David I. Poch Barrister tel. (613) 264-0055 fax (613) 264-2878

06 December 2010

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

Dear Ms Walli:

Re: EB-2010-0008 OPG 2011-12 Prescribed Facilities Payments – GEC Argument

Please find attached GEC's argument in this matter.

Sincerely,

David Poch

Cc: all parties

1649 Old Brooke Road, Maberly, Ontario K0H 2B0 e-mail: dpoch@eelaw.ca

EB-2010-0008

PROVINCE OF ONTARIO

BEFORE THE ONTARIO ENERGY BOARD

Application of Ontario Power Generation Inc.

for Determination of Payment Amounts

for 2011-2012 for the Output of Certain of its

Prescribed Generating Facilities

Final Submissions on behalf of GEC

David Poch, Counsel

December 6, 2010

Contents

Introduction

The Green Energy Coalition (comprised of David Suzuki Foundation, Greenpeace Canada, Sierra Club of Canada, and WWF-Canada) has limited its intervention and submissions to issues related to OPGs request for a return on CWIP, the need for distinct divisional capital structures, and to the various matters that flow from OPG's choice to change accounting periods for depreciation and decommissioning and waste disposal for its nuclear facilities.

Before turning to the individual issues, we wish to note that most of the issues we address turn on a single finding – whether OPG's Darlington refurbishment project has been demonstrated to be in the public interest.

Mr. Barrett agreed that several of the various accounting changes that OPG proposes all stand or fall on the question of whether OPG has made a case for the Darlington refurbishment[1]:

[1] V. 13, p. 87

> MR. SHEPHERD: And you would agree with me, wouldn't you, that the Board, in determining whether to say, yes, go ahead and spend this money, and, in addition, to say, yes, include it in rate base, should satisfy itself that the spending you are proposing is reasonable and that the project is likely a good idea? Yes?
>
> MR. BARRETT: Yes, I would agree with that.
>
> MR. SHEPHERD: Okay. If it doesn't, it shouldn't let you put CWIP in rate base?
>
> MR. BARRETT: Nor should it reflect the other adjustments that are shown in chart 1 of Exhibit D2, tab 2, schedule 1.

In our submissions on CWIP (Issue 2.2) we argue that OPG has clearly failed to provide evidence that could support a finding that the Darlington refurbishment is preferable to other alternatives and is thus in the public interest. Further, as we discuss below, the publication of the Long Term Energy Plan does not change that conclusion. The life extension proposal for the Darlington plant has not reached the stage where it is a firm decision that should trigger such accounting changes. In contrast, we note that the depreciation dates and assumptions for the Pickering A and B facilities in the OPG filing are not in accord with apparently firm decisions that have been made. Accordingly, at a minimum the revenue requirement should be adjusted upward to reflect the assumptions in “scenario 4A” provided in J.10.11 addendum 2[2]. That said, GEC does not accept that the continued operation of the Pickering plants makes economic sense. As summarized in the Board Staff submissions (para. 4.5.3) it seems likely the continued operations are not economic. If Darlington rebuild is not undertaken, the need for the extended operation will also be diminished. Accordingly, a more consistent conclusion for regulatory purposes at this time would be the utilization of the assumptions embodied in “scenario 2”, no life extensions or continued operations and Pickering A life limited to that of Pickering B.

In addition to the revenue adjustments discussed in J.10-11, either finding would reduce current and future ratepayer costs by $117.9 million that OPG will otherwise inappropriately credit its shareholder in 2010 as indicated in ex. J11.5[3].

The impact of non-approval of CWIP would be to reduce the revenue requirement by $37.9 million[4].

[2] J.10.11 Add 2, Att. 4A Table 1 shows Impacts as $242.5M (the portion that is not captured in the Bruce Lease variance account as: prescribed facilities 110.8, tax implications 33.9). OPG’s witnesses noted that a reassignment of capital to O&M would also result.

[3] See J11.5 attachment 1: 109.7 impact on prescribed facilities plus 8.2 tax impact. The Bruce lease impacts will be picked up by the variance account.

[4] D2-2-1 table 1 rev.

Issue 2.2 Is OPG's proposal to include CWIP in rate base for the Darlington Refurbishment Project appropriate?

Through its CWIP proposal, OPG seeks extraordinary rate treatment for its Darlington refurbishment capital expenditures during construction. Rather than remain fully at risk for the carrying cost of capital expenditures until the investment is found to be prudent, used and useful, OPG proposes to charge customers a return on capital for these expenditures despite there being no adequate evidence of the need or the ultimate extent of the cost, let alone the value of the expenditures. In doing so, OPG would alleviate pressure on the company to perform to budget, would foist costs on customers who may receive no corresponding benefit, would obscure the true cost of the project, and would gain an advantage over competing private sector projects. OPG asks for this before its own Board has granted authority to proceed with the project beyond the definition phase. The CWIP proposal would move costs forward to a period when there is already significant upward pressure on rates. The proposal was challenged in cross by virtually all stakeholders[5]. The only real ratepayer benefit suggested, rate smoothing, has not been adequately demonstrated in the evidence. Nor is there any quantification of the claimed reduction in borrowing costs – rather there is a real risk of higher societal borrowing costs given the added burden that the ratepayers would have to bear, some of whom will have high costs of capital.

[5] It is notable that the only exceptions appear to be PWU and the Society, which represent neither ratepayers nor a broad public interest. PWU is itself a shareholder in Bruce Nuclear.

OPG suggests that the proposal addresses the seven factors outlined by the Board in its EB-2009-0152 decision:

- the need for the project (if not already demonstrated through another process as discussed in section 3.5 below);
- the public interest benefits of the project and of granting the alternative mechanism(s) requested;
- the overall cost of the project in absolute terms;
- the cost of the project in proportion to the current rate base of the utility;
- the risks or particular challenges associated with the completion of the project;
- the reasons given for not relying on conventional cost recovery mechanisms; and
- whether the utility is otherwise obligated to undertake the project.

Undoubtedly, the project, if it eventually is approved and proceeds, is large. However, in regard to the other five factors the Board enumerated, OPG has simply failed to provide evidence that the Board's considerations apply. As discussed below, OPG has not demonstrated need, has not demonstrated the public interest benefits of the project, has not demonstrated risks to the project analogous to those faced by wires companies in providing support for GEA projects, has provided very flawed evidence, if any, of an advantage over conventional rate making treatment, and has not shown that it is required to undertake the project beyond the initial phase.

