

July 31, 2014

BY COURIER (2 COPIES) AND RESS

Ms. Kirsten Walli

Board Secretary, Ontario Energy Board
P.O. Box 2319, 2300 Yonge Street, Suite 2700
Toronto, Ontario M4P 1E4
BoardSec@ontarioenergyboard.ca

Dear Ms. Walli:

**Re: Environmental Defence Correspondence
EB-2013-0321 – Ontario Power Generation Inc. (“OPG”)
2014-2015 Payment Amounts Application**

I am writing to request an order that OPG file responses to undertakings J14.1 and J14.2 on the public record with only the contractor costs and contingency amounts¹ redacted.

We ask that the Board consider these submissions despite the July 24, 2014 deadline because we were not served with OPG’s supplementary confidentiality submissions, and therefore only learned this morning that OPG was not intending to file public redacted versions of the responses to J14.1 and J14.2. On July 22, 2014, OPG filed its submissions on confidentiality. Those submissions did not address J14.1 and J14.2. I therefore assumed that redacted public versions of those undertakings would be forthcoming. I requested redacted public versions from OPG three times, on July 21, 28, and 29, 2014. I have not received any responses to those requests.

This morning I discovered that OPG filed supplementary confidentiality submissions on July 23, 2014 addressing J14.1 and J14.2. However, OPG did not serve those submissions on us. Had OPG served those submissions as required, we would have responded within the original timeframe. We therefore ask that the Board consider the below submissions.

OPG has treated the entirety of the responses to J14.1 and J14.2 as confidential. However, those responses contain a considerable amount of information that cannot in any way be characterized as being confidential. First, the responses contain a narrative portion which has not been placed on the public record. OPG’s redaction of the entire narrative portion of the responses is unjustified.

Second, the table of figures attached to the responses contains types of information already released in the public responses to interrogatory 4.12-ED-011 and undertakings JT2.2 and JT3.16 (which are enclosed), including the expected Darlington LUEC and the total Darlington

¹ The contractor costs and contingency amounts appear in rows 6-12, 15-19, 22-26, 29-35, and 38-40.

Refurbishment cost under a number of cost overrun scenarios. In our submission, this same kind of information should be released in the public responses to J14.1 and J14.2.

In its July 23, 2014 submissions, OPG states that: "The responses to J14.1 and J14.2 constitute information that is commercially sensitive. If disclosed on the public record, such information will adversely impact OPG's competitive position or otherwise cause significant harm to OPG." The only information that could possibly be considered to be commercially sensitive are the contractor costs and contingency amounts, which appear in rows 6-12, 15-19, 22-26, 29-35, and 38-40 of the tables attached to the undertaking responses. We therefore request that public version of those responses be filed with only those rows redacted.

Please do not hesitate to contact me if anything further is required or would be of assistance.

Yours truly,



Kent Elson

cc: Applicant and Intervenors

UNDERTAKING JT2.2

Undertaking

To provide additional information with respect to Environmental Defence interrogatory 11, issue 4.12, as set out in Mr. Elson's letter.

Response

a) The table below provides the requested break-out based on the amounts included in Exhibit D2-2-1, Attachment 5 for OPG's high confidence estimate (excluding interest and escalation) in 2013 and 2014 dollars.

\$M		2013\$	2014\$
RFR	OPG Project Management	690	704
	Contractor Cost		
	Contingency		
Fuel Handling	OPG Project Management	83	85
	Contractor Cost		
	Contingency		
Steam Generators	OPG Project Management	63	64
	Contractor Cost		
	Contingency		
Turbine Generator	OPG Project Management	195	199
	Contractor Cost		
	Contingency		
Balance of Plant	OPG Project Management	216	220
	Contractor Cost		
	Contingency		
Other Costs	Islanding		
	System Shutdown		
	Operations & Maintenance Support	863	880
	Facilities & Infrastructure	560	571
	Waste Management	10	10
	New Fuel	132	135
	Insurance	114	116
	Regulatory, i.e. ISR, EA, IIP	80	82
	Licensing (CNSC Fees)	73	74
	Contingency		
	Retube Waste Containers (Provision)	220	224
Management Reserve	828	845	
		\$10,000	\$10,200

Notes:

