February 16, 2011

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

Dear Ms. Walli:

Re: Ontario Power Generation Inc.
Application Approving Payment Amounts for Prescribed Generating Facilities
Submission of AMPCO's Final Argument - Redacted
Board File No. EB-2010-0008

Attached please find a redacted version of AMPCO's final submission in the above proceeding.

A confidential version of this document was provided to the Ontario Energy Board and the Applicant on December 6, 2010.

Please do not hesitate to contact me if you have any questions or require further information.

Sincerely yours,

(ORIGINAL SIGNED BY)

Adam White
Association of Major Power Consumers in Ontario

Copies to: Ontario Power Generation Inc.
Intervenors

Association of Major Power Consumers in Ontario
www.ampco.org

372 Bay Street, Suite 1702
Toronto, Ontario M5H 2W9

P. 416-260-0280
F. 416-260-0442

ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO (AMPCO)
FINAL ARGUMENT (REDACTED)

Ontario Power Generation Inc.
2011-2012 Payment Amounts for Prescribed Facilities
OEB File No. EB-2010-0008
December 6, 2010 (Filed: February 16, 2011)

Introduction

1. AMPCO's submissions generally follow the Issues List as set out in Procedural Order #3 other than where individual topics are relevant to more than one issue. In those circumstances, AMPCO has provided direction in the argument pointing to the topics arising elsewhere in the submission. AMPCO has indicated the issues of concern. AMPCO has not dealt with all of the issues before the Board at this hearing, but rather focused on those on which it has a position which can assist the Board.

2. AMPCO's primary concerns relate to OPG's CWIP proposal (Issues 2.2), production forecasts (Issues 5.1 and 5.2), nuclear and hydro-electric capital programs (Issue 4), nuclear benchmarking results, and O&M (Issues 6.3, 6.4, 6.5, and 6.7). AMPCO also has recommendations with respect to the variance account treatment of nuclear fuel costs (Issue 10.1), and the Hydro-electric Incentive Mechanism (Issue 9.1).

3. OPG is rapidly expanding its capital program. In 2008 and 2009, the last time the Board reviewed OPG, the two year hydro-electric capital budget was $546.3 million. For 2011 and 2001, OPG intends to increase this to $563.8 million. This might seem like a modest increase but note that the 2011/12 budget now includes $487 million investment in the Niagara tunnel project, a project that was supposed to be completed in 2009 but now extends at least into 2013. As discussed and documented later, OPG describes the target completion date for the project as "non-contractual", raising concerns for AMPCO about the certainty of the completion plan for the project.

4. Driven largely by the Darlington refurbishment project, the nuclear capital budget has increased from $374 million for 2008/09 to $744.2 million for 2011/12. In the years beyond the test period, the Darlington refurbishment project will be an important issue for Ontario and will require close and continuous monitoring by the Board.

5. During cross-examination by all independent intervenors a major theme unifying OPG's witnesses' comments about the future was that it will be rosy and that the problems of the past will not recur. AMPCO is concerned that past experience may indeed be repeated.

6. Were it not for OPG's proposals to postpone the dates for nuclear decommissioning at Pickering B and Darlington, and to assume that Pickering A will operate after Pickering B is removed from service, the proposed rate increase and the trajectory for rates in the medium term would be far higher.

Issue 2.1: What is the appropriate amount for rate base?

7. AMPCO has three specific concerns with OPG's proposed amount for opening rate base associated with fixed assets. These concerns relate to SAB 1 G9 refurbishment, the Pickering cafeteria and the Darlington change room. Because these items are all new additions to rate base, AMPCO's comments are recorded under Issue 4.3 and 4.6 respectively.

8. In addition, AMPCO has included comments under Issue 10.1 related to the nuclear fuel variance account that relate to the calculation of working capital and fuel inventory for the purposes of calculating rate base.