We expand on these and other issues below.

CWIP and the public interest – the comparative economics

To satisfy the public interest test some demonstration of the economic value of the project must be made in comparison to other options. Here OPG has utterly failed to offer any meaningful support for its case for CWIP for the Darlington refurbishment (or for new nuclear).

OPG acknowledges it has not even attempted to compare Darlington refurbishment to non-OPG options such as base load co-generation, efficiency, imports or a combination of Quebec energy trades and wind[6]. As Mr. Chernick notes, the one comparison it does do, to OPG owned CCGT, ignores the other benefits that CCGT offers the system and treats it as base load generation for which it is not designed[7].

OPG suggests that it has the support of OPA, but an examination of the evidence reveals that OPA's support is contingent upon OPG's assessment of costs being accurate[8]. As Mr. Chernick testified, OPA's earlier appraisal of options in the IPSP case has been demonstrated to be out of date and inaccurate and in any event never reached the stage of public testing. Thus there is no independent and tested appraisal of OPG's cost estimate or the comparative virtue of the project. OPG simply filed Mr. Shalaby's untested letter. Mr. Chernick's unchallenged testimony in this case is that his team's

[6] V.7, p. 13-14 and p. 45
[7] Ex M7, p. 15, l. 12
[8] Ex. F2-2-3-att. 3

detailed analysis of the IPSP found that nuclear was not part of the least cost plan and nuclear costs have gone up since that assessment.[9]

OPA's approach of relying upon OPG's cost estimation might be reasonable if OPG were a private proponent who would bear the costs of capital during construction, would bear the risk of cost overruns and delays and would bear the risk of poor performance, capital additions, high OM&A or shortened service life (as is the case for almost every other generator). But in OPG's case those risks will be borne by the public, either as ratepayers or taxpayers and we have a long and expensive history of these risks materializing. It is a head in the sand approach – an abdication of responsibility by the OPA. Mr. Shalaby's use of $200/tonne carbon costs to lend support OPG's choice exemplifies the controversial nature of its 'assessment' (whether we agree with the carbon value or not)[10]. Mr. Shalabi was not called by OPG, OPA has not refilled an IPSP and had it tested, nor has its outdated initial plan been subjected to testing before this Board and the Board should thus place no reliance on the OPA letter.

The advent of the Long Term Energy Plan does not alter this conclusion. As discussed with OPG's final 'J.10.11' panel, the LTEP includes a variety of assumptions that would, if accepted at face value, dramatically alter the OPG payments proposal. For example, the assumption of new nuclear and life extension of all the Bruce reactors would significantly change the sharing of nuclear waste disposal costs and would change the closure date of the waste facility. Despite these potentially significant changes, OPG

[9] V.14, p.25
[10] F2-2-3, att 2

proposes no change to its filing because these proposals are just that – proposals. Indeed, at this stage the Supply Mix Directive is only in draft form and has not been finalized, let alone resulted in an IPSP approved by this Board.

OPG's cost estimates for the possible Darlington refurbishment are preliminary and its own Board has not approved the release of the project beyond the definition phase[11].

> MR. REINER: We are not asking for a blessing of the refurbishment project. What we are asking to do is to begin recovering costs associated with the refurbishment project, but we are not here to seek approval of the project itself.
>
> MR. POCH: **And, in fact, your own board has only given you the go-ahead to go as far as the definition phase?**
>
> **MR. REINER: That's correct.** In the evidence itself -- and is probably worth just to look at that for a second. On page 10, in D2, tab 2, schedule 1, there is a release strategy that is depicted in that figure 2, and so our board has approved that release strategy. And they have also approved release of funds to do the preliminary planning in the definition phase.
>
> So the way that this project will work -- so in the preliminary planning, we are going to continue to

[11] V. 7, pp. 2-3

> do work to assess scope required to meet our regulatory and safety requirements, as well as everything that is related to kind of the technical aspects of the refurbishment.
>
> And as that gets refined, we would continue to go back to the board seeking approval to go the next step, and, at that point, we would have a refined -- a more refined cost estimate for each phase of the project.

OPG's Board will not consider the project as a whole until 2014. Despite Mr. Barrett's suggestion that OPG has the government's blessing, the government has limited its direction to OPG to the initiation and definition phases. Its endorsement of the business plan is of a plan that covers the 2010-2014 period and does not extend beyond the definition phase.[12] In no sense can OPG claim, at this stage, to be *obligated* to complete the project (the Board's 7th factor).

OPGs' witnesses express confidence in their estimated LUEC of 6-8 cents (on top of the costs of carrying and depreciating the pre-existing Darlington investment and the stranded debt that OPG was relieved of) but it is apparent that the estimate is highly optimistic. The much vaunted Monte Carlo analysis is simply a random combination of risk curves for a few specified risks which curves are themselves nothing more elaborate than 'informed estimates' [13]. The risks considered are included at D2-2-1 Att 4, p. 34 figure 3 where OPG's 10%, 50% and 80% confidence estimates are reproduced. As is

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[12] V7, p.4
[13] V7, p. 18-19

obvious from the nice round numbers chosen they are not scientific statistical assessments of past cost experience.

Presumably the choice by OPG's Board to limit approval to the definition phase is an acknowledgment that there is a realistic likelihood that costs will change as scope is determined. And the evidence makes it clear that the very scope of the project is at this point not known[14]:

> MR. REINER: Well, certainly, if unforeseen elements in the job are encountered, those definitely have the potential of adding cost and schedule. That is absolutely true.
>
> Now, in this approach, we would actually not produce a release-quality estimate that gives a definitive cost estimate and schedule until 2014.
>
> And so the integrated safety review is done at that point, which will tell us what the regulatory scope associated with the plant safety is, and meeting those safety requirements.
>
> The environmental assessment will be completed. We will understand what the scope associated with meeting the environmental requirements is.
>
> All of the condition assessments will have been done. We will understand what the scope of that is

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[14] V.7, p. 53

> So some of that discovery work will have taken place. And the risk of what remains to be uncovered inside, you know, once we are into construction, is significantly minimized through that time and work that's done upfront to do the appropriate analysis.

