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Ex. K

6.1

EB-2007-0905

OPG Direct Examination

Document Brief

Nuclear Projects Panel

June 2, 2008

1 Friday, May 30, 2008

2 --- Upon commencing at 9:32 a.m.

3 **PRELIMINARY MATTERS:**

4 MR. KAISER: Please be seated.

5 Mr. Penny, before we resume with this panel, there are
6 a couple of matters we would like you to address before we
7 hear from panel 6 - you can do it by way of direct, if you
8 want - just some matters that relate to panel 6, nuclear
9 projects, that the Board is unclear of.

10 We don't have to deal with it now, but let me just
11 outline them.

12 MR. PENNY: Yes, thank you.

13 MR. KAISER: First, with respect to the scope of the
14 evidence with respect to that panel, are we right that all
15 of the capital expenditure evidence with respect to nuclear
16 build is in base OM&A? If you can clarify that for us?

17 Secondly, we would like to know, specifically, what
18 approvals OPG is seeking from the Board with respect to
19 this evidence.

20 MR. PENNY: Yes.

21 MR. KAISER: Thirdly, we may have touched on this, but
22 with respect to the amount that's going into rate base in
23 2008 and 2009, we would like to have you identify the
24 specific projects and the specific capital relating to
25 those projects. We realize the total is there, but if you
26 could break that down?

27 MR. PENNY: This is for everything, or just...

28 MR. KAISER: For everything.

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1 MR. PENNY: Yes.

2 MR. KAISER: Everything that is going into rate base.

3 MR. PENNY: Yes.

4 MR. KAISER: And then there is some confusion and I am
5 -- the reference would be page 85 of the transcript of May
6 26th. This relates to what approvals have been given by
7 OPG's board. You made a statement at that page on that day
8 that suggested that all or part of the 100 million
9 generation development in base OM&A had not been approved
10 by the Board.

11 It seems that the prefiled evidence is to the
12 contrary. If you could just clarify that? They say that
13 questioning is at page 85 of May 26th transcript. It
14 actually goes for two pages. Mr. Rupert broadened the
15 question which was originally put by, I think, Board
16 counsel.

17 MR. PENNY: Yes.

18 MR. KAISER: In that connection, with respect to
19 Pickering B, there seems to be a suggestion in the evidence
20 that the budget, with respect to the phase II
21 refurbishment, has been approved by the board or set by the
22 board, but the actual capital expenditure of that amount
23 has not been approved. If you could just clarify that
24 aspect?

25 Then, finally - and this reference here is at page 78
26 of the May 23rd transcript - we would like to know
27 specifically what, in the view of OPG, are the amounts --
28 the projects and the amounts that must be accepted by the

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(4)

(5)

(2)

1 Board pursuant to regulation 53/05, subsection 6(2)(4)(i). | (5)

2 As I say, that question, I think, is on the record.

3 MR. PENNY: Yes, yes.

4 MR. KAISER: If you could deal with those before we
5 get to panel 6?

6 MR. PENNY: Yes, thank you, Mr. Chairman. I have
7 actually some of those, but why don't we deal with them all
8 as a piece. I know several we already have in the works as
9 a result of questions that have been asked. So we will
10 certainly be able to deal with that before they testify.

11 MR. KAISER: Mr. Rodger, I think we were at you.

12 MR. PENNY: If I may, Mr. Chairman, I would like to
13 deal with two or three things.

14 One is I would like to just indicate for the record
15 some answers to undertakings, but then there is one -- or
16 two that I would actually like to conduct a brief
17 examination on. And then, in having regard to the fact
18 that the Navigant study was put in by way of answer to an
19 interrogatory as opposed to filed originally, I did want to
20 ask Mr. Robinson a few questions just to set the Navigant
21 study in its context.

22 So if I -- dealing first with the undertakings, for
23 the benefit of those reading the transcript, we have filed
24 this morning answers to J4.1, J4.3, J4.4, J4.6, 7 and 8,
25 J4.9 and J4.10, and then there is J1.5 and J2.6, and J4.5.

