

700 University Avenue, Toronto, ON M5G 1X6

Tel: 416-592-4463 Fax: 416-592-8519  
andrew.barrett @opg.com

May 29, 2013

**VIA RESS AND COURIER**

Kirsten Walli  
Board Secretary  
Ontario Energy Board  
P.O. Box 2319  
2300 Yonge Street, Suite 2700  
Toronto, ON  
M4P 1E4

Dear Ms. Walli:

**Re: EB-2013-0061 – Thunder Bay Generating Station Reliability Must-Run Agreement – Interrogatory Response Correction**

Attached please find a corrected version of OPG's response to Board Staff Interrogatory No. 1 in EB-2013-0061. This interrogatory requested revenue and cost data for Thunder Bay GS Unit 3 for 2010, 2011 and 2012.

The corrections are in Attachment 1, Table 1 with corrected data for lines 1, 2 and 3 on the lower portion of the table providing cost data. These lines are:

- Variable costs of generation for Minimum Block Run Times ("MGBRT")
- Variable costs of generation – start up
- Variable costs of generation – other

The amounts previously provided for these three lines were dollars per start. The corrected amounts show total dollars per month (i.e. dollars per start multiplied by the number of starts in each month). Note 1 to the table has also been expanded to better describe how these amounts were derived.

Provided are two (2) hardcopies of OPG's responses and one electronic copy filed through the Board's Regulatory Electronic Submission System (RESS).

Ms. Kirsten Walli  
May 29<sup>th</sup>, 2013  
Page 2

Please direct any comments or questions in this matter to the undersigned.

Yours truly,

[Original signed by]

Andrew Barrett

Attach

cc: EB-2013-0061 Intervenors  
Fred Cass, Aird & Berlis (email)  
Carlton Mathias, OPG (email)

**Board Staff Interrogatory #1 for OPG**

**Interrogatory**

Notes:

- A. Unless otherwise noted, all terms used in the interrogatories below are as defined in the RMR Agreement.
- B. Information provided in response to the interrogatories below should be provided only in respect of Thunder Bay Generating Station Unit G3 and related facilities (the “reliability must-run facility” under the RMR Agreement). All of the information requested on an historic basis should be allocated in an appropriate manner to Unit G3. Thus historic costs that are common to the full Thunder Bay Generation Station should be adjusted so as to maintain comparability between pre-2013 data and 2013 data. In your responses regarding historic cost information, please explain how such common costs have been adjusted/allocated.

**Ref: RMR Agreement, Schedule D and Definitions, and OPG Letter to the Board dated February 27, 2013**

- 1. Please provide data for Unit G3 of the Thunder Bay Generation Station on the following revenue and cost items, on a monthly basis, for each of the calendar years 2010, 2011 and 2012:

<b>Revenues</b>	<b>Costs</b>
1. Hourly Settlement Amounts in the real-time energy market	1. Variable costs of generation for Minimum Generation Block Run Times (“MGBRT”). For this item and items 2 to 4 below, please identify and use an appropriate reference weighted average cost of coal for the applicable year.
2. Hourly Settlement Amounts for operating reserve	2. Variable costs of generation – start up
3. Congestion Management Settlement Credit (“CMSC”) payments as follows: a. Total CMSC payments received. Please provide these numbers broken down for real-time energy market amounts (constrained on and constrained off) and operating reserve market amounts (constrained on and constrained off). b. If any CMSC payments were adjusted/recalculated by reason of local market power, the dollar amount by which CMSC payments were clawed back. c. If any CMSC payments were	3. Variable costs of generation – other (i.e., not included in 1 or 2 above).