Despite all the scoping, condition assessments and discovery work to come during the definition phase, OPG asserts near 100% confidence that its costs won't exceed 8 cents.[15] This is so despite a history of Ontario nuclear projects coming in at an average 250% of original cost estimates – a history that OPG does not dispute[16]:

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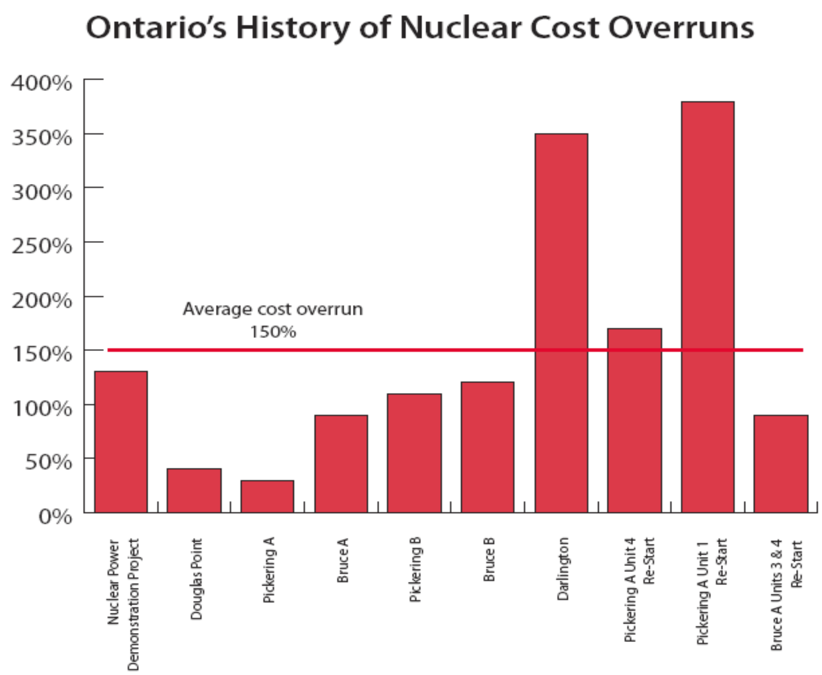
[15] See figure 2 of D2-2-1 att 4. OPG repeatedly offers a range of 6-8 cents LUEC despite its Monte Carlo 50% confidence value being 5.6 cents – perhaps indicating how even OPG doesn't accept the modelled result. 8 cents is just 15% about the middle of the 6-8 cent range OPG routinely quotes.

[16] V.6, p. 182, l.8

On average, the actual costs of the Ontario nuclear projects that have been completed to-date have exceeded their original cost estimates by 2.5 times.



Fool me once, shame on you. Fool me twice, shame on me. Fool me 11 times...

OPG notes how it is learning from past experience, citing the cost escalation experience to date at Lepreau and Bruce, but acknowledges that the three retubings of Candu reactors it is watching (Lepreau, Gentilly and Wolsung) are all either over-budget or behind schedule or both[17]. Lepreau is now expected to be at least three years behind schedule. In recent weeks both the Lepreau and Bruce refurbishments have been further delayed. There has never been a refurbishment of a reactor with the specific Darlington design.[18] OPG's relatively narrow cost range, to which it assigns such high confidence, seems entirely at odds with the experience elsewhere and with a four year definition phase prior to a release quality estimate.

Since OPG does not include the cost of replacement power in its analysis of alternatives, it ignores the societal cost of the potential delays it may encounter. Delay could result in the need for more expensive or dirty power from short-term imports or low efficiency gas burns. According to recent press reports, the government of New Brunswick is currently trying to get the federal government to kick in for the reported one million dollar per day cost of delay from the single, smaller, reactor refurbishment there. While that number is untested in this hearing it is reasonable to conclude that if Ontario has the option of a generation source that has less risk of delayed availability there may be major economic and environmental benefits. None of this is even discussed in OPG's (or OPA's) 'assessment'.

Several examples of costs risks were put to the witnesses who simply assert that they are all within the uncertainty range they have allowed. However it is clear that this is little more than hand waiving as no explicit allowance has been made for known concerns such as pressure tube life, calandria vessel integrity and steam generator tube

[17] L-2-15 and K-7-1 at page 14
[18] L-7-32

decay. OPG is forecasting 224,000 effective full power hours (EFPH) of pressure tube life despite only a 30-70% confidence that the current tubes will meet 210,000 hours. OPG has proposed acceleration of the Darlington refurbishment in part to address this concern[19]. OPG has only a 70-90% confidence that the current tubes will reach even the shortened 185-190,000 EFPH[20]. OPG simply hopes that newer tubes will perform better.

OPG estimates its costs assuming no steam generator replacement. But it is obvious that this too is a real risk – hence the OPG study comparing the virtue of immediate replacement to subsequent replacement [21]. The analysis they offer concludes that there is no advantage to immediate replacement so long as the steam generators last 18 years post refurbishment. However, if and when they do ultimately need replacement, ratepayers can expect an added cost of up to 1.279 billion dollars in 2009 net present value and more if they don't last 18 years![22] On top of that potential cost would be the cost of replacement power for a 10-20 month outage, a cost that OPG's analyses do not include as they do not capture societal costs[23]. Replacement power cost risks are a concern that is somewhat unique to nuclear plants because of their huge scale. There is unlikely to be a clean and cheap readily available alternative if four reactors must be shut down which would force the province to import power that may come from dirty and expensive sources. Other generation and load reduction options do not share this risk as they are of smaller scale, dispersed, and diversified in type so the impact of unforeseen outages is greatly diminished. Conservation rarely has outages.

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[19] D2-2-1-att. 4 at p. 8
[20] D2-2-1-att. 4 p. 29 & 30
[21] L—07-016-att 1
[22] V.7, p. 27
[23] V.7, p.28

Darlington is the world's largest nuclear generating station and, as acknowledged by the OPG witnesses, with project scale comes added cost risk as each step brings a risk of delay and the need to re-specify to each subsequent step. It is this problem of inter-related costs and delays that will make it difficult for OPG to lay this risk off on contractors given OPGs conclusion that it will not hand over project management to an outside contractor[24]. Of course, if it does lay off such risk, the price will rise as was seen in the abandoned RFP for a new build[25].

OPG has utilized a 7% cost of capital in its analysis[26]. This is actually lower than OPG's currently allowed corporate-wide return on regulated assets in rate base of 7.56% let alone any realistic appraisal of the cost of capital that would apply to a nuclear mega-project. OPG indicates that it rounds off the discount rate in project analyses – here the rounded off current value would be 8%, which is at the 90% confidence limit in OPA's Darlington cost assessment[27]. As discussed under issue 3.3, all major project proponents model risk but that does not exempt them from paying a risk adjusted cost of capital when they go to the market to finance their major projects. OPG's cost assessment presumes that it faces no technology or project-specific cost of capital. Thus OPG is systematically under-costing its nuclear projects and the potential Darlington rebuild is no exception.

