

SCHOOL ENERGY COALITION

**CROSS-EXAMINATION
MATERIALS**

OPG PANEL 6

Nuclear Refurbishment Financial Plan



- The following Chart summarizes the cash flows and FTE's requested in this Business Plan for Nuclear Refurbishment:

Projects	Category	2009 (\$M) LTD	2010 (\$M)	2011 (\$M)	2012 (\$M)	2013 (\$M)	2014 (\$M)	Cum LTD (\$M)	Bus Plan (\$M)
Darlington Refurbishment		31.7	74.3	112.9	273.2	374.5	499.9	589.5	1,334.8
Release # 3			74.3	112.9	35.5	17.1	0.9	240.7	240.7
Preliminary Planning	Capital		44.4	45.2	8.1	3.9	0.9	102.5	102.5
Campus Plan/ Infrastructure	Capital		28.6	66.1	27.4	13.2		135.3	135.3
Campus Plan/ Infrastructure	OM&A		1.3	1.6				2.9	2.9
Future Releases			0.0	0.0	237.7	357.4	499.0	348.8	1,094.1
Preliminary Planning	Capital				150.3	285.6	441.6	877.5	877.5
Campus Plan/ Infrastructure	Capital				85.8	71.6	56.1	213.5	213.5
Campus Plan/ Infrastructure	OM&A				1.6	0.2	1.3	3.1	3.1
FTE OPG		98.0	102.7	122.6	148.0	145.0	145.0		
Pickering Refurbishment		49.7	1.2	0.0	0.0	0.0	0.0	50.9	1.2
Preliminary Planning	Capital	49.7	1.2					50.9	1.2
FTE OPG		5.3	1.5						
Fuel Channel LCM Project		2.5	9.7	7.7	4.0	0.9	0.0	24.8	22.4
Full Release Project	OM&A	2.5	9.7	7.7	4.0	0.9		24.8	22.4

- Notes:**
- Pickering B Refurbishment cash flows in 2010 are primarily CNSC fees.
 - Capital cash flows for the Darlington Refurbishment Project will be released via a project BCS in accordance with the project release strategy.
 - Cash flows related to 'Future Releases' are conceptual and will be firmed up in the Preliminary Planning Phase

1

2

Chart 1 Revenue Requirement Impact of Darlington Refurbishment Project (\$M)

Line No.	Description	Test Period Revenue Requirement Impact
		(a)
	PRESCRIBED FACILITIES	
	<u>Return on Rate Base:</u>	
1	Accretion Rate on Lesser of ARC and UNL	73.2
2	CWIP in Rate Base Impacts	32.7
3	Extension to Darlington Service Life Impacts	7.3
4	Total Return on Rate Base Impact	113.3
	<u>Depreciation Expense:</u>	
5	Asset Retirement Costs	(181.1)
6	Extension to Darlington Service Life Impacts	(48.5)
7	Total Depreciation Expense Impact	(229.6)
	<u>Other Expenses:</u>	
8	Darlington Refurbishment Project OM&A	10.4
9	Used Fuel Storage and Disposal Variable Expenses	8.2
10	Total Other Expenses	18.6
	<u>Income Taxes:</u>	
11	Accretion Rate on Lesser of ARC and UNL	25.3
12	CWIP in Rate Base Impacts	5.2
13	Extension to Darlington Service Life Impacts	1.2
14	Depreciation Expense on Asset Retirement Costs	(62.8)
15	Used Fuel Storage and Disposal Variable Expenses	2.8
16	Depreciation Expense on Darlington Service Life	(16.8)
17	Total Income Tax Impact	(45.0)
18	Total Revenue Requirement Impact - Prescribed Facilities (line 4 + line 7 + line 10 + line 17)	(142.7)
	BRUCE FACILITIES	
19	Rate Base	0.0
20	Depreciation Expense Impact: Asset Retirement Costs	(40.2)
	<u>Other Expenses:</u>	
21	Accretion	(18.3)
22	Used Fuel Storage and Disposal Variable Expenses	4.2
23	Total Other Expenses Impact	(14.1)
	<u>Income Taxes:</u>	
24	Impact on Bruce Facilities' Income Tax Calculation	13.9
25	Impact on Prescribed Facilities' Income Tax Calculation	(14.0)
26	Total Income Tax Impact	(0.1)
27	Total Revenue Requirement Impact - Bruce Facilities (line 19 + line 20 + line 23 + line 26)	(54.4)
28	Total Revenue Requirement Impact of Darlington Refurbishment Project (line 18 + line 27)	(197.1)