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

9. In this section AMPCO proposes to respond to OPG's request that 100% of the annual Construction Work In Progress ("CWIP") for the Darlington Refurbishment Project (DRP) be subject to accelerated cost recovery. For the reasons enumerated and elaborated on below, AMPCO submits that the Ontario Energy Board (the "Board") should reject OPG's request; OPG has not satisfied the seven factors set out by the Board in Board Report EB-2009-0152 "Report of the Board – The Regulatory Treatment of Infrastructure Investment in connection with the Rate-regulated Activities of Distributors and Transmitters in Ontario", issued on January 15, 2010 ("the Report"). (Exhibit K13.8)

OPG's Proposal

10. OPG is seeking the approval of the Board to include CWIP in rate base for DRP effective January 1, 2011. Specifically, OPG proposes that 100 per cent of forecast capital in rate base receive the OEB-approved weighted average cost of capital ("WACC") and that any recovery of depreciation on this capital be deferred until the asset comes into service. This proposal results in an increase in rate base of $125.5 million in 2011 and $306 million in 2012. The test period impact is $37.9 million on the nuclear revenue requirement. (Exhibit D, Tab 2, Schedule 2, Page 1) The incremental revenue requirement of CWIP in rate base during the 2013-2014 rate period is estimated to be $145 million. (Interrogatory L, Tab 10, Schedule 13)

11. Over the test period, the inclusion of CWIP in rate base for DRP would result in an increase in payments of $0.38/MWh on the nuclear payment amount. (Exhibit D2, Tab 2, Schedule 2). The corresponding impact on the 2013-2014 payment amounts is estimated to be $1.50/MWh. (Interrogatory L, Tab 7, Schedule 4)

12. OPG presented evidence to support its position that the inclusion of CWIP in rate base for DRP is warranted since it meets the criteria for qualifying investments specified by the OEB in the Report, in that the project spans a number of years, has material costs and will form a significant portion of OPG's rate base once placed into service. (Exhibit D2, Tab 2, Schedule 2, Page 3)

13. On this first point, AMPCO submits that the DRP project is not a Green Energy Act related investment and, therefore, is not a qualifying investment as specified in the Report. During cross examination OPG's witness agreed that this proposal has nothing to do with the Green Energy Act.

    MR. POCH: "This is not a Green Energy Act infrastructure that we're talking about, Darlington refurbishment?
    MR. BARRETT: That's correct.
    (Transcript Volume 13, Page 76)

14. AMPCO agrees with Board Staff that DRP does not fall within the scope of the Report, since the Report deals with infrastructure by electricity transmitters and distributors in the context of the *Green Energy and Green Economy Act, 2009*. (Board Staff Submissions, Page 36) AMPCO submits, nevertheless, that the seven factors included in the Report (to evaluate a proposal for one or more alternative cost recovery mechanisms) are relevant in deciding whether or not to award CWIP in rate base. As noted in the Report, similar characteristics are used by the Federal Energy Regulatory Commission (FERC) in the United States to make reasoned and consistent decisions on requests for incentives. (Exhibit K13.8, Page 21, Footnote #10)

15. The Report emphasized that "conventional mechanisms continue to be appropriate and should, therefore, remain the core component of the Board's regulatory treatment of infrastructure investment." (Exhibit K13.8, Page 10)

16. The Board also indicated that the applicant will be required to demonstrate that a requisite relationship exists between the alternative mechanism requested and the demonstrable risks and challenges faced by the applicant in relation to the investment being made. The Board acknowledged that this approach is used by FERC and that "such a test is appropriate and adopts it for Ontario." (Exhibit K13.8, Page 21)

17. In its Argument-in-Chief, OPG states "OPG's CWIP proposal meets all of the factors established by the OEB". (Page 76)

18. AMPCO submits that aside from the need for the project, OPG failed to provide sufficient evidence to establish that any of the remaining six factors had been satisfied and, therefore, that a departure from conventional regulatory mechanisms for DRP should not be permitted. AMPCO takes this position with respect to these seven factors set out below for the following reasons:

The Need for the Project

19. The Province's Long Term Energy Plan includes the refurbishment of the DRP. (Exhibit K16.1, Page 23) AMPCO provides additional comments on the DRP under Issue 4.5.