[24] L-7-41
[25] V.7, p.74-75
[26] Ex. L-10-2 b
[27] D-2-2-1 att 4 p. 34

In cross examination by Board staff, OPG confirmed that the LUEC includes corporate support costs. Board staff pointed out that in 2020, the nuclear allocation of corporate support costs would be entirely borne by Darlington, an amount of $250M versus the current amount of $40M. The OPG witness confirmed that only $40M is reflected in the LUEC.[28]

In short, OPG has utterly failed to provide evidence of the prudence of its Darlington refurbishment proposal relative to other alternatives.

CWIP – Need for the project, public interest and the burden of proof

There being no approved IPSP and, as discussed above, no meaningful comparison of the economics of the Darlington refurbishment relative to alternatives, no adequate case for need and demonstration of public benefit has been offered by OPG. This is the very question that the legislative framework requires be addressed in a future IPSP proceeding. As discussed above, the publication of the LTEP does not alter this conclusion. Either the legislative framework has meaning or it does not. OPG does not have a directive to proceed to construction, nor does it have this Board’s blessing of an IPSP that includes such an effort (nor does it have its own Board’s approval).

[28] V.8, pp. 90-92

In the Board's EB-2009-0152 Report which OPG seeks to apply, and which OPG witnesses agree sets out the applicable considerations and mechanisms, the Board explicitly requires a showing of need[29]:

> As indicated earlier, the Board will require an applicant to establish the need for a project in respect of which alternative mechanism is being sought....

It is acknowledged by OPG that the standard regulatory practice is that a regulator must find a project in the public interest to approve CWIP[30].

> MR. ALEXANDER: Has a North American energy regulator ever approved a CWIP proposal for an electricity generation project before it has determined that it is in the public interest to proceed with the construction or the refurbishment of the electricity generation project, to your knowledge?
>
> MR. BARRETT: To my knowledge, no. And I can ask Mr. Luciani to speak later….

In response to questions from the Board, Mr. Luciani confirmed that U.S. regulators engage in simultaneous consideration of need or public benefit when considering CWIP.[31] Mr. Chernick confirmed this at V. 14, p. 23.

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[29] EB-2009-0152 at p. 22
[30] V. 13, p. 148
[31] V. 13, pp. 168 *et seq.*

Mr. Barrett went on to suggest that OPG has provided evidence in the form of government acquiescence:

> …That said, we take the endorsement from the minister as an indication that the project is in the public interest.
>
> I would say that --
>
> MS. CHAPLIN: Sorry, I just want to make sure I hear you, Mr. Barrett.
>
> MR. BARRETT: Yes.
>
> MS. CHAPLIN: As an indication? Or as a... is that what you said?
>
> MR. BARRETT: Well, let me use better words.
>
> MS. CHAPLIN: I'm sorry, I didn't mean to interrupt you, but perhaps if you could start again to answer that question?
>
> MR. BARRETT: The minister, speaking on behalf of the project, has endorsed our plans for proceeding with the refurbishment of the Darlington plant.
>
> We take that endorsement of our plans as an indication -- or a determination by the province that proceeding is in the public interest, because I think the logic is that the minister or the province would not be endorsing something they thought was contrary to the public interest.
>
> I think, to be fair, that we would not say that public interest determination by the province is

> binding on the Board, but we believe that the Board should give it significant weight in its own determination of what is in the public interest.

In fact, the formal indications from the Minister are found in the directive (D-2-2-1 att 5) which is limited to feasibility studies and environmental assessments and the letters (at D-2-2-1 att. 3 and J.10.2 att 1) which accept the November 19th, 2009 OPG Board approval of the 2010-2014 business plan, a plan that specifically limits Darlington spending approval to the definition phase[32].

> MR. REINER: Now, in Mr. Duguid's memo back to Tom Mitchell, which is attachment 3 of our evidence, he does say in there that he concurs with the decision that our board made on November 19th --
>
> MR. POCH: Right.
>
> MR. REINER: -- which was to proceed with the definition phase of the project.

Thus both the Minister and the OPG Board have quite explicitly held off giving a formal and legally effective go ahead to the construction of the project while they await further evaluation of the plan.

As we noted above, OPA's untested letter is surely not adequate evidence of a public interest test having been met. Further, as the Panel has observed, the outcome of the environmental assessment process is still to come.

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[32] V.7, p. 4

Mr. Barrett suggests that the Board would have to find the project prudent (in his particular sense of the phrase – i.e. reasonable) to allow CWIP[33]:

> MR. MILLAR: Well, how can the Board assess the prudence of the CWIP amounts without assessing the prudence of the underlying project?
>
> MR. BARRETT: I am not saying that they wouldn't assess the underlying prudence of the project. So I am obviously not being clear.
>
> In terms of the test period, we have put forward a plan, in terms of work. We put forward budgets in terms of how we intend to spend money. We have explained our CWIP proposal. And we have put forward the impacts on depreciation ARO and all of the other associated tax and Bruce lease impacts that flow from proceeding with the project. We are expecting the Board to turn their mind to those impacts and assess whether or not they're just and reasonable and should be part of our payment amounts.

Of course OPG seeks CWIP to address issues arising from the refurbishment costs as a whole, not to deal with the relatively small spending, borrowing and rate impacts of the definition phase. To be clear, OPG seeks a mechanism for the period up to the in-service dates and that is the scenario that all of OPG's evidence on rate impacts, such as

[33] V. 13, p. 180

it is, addresses. Accordingly, it is the prudence of investments in the project as a whole (i.e. beyond the definition phase) that must be demonstrated for OPG's case for CWIP to have any meaning.

However, Mr. Barrett suggested that it isn't incumbent upon OPG to demonstrate that Darlington refurbishment is the best option as this isn't 'a system planning exercise'.[34] He also resisted the suggestion that absent such a showing it would make sense for the Board to await such a testing in the context of the forthcoming IPSP process.

Accordingly, OPG is in essence saying that the Board should approve CWIP without a finding of need and public interest. Mr. Barrett goes further and suggests that the only element of the spending that OPG would subsequently be at risk for would be any variance from the initial plan accepted[35].