26 Then, in addition -- and I will ask Mr. Mauti to
27 describe this in a moment, but, in addition, we have filed
28 a revised KT1.10 as a result of discovering that there was

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Chart 5

Program Cost Summary

Line No.	Program (\$M)	Cost Category	2005 Budget	2005 Actual	2006 Budget	2006 Actual	2007 Budget	2007 Actual	2008 Plan	2009 Plan
			(a)	(b)	(c)	(d)	(e)		(f)	(g)
1	Base OM&A	Pickering B Refurb	3.0	1.3	8.9	11.3	22.0	23.3	6.2	0.0
2		Darlington Refurb	0.0	0.0	0.0	0.0	0.7	0.4	18.5	22.7
3		New Nuclear Build	0.0	0.0	0.0	0.3	10.0	11.2	75.3	67.2
4		Total Base OM&A	3.0	1.3	8.9	11.8	32.7	35.0	100.0	89.9
5	Project OM&A	Pickering B Refurb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
6	Project Capital	Pickering B Refurb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	148.8

AMPCO Interrogatory #42

Ref: Ex. F2-T1-S1, Table 1 and Ex. D2-T1-S1, Chart 1

Issue Number: 5.1

Issue: Are the Operation, Maintenance and Administration ("OM&A") budgets for the prescribed hydroelectric and nuclear business appropriate?

Interrogatory

Please reconcile the "project O&M" for the years 2006-009 presented in F2/T1/S1 Table 1 and D2/T1/S1 Chart 1.

Response

Chart 1 of Ex. D2-T1-S1 page 2, has been reformatted below to present the OM&A and capital components of P2/P3 Isolation Project and PB Refurbishment. Line 8 of the reformatted chart below provides the requested reconciliation with Ex. F2-T1-S1, Table 1, line 2.

Chart 1: Total Nuclear Project Costs - Project OM&A and Capital

\$ Million	2005 Actual	2006 Actual	2007 Actual	2008 Plan	2009 Plan
1 Capital Projects	138.9	151.1	186.5	172.0	172.0
2 P2/P3 Isolation Project (Capital)		1.1	9.3	17.0	10.0
3 PB Refurbishment Capital					148.8
4 Total Project Capital	138.9	152.2	195.8	189.0	330.8
5 OM&A Projects	155.9	140.4	102.1	118.0	118.0
6 P2/P3 Isolation Project (OM&A)		1.6	9.5	26.6	14.0
7 PB Refurbishment OM&A					5.1
8 Total Project OM&A	155.9	142.0	111.6	144.6	137.1
9 Total Project Costs	294.8	294.2	307.4	333.6	467.9

Table 2
2008 Regulated Nuclear Capital in the Test Period

Sponsoring Division/Category	2008 Plan	2008 Q2 to Q4 Plan
	(a)	(b)
Facility Projects (Released)		
Darlington NGS	63.5	49.4
Pickering A NGS	25.4	22.0
Pickering B NGS	15.6	11.4
Engineering & Modifications	9.0	6.2
Programs & Training	21.1	11.6
Supply Chain	2.2	1.8
Inspection & Maintenance Services	7.3	5.9
Total Facility Projects (Released)	144.0	108.3
Facility Projects to be Released	30.4	18.0
Contingency	0.0	0.0
Balancing Adjustment	(2.4)	(2.4)
Subtotal Project Capital (Portfolio)	172.0	123.9
P2/P3 Isolation Project	17.0	15.6
Pickering B Refurbishment Project	0.0	0.0
Total Project Capital	189.0	139.5

(c) Ex. D1-T1-S1, Table 1 includes only regulated hydroelectric capital expenditures as defined by OPG's capitalization policies described in Ex. A2-T2-S1, Section 4.1. When a large project has both capital and OM&A components, the OM&A component is tracked and reported separately, as in the case of the Sir Adam Beck I Generating Station unit upgrades described in Ex. D1-T1-S2. The overhaul of turbine components is identified as a separate OM&A project that is related to the upgrade. Regulated hydroelectric OM&A projects are described in Ex. F1-T3-S1. The only expensed items included with capital expenditures are removal costs described in Ex. F3-T2-S1, page 2, lines 14 - 19. Removal costs have not been separately identified for individual capital projects, and therefore the exact amount of these costs in the test period is undetermined.

(d) None of the capital spending on Nuclear projects (Ex. D2-T1-S1, Table 1) is included in any of the OM&A exhibits.

Witness Panel: Hydroelectric Core
Nuclear Projects

6

Numbers may not add due to rounding.