The Overall Cost of the Project in Absolute Terms

20. In the pre-filed evidence OPG says "...at this preliminary stage the projected cost of the Darlington Refurbishment project is between the "low" bounding case of $6B and the "high" bounding case of $10B (2009 dollars)", excluding capitalized interest. (Exhibit D2, Tab 2, Schedule 2, Page 4)

21. OPG is managing the project in four phases: project initiation, project definition, execution and close-out. (Exhibit D2, Tab 2, Schedule 1, Page 6) The project is currently starting its definition phase which is scheduled to last until 2014. The work

will involve detailed engineering and front-end project planning including the development of the project scope, cost and schedule baseline.
(Exhibit D2, Tab 2, Schedule 2, Page 3)

22. OPG indicates that costs beyond the test period are illustrative only, as elements of the project scope, schedule and cost will only be fully defined at the conclusion of the project's definition phase in 2014. (Exhibit D2, Tab 2, Schedule 2, Page 5)

23. OPG expects to be in a position to provide the OEB with a more comprehensive assessment of the project scope, cost and schedule as part of its next application for payment amounts. (Exhibit D2, Tab 2, Schedule 2, Page 10)

24. AMPCO submits, therefore, that the overall costs of the project as presented by OPG are preliminary and not well defined at this stage. OPG has acknowledged this point.

25. AMPCO agrees with Board Staff that OPG has a history of under-estimating the cost of major nuclear projects. AMPCO also questions whether the costs presented by OPG for DRP are more reliable than those presented in the past for other similar projects. (Board Staff Submission, Pages 27 to 28)

26. For the Board to determine whether or not the costs for the DRP should be included in rate base, the Board needs to determine if the costs are just and reasonable. AMPCO submits that at this time, at such an early stage, the evidence is not sufficient to allow the Board to make this assessment.

27. AMPCO submits, therefore, that it is premature for OPG to be requesting an alternative mechanism such as accelerated recovery of CWIP, which has significant rate impacts over time, in advance of knowing the overall cost of the project in much more absolute terms.

Public Interest Benefits

28. AMPCO submits that, if the Board is not able to determine that the proposed costs are just and reasonable due to insufficient evidence, the Board is not able adequately to assess the public interest benefits of the project.

29. AMPCO submits that the public interest benefits of the project have not been fully tested.

<u>Benefits to Ratepayers</u>

30. OPG submits that including CWIP in rate base provides two principal benefits. "First, it provides a smoothing effect on rates and thereby mitigates the rate shock that might otherwise occur when a large new plant is placed into service. Second, it can reduce borrowing costs … Both of these benefits apply in the case of Darlington refurbishment". (Exhibit D2, tab 2, Schedule 2, Page 5)

<u>Smoothing of Rates</u>

31. In OPG's pre-filed evidence it states that, "As expected, early recovery of refurbishment costs leads to smaller and more gradual rate increases compared to the rate shock associated with the traditional regulatory approach."
(Exhibit D2, Tab 2, Schedule 2, Page 6).

32. AMPCO agrees with Board Staff's observation that a significant rate change is not evident, other than potentially in 2019 and 2020 and the comparative revenue requirement impact is largely similar going forward.
(Board Staff Submission, Page 37)

33. The execution phase of the project includes the refurbishment work and return to service of four units at four distinct times. AMPCO submits that by design, the Darlington Refurbishment project already provides a natural smoothing or phased-

in effect on rates because of the staggered in-service dates of 2019, 2021, 2022, and 2024 for the four units. The multi-year project is not being added to rate base in one lump.

34. In addition, as part of a response to AMPCO interrogatory L, Tab 2, Schedule 5, OPG calculated the Net Present Value of the revenue requirement under two discount scenarios. The results show that OPG's CWIP proposal provides no benefit to ratepayers; it is more costly.