1. 2013\$ estimate based on Exhibit D2-2-1, Attachment 5
2. 2014\$ assumed 2% inflation
3. OPG Project Management includes both Program and Project level

- 1 b) At a 50% cost overrun, applied to the selected projects, and through the
2 application of the contract model used in each of the contracts, the estimated
3 point-estimate for the DRP, is less than \$10.0 billion due to contingency and
4 management reserve contained within OPG's high confidence estimate. At a
5 100% cost overrun, the project related contingency and management reserve
6 are exhausted resulting in a projected cost overrun of \$200 million above
7 OPG's high confidence estimate. Note that for all scenarios, OPG maintains
8 approximately ██████████ in Program level contingency (as noted in note 3 of
9 Part C) of IR ED-011).
- 10
11 c) Cost overrun scenarios including interest and escalation are provided below.
12

	Total DRP Cost			Total LUEC (1)	
	2013\$B	2014\$B	Incl. Interest & Esc.(\$B)	2013\$ ¢/kWh	2014\$ ¢/kWh
50%	10.0	10.2	12.9	7.8	7.9
100%	10.2	10.4	13.1	7.9	8.0
150%	11.1	11.3	14.3	8.1	8.2
200%	12.1	12.3	15.5	8.4	8.5
250%	13.1	13.3	16.8	8.7	8.9

- 13 Notes:
14 1. LUEC excludes fixed Corporate Overheads for Pension and Other Post
15 Employment Benefits, base estimate is 7.8 ¢/kWh (2013\$) or 7.9 ¢/kWh (2014\$).
16

1
2
3 **UNDERTAKING JT3.16**

4 **Undertaking**

5 To advise whether OPG is going to answer the question; if not, why not.

6
7 To provide the detailed table used to calculate JT2.2 part (c) , so that 50, 100 percent, 150, 200
8 and 250 percent cost overruns with respect to all of OPG project management cost, contractor
9 costs and other costs can be performed.

10
11 **Response**

12
13 The table below includes data as previously submitted in JT2.2 and JT2.3. A description
14 of the cost overrun assumptions passed on to OPG as summarized in JT2.2 (c) have
15 been added. Further, the amounts have been updated per JT3.15 to reflect an
16 allocation of \$260 Million to Facility and Infrastructure Projects and to decrease
17 Management Reserve by the same amount.

18
19 OPG believes applying escalation of all costs would be incorrect and misleading for the
20 following reasons:

- 21 - As noted in ED-11 part (c) assumption (2), each project bundle includes
22 contingency that is "reduced prior to incurring cost growth to the project". It
23 would not be reasonable to escalate this contingency
24 - As noted in ED-11 part (c) assumption (3), there is additional contingency and
25 management reserve that was not reduced. If cost overruns were to be incurred
26 on top of the major contracts, the contingency and management reserve would
27 be reduced.
28 - OPG Project Management Costs are not subject to the same cost growth risks as
29 contractor costs.
30

31 The following provides a summary of the pricing models utilized by OPG in the
32 Refurbishment contracts:

- 33 • **Fixed Price** is used for well defined scope and/or when the vendor controls the
34 majority of the risk associated with the scope of work, i.e. Re-tube and Feeder
35 Replacement Tooling and Mockups.
36 • **Reimbursable Cost** is used where costs could be variable based on market
37 conditions outside of the contractor's control, with full transparency over costs,
38 i.e. Reactor Component Purchases – OPG agrees with the quantities required
39 and the vendor procures at cost.
40 • **Target Price** is used where full transparency of scope, schedule and cost are
41 required, where scope may not be well defined, and risk associated with the
42 execution of the specified scope performed by the contractor rests with the
43 contractor. OPG has full transparency of costs and pays for contractor's actual
44 costs without profit or overhead. A Target Price is based on OPG and
45 contractor's agreement of estimated actual costs once sufficient planning is
46 complete. As an incentive to control contractor expenditures, contractor profit
47 and overheads are incorporated into a fixed fee and a meaningful portion is put
48 at risk. If the contractor actual costs are above the Target Price, disincentives
49 are in place to reduce the fixed fee; if the contractor actual costs are below the

1 target price, the contractor shares in the savings in addition to the receipt of their
2 fixed fee.
3