Updated: 2008-03-14
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 Exhibit B3
 Tab 3
 Schedule 1
 Table 2

Table 2
 Continuity of Property, Plant and Equipment - Nuclear (\$M)
 Calendar Years Ending December 31, 2008 and December 31, 2009

Line No.	Prescribed Facility	Gross Plant Opening Balance	In-Service Additions	Retirements, Transfers & Adjustments	(b)+(c) Net Change	(a)+(d) Gross Plant Closing Balance
		(a)	(b)	(c)	(d)	(e)
2008:						
1	Darlington NGS	1,804.4	79.9	0.0	79.9	1,884.3
2	Pickering NGS	2,116.5	73.0	0.0	73.0	2,189.5
3	Nuclear Support Divisions	405.1	64.6	0.0	64.6	469.7
4	IMS	92.8	8.3	0.0	8.3	101.1
5	Total	4,418.8	225.8	0.0	225.8	4,644.6
2009:						
6	Darlington NGS	1,884.3	84.7	0.0	84.7	1,969.0
7	Pickering NGS	2,189.5	23.9	0.0	23.9	2,213.4
8	Nuclear Support Divisions	469.7	60.1	0.0	60.1	529.8
9	IMS	101.1	8.3	0.0	8.3	109.4
10	Total	4,644.6	177.1	0.0	177.1	4,821.7

Numbers may not add due to rounding.

Updated: 2008-03-14

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Exhibit J1

Tab 1

Schedule 1

Table 4

Table 4
Variance and Deferral Accounts - Nuclear
Summary of Closing Balances 2005 through 2007 (\$M)

Line No.	Account	2005	2006	2007
		(a)	(b)	(c)
1	PARTS Deferral Account	255.7	251.4	183.8
2	Nuclear Liability Deferral Account	0.0	0.0	130.5
3	Nuclear Development Deferral Account	0.0	0.3	11.7
4	Capacity Refurbishment Variance Account	(1.4)	2.8	16.2
	<u>Interim Variance Account:</u>			
5	Ancillary Services Variance Sub-Account	(0.9)	(1.5)	(1.7)
6	Transmission Outages/Restrictions Variance Sub-Account	0.4	1.6	1.6
7	Interest on Interim Variance Account	0.0	0.0	0.0
8	Total Balances	253.8	254.6	342.1

In-Service Additions within the Test Period April - December 2008 and Fiscal 2009