<p>adjusted/recalculated by reason of constrained off events in a “designated constrained off watch zone”, the dollar amount by which the CMSC payments were clawed back.</p>	
<p>4. Real-time generator cost guarantee (“CGC”) payments</p>	<p>4. Fuel costs:        a. Cost of fuel        b. Disposal costs. In addition to the value of the disposal costs, please explain how/under what circumstances “proceeds of disposition” arise.</p>
<p>5. Day-ahead production cost guarantee (“PCG”) payments</p>	<p>5. Regulatory testing costs.</p>
<p>6. Reactive support service payments</p>	<p>6. Market costs, broken down as follows:        a. Global Adjustment        b. All other market costs</p>
<p>7. Voltage control service payments</p>	<p>7. OM&amp;A costs        Please provide a full breakdown of these costs as per Table 1 of Schedule D of the RMR Agreement.</p>
<p>8. Other market revenue (please specify)</p>	<p>8. Other costs        Please provide a full breakdown of these costs as per Table 1 of Schedule D of the RMR Agreement</p>
<p>9. Non-IESO market revenue (please specify)</p>	<p>9. Auxiliary boiler fuel costs</p>

**Response**

1. See tables included as Attachment 1 to this response.

Board Staff Table		OPG RESPONSE - IR #1 - REVENUES (\$) >>																																						
No.	REVENUE CATEGORIES	2010												2011												2012														
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
1	Hourly Settlement Amounts in the real-time energy market	732,755	1,293,345	174,739	78,057	1,404,374	591,075	1,219,375	920,399	0	1,378	100,292	412,401	125,126	172,972	0	51,035	90	12,297	289,413	1,056,586	1,290,348	294,543	403,753	283,836	714,635	150,940	0	0	0	24,506	183,850	90,328	13,414	146,045	61,948	36,755			
2	Hourly Settlement Amounts for operating reserve	0	0	34	0	0	0	0	55	0	0	1	1,304	59	0	0	541	0	0	16	224	11	822	104	37	970	0	0	0	0	0	0	0	242	20	301	760			
3	Congestion Management Settlement Credit ("CMSC") payments as follows:																																							
3a	Total CMSC payments received. Please provide these numbers broken down for real-time energy market amounts (constrained on and constrained off) and operating reserve market amounts (constrained on and constrained off).	122,427	600,323	45,832	35,326	414,240	122,060	437,031	353,165	0	0	12,315	34,469	50,091	7,444	0	31,017	0	802	116,165	67,130	265,567	20,775	33,106	23,876	34,531	17,205	0	0	0	2,250	534,339	176,120	10,532	40,907	41,464	1,499			
	- Real-time Energy Market - Constrained On	(153)	(261)	1,446	22	192	12,331	(124)	2,007	0	0	1,602	(1,515)	28,572	1,630	0	18,782	0	(203)	80,736	30,405	225,796	13,521	17,636	18,713	5,339	14,074	0	0	0	(96)	534,196	175,378	346	33,762	33,964	1,095			
	- Real-time Energy Market - Constrained Off	121,573	599,652	35,640	35,304	414,048	109,449	436,869	351,127	0	0	10,609	31,634	16,512	4,452	0	2,055	0	1,005	34,565	31,864	38,312	6,234	13,535	1,106	12,838	2,702	0	0	0	2,346	143	609	10,328	5,635	5,462	117			
	- Operating Reserve Market Market - Constrained On	1,006	932	8,768	0	0	280	286	57	0	0	104	4,384	5,007	1,363	0	10,179	0	0	847	4,975	1,425	996	1,970	4,058	16,495	429	0	0	0	0	0	133	82	1,517	2,104	286			
	- Operating Reserve Market Market - Constrained Off	0	0	(23)	0	0	0	0	(26)	0	0	0	(35)	0	0	0	0	0	17	(114)	33	24	(36)	0	(141)	0	0	0	0	0	0	0	0	(224)	(7)	(65)	2			
3b	If any CMSC payments were adjusted/re-calculated by reason of local market power, the dollar amount by which CMSC payments were clawed back.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(5,603)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3c	If any CMSC payments were adjusted/re-calculated by reason of constrained off events in a "designated constrained off watch zone", the dollar amount by which the CMSC payments were clawed back.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Real-time generator cost guarantee ("CGC") payments	190,498	107,705	227,116	0	215,367	141,193	505,173	76,166	0	0	69,489	223,978	204,625	134,196	0	71,833	0	0	275,983	420,010	116,781	0	453,278	203,157	51,670	326,177	0	0	0	17,629	0	0	0	113,587	192,487	115,405			
5	Day-ahead production cost guarantee ("PCG") payments	0	0	128,014	104,833	427,940	644,297	351,728	574,051	72,925	0	294,030	78,779	319,631	290,697	310,756	72,040	192,845	0	69,376	125,967	1,367,881	515,648	12,836	0	27,660	0	0	0	0	0	256,444	12,051	55,409	54,005	1,884	0			
6	Reactive support service payments	1,440	1,631	426	282	1,398	984	1,824	2,203	0	0	138	489	350	221	0	75	0	11	1,023	2,423	3,531	448	693	545	3,011	237	0	0	0	28	181	225	14	214	78	101			
7	Voltage control service payments	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6	included in item 6		
8	Other market revenue (Administered Prices, Local Market Power)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(5,402)	0	0	0	0	0	0	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	Non-IESO market revenue (please specify)																																							