> Down the road, when we're completed work and we are looking back in time, there will likely be variances between our forecast budgets and our actuals. And it would not be unreasonable for the Board to inquire into those differences and satisfy itself whether they're a good reason for those variances.

[34] V. 13, p. 135
[35] V.13, p. 181

> And that, to me, that kind of retrospective backward-looking review is what I call a prudence review...

Thus in OPG's view, there would never be any airing of the question: is this project needed, is it good for the province, is it preferable to other alternatives – i.e. any airing that could impact on OPG's revenue recovery.

In its EB-2009-0152 Report (at p. 14) the Board stated:

> The Board's approach to alternative mechanisms should not be viewed, as one stakeholder commented, as a significant departure from many of the well-established and fundamental principles of utility regulation. ***Utilities will still be expected to demonstrate that the investment is needed, that it is prudent, and that it is economically feasible.*** Rate impacts will also be assessed. (emphasis added)

GEC respectfully suggests that the Board is obliged to, and has itself determined that it should, satisfy itself of the need for and the benefits of a project to enable a finding that a project is in the public interest and before it can approve such spending in just and reasonable rates. For there to be need and public interest there must be a finding that the project is preferable to alternatives. OPG has failed to provide adequate evidence demonstrating that the test has been met.

CWIP and borrowing costs

OPG suggests that CWIP will improve credit rating, access to capital and lower borrowing costs. However, OPG and Mr. Luciani acknowledged that they have no actual analysis of the extent, if any of such an impact[36]. The Board should bear in mind that any reduced pressure on borrowing and reduced risk on investors is in large part because ratepayers would bear the cost of capital and the risk transfer. Further, it is unclear if this amounts to a real saving at the societal level and, as Mr. Barrett agreed, the most vulnerable customers would certainly have a higher cost of capital than that faced by OPG[37].

CWIP – disbenefits of the mechanism – reduced corporate cost control

When pressed, Mr. Barrett conceded that CWIP would largely supplant a subsequent prudence review. He appears to say that any subsequent prudence review at the time that the plant is to come into service would look solely at any variance in cost relative to the value assumed when CWIP is granted[38]:

> MR. BARRETT:
>
> …Down the road, when we're completed work and we are looking back in time, there will likely be variances between our forecast budgets and our actuals. And it would not be unreasonable for the Board to

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[36] V.13, pp. 63-64
[37] V.13, p. 68
[38] V. 13, pp. 179 – 181 and 184

> inquire into those differences and satisfy itself whether they're a good reason for those variances.
>
> And that, to me, that kind of retrospective backward-looking review is what I call a prudence review,…

At p. 184 the exchange continues:

> MR. MILLAR: Well, I would like to be very clear on this, because I think it is an important point.
>
> You are not seeking approval from this Board to do the Darlington refurbishment project; correct?
>
> MR. BARRETT: Correct.
>
> MR. MILLAR: However, your view in 2020, it will not be open to the Board at that time to say, You should never have done the Darlington refurbishment?
>
> MR. BARRETT: If in the subsequent years the Board has approved payment amounts that include the cost consequences for all of the stuff that we have done, including CWIP in rate base, it would be a significant reversal, in my mind, and greatly unfair to the company at that point.

Mr. Barrett's position is consistent with Ms. McShane's testimony that CWIP provides investors with some increased confidence that the Board will not disallow costs. If that assurance is not illusory it must reflect some reduced regulatory risk. At the very least, granting of CWIP would be perceived as lowering OPG's risk of a subsequent finding of imprudence (in whole or part) and it is reasonable to assume that with less perceived exposure to such a risk comes less attention to such a risk.

It might be suggested that the cost control incentive of leaving a private utility at risk for construction costs is inapplicable to OPG who will simply pass any excess costs on to the public purse held open by its shareholder. However, there is certainly some hope that its shareholder will exert some pressure on the corporation if dividends are placed at risk. Indeed, the rationale for a commercial rate of return is because OPG is expected to behave in many respects like a private corporation. CWIP can only reduce pressure on OPG to perform in an undertaking already likely to suffer a major risk of cost overruns.

CWIP – cost obfuscation and the loss of a level playing field

OPG's expert asserts that CWIP will lower the cost of its major supply projects. This is a perfect example of unduly narrow and blindered vision. CWIP will pass the borrowing costs of capital used during construction on to the ratepayers, some of whom will be the elderly and poor who have a much higher opportunity cost of capital than OPG. The failure to capture the full costs of construction will then obscure any attempt at an apples and apples comparison of options in that all other generation and efficiency proponents must include such costs in their bids.

It is apparent that OPA assesses competing options to meet Ontario's electricity services needs in part by utilizing OPG's estimate of cost for its refurbishment projects[39]. If OPG is allowed to ignore market-based costs of capital and to maintain unrealistic cost

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[39] Ex. F2-2-3-att. 3

projections and to foist carrying costs and risks off onto ratepayers, such a comparison will not protect the public interest. OPG wishes to lay off the $1.3 billion carrying cost prior to construction and to some extent risk of spending at least $6-10 billion on Darlington, costs which any competing option must carry and manage[40].

The Board will likely be assessing a revised IPSP within the year and should strive to ensure that cost comparisons are done on a level field basis. Further, where there is no need for the Board to pre-judge the wisdom of the Darlington project, there is no need for the Board to put itself in the position of being seen to pre-judge the IPSP issues based on a very incomplete record.

CWIP and rate impacts

OPG asserts that CWIP will smooth rates but fails to provide adequate evidence of the impact. The values included in L-14-004 (and utilized in the PWU Cross material) are not consistent with the more detailed numbers that have been offered for the test period[41]. Mr. Chernick estimates that the difference between the two versions that OPG has offered amounts to some $300 million[42].

Mr. Barrett clarified that the values that are offered in L-14-0004 and in OPG's prefiled evidence (at D2-2-2 page 7) are illustrative only. The impacts for the 4 units suggested in D-2-2-2, with no CWIP, are 5.8 - 9.5% spread over the six year period from 2019 – 2024 inclusive, which gives us a simple average of approximately 1 – 1.6% per year.