4 The use of the Target Price model was chosen after benchmarking other projects both
5 internal and external to OPG and reviewing different contracting models and their
6 results.
7

8 • Examples:

9 **Extended Services Master Service Agreements (ES-MSA) Contracts**

- 10 ○ An ES-MSA agreement was put in place that allows OPG to contract to two
11 vendors to delivery certain scopes of work. The contract allows for either
12 fixed price, reimbursable, or target price contracts.
13 ○ Darlington Refurbishment uses the ES-MSA contracts for Facility and
14 Infrastructure Projects and Balance of Plant related projects.
15 ○ Both these contracts are competitively bid.
16 ○ Generally, the contracts are based on target price, with some fixed price
17 scopes of work.
18 ■ The ES MSA contract requires that for Performance Fee Work (ie
19 target price) [REDACTED] of the Contractor's overheads and profits are put at
20 risk in a Performance Fee pool. The payout is based on the
21 contractor's overall performance assessed quarterly related to safety,
22 cost, human performance and schedule for all work performed.
23 ■ For example, if a contractor scores [REDACTED] on their performance score
24 card, they will receive [REDACTED] of the amount in the Performance Fee
25 Pool. If a contractor scores 1.0 then they will receive the full amount
26 contributed to the Performance Fee Pool.
27 ■ The target price or estimate can be changed by an approved Project
28 Change Authorization (PCA). This would occur when there are
29 specific changes to the contracted work requested by OPG. If the
30 target price is going to be exceeded due to contractor actions. The
31 contract disallows the contractor from earning a profit on the
32 exceeding amounts..
33

34 **Major EPC Contracts – Re-tube and Feeder Replacement (RFR) Contract**

- 35 ○ OPG entered into an agreement with SNC-Lavalin/Aecon Joint Venture (JV)
36 in 2012 through a competitive bid process. A Fixed Price pricing model was
37 put in place to complete Re-tube and Feeder Replacement Tooling and to
38 construct a full-scale mock-up. A Target Price pricing model was put in place
39 for the planning activities during Definition Phase. At the end of the Definition
40 Phase, based on terms and conditions approved in the overall contract, OPG
41 may proceed with a Target Price pricing model for the Execution Phase.
42 OPG also established a Reimbursable Cost plus transparent markup pricing
43 model for the Contractor to purchase Owner Specified Materials (i.e. reactor
44 components) and other Goods required to execute the work.
45 ○ Overall [REDACTED] the Contractor's profit and overheads is at risk. There is an
46 opportunity for the Contractor to earn up to [REDACTED] additional profit and
47 overheads for improved cost and schedule performance below the target.

- 1 ○ This model, in whole or in part, has been applied to other major EPC
- 2 contracts in place including Turbine Generator, Steam Generator, and
- 3 Defueling contracts. Each of these contracts has a combination of both fixed
- 4 price, cost reimbursable, and Target Price components.

1
 2

Major Category	Category/ Contract Type	Base Case 2013\$	Base Case 2014\$	Cost Overrun Assumptions from JT.2
RFR	OPG Project Management	680	704	OPG Project Management extends across entire program (4 units) and will not increase in relation to level of cost growth of project.
	Contractor Cost			Cost overrun risk held with vendor
	Tooling (Fixed Price)			Cost overrun risk held with vendor
	Mockup (Fixed Price)			OPG reimburses actual costs, plus a markup of [redacted]. Contracts are generally in place, with quantities of these materials known - low risk of cost growth.
	Owner Specified Materials (Cost Plus)			OPG reimburses actual costs plus fixed fee for overhead and profit. [redacted] of the fixed fee is at risk based on contractor cost and schedule performance.
	Definition Phase (Target Price/ Fixed Fee)			OPG reimburses actual costs plus fixed fee for overhead and profit. [redacted] of the fixed fee is at risk based on contractor cost and schedule performance.
	Execution Phase (Target Price/ Fixed Fee)			Project contingency will be utilized to offset contract growth, when required.
	Contingency			OPG Project Management extends across entire program (4 units) and will not increase in relation to level of cost growth of project.
	OPG Project Management	83	85	Cost overrun risk held with vendor
	Contractor Cost			OPG reimburses actual costs, plus a markup
Fuel Handling	Defueling - Eng Services (Fixed/Firm Price)			Cost overrun risk held with vendor
	Defueling - Eng Services (Misc Reimbursables)			OPG reimburses actual costs, plus a markup
	Fuel Handling (Fixed Price)			Cost overrun risk held with vendor
	Contingency			Project contingency will be utilized to offset contract growth, when required.
Steam Generators	OPG Project Management	63	64	OPG Project Management extends across entire program (4 units) and will not increase in relation to level of cost growth of project.
	Contractor Cost			Cost overrun risk held with vendor
	Fixed Price			OPG reimburses actual costs plus fixed fee for overhead and profit. 100% of the fixed fee is at risk based on contractor cost and schedule performance.
	Target Price/ Fixed Fee			OPG reimburses actual costs, plus a markup
	EPC Other			Project contingency will be utilized to offset contract growth, when required.
Contingency				

