Olivier
Emily Lawrence
Tina H. Lie
Jean-Claude Killey
Jodi Martin
Michael Fenrick
Ren Bucholz
Jessica Latimer
Debra McKenna
Lindsay Scott
Alysha Shore
Denise Cooney
Jessica H. Elders
Lauren Pearce
Daniel Rosenbluth

COUNSEL

Stephen Goudge, Q.C.

HONORARY COUNSEL

Ian G. Scott, Q.C., O.C.
(1934 -2006)

Richard P. Stephenson

T 416.646.4325 Asst 416.646.7419
F 416.646.4301
E richard.stephenson@paliareroland.com
www.paliareroland.com

File 92805

December 2, 2016

VIA EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, Ontario M4P 1E4

VIA COURIER AND RESS FILING

Dear Ms. Walli

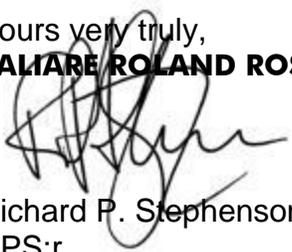
Re: Ontario Power Generation – Interrogatories

Payment Amounts 2017-2021 Ontario Energy Board File No. EB-2016-0152

Please find enclosed the Interrogatories of Power Workers' Union in connection with the above-noted proceedings – Exhibit M1.

Yours very truly,

PALIARE ROLAND ROSENBERG ROTHSTEIN LLP


Richard P. Stephenson
RPS:r

Ontario Power Generation Inc.

2017-2021 Payment Amounts

**Power Workers' Union Interrogatories on
Schiff Hardin, LLP (Schiff)'s Report on
Darlington Refurbishment Project (Exhibit M1)**

Issue 4.3

Are the proposed nuclear capital expenditures and/or financial commitments for the Darlington Refurbishment Program reasonable?

M1-4.3-PWU-1

Ref 1: Exhibit M1, Page 5 of 75

Schiff was engaged by the Ontario Energy Board ("OEB") to provide an independent and objective assessment of the Darlington Refurbishment Program ("DRP" or the "Program") including analyzing the following:

- *DRP risks and Ontario Power Generation ("OPG")'s risk assessment with respect to industry best practices for projects the size and complexity of DRP;*
- *Contract strategy, contract terms, and contractual risk allocation between OPG and contractors with respect to industry best practices for projects the size and complexity of the DRP; and*
- *The DRP as compared to other mega-programs including, but not limited to previous nuclear refurbishments.*

Ref 2: Exhibit M1, Pages 5-6 of 75

Schiff's review is limited to OPG's actions documented in the written material provided. A high-level review is an appropriate scope of review because Schiff is not able to independently verify the appropriateness, sufficiency, or correctness of the scope of the DRP, the DRP cost estimate, or the DRP schedule. Additionally, Schiff did not perform a compliance audit to determine whether OPG has adhered to their internal policies, procedures, guidelines or any applicable legal regulations. Schiff's review is focused on the current status of the DRP – just beginning the Execution Phase – and does not include any predictions or assessments of the DRP's likelihood of success in terms of OPG's ability to manage the Program within the established budget or complete the DRP on schedule.

- a. Please explain the reason(s) why Schiff was not able to independently verify the appropriateness, sufficiency, or correctness of the scope of the DRP, the DRP cost estimate, or the DRP schedule.
- b. Was it the OEB that requested Schiff to limit the scope of its review to a high-level review of OPG's written evidence and interrogatory responses?
- c. If the response to question 'b' above is yes, was it Schiff's expectation that it would be able to provide "an independent and objective assessment of the DRP", which is the objective of the report, by analyzing the OPG filed materials only?
- d. Did Schiff make any effort to seek from OPG information and data other than that is filed with the OEB?

M1-4.3-PWU-2

Ref: Exhibit M1, Pages 12-46

Throughout the Schiff's Report, the OEB puts 13 questions on whether OPG has met industry standards with respect to the different aspects of the DRP, including preparation of a risk register, risk mitigation, project control systems, development of the RQE estimate, schedule development, project management staffing plans, audit and oversight, contracting strategy, contract terms, strategy for dispute resolution, etc. Schiff responds to all questions by saying that OPG has met industry standards.

- a. To Schiff's knowledge and within the scope of Schiff's review, are there any aspects of the DRP where OPG does not meet industry standards?
- b. To Schiff's knowledge, are there any aspects of the DRP during the definition Phase at which OPG exceeded industry standards?
- c. Given that OPG is just beginning the Execution Phase of the DRP, what are in Schiff's view the most pressing issues that OPG has to address immediately going forward?

M1-4.3-PWU-3

Ref: Exhibit M1, Page 19 of 75

While OPG has asserted a high confidence level in the RQE, nevertheless, the risk of project cost increases cannot be wholly eliminated. Every cost estimate contains allowances, assumptions, and/or subjective assessments that may ultimately prove to be inaccurate. The risk of cost increases may change over time but will exist throughout the Execution Phase of the DRP.