Board Staff Table		OPG RESPONSE - IR #1 - COSTS (\$) >>																																					
No.	COST CATEGORIES	2010												2011												2012													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
1	Variable costs of generation for Minimum Generation Block Run Times ("MGBRT"). For this item and items 2 to 4 below, please identify and use an appropriate reference weighted average cost of coal for the applicable year. (see Note 1)	7,478	7,583	14,549	3,202	23,304	16,293	27,756	9,602	0	0	10,307	10,221	17,769	21,638	0	10,813	0	2,242	9,197	51,856	40,658	4,509	17,496	6,450	8,155	17,816	0	0	0	5,584	7,527	0	1,929	7,725	7,932	4,003		
2	Variable costs of generation - start up (avg of hot/cold/warm startup) See Note 1	44,228	39,573	76,004	17,509	112,035	72,814	121,383	41,974	0	0	63,672	59,821	83,841	108,419	0	60,597	0	11,393	46,059	263,430	210,001	23,219	100,778	35,509	47,638	105,563	0	0	0	32,150	43,503	0	12,186	47,695	48,368	25,033		
3	Variable costs of generation - other (i.e., O&M Costs) See Note 1	194,175	191,406	353,322	80,088	834,306	579,060	957,632	314,976	0	0	393,756	392,040	531,669	546,780	0	279,619	0	55,636	225,517	1,260,402	981,719	106,425	425,322	157,358	183,648	423,296	0	0	0	116,970	157,418	0	40,954	163,432	159,458	81,375		
4	Fuel costs:																																						
4a	Cost of fuel	719,599	1,379,083	303,450	140,734	1,469,273	647,467	967,647	780,630	202,402	18,278	177,217	516,273	243,872	333,207	0	150,660	0	39,654	507,687	1,290,192	1,840,336	962,257	737,374	608,385	1,512,232	407,053	0	0	0	67,433	121,422	30,985	37,431	114,829	48,992	55,421		
4b	Disposal costs. In addition to the value of the disposal costs, please explain how/under what circumstances "proceeds of disposition" arise	0	0	0	0	0	0	0	0	202,402	9,450	0	0	0	0	0	0	0	0	0	0	0	562,332	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Regulatory Testing costs (These Costs are Not Separately Tracked by OPG)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Market costs, broken down as follows:																																						
6a	Global Adjustment	134,785	57,937	215,404	118,953	65,437	60,966	18,822	31,144	58,210	135,426	182,114	205,334	242,360	189,633	206,851	190,174	106,895	75,475	59,933	86,154	84,517	82,323	125,764	177,680	100,313	274,878	357,667	272,184	93,573	86,301	55,288	72,448	64,188	152,842	254,936	263,504		
6b	All other market costs	299,910	139,619	257,885	167,594	154,735	150,697	181,233	162,138	108,506	164,931	264,255	330,147	351,084	305,128	296,168	228,550	105,763	108,443	114,859	128,275	123,645	90,157	142,011	170,226	125,133	220,928	186,238	164,046	60,299	75,436	77,633	98,282	62,801	130,206	220,901	281,433		
7	OM&A costs - Please provide a full breakdown of these costs as per Table 1 of Schedule D of the RMR Agreement (See Table 2 for breakdown of costs)	2,559,857	2,165,333	2,642,660	2,448,238	2,258,543	2,793,586	2,366,057	2,466,730	3,312,169	2,300,074	2,218,474	2,310,501	2,594,661	2,325,895	2,522,266	2,368,437	2,516,834	2,603,659	2,268,883	2,717,807	2,662,868	2,554,905	2,683,939	2,609,242	2,825,696	2,863,055	3,369,390	3,054,498	3,158,214	2,683,556	2,480,135	2,839,922	2,361,024	3,816,067	2,776,060	2,526,912		
8	Other Costs - Financing Cost on Working Capital (all periods) and Inventory Write-Down (Mar 2012)	81,227	76,146	77,249	72,989	70,138	68,251	65,620	63,539	66,153	67,124	67,708	65,970	88,920	88,690	89,690	89,000	88,580	88,675	86,005	78,995	70,555	69,165	65,625	63,200	55,050	52,975	3,650,229	32,755	32,445	32,105	31,315	30,700	30,130	30,520	29,865	29,600		
9	Auxiliary boiler fuel costs	0	0	0	0	0	0	0	0	0	0	0	2,233	2,900	0	5,725	0	0	0	0	0	0	2,039	46,746	105,263	0	12,808	0	0	50	0	0	0	0	319	331	1,455		