3

Major Category	Category/ Contract Type	Base Case 2013\$	Base Case 2014\$	Cost Overrun Assumptions from IT2.2
Turbine Generator	OPG Project Management Contractor Cost	195	199	OPG Project Management extends across entire program (4 units) and will not increase in relation to level of cost growth of project.
	Eng Serv & Equip Supply (Fixed Price)			Cost overrun risk held with vendor
	Eng Serv & Equip Supply (Target Price)			OPG reimburses actual costs up to the negotiated Target Price. For cost overruns, OPG and the contractor share the cost.
	Installation - Defn Phase (Target Price/ Fixed Fee)			OPG reimburses actual costs plus fixed fee for overhead and profit. [redacted] of the fixed fee is at risk based on contractor cost and schedule performance.
	Installation - Exec Phase (Target Price/ Fixed Fee)			OPG reimburses actual costs plus fixed fee for overhead and profit. [redacted] of the fixed fee is at risk based on contractor cost and schedule performance.
	EPC			OPG reimburses actual costs, plus a markup
	Contingency			Project contingency will be utilized to offset contract growth, when required.
Balance of Plant	OPG Project Management Contractor Cost	216	220	OPG Project Management extends across entire program (4 units) and will not increase in relation to level of cost growth of project.
	EPC & T&M Contingency			The ES MSA contract requires that for Performance Fee Work (ie target price) [redacted] of the Contractor's overheads and profits are put at risk and held in a Performance Fee Pool. Payout is based on overall contractor performance, assessed on a quarterly basis. Project contingency will be utilized to offset contract growth, when required.
	Islanding	219	223	The ES MSA contract requires that for Performance Fee Work (ie target price) [redacted] of the Contractor's overheads and profits are put at risk and held in a Performance Fee Pool. Payout is based on overall contractor performance, assessed on a quarterly basis.
	System Shutdown	196	199	OPG cost centre for purposes of work control, station maintenance, commissioning support, and unit control, during Refurbishment. Resources extends across entire program (4 units) and will not increase in relation to level of cost growth on major EPC project work.
	Operations & Maintenance Support	863	880	The ES MSA contract requires that for Performance Fee Work (ie target price) [redacted] of the Contractor's overheads and profits are put at risk and held in a Performance Fee Pool. Payout is based on overall contractor performance, assessed on a quarterly basis.
Other Costs	Facilities & Infrastructure	820	838	Fixed cost to OPG to fuel refurbished units.
	Waste Management	10	10	Estimate includes latest broker estimate based on our current Program scope and duration assumptions.
	New Fuel	132	135	Program level Oversight, Support, and Project Management extends across entire program (4 units) and will not increase in relation to level of cost growth at project level.
	Insurance	114	116	Estimate from our regulator
	Regulatory, i.e. ISR, EA, IP	80	82	Additional contingency for discrete risks held at the Program Level.
	Licensing (CNSC Fees)	73	74	Waste containers are materials provided to the Program for storing waste. The quantity and estimate per container is known.
	Contingency			Additional management reserve for discrete risks held at the Program Level.
	Retube Waste Containers (Provision)	220	224	
	Management Reserve			
			30,000	30,200

ED Interrogatory #011

Ref: Ex. D2-2-1, Attachment 5, Updated 2014-02-06, page 2; and Ex. D2-2-1, pages 15 – 22.