<u>Borrowing Costs</u>

35. The pre-filed evidence states that, "OPG has not yet determined the project financing specifics associated with the Darlington Refurbishment project. Regardless of those specifics, the inclusion of CWIP in rate base will serve to reduce borrowing costs for the utility." (Exhibit D2, tab 2, Schedule 2, Page 8)

36. That statement by OPG acknowledges that they haven't been able to quantify the impact on credit metrics at this point. OPG's witness states "It's our expectation that if we don't get CWIP, things will be worse. We don't know how much worse. And, again that remains to be seen." The witness also indicated that they do not have a reaction to CWIP in rate base from the rating community.
(Transcript Volume 13, Page 52)

37. Consumers Council of Canada (CCC) asked OPG's witness Mr. Barrett, "I take it that we have no numbers by which we can determine or we can assess what the impact or possible impact may be on borrowing costs of CWIP, one way or the other? Is that fair? Mr. Barrett responded, "That's fair." (Transcript Volume 13, Page 119) AMPCO submits that it is inappropriate for OPG to be requesting CWIP in rate base without a quantitative analysis of the impact on borrowing costs.

38. Under the CWIP in rate base approach, customers are being asked to pay for the project before the asset is used and useful. OPG is borrowing from ratepayers.

39. To accommodate CWIP payments, AMPCO submits that ratepayers may have to increase their borrowing, or defer or abandon other spending. Many of AMPCO's members will have to borrow at a higher rate than OPG to allow them to conduct other parts of their businesses. Under cross-examination, OPG acknowledged that ratepayers will have a higher cost of capital than the company.
(Transcript Volume 13, Page 67)

40. During cross-examination by AMPCO, the witness agreed that OPG did not factor the cost of capital for ratepayers into their analysis. (Transcript Volume 13, Page 155)

41. AMPCO submits that OPG's analysis of the costs and benefits of CWIP in rate base should consider the full impact on ratepayers. If such a full cost accounting approach had been undertaken AMPCO believes the CWIP in rate base proposal would show a higher total cost to society than the current mechanism. Many of AMPCO's members have experienced financial decline over the last few years during the economic recession in Ontario and continue to deal with economic stress. Any additional borrowing at this time places an unnecessary burden on these firms. In response to a question about where the funding will come, the witness stated, "There would be a range of possibilities and the most likely is that we would secure financing from the Ontario Electricity Financing Corporation (OEFC), as we have in respect of other projects." (Transcript Volume 13, Page 56)

42. The evidence does not show that OPG will have difficulty financing the project.

43. AMPCO submits that there are no proven benefits of including CWIP in rate base for the DRP.

Intergenerational Equity

44. Intergenerational equity requires that current ratepayers should not pay for an asset that will benefit only future ratepayers. AMPCO is concerned that if the Board agrees to accept OPG's request for accelerated cost recovery of CWIP that burden will be placed on customers, AMPCO members, who may not be in business when these units come into service. AMPCO submits OPG's CWIP in rate base proposal creates a cost-benefit mismatch among generations of ratepayers and that this concern is not offset by the purported benefits (smoothing of rates and reduced borrowing costs) claimed by OPG.

45. OPG's application also contains troubling contradictions. On one hand, OPG decided to extend the amortization of tax recoveries over an extended period of time to mitigate the originally proposed overall rate increase of 9.6%, bringing the proposal down to 6.2%. This extended amortization imposes costs on future consumers although with some justification. On the other hand, OPG has applied to accelerate the recovery of Darlington refurbishment costs, seeking to include CWIP in rate base. This measure seeks to impose costs on consumers not yet receiving the benefits of the new Darlington investment directly in contradiction to the intent of the extended tax amortization.

46. The Ontario government's new Long Term Energy Plan (LTEP) discusses electricity pricing issues at some length. The main thrust of the LTEP's outlook for rates is captured in the line, "We are all paying for previous decades of neglect." (Exhibit K16.1, Page 4) Previous rates were to some extent back-end loaded. With today's customers now picking up some of the tab for previous usage, today is a particularly inappropriate time to be prepaying for future usage as OPG proposes with its unprecedented CWIP treatment

The Cost of the Project in Proportion to the Current Rate Base of the Utility

47. In its pre-filed evidence OPG says "... at this preliminary stage the projected cost of the Darlington Refurbishment project is between the "low" bounding case of $6B and the "high" bounding case of $10B (2009 dollars). OPG's nuclear rate base in 2012 is approximately $4.0B…. Even in comparison to OPG's combined regulated hydroelectric and nuclear rate base of approximately $7.8B, the Darlington Refurbishment project is substantial." (Exhibit D2, Tab 2, Schedule 2, Pages 4 to 5)