[40] SEC cross compendium, page 2 and see Chernick in chief at V.14, p. 26
[41] V.13, p. 93
[42] V.14, p. 26

This is the only estimate of 'rate impact' that OPG has offered. OPG's estimate offered for the CWIP scenario is "a maximum annual increase of 1.0 per cent – 1.6 per cent occurring in 2019." Accordingly, the values that OPG has provided offer no basis for concluding that there is a significant rate shock that CWIP avoids. Mr. Barrett noted that the estimates were for total generation cost as opposed to total rate impact or OPG revenue requirement[43]. Given that generation costs are roughly half of customer bills, the Board should cut OPG's illustrative values in half to get a sense of customer impacts. Thus the numbers OPG offers fall to the 0.5 – 0.8% range at the customer level, but again, OPG has offered no basis to understand the rate impact (as opposed to revenue requirement) difference in the peak impact year with and without CWIP.

If OPG's illustrative analysis in L-14-004 demonstrates anything, it is that the absolute level of rates in 2020 is largely unaffected by the choice of whether to include CWIP. In the $6 billion example, the difference in 2020 amounts to only $30 million. Any significant rate smoothing is simply due to earlier increases. In that example, OPG suggests that the $350 million jump in revenue requirement from 2019 – 2020 is reduced to $160 million with CWIP – a difference of $190 million. This is as close as we get to an estimate from OPG of the rate smoothing from CWIP. While not insignificant, the difference spread over all the costs borne by end use customers, is not such that it requires extraordinary measures. But in fact even this $190 million overstates the impact. As Mr. Barrett agreed at V. 13, p. 95, the values in L-14-004 are for OPG generation costs and to understand impact on customers one would have to know the denominator – kWhs generated. Obviously, with the return to service of the Darlington

[43] V 13, p. 62

reactors – the largest reactors in its fleet by far, the amount of generation will rise so the rate impact on a per kWh basis will be mitigated.

What is clear is that CWIP will increase front end loading of costs in rates, moving costs forward to a time when upward pressure on rates is already a major public concern, a matter that is discussed at length in Mr. Chernick's report and is the subject of the CME evidence.

CWIP is best confined to GEA Infrastructure

Obviously, OPG's nuclear projects cannot be said to fall into the category for which the OEB has to date proposed consideration of CWIP – T & D infrastructure projects to support the goals of the Green Energy and Economy Act. Mr. Barrett acknowledged that the Darlington refurbishment is not GEA related infrastructure. The limitation of CWIP availability to that category is a logical one as transmission proponents will otherwise face risks that they cannot mitigate through good management. A transmitter will be called upon to build lines to serve a cluster of generators over which it exerts no control. Mr. Barrett acknowledged this difference in the kinds of risks borne by transmitters versus OPG[44]. As discussed by Mr. Chernick in his report, OPG has made no similar case for the need for such protection.

[44] V. 13, p. 75

CWIP is unnecessary for OPG

The amounts currently proposed for inclusion in CWIP ($433.9 million in capital with a rate impact of $37.9 million[45]) are not of a scale that they present a problem to OPG to carry. OPG has admitted that its plans are not contingent on the Board`s approval of CWIP.[46] The Board's allowance of CWIP for a single Hydro One transmission project occurred where the project was stymied by factors beyond Hydro One's control and the current Hydro One application is for a project which was at least in part intended to support GEA initiatives, was mandated by the province, faces a risk of stranding that is arguably not in Hydro One`s control and which represents a considerably larger proportionate burden on the corporation[47].

CWIP and ratepayer intergenerational equity

The standard method for including capital expenditures in rates reflects a concern for maintaining cost control and the matching of cost and benefits among ratepayers over time. Here OPG seeks inclusion of costs in rates 9 to 13 years in advance of any benefits materializing. Elderly customers and struggling businesses should not be asked to finance OPGs plans when they may obtain no corresponding benefit, especially at a time when so many other upward pressures on rates are at play.

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[45] D2-2-1 p. 3 & 12, Charts 1 and 2 (433.9 = 72.9 + 105.2 + $255.8 million dollars) and see table 1
[46] V. 7 p. 69
[47] See discussion in Ex. M7 pp. 5 and 20 and Chernick in chief in V. 14, p. 22

OPG suggests that CWIP is a 'bargain' in which customers accept higher near term rates to avoid rate shock in later years. Given that no customer group appears to support the proposal it would appear to be a bargain with no takers.

CWIP creates regulatory costs and challenges

OPG suggests that the Board could monitor its project performance annually to safeguard ratepayers. GEC submits that such a review would be costly, complicated and likely to be ineffective. Consider the example that we posed to Mr. Barrett in cross: that OPG spends the amount it forecast in a given period but accomplishes less engineering. Given the history of cost overruns in this sector the example is not far-fetched. How will the Board assess the extent of the engineering work obtained? OPG has offered no detailed benchmarks and its proposal to discuss the matter with Board staff would simply circumvent stakeholder involvement.

For all of the above reasons we urge the Board to reject the CWIP proposal.

Issue 3.3 Should the same capital structure and cost of capital be used for both OPG's regulated hydroelectric and nuclear businesses? If not, what capital structure and/or cost of capital parameters are appropriate for each business?

Every witness addressing cost of capital before the Board agreed that the nuclear division does have a higher cost of capital than the hydraulic division considered separately.

Each witness also agreed that without proper cost and risk analysis there is a real possibility of misallocated capital – i.e. poor decisions both within OPG and at the societal level[48]. Ms. McShane was very clear in her EB-2007-0905 testimony that the stand alone principle should be applied to ensure that project investment decisions are not skewed[49].

OPG's use of Monte Carlo analysis does not eliminate the need for utilizing an appropriate cost of capital when analysing projects. Any sophisticated project proponent does risk assessment as part of its project costing as OPG has done, but unlike OPG, such proponents would then face the possibility of different project risk-specific financing costs when they go to the market for capital and would recognize that

[48] V.11, p. 177
[49] EB-2007-0905, Ex. C2-1-1 pages 11-12

cost in considering project alternatives[50]. As we have seen for the Darlington refurbishment, OPG does not include a nuclear specific cost of capital in its project assessments.

In its EB-2007-0905 Decision the Board generally found favour with the concept of separate capital structures for the two divisions but sought a more robust basis for setting the levels than that available in the record at that time.

Despite Ms. McShane having testified in the prior case that she could not find a suitable statistical sample of a comparison group for stand-alone nuclear, OPG retained Ms. McShane to do the further study the Board called for. Not surprisingly, Ms McShane found she does not have a suitable sample group to support a statistical approach to the question.