3

Filed: 2010-05-26
EB-2010-0008
Exhibit D2
Tab 2
Schedule 1
Page 4 of 17

1 The section of the 2010-2014 Business Plan for Refurbishment, Projects and Support
2 relating to refurbishment is provided in Attachment 1.

3
4 OPG's capital expenditures for the Darlington Refurbishment project in the test period are
5 \$105.2M in 2011 and \$255.8M in 2012, as presented in Ex. D2-T2-S1 Table 3.

6
7 OPG is seeking the following approvals related to the Darlington Refurbishment project:

- 8 • Approval of test period OM&A costs (which form part of the nuclear revenue requirement)
9 of \$5.9M and \$4.5M in 2011 and 2012, respectively, for definition phase work for the
10 Darlington Refurbishment project as presented in Ex. F2-T7-S1 Table 1.
- 11 • Changes in rate base, return on rate base, depreciation expense, tax expense and Bruce
12 lease net revenues that result from the impacts of the service life extension, for purposes
13 of calculating depreciation, and the change in the nuclear liabilities associated with
14 Darlington Refurbishment. These changes are presented in Ex. D2-T2-S1 Tables 1 and
15 2.
- 16 • An increase in rate base to reflect the inclusion of CWIP for the Darlington Refurbishment
17 Project as presented in Ex. D2-T2-S2.
- 18 • The recovery of the difference between forecast 2010 non-capital costs associated with
19 the Darlington Refurbishment project and the costs underlying the payment amounts
20 established in EB-2007-0905, as explained in Ex. H1-T2-S1.

21
22 This evidence also describes the process that OPG will use to manage the Darlington
23 Refurbishment project, a process which received OPG Board approval in November 2009
24 (see Attachment 2). The Darlington Refurbishment project is a major undertaking that will
25 require several years of planning and preparation prior to the first outage in 2016. To mitigate
26 risk, the project is being managed in phases, requiring that certain milestones be achieved
27 before proceeding to a subsequent phase and before OPG Board authorization of the
28 expenditure of funds associated with activities in that phase.

29
30 Although a significant amount of work will be required to develop a "release quality" estimate,
31 OPG has high confidence that the project will have a Levelized Unit Energy Cost ("LUEC") of

Pollution Probe Interrogatory #014

Ref: Ex. D2-T2-S1, Table 3

Issue Number: 4.5

Issue: Are the capital budgets and/or financial commitments for 2011 and 2012 for the nuclear business appropriate and supported by business cases?

Interrogatory

Please extend the time horizon of this Table to show the forecasted capital expenditures for Nuclear Generation Development Projects in 2013 and 2014.