48. The DRP consists of the refurbishment of four nuclear units. The first unit is scheduled to be removed from service in 2016 and will come back in service, refurbished in 2019 and the last unit is scheduled to be returned to service in 2024. (Transcript Volume 13, Page 97)

49. To mitigate risk, OPG indicates that the project is being managed in phases with each phase having its own milestones, deliverables, and release of funds. (Exhibit D2, Tab 2, Schedule 1, Page 4)

50. During the initiation phase, OPG developed a timeline and release strategy that requires that certain deliverables be achieved prior to moving to the next phase of the project. (Exhibit D2, Tab 2, Schedule 1, Page 9)

51. AMPCO submits that DRP is really several projects represented by the individual phases in the release strategy that underpin the refurbishment of the four units with staggered in-service dates. Each individual phase in the release strategy can be seen as a discrete project with discrete timelines, costs, and a release of funds. When the cost of each individual phase is considered as a proportion of OPG's $7.8B rate base, the costs are not of the magnitude expressed by OPG and thus do not create unique risks or challenges sufficient for OPG to justify an alternative cost recovery mechanism.

The Risks or Particular Challenges Associated With the Completion of the Project

52. In its pre-filed evidence OPG states, "Moreover, the risks of the project are similar to those noted by the OEB for green energy projects, which include risks related to project delays, public controversy, and the recovery of costs. (Exhibit D2, Tab 2, Schedule 2, Page 3)

53. AMPCO submits that OPG's evidence does not support that statement. OPG provides no evidence to substantiate potential project delays, public controversy, or risk of recovery of costs. The evidence does not justify CWIP in rate base.

<u>Project Delays</u>

54. OPG has 90 per cent confidence that the project will proceed as planned and will have the life it expects. (Transcript Volume 13, Page 81) OPG has not identified any unique challenges that would delay the completion of the project. AMPCO submits that OPG is inconsistent. OPG has identified project delays as a risk yet they have stated on numerous occasions that they have confidence the project will proceed as planned and that the DRP will result in a Levelized Unit Energy Cost (LUEC) of less than 8 cents/kWh. (Exhibit D2, Tab 2, Schedule 1, Page 7)

55. When questioned about Public Controversy, an OPG witness, Mr. A. Barrett stated, "We expect the project to be executed. As we have laid out, we expect that we will be able to achieve our plan. There are risks there, but we expect that those risks are manageable." (Transcript Volume 13, Page 116)

<u>Recovery of Costs</u>

56. During cross-examination, OPG's witness Mr. R. Luciani agreed that when the Province of Ontario approves the building of the project it provides additional regulatory certainty. (Transcript Volume 12, Page 113) Furthermore, Mr. Luciani

said that he is not aware of a circumstance where the Province of Ontario has approved or authorized or directed the construction of a nuclear facility where the cost of the nuclear facility has not been fully recovered in its entirety. Mr. Barrett was also not aware of any instance of a nuclear facility in the Province, either approved or directed by the Province that the Province has allowed to default so it can't recover its costs (Transcript Volume 12, Page 114). AMPCO submits that OPG is not at risk of recovery of prudently incurred costs.

57. AMPCO submits that conventional mechanisms are sufficient to address the investment risks.

The Reasons Given for Not Relying on Conventional Cost Recovery Mechanisms

58. The Board traditionally has held that a utility may earn a return only on an asset once it is used and useful. The Board's approach in its Report states that conventional mechanisms remain appropriate and "in most instances conventional mechanisms will likely be sufficient to address investment risk." (Exhibit K13.8, Page 10)

59. The reasons given by OPG for not relying on conventional cost recovery mechanisms is that CWIP in rate base will provide a smoothing effect on rates and can reduce borrowing costs. (Exhibit D2, Tab 2, Schedule 2, Page 5)

60. As stated above, AMPCO's position is that there may be no ratepayer benefits and if there are they are overstated by OPG. AMPCO's position is that conventional mechanisms remain appropriate.