Note 1:

Definitions:

- Line 1: MGBRT (Minimum Generation Block Run Time): the marginal cost of running at Minimum Load for 2 hours  
= MGBRT Hours (2hrs) x Minimum Load (33MW) x Fuel Cost (Marginal Fuel at \$/MWh) x (# Unit Starts) [\$/Month]
- Line 2: Start Up Cost = (Fuel Costs associated with hot/cold/warm start up and ramping to minimum load point) x (# Unit Starts) [\$/Month]
- Line 3: Variable Costs of Generation - Other = (O&M Costs associated with start-up and ramping to minimum load point) x (# Unit Starts) [\$/Month]
- Line items 1, 2 and 3 are independent of one another, i.e. there is no double counting of any costs within these three items.

- Line 4a: Cost of Fuel = (Weighted Average Cost of Coal) x (Coal Inventory Burned During Month)  
+ (Weighted Average Cost of Oil) x (Oil Inventory Burned During Month) [\$/Month]
- Line item 4a includes all fuel costs for generating during a given month, including the costs in lines 1 and 2, but not those included in Line 3 as these are non-fuel costs.

- The costs are based on running costs issued in the middle of the respective month (the 15th or the following closest day).
- OPG has used the Marginal Cost of Coal instead of the Weighted Average Cost of Coal in the cost calculations of Line 1, Line 2 and Line 3, as OPG uses marginal cost (rather than average cost) to price and offer its units into the market
- All original costs were calculated in \$US and converted to \$Cdn using the following exchange rates: 2010: 1.03\$/US; 2011: 0.99 \$C/\$US and 2012: 1.00\$/US