Response

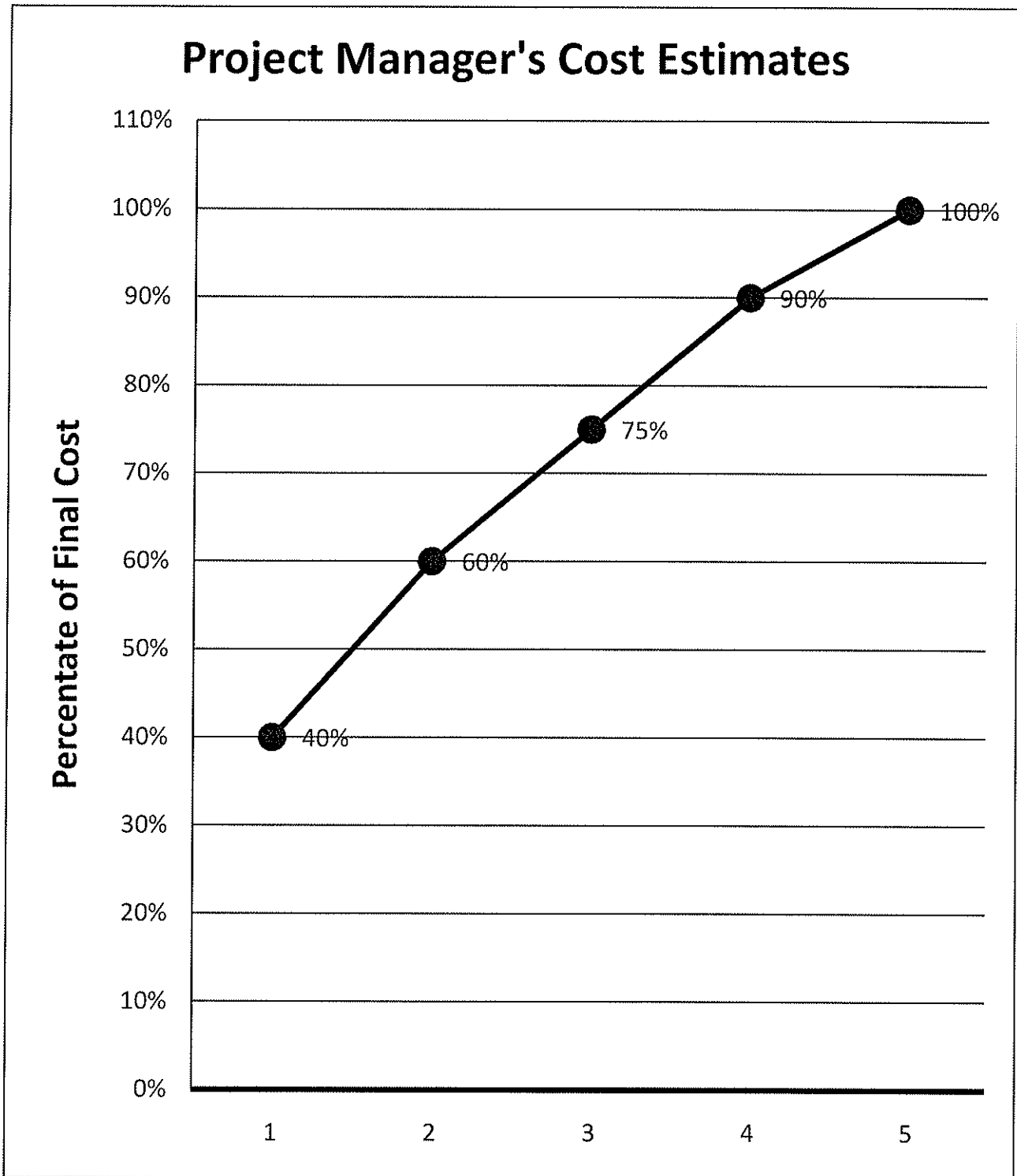
The time horizon of Ex. D2-T2-S1, Table 3 is extended to 2013 and 2014 as shown below:

Line No.	Description	2007 Actual	2008 Actual	2009 Actual	2010 Budget	2011 Plan	2012 Plan	2013 Plan	2014 Plan
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Darlington Refurbishment								
1	Darlington Refurbishment Project - Definition Phase	0.0	0.0	0.0	44.4	42.2	149.2	266.2	395.5
2	Darlington Campus Master Plan	0.0	0.0	1.0	28.6	63.0	106.6	76.7	48.5
3	Total Darlington Refurbishment	0.0	0.0	1.0	72.9	105.2	255.8	342.9	444.0
4	Darlington New Nuclear Project	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Total Generation Development Capital	0.0	0.0	1.0	72.9	105.2	255.8	342.9	444.0

The Darlington Refurbishment shown here are lower than those shown in the Nuclear Refurbishment Business Plan (Ex. D2-T2-S1, Attachment 1, page 6) because the Business Plan numbers include capitalized interest.