Drs. Roberts and Kryzanowski in their evidence extend their previous effort to offer a heuristic approach. Ms. McShane criticized the approach as judgement based. In her own evidence she rejected the use of extrapolation from bond rating agency capital structure guidelines on similar grounds. As Drs. Roberts and Kryzanowski note in there evidence:[51]

> However, the four reasons that she presents for why these guidelines "provide little or no guidance for the specification of technology-specific capital

[50] V.11, p. 176
[51] Ex. M10, p.26

> structures" are equally applicable to the determination of capital structure at the OPG-level.

This conforms to the reality noted by Chernick, setting a capital structure is always a matter of judgement whether at the corporate or divisional level.

Ms. McShane's previous testimony had suggested a significant differential[52] but in the current case she suggested that there is a lower limit on the equity thickness that could fairly be applied to the hydraulic division in light of the values applicable to less risky wires companies. She suggested that the Board's deemed combined cost of capital and equity thickness coupled with the limit set by the acceptable hydraulic division ratio constrained the available equity thickness for the nuclear division, implying that the impact of separate capital structures, so constrained, would be minimal. However, as Mr. Chernick pointed out in his report, even a small change in the cost of capital for nuclear may well be extremely important – cost was one of the stated reasons for OPG rejecting the Pickering B refurbishment option which is just marginally more expensive than the Darlington project. As noted above under issue 2.2, the current allowed combined cost of capital is already at OPG's 90% confidence limit for that input to the Darlington LUEC assessment. A further adjustment, however constrained, would be on top of that.

It is possible that due to the portfolio effect (the combined cost of capital being less than the sum of the parts), the combination of the Board's preference to maintain the

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[52] See EB-2007-0905, Ex. L, tab 12, Sched. 2, and see the evidence of Paul Chernick (an attachment to Ex. M7 in the current case) interpreting those values, and see EB-2007-0905, Exhs. M7.0-S7 and M7.1-S2.

combined cost of capital and the constraints that Ms McShane suggests will require an equity ratio for the nuclear division that is less than that ratio would be for a truly stand-alone nuclear utility. If so, this would suggest that the Board should consider a two pronged effort to inject proper risk consideration into OPG's assessments. First, a higher divisional equity ratio should be required to the extent consistent with the Board's deemed combined requirement. Second, any shortfall of that separate ratio to fully reflect the risks faced by a stand-alone nuclear division should be required to be added to the division-specific discount rate when the rate is used in cash flow analyses that OPG conducts for projects.

Given that OPG has used a 7% corporate-wide discount rate in its analysis of the Darlington project, the Board's decision on this issue can offer important guidance to the company and to other regulated entities such as OPA that must provide this Board with comparisons of options. Further, as Ms McShane agreed, as more nuclear rate base is added, all else equal, the cost of capital for OPG will rise.[53] Requiring an appropriate divisional capital structure and/or project-specific discount rate will constrain this pressure on costs if more suitable options are available.

Board Staff find the approach of Drs. Roberts and Kryzanowski inadequate for reasons similar to those expressed by Ms. McShane. Judgement is required to set the differential, and there is no denying that it will be imperfect. But as Mr. Chernick suggested, the Board should not allow the perfect to be the enemy of the good. Based on the CIBC World markets analysis of the Bruce A restarts if would appear that the

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[53] V.11, p. 173

values offered by Drs. Roberts and Kryzanowski significantly underestimate the true stand-alone cost of capital for nuclear refurbishments[54]. Nevertheless it would be a step in the right direction and a higher value for the nuclear division even though constrained by the wires company comparators will be a more correct value than the mixed value currently used. In addition, GEC submits that the Board should also call upon OPG to develop project-specific discount rates for its large projects to more fully capture risk in its analyses. We submit that such project-specific rates should not reflect the risk reduction that flows from the various deferral and variance accounts, as such accounts are not available to non-OPG project proponents.

GEC also concurs with Board Staff's suggestion that project-specific debt costs be recognized where applicable.

Issue 4.5 Are the capital budgets and/or financial commitments for 2011 and 2012 for the nuclear business appropriate and supported by business cases?

Darlington Refurbishment

As we detail above under Issue 2.2 discussing the CWIP proposal, OPG's Darlington refurbishment project is not approved by its own board to proceed beyond the definition phase, carries a high risk of cost variance and there is simply no analysis to

[54] K.11.1, p.8

support OPGs assertion that it is in the public interest. No *public* review of the public benefit or disbenefit of refurbishment has occurred in Ontario. The only *public* review that has occurred for a proposed CANDU refurbishment we are aware of was in New Brunswick where the regulatory board recommended against the refurbishment of Lepreau[55]. There the government allowed the utility to forge ahead and as was discussed with OPG's witness panel 6, we are now witnessing massive delays, cost overruns and replacement power costs.

OPG's board has only approved the first, 'definition', phase of the task – a phase that will help refine the scope, schedule and costs of the project and allow OPG and its shareholder to make a decision in 2014 on whether to proceed further. As discussed above, OPG cannot claim at this time to have demonstrated that the project in whole or part is prudent, nor have they even presented any adequate case to suggest it *may* be prudent (relative to the alternatives) and is thus reasonable as a capital expense subject to subsequent prudence testing. Without a *prima facie* case that the project is likely to be in the public interest there can be no finding that the capital budget is reasonable. Further, OPG's cost assessment ignores the cost of capital issues we have discussed above. In the absence of any case supporting the economics of this project in comparison to other alternatives, this Board should not offer any assurance of cost recovery to OPG at this stage by acceptance of the capital budget as reasonable.

[55] http://156.34.203.123/Documents/Decisions/Electricity/E/Decision%20Pt%20Lepreau%20GS%20Refurbishment%20Sep%2024%2002%20E.pdf

Issue 6.11 Are the amounts proposed to be included in the test period revenue requirement for other operating cost items, including depreciation expense, income and property taxes, appropriate?

The counter-intuitive result of the *presumption* that Darlington will be refurbished is a reduction in revenue requirement in this case of $197.1 million[56] and presumably a similar reduction in each rate period following. This is largely due to the presumed 30 year delay in asset retirement costs and the slower depreciation. If a decision is made in 2014 not to refurbish, these effectively deferred costs will have to be recaptured in large rate increases. Thus the plan to change accounting treatment for the asset retirement costs and the depreciation period, based on the possibility of a future decision to refurbish, risks a mismatching of costs and rates and a rate discontinuity starting in 2014. Further, OPG is proposing to spend hundreds of millions before the determination is made on whether to proceed to construction. If OPG decides not to proceed to refurbishment, these costs will have to be written off (either to rates or to the taxpayer). GEC submits that the combined effect of OPG's accounting choices is to place future ratepayers in needless jeopardy of a disproportionate rate burden in the range of two billion dollars. This is not a situation where a choice to refurbish has been made that may (like any decision) be rescinded. This is a situation where OPG and its shareholder have explicitly (and not unreasonably) decided not to make a determination

[56] D2-2-1 p3 chart 1

on whether to proceed to refurbish until information from the definition phase is available. That being so, we submit that adjustments related to depreciation (and to ARC/ARO) are premature and insufficiently supported by evidence.