Project	Facility	Total In-Service 2008	Total In-Service 2009
28452 - Second Darlington full scope simulator	Darlington	0	15,820
28453 - DLC Modifications - simulator Based Training	Darlington	0	9,475
31430 - FH Simulator Project	Darlington	0	2,027
31437 - F/H Service Area Bridge Mtce Platform	Darlington	265	0
31540 - Trash Screen Removal System	Darlington	300	1,770
31553 - D2O in H2O Instrument replacement	Darlington	1,223	0
31718 - New Change Room Facility	Darlington	0	12,439
33293 - Main Control Room HVAC	Darlington	1,900	183
33433 - Liquid Chlorination System Upgrade	Darlington	3,925	17
33631 - Chiller Replacement to Reduce CFC Emissions	Darlington	1,565	2,160
33711 - Main Generator/Hydrogen Silpring Cooling	Darlington	2,500	0
33815 - FH Computer Replacement	Darlington	2,500	0
33925 - Used Fuel Dry Storage In Station Modifications	Darlington	42,200	1,662
33977 - DN DCC Replacement / Refurbishment / Upgrades	Darlington	0	10,000
33991 - Flow Orifice Degradation	Darlington	553	0
34000 - Auxilliary Heating System - Phases 1 & 2 Alternative Heating	Darlington	0	19,585
34002 - PSVS Temperature Alarm Monitor & Reliability Upgrade	Darlington	1,725	71
34008 - DND Feeder Replacement ALARA/Optimization	Darlington	10,781	0
34111 - RM Replacement Tooling (Transfer to MFA when project complete)	Darlington	77	2,649
38189 - Steam Generator Head Decontam - BARC	Darlington	1,006	0
38308 - Domestic/Firewater Replacement	Darlington	0	3,137
79016 - Fire Protection Upgrade Program Phase 2	Darlington	861	0
79148 - Fire Protection Upgrade Program Phase 3	Darlington	4,891	0
Darlington Total		76,272	80,995
40560 - PA Site - Replace Sulzer B Process Chiller	Pickering A	1,675	0
46537 - Reactor Structures-Calandria Vault Inspection	Pickering A	18,980	1,000
46576 - PA 2/3 D2O Storage Tanks	Pickering A	4,000	228
49252 - New Redundant Calandria Vault Dryer	Pickering A	2,900	2,674
49266 - Switchyard Relay Building Cable Replacement	Pickering A	8,000	5,656
Pickering A Total		35,555	9,559
40543 - CFC Replacement (Freon Removal)	Pickering B	13,953	2,220
49057 - PB Reactor Controller Upgrades	Pickering B	2,335	86
49104 - Auxilliary Power System for PB	Pickering B	2,842	0
49109 - Standby Generator Governor Upgrade	Pickering B	6,333	1,205
49110 - PB EPG Control Upgrade	Pickering B	0	3,600
49112 - WTP Performance Upgrade	Pickering B	2,033	0
49119 - Demin Strainer	Pickering B	2,000	272
79140 - Radioactive Emission Reduction (EV-005)	Pickering B	2,951	3,345
79147 - Chemistry Standards (CH-002) at PB	Pickering B	1,740	402
Pickering B Total		34,187	11,130
62562 - Improved Cut and Weld Tooling	E&M	1,606	0
62567 - Additional Feeder Cut and Weld Tooling	E&M	9,750	980
25609 - Security Fence Project	NPT	14,000	28,176
25901 - Security Hardening Project	NPT	3,800	4,725
25902 - Controlled Area Improvements	NPT	0	12,625
25905 - Security Monitoring Room	NPT	18,231	900
25908 - Security Doors Upgrade	NPT	4,600	7,914
25911 - Exit Monitor Upgrades	NPT	1,660	0
26200 - Simulator & CBT Life Cycle Issues: Minor Mods	NPT	1,310	2,250
26202 - NLO Desktop Simulator Training-Lifecycle Sustaining	NPT	500	500
62558 - Security Optimization (Capital)	NPT	6,015	0
27979 - Upgrades to Warehouse Structures	NSC	517	530
Nuclear Support Total		61,988	58,600
Project Total		208,002	160,283
Minor Fixed Assets - Inspection & Mtce Services		8,300	8,300
Minor Fixed Assets - Other Divisions		9,519	8,484
In-service Addition Total		225,821	177,067

2008 -2010
Business Plan
Nuclear Generation Development & Services

Pierre Charlebois
Chief Operating Officer

OPG Board of Directors presentation
December 13, 2007

CONFIDENTIAL

Nuclear Generation Development – Projects

□ PB Refurbishment Project - Phase 1

- Completed Major Component Study and Plant Condition Assessment work.
- The Business Case recommendation to the Board in Q1 2008.
- Work to finalize the Integrated Safety Review Environmental Assessment programs to be completed in 2008.

M\$	2005 *	2006 *	2007 fcst *	2008	2009	2010
OM&A - Pickering B Refurb - Phase 1	1.2	11.3	22.7	6.2	-	-

* costs being held in deferred account

□ PB Refurbishment Project – Phases 2/3

- Phase 2 (Refurbishment Outage Planning) would start in 2008 and Phase 3 (Refurbishment Outage Execution) would start in 2013 for the 1st unit.
- This is a preliminary funding estimate for PB Refurbishment Phase 2/3 (i.e. refurbishment planning and execution, respectively).

M\$	2007 fcst	2008	2009	2010
OM&A - Pickering B Refurb - Phase 2/3	-	2.3	4.0	7.0
Capital - Pickering B Refurb - Phase 2/3	-	30.6	118.3	191.8

Nuclear Generation Development – Projects

☐ DN Refurbishment Project - Phase 1

- Phase 1 includes screening level Business Case Assessment, Plant Condition Assessments, Integrated Safety Review and Environmental Assessment. The predicted End of Service Life of the DN units are 2018-2020

M\$	2007 fcst	2008	2009	2010
OM&A - DN Refurbishment	0.3	18.5	22.7	22.3

☐ New Nuclear Development Project

- Work based mainly on planning and preparation for the development of New Nuclear, specifically, licensing, environmental assessment activities, technology assessment, development of the commercial & technical requirements and selection of technology.