Whether the Utility is Otherwise Obligated to Undertake the Project

61. OPG indicates that the project has been approved by OPG's Board of Directors and endorsed by the Province via a letter from the Minister of Energy. The Ontario

Power Authority has also endorsed OPG's decision.
(OPG Argument-in-Chief, Page 40)

62. OPG has indicated they will proceed with the Darlington Refurbishment Project even if their CWIP proposal is rejected by the OEB.
(Exhibit L, Tab 14, Schedule 4, Part A)

63. AMPCO submits that OPG does not require CWIP in rate base as an incentive to invest in the project. OPG has committed to undertake the project and plans to complete it with or without accelerated cost recovery of CWIP.

The Charles River Associates (CRA) Report

64. Green Energy Coalition (GEC) requested that the opinion evidence of Mr. Luciani be excluded from the hearing on the basis that he was not independent. GEC references the CRA retainer letter as evidence. (Transcript Volume 13, page 41)

65. Specifically GEC and others expressed concern about the second phase of work in the CRA retainer letter, Development of Alliances, that states that "OPG must seek out potential allies who share its position…. OPG in conjunction with CRA may choose to socialize the paper with various stakeholders in Ontario to gather support for the proposed approach."
(CCC Interrogatory L, Tab 4, Schedule 5, Attachment 1)

66. OPG's witness indicated that the work in terms of item number 2 was undertaken by OPG's staff, and not CRA staff. (Transcript Volume 13, Page 11)

67. GEC's position is that the structure of the retainer letter compromised the independence of Mr. Luciani.

68. The Board decided to admit CRA's Report (Benefits of Integrating CWIP into Rate Base in Ontario) in its entirety and to hear the evidence of Mr. Luciani in order to

better understand how CWIP is applied in other jurisdictions and the circumstances in which it is allowed. The Board indicated, however, that they would take the retainer letter into account when weighing the evidence.

69. AMPCO agrees with GEC and other intervenors that based on OPG's instructions to its consultant, Mr. Luciani's independence has been undermined and AMPCO submits that the Board should not give any weight to CRA's evidence in determining if CWIP in rate base should be approved for the Darlington Refurbishment project. (Exhibit D4, Tab 1, Schedule 1, Page 4)

70. In response to AMPCO interrogatory L, Tab 2, Schedule 6 Part C, OPG indicated that "Mr. Luciani has not specifically researched the CWIP in rate base activity for states other than those specifically discussed in the CRA paper, but that it is his general understanding that CWIP in rate base is not generally permitted in these other states. AMPCO submits it would have been helpful to the Board to understand where and under what circumstances CWIP is not allowed in the US.

71. During AMPCO's cross-examination, AMPCO referenced a recent decision in the US where a Bill to modify the CWIP law in Missouri to allow AmerenUE, an investor owned electricity and gas provider, to recover costs prior to plant start-up was withdrawn before the legislation ever made it to Committee.
(Transcript Volume 13, Page 152)

72. Mr. Luciani believes that all of the nine US States identified as having recent CWIP in rates activity involve investor-owned utilities. (Transcript Volume 13, Page 110)

73. CRA's Report makes reference to severe cash flow problems and inadequate coverage ratios of private utilities as reasons why US utility regulatory commissions began to permit all or part of CWIP in rate base. Allowing CWIP in

rates would remove the disincentive for utilities to construct projects with long lead times and would encourage utility investment.

74. AMPCO submits that the US context is considerably different than that in Ontario in that in the US investor-owned utilities would often not make investments in nuclear power plants without the incentive of CWIP in rate base as seen in Missouri. This is not the case in Ontario where OPG is government owned, financed by OEFC, and committed to undertaking DRP with or without the Board's approval of CWIP in rate base.