With respect to depreciation specifically, the company has suggested that its change to the Darlington depreciation period is in accord with GAAP. However, the fact that OPG is not reducing its Pickering A depreciation period despite an actual decision by its Board to not life-extend Pickering B and an acknowledgment that Pickering A cannot cost-effectively run without Pickering B operation (indeed, that it is a fair statement "that there is essentially zero probability that Pickering B will operate past 2020" [57]) suggests that OPG has a rather interesting view of GAAP – in particular that it need have no apparent relationship to reality. In any event, this Board is not bound by GAAP where regulatory principles suggest that other treatment is preferable[58]:

> MR. REEVE: We have an accounting rule that is in accordance with generally accepted accounting principles, that's correct.
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> MR. SHEPHERD: That's right. And there is no reason, is there, no particular reason why the regulatory accounting would have to be -- would have to match? The regulatory accounting, the depreciation rate you use for regulatory purposes could be different; right?

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[57] V 10, p. 81-83
[58] V 10, p. 100-101

MR. REEVE: I believe so.

As noted above, in addition to the test period implications of OPG's Darlington refurbishment there is a $117.9 million impact (related to prescribed assets and related tax) on the 2010 budget which is illustrated at ex. J11.5. GEC submits that it is inappropriate for OPG to keep such funds for its shareholder by deviating from the depreciation period and related waste and Bruce lease provisions that were assumed in its prior application to the Board. OPG's proposal would, in effect, enrich its shareholder in 2010 at the expense of future ratepayers who will have to fund these foregone depreciation and ARO/ARC payments.

As we have noted above, in contrast to the uncertainty in the Darlington case, OPG appears to have decided that it will extend operation of the Pickering B station and that it will limit life of the Pickering A station to the date when there are no longer 2 operating B reactors. GEC submits that at the very least this latter reality should be allowed to intrude on the never-never land of the accounting world. No party suggests that in any scenario Pickering A will outlast Pickering B.

For these reasons and the reasons noted above in the discussion of CWIP, GEC submits that the Board should set payments based on scenario 2 or 4a in J.10.11 Addendum 2, the choice depending on the Board's view of the adequacy of the case for extended operations of Pickering. As Board Staff has noted, that case has not been well made.

Issue 7.3 Are the test period costs related to the Bruce Nuclear Generating Station, and costs and revenues related to the Bruce lease appropriate?

As noted in our submissions below on issue 8.2, the changes proposed to the Bruce related costs that flow from OPG's assumptions on the extended service life of Darlington are not appropriate at this time – please see below.

Issue 8.2 Is the revenue requirement amount for nuclear liabilities related to nuclear waste management and decommissioning costs appropriately determined?

As discussed above, the revenue requirement reductions that OPG proposes are a result of the *presumption* that Darlington will be refurbished and life-extended even though the OPG board has explicitly limited its release of funding for that project while awaiting better information. If OPG decides not to proceed to refurbishment, these reduced revenues and contributions to the funds will likely have to be extracted from future ratepayers placing them in needless jeopardy of a disproportionate rate burden. It is worth repeating that this is not a situation where a choice to refurbish has been made that may (like any decision) be rescinded. This is a situation where OPG and its shareholder have explicitly (and not unreasonably) decided not to make a determination on whether to proceed to refurbish until information from the definition phase is available. That being so, we submit that adjustments related to changed ARC/ ARO are premature and insufficiently supported by evidence.

In the particular case of decommissioning costs the Board is obliged by Section 8 of Regulation 53/05 as follows:

> 8. The Board shall ensure that Ontario Power Generation Inc. recovers the revenue requirement impact of its nuclear decommissioning liability arising from the current approved reference plan.

In fact no new reference plan has been accepted that incorporates the possible Darlington refurbishment (or, we assume, the continued operation of Pickering B). On a plain reading of the regulation, OPG's proposal to reduce the revenue requirement would require this Board to act contrary to the letter of the law. The wording is mandatory (The Board shall...) and is not waived by OPG's obtaining permission from the Ministry of Finance to ignore it. That the reference plan costs are the appropriate benchmark for this Board is further established by the wording of the variance account provision in section 5.2 of the regulation.

Further, OPG's proposal is certainly contrary to the intent of the funding agreement (even if the Ministry of Finance is happy to wink at it). The purpose of the agreement is acknowledged to be the protection against inadequate funds being collected such that future ratepayers or taxpayers are saddled with unfunded liabilities[59]. Conservatism should surely apply in this situation. Where the determination of the Darlington end of service life is so uncertain that OPG's own Board is not prepared to release the project without further study of the engineering and costs, it is inappropriate to assume that the project will proceed for the purposes of reducing rate funding for decommissioning and disposal. Further, as noted above, where this Board does not have before it evidence that would support a finding that the Darlington refurbishment is prudent it is consistent for the Board to reject the proposed lower rate of collection of funds for decommissioning and disposal.

[59] V.11, p. 172

As noted above, in addition to the test period implications of OPG's Darlington refurbishment there is a $117.9 million impact on the 2010 budget which is illustrated at ex. J11.5. GEC submits that it is inappropriate for OPG to keep such funds for its shareholder by deviating from the depreciation periods that were assumed in its prior application to the Board. OPG's proposal would, in effect, enrich its shareholder in 2010 at the expense of future ratepayers who will have to fund these foregone depreciation and ARO/ARC payments.

Costs

GEC has conducted a focussed intervention in this case and sought to contain its costs where possible by reliance on transcript review rather than attendance. We have sought to avoid duplication of effort – notably by relying upon the cost of capital experts brought forward by Pollution Probe. We trust the Board has found our intervention to be of some assistance. We respectfully request 100% of our reasonably incurred costs after assessment.

All of which is respectfully submitted this 6th day of December, 2010.

David Poch
Counsel for GEC