M\$	2006 *	2007 fcst	2008	2009	2010
OM&A - New Build	0.3	12.0	75.4	67.2	43.4

* costs being held in deferred account

1 It would be helpful if we could have one document that
2 -- for each one of these numbered items, maybe you could
3 just mark up a page of the financial statements, whatever
4 is the easiest way, so we have in one place all of these
5 numbers that are to be accepted by the board.

6 It is not to say Mr. Battista's question was -- it's
7 kind of on the same line and it would be useful early on to
8 get that.

9 MR. PENNY: We will endeavour to do that, Mr. Rupert.

10 MR. RUPERT: Thank you.

11 MR. BATTISTA: Perhaps we should give these an
12 undertaking number.

13 MR. PENNY: My suggestion would be that because
14 they're -- at this point in time, I am not sure whether
15 they will all fit together neatly or not, so why don't we
16 give two undertakings. One is with respect to --

17 MR. BATTISTA: So the undertaking for the first set
18 that I asked is J2.6.

19 **UNDERTAKING NO. J2.6: TO LIST CAPITAL EXPENDITURES**
20 **(2005-2009) NOTING WHETHER THEY ARE SUBJECT TO**
21 **REGULATION 53/05, 6(2)4(I)**

22 MR. BATTISTA: And the one from Mr. Rupert is J2.7.

23 **UNDERTAKING NO. J2.7: TO IDENTIFY ASSETS,**
24 **LIABILITIES, REVENUES, COSTS AND OTHER ITEMS SET OUT**
25 **IN OPG'S 2007 FINIANCIAL STATEMENTS THAT ARE REFERRED**
26 **TO IN SECTION 6(2)5 AND 6(2)6 OF REGULATION 53/05**

27 MR. PENNY: Thank you.

28 MR. BATTISTA: That's it for my questions.

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UNDERTAKING J2.6

Undertaking

To List Capital Expenditures (2005-2009) noting whether they are subject to Regulation 53/05, 6 (2) 4 (i).

Response

There are two regulated hydroelectric capital projects that fall under O. Reg. 53/05 s. 6 (2) 4 (i) in OPG's application:

- Niagara Tunnel Project
- Sir Adam Beck 1 GS – Unit G7 Frequency Conversion

There is one nuclear capital project that falls under O. Reg. 53/05 s. 6 (2) 4 (i) in OPG's application:

- Pickering B Refurbishment

There are no corporate capital projects that fall under O. Reg. 53/05 s. 6 (2) 4 (i) in OPG's application.

Details of the capital expenditures associated with the projects that fall under s. 6 (2) 4 (i) and the balance of the capital portfolio for regulated hydroelectric and nuclear are provided in Tables 1 and 2 below.

Note that in addition to the capital costs presented in Tables 1 and 2, there are non-capital costs associated with these projects that fall under O. Reg. 53/05 s. 6(2)4(i).

Table 1: Regulated Hydroelectric – Capital Projects Under O. Reg 53/05, S. 6 (2) 4 (i) (\$M)

Line No.	Project	2005 Actual	2006 Actual	2007 Actual	2008 Plan	2009 Plan	References
		(a)	(b)	(c)	(d)	(e)	
1	Niagara Tunnel Project	66.2	169.3	63.9	170.6	346.8	Ex. D1-T1-S1 Table 1 Ex. D1-T1-S2 Attachment A
2	Sir Adam Beck I GS – Unit G7 Frequency Conversion	0.0	0.0	6.1	23.4	3.9	Ex. D1-T1-S2 Attachment F
3	Balance of Project Capital	18.4	10.4	14.3	14.8	44.9	
4	Total	84.6	179.7	84.3	208.8	395.6	Ex. D1-T1-S1 Table 1

Table 2: Nuclear - Capital Projects Under O. Reg 53/05, S. 6(2)(4)(i) (\$M)

Line No.	Project	2005 Actual	2006 Actual	2007 Actual	2008 Plan	2009 Plan	References
		(a)	(b)	(c)	(d)	(e)	
1	Pickering B Refurbishment	0.0	0.0	0.0	0.0	148.8	Ex. D1-T1-S3 Section 2.1.1 Chart 2
2	Balance of Project Capital	138.9	152.2	195.7	189.0	182.1	
3	Total	138.9	152.2	195.7	189.0	330.9	Ex. D2-T1-S1 Table 1