Issue Number: 4.12

Issue: Does OPG's nuclear refurbishment process align appropriately with the principles stated in the Government of Ontario's Long Term Energy Plan issued on December 2, 2013?

Interrogatory

a) Please provide a break-out of management's "high confidence" estimate of the total cost of the DRP, including capitalized interest, escalation and all other costs, in 2013\$ and 2014\$, according to the following categories: (i) RFR; (ii) Fuel Handling; (iii) Turbine-Generator; (iv) Steam Generators; and (v) Balance of Plant.

b) Please provide a breakout of the: (i) RFR; (ii) Fuel Handling; (iii) Turbine- Generator; (iv) Steam Generators; and (v) Balance of Plan costs according to:
(A) contractor costs; and (B) non-contractor costs.

c) Please state the total cost of the DRP to OPG in 2013\$ and 2014\$ assuming the RFR, Fuel Handling, Turbine Generator; Steam Generators and Balance of Plan costs exceed budget by: (i) 50%; (ii) 100%; (iii) 150%; (iv) 200%; and (v) 250%. In each scenario, please also state: (i) the percentage of the contractors' cost overruns that are passed on to OPG; and (ii) the DRP's LUEC in 2013\$ and 2014\$.

Response

a) & b) The table below provides the requested break-out based on the amounts included in Ex. D2-2-1, Attachment 5. Interest and escalation are planned at the Program level and not at the individual project level and therefore have not been provided.

1

\$M		2013\$	2014\$
RFR	OPG Project Management		
	Contractor Cost		
	Contingency		
Fuel Handling	OPG Project Management		
	Contractor Cost		
	Contingency		
Steam Generators	OPG Project Management		
	Contractor Cost		
	Contingency		
Turbine Generator	OPG Project Management		
	Contractor Cost		
	Contingency		
Balance of Plant	OPG Project Management		
	Contractor Cost		
	Contingency		

2 Notes:

- 3 1. 2013\$ estimate based on Ex. D2-2-1, Attachment 5
 4 2. 2014\$ assumed 2% inflation
 5

6 c) The DRP contracts are structured in a manner that allocates risk to the entity that is best able
 7 to manage that risk. For example, the Retube and Feeder Replacement ("R&FR") tooling
 8 contract is fixed price, therefore, regardless of cost growth, OPG is protected. The R&FR
 9 Execution work is target price with incentives for the contractor to lower costs. In a situation
 10 where cost growth is significant, the contractor loses a portion of their fee as well as
 11 overheads for additional costs incurred beyond the target price.
 12

13 The table below provides the "high confidence" DRP cost under a range of contractor cost
 14 over-run scenarios including the % of costs passed on to OPG and the impact on the DRP
 15 LUEC for each scenario.
 16

1

	Total DRP cost (P90)		% of Cost Passed to OPG		Impact on LUEC (P90) (Increase)	
	2013\$ (Billion)	2014\$B (Billion)	2013\$	2014\$	2013 (cents)	2014 (cents)
50%	10.0	10.2	81%	81%	0.0	0.0
100%	10.2	10.4	75%	75%	0.1	0.1
150%	11.1	11.3	72%	72%	0.3	0.3
200%	12.1	12.3	69%	69%	0.6	0.6
250%	13.1	13.3	68%	68%	0.9	1.0

2 **Assumptions**

- 3 1. Each project bundle has a variety of contracting strategies including Fixed Price, Target Price, Cost Plus, and
 4 Time and Material; the calculation of the "% of Costs Passed onto OPG" is based on these contract strategies.
 5 This analysis assumes that the % of cost growth is spread evenly across all elements of the contract including
 6 fixed price, materials, and target price.
 7 2. For each scenario, contingency, as reported in part a) and b) is reduced prior to incurring cost growth to the
 8 project; i.e. a 50% cost increase to the project decreases contingency and remains within the \$10 Billion high
 9 confidence estimate.
 10 3. OPG has maintained additional contingency and management reserve, i.e. only contingency distributed to the
 11 projects, in part a) and b) has been reduced due to cost overruns. Contingency and management reserve
 12 remains for other risks.
 13 4. 2014\$ assumed 2% inflation