As noted in Ex. D2-T2-S1, page 16, OPG has not included any capital costs for new nuclear in its test period revenue requirement because the Province has not yet determined the cost recovery mechanism for that project. For the same reason, the 2013 and 2014 capital expenditures are shown as zero in the table above.

Witness Panel: Nuclear Refurbishment



1 gets you to eight?

2 MR. ROSE: Yes. The difference between the very high
3 LUEC and the medium LUEC is 2.3.

4 MR. STEPHENSON: 2.3 cents?

5 MR. ROSE: That's correct.

6 MR. STEPHENSON: So in terms of percentages,
7 the percentage that we are looking at is the percentage
8 that 2.3 is of 5.7; right? That is the percentage
9 increase --

10 MR. ROSE: In terms of --

11 MR. STEPHENSON: -- over the median?

12 MR. ROSE: In terms of LUEC, yes.

13 MR. STEPHENSON: Okay. And by my arithmetic, I've got
14 that around 40 percent.

15 MR. ROSE: Yes.

16 MR. STEPHENSON: Does that sound right to you?

17 MR. ROSE: Yes. 2.3 over 4.7, yes -- 5.7, sorry.

18 MR. STEPHENSON: Yes.

19 MR. ROSE: Yes.

20 MR. STEPHENSON: Okay. Now, the second question I
21 have for you on the LUEC is this, and it comes back to the
22 question of what you are asking from the Board in this
23 proceeding.

24 And just to give the Board a flavour of what they're
25 being asked to do or what they're not being asked to do, I
26 would just like you to assume that the Board approves the
27 application in respect of this element of the case as
28 requested, okay?

1 And then the second thing I want you to assume is that
2 you do -- you in fact do all of the work in the next two
3 years that you are proposing to do, okay? So assume that,
4 as well.

5 And the third thing I want you to assume is that you
6 are back here two years hence on your next case, okay?

7 So those are the three assumptions. The question I
8 have then is I am assuming you are going to be coming back
9 with some more work that you are going to be looking for
10 the Board -- some kind of approval from the Board. Is that
11 fair?

12 MR. ROSE: That's correct. Within two years, we will
13 advance to the next phase of the project which we're
14 getting into, detailed engineering and, you know, preparing
15 for the outage. So, yes.

16 MR. STEPHENSON: Right. But I am assuming --
17 according with your chart, you are not at that point with
18 a -- likely to have a go/no go decision on the refurb as a
19 whole; is that correct?

20 MR. ROSE: So based on our feasibility assessment, we
21 feel that the project is an economic contractive project,
22 and based on our board decision, we are proceeding with the
23 definition phase.

24 When we will have that final estimate, the base line
25 release quality estimate, will be middle of 2014. We will
26 have an interim update at the end of next year as we go
27 back to our board. So we will have a refresh of that.

28 But until we get through the engineering phase, that

1 is when we will land on a number that we will lock and load
2 on, and it will be measured against forever and a day, and
3 we believe today it is within our range.

4 MR. STEPHENSON: Fair enough. But you are not going
5 to be there in -- 2012 is when we're back here again, in
6 theory, so you are not going to have that at that stage; is
7 that fair?

8 MR. ROSE: That's correct. We will have a stepped
9 improvement from where we are today, but we will not have
10 the base line, no.

11 MR. STEPHENSON: It may well be that you are going to
12 come back here -- I take it between now and then, you are
13 going to be taking a look at the LUEC again; is that fair?

14 MR. ROSE: Correct. We will re-look at the LUEC as we
15 go to the board per our release strategy in late 2011.

16 MR. STEPHENSON: And on the theory -- presumably, you
17 will have more information, and it may be the same number
18 or it may be slightly different; fair?

19 MR. ROSE: Correct.

20 MR. STEPHENSON: Madam Chair, rather than -- I may be
21 done, but rather than miss something, can I -- I would like
22 to -- we may as well break now, and, to the extent I have
23 something further, I can deal with it on Thursday.

24 MS. CHAPLIN: We will give you that opportunity.

25 MR. STEPHENSON: On Thursday morning. I may be wrong
26 if I say I've got no more.

27 MS. CHAPLIN: That's fine.

28 MR. STEPHENSON: It's not a lot.