**Thunder Bay RMR  
Breakdown of OM&A Costs (\$)**

<b>2012 Actual</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
OM&A Costs													
Labour	1,627,024	1,310,244	1,124,488	1,712,439	1,164,293	1,356,683	1,395,659	1,215,707	1,147,707	1,383,220	1,093,805	1,529,171	16,060,439
Direct Assigned	121,605	469,837	657,772	33,165	641,190	469,837	121,605	641,190	381,397	210,045	552,750	33,165	4,333,559
Business Unit Support - Direct	90,270	79,050	118,830	120,870	(146,740)	(17,850)	38,760	43,860	31,110	58,140	49,980	59,670	525,950
Central Support - BU Allocated	424,640	332,536	375,496	387,808	633,415	295,715	350,986	424,618	332,570	455,390	338,698	486,028	4,837,900
Materials	175,201	249,774	260,556	205,749	153,638	83,558	149,146	136,567	150,943	115,902	139,263	232,703	2,053,000
Other	146,780	148,439	155,073	212,293	324,244	284,439	175,805	175,805	111,122	1,388,195	396,390	(39,000)	3,479,585
Projects	34,000	67,000	471,000	176,000	182,000	5,000	42,000	(4,000)	0	0	0	5,000	978,000
Insurance	59,591	59,591	59,591	59,591	59,591	59,591	59,591	59,591	59,591	59,591	59,591	59,591	715,097
Property Taxes	146,583	146,583	146,583	146,583	146,583	146,583	146,583	146,583	146,583	145,583	145,583	160,583	1,771,000
<b>Total</b>	<b>2,825,696</b>	<b>2,863,055</b>	<b>3,369,390</b>	<b>3,054,498</b>	<b>3,158,214</b>	<b>2,683,556</b>	<b>2,480,135</b>	<b>2,839,922</b>	<b>2,361,024</b>	<b>3,816,067</b>	<b>2,776,060</b>	<b>2,526,912</b>	<b>34,754,530</b>
<b>2011 Actual</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
OM&A Costs													
Labour	1,238,098	1,534,976	1,184,195	1,246,390	1,641,122	1,336,780	1,109,561	1,357,512	1,176,732	1,202,439	1,414,732	1,164,293	15,606,829
Direct Assigned	348,134	(172,066)	552,134	200,234	(39,466)	348,134	256,334	37,034	348,134	256,334	(39,466)	348,134	2,443,613
Business Unit Support - Direct	85,807	90,907	75,607	80,707	85,807	50,107	34,807	65,407	50,107	96,007	34,807	85,807	835,880
Central Support - BU Allocated	348,330	384,030	246,330	338,130	333,030	276,930	292,230	322,830	256,530	276,930	348,330	32,130	3,455,760
Materials	143,463	160,878	206,488	115,268	38,976	151,756	196,537	208,146	127,707	177,463	168,341	266,195	1,961,220
Other	252,927	181,610	66,341	201,512	246,293	229,707	140,976	194,049	306,829	370,683	213,122	331,707	2,735,756
Projects	(7,463)	(39,805)	5,805	829	25,707	24,878	53,073	347,463	211,463	(3,317)	365,707	215,610	1,199,951
Insurance	34,366	34,366	34,366	34,366	34,366	34,366	34,366	34,366	34,366	34,366	34,366	34,366	412,387
Property Taxes	151,000	151,000	151,000	151,000	151,000	151,000	151,000	151,000	151,000	144,000	144,000	131,000	1,778,000
<b>Total</b>	<b>2,594,661</b>	<b>2,325,895</b>	<b>2,522,266</b>	<b>2,368,437</b>	<b>2,516,834</b>	<b>2,603,659</b>	<b>2,268,883</b>	<b>2,717,807</b>	<b>2,662,868</b>	<b>2,554,905</b>	<b>2,683,939</b>	<b>2,609,242</b>	<b>30,429,396</b>
<b>2010 Actual</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
OM&A Costs													
Labour	1,288,683	1,094,634	1,438,780	1,251,366	1,191,659	1,658,537	1,087,171	1,162,634	1,390,683	1,110,390	1,088,829	1,442,098	15,205,463
Direct Assigned	223,577	157,277	121,577	284,777	223,577	(26,323)	284,777	284,777	(26,323)	223,577	284,777	45,077	2,081,129
Business Unit Support - Direct	90,397	59,797	115,897	54,697	34,297	69,997	59,797	39,397	365,797	49,597	(103,403)	120,997	957,260
Central Support - BU Allocated	294,780	264,180	366,180	248,880	304,980	355,980	274,380	274,380	310,080	279,480	289,680	310,080	3,573,060
Materials	165,024	179,951	73,805	275,317	119,415	225,561	146,780	188,244	225,561	198,195	92,049	205,659	2,095,561
Other	242,146	174,976	297,707	136,000	233,854	307,659	252,098	217,268	361,561	43,122	240,488	171,659	2,678,537
Projects	48,927	28,195	22,390	(9,122)	(55,561)	(4,146)	54,732	93,707	478,488	260,390	190,732	11,610	1,120,341
Insurance	26,323	26,323	26,323	26,323	26,323	26,323	26,323	26,323	26,323	26,323	26,323	26,323	315,871
Property Taxes	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	109,000	109,000	(23,000)	1,815,000
<b>Total</b>	<b>2,559,857</b>	<b>2,165,333</b>	<b>2,642,660</b>	<b>2,448,238</b>	<b>2,258,543</b>	<b>2,793,586</b>	<b>2,366,057</b>	<b>2,466,730</b>	<b>3,312,169</b>	<b>2,300,074</b>	<b>2,218,474</b>	<b>2,310,501</b>	<b>29,842,222</b>