- a. Please confirm that the above statement is true for all mega-projects or programs of the size and complexity of the DRP.

M1-4.3-PWU-4

Ref: Exhibit M1, Page 23 of 75

Q: Did your review conclude that OPG's schedule development process was within industry standards?

A: Yes. OPG's explanation of the schedule development process for the DRP is within industry standards. However, OPG's evidence did not include details regarding the training, experience, and qualification of the people directly involved in developing the schedule. Additionally, Schiff did not independently verify the appropriateness, sufficiency, or correctness of the scope of the DRP or the Unit 2 schedule. Further, Schiff did not perform a compliance audit to determine whether the Unit 2 schedule adheres to industry standard scheduling practices.

- a. Did Schiff ask OPG to provide evidence on details regarding the training, experience, and qualification of the people directly involved in developing the schedule? If not, why not?

M1-4.3-PWU-5

Ref: Exhibit M1, Page 24 of 75

Currently, OPG has only completed the detailed schedule for Unit 2. The detailed schedules for Units 1, 3, and 4 do not yet exist and OPG's evidence does not specify when these schedules are going to be created. Depending on the size of the project controls team for both OPG and the major contractors, it may be a challenge during the Execution Phase to monitor, update and track the Unit 2 schedule while simultaneously developing the subsequent units' detailed schedules.

- a. Please clarify if Schiff's suggestion is that OPG should have already developed detailed schedules for Units 1, 3, and 4.
- b. What is Schiff's view on OPG's plan to incorporate lessons learned from the execution of the refurbishment of Unit 2 into the schedule planning for the subsequent units? What is Schiff's recommendation with respect to the approach to and timing of the development of detailed schedules for Units 1, 3, and 4?

M1-4.3-PWU-6

Ref: Exhibit M1, Page 25 of 75

Q: Are the OPG Project Management staffing plans within industry standards?

A: Yes. The staffing plan appears to be within industry standards; however, in Schiff's experience, for an owner-led multi-prime contracting strategy to be successful, the owner must employ a strong, capable, and experienced project management team that is able to coordinate and track the work of such a complex project/program. Otherwise, the multi-prime approach is at risk to miss schedule and cost objectives, thereby preventing the owner from securing the benefits of a multi-prime multi-prime OPG provided information about the

corporate executives involved in the DRP, but the evidence does not include any details regarding the DRP management team's prior experience and credentials including whether or not they possess: nuclear refurbishment experience; prior mega-project (or mega-program) project

- a. Has Schiff inquired if OPG has data and information regarding the DRP management team's prior experience and credentials that OPG has not filed with OEB? If not, why not?

M1-4.3-PWU-7

Ref: Exhibit M1, Page 39 of 75

Q: Are there risk factors related to the DRP multi-prime contracting strategy?

A: Yes. There are risks related to the fact that the SNC/AECON joint venture is the contracting party performing work under three separate prime contracts. For instance, if either or both members of the SNC/AECON joint venture defaults, the risks to the program are unclear as the completion of three of the major scopes of work on the Project would be threatened or adversely impacted as would other aspects of the Program. Because the balance of plant ("BOP") work is subdivided into multiple scopes of work, in the event of joint venture default, there are other contracting parties (E.S. Fox and Black & McDonald) already involved in the Program that may be in a position to pick up additional components of the BOP work. Additionally, there is a potential for SNC/AECON to manipulate its personnel and the project schedule to its benefit. OPG will need to be vigilant during the Execution Phase to mitigate this risk. One risk is that the SNC/AECON joint venture will monopolize the schedule at the expense of other contractors when it can. OPG project management may also have a difficult time tracking which craft worker is working under each of the respective SNC/AECON contracts which is relevant for managing work under contracts with multiple pricing models and responding to any delay and impact claims that may arise.

- a. Are there any potential advantages associated with the fact that one party -the SNC/AECON joint venture - is the contracting party performing work under three separate prime contracts?

M1-4.3-PWU-8

Ref: Exhibit M1, Page 47 of 75

Successes in delivering mega-projects and mega-programs are rare. For example, a non-exhaustive list of mega-projects that have experienced 50% or more cost overruns is provided in Appendix 2.

- a. How do OPG's planning activities during the Definition Phase of the DRP compare to the planning activities during the definition phase of the nuclear projects that Schiff identified as over budget and schedule including Point Lepreau, Bruce and Pickering, and Vogtle Electric Generating Plant?

- b. In Schiff's view, has OPG put in place cost/schedule risk-mitigating measures that would avoid the kind of cost and schedule overruns attributed to the mega projects in Appendix 2 as well as nuclear projects such as Point Lepreau, Bruce and Pickering nuclear projects