75. AMPCO submits that for the reasons above the CRA report should be given no weight.

Return on Equity (ROE)

76. CRA's Report references The National Regulatory Research Institute (NRRI) Report Pre-Approval Commitments: When and Under What Conditions Should Regulators Commit Ratepayer Dollars to Utility-Proposed Capital Projects, November 2008. (Exhibit D4, Tab 1, Schedule 1, Pages 9 and 12)

77. Page 22 of the NRRI Report states, "Some commissions have allowed early recovery where a utility's weakened financial condition would otherwise preclude projected completion or trigger certain specific adverse financial events, such as a bond rating reduction below investment grade, reduction in interest coverage ratios below a specified level, or insufficient cash flow to ensure adequate service. In other cases, early recovery has been denied. Any approval based on claimed financial weakness should be based on specific evidentiary showings, including the likelihood that the requested relief will alleviate the utility's problems. Because pre-approvals reduce utility risk, commissions awarding some form of pre-approval

cost recovery should consider whether a corresponding reduction in the utility's return on equity is appropriate."

78. In the hearing AMPCO referenced the NRRI Report and inquired if OPG was asking for a reduced return on equity if the CWIP proposal was approved. The OPG witness indicated "No. My understanding is the evidence of Ms. McShane, who is our cost of capital expert, indicated that refurbishment, in her view, was an incremental risk, and the approval of CWIP would be a way of addressing that incremental risk". (Transcript Volume 13, Page 156)

79. In the event the Board grants CWIP in rate base, AMPCO suggests that the Board consider whether it is appropriate to reduce OPG's ROE commensurate with the reduced risk profile resulting from CWIP in rate base.

AMPCO's Request

80. AMPCO submits that DRP is not a qualifying investment as specified in the Board's Report.

81. Aside from the project need, AMPCO submits that OPG failed to satisfy the remaining six factors in order to justify a departure from conventional regulatory mechanisms.

82. AMPCO submits that the proposed treatment (CWIP in rate base) for the Darlington Refurbishment Project should be rejected by the Board.

83. Without CWIP in rate base, the nuclear payment amount for 2011/12 would be reduced by 6.8% (or $0.38/MWh) from the $55.30/MWh originally filed.

84. AMPCO submits that the CRA Report should have no influence on the Board's decision in this regard. [Redundant]Electricity rates are forecast to increase moving forward resulting in potentially significant bill impacts on customers.

Referring to the rate impacts of including CWIP in rate base for the DRP, OPG indicated "As with other utilities, OPG would be expected to have numerous other cost pressures during the project period that would also serve to increase rates." (Exhibit D, Tab 2, Schedule 2, Page 6) In the event the Board approves CWIP in rate base for the DRP, AMPCO submits that the Board should give consideration to lowering OPG's return on equity commensurate with OPG's reduced risk profile, thereby reducing the overall impact on customers in this proceeding.

85. AMPCO agrees with Board Staff that if the Board approves CWIP in rate base, OPG's return should be limited to only interest costs as opposed to OPG's total cost of capital which includes ROE. (Board Staff Submission, Page 38).

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?

86. AMPCO does not support a technology-specific capital structure and cost of capital at this time.

Issue 4.1: Do the costs associated with the regulated hydroelectric projects, that are subject to section 6(2)4 of O. Reg. 53/05 and proposed for recovery, meet the requirements of that section?

87. Please Refer to Issue 4.3

Issue 4.2: Are the capital budgets and/or financial commitments for 2011 and 2012 for the regulated hydroelectric business appropriate and supported by business cases?

Beck Tunnel

88. AMPCO has concerns about the Beck Tunnel. Since it is now a project that will not be completed during the test period, the Board can consider the information produced in this hearing only as an update. AMPCO submits that the Board cannot rule on the prudence of the project until it is completed.

89. In Procedural Order #3 the Board issued the following finding: "The Board will only make prudence determinations with respect to projects or costs that close to rate base in the test period. While the Board agrees that it would be appropriate to review other aspects of the capital budgets, the Board expects that this review will be more in the form of a status update. The Board does not intend to make any form of quantitative or qualitative finding with respect to projects and costs which close to rate base in the period after the test period."

90. Exhibit JX 2.4 Attachment 1 (NON-CONFIDENTIAL), which is the "Niagara Tunnel Project, Project Execution Plan" dated September 2010 and Exhibit D1, Tab 1, Schedule 2 Attachment 1 Tab 1, which is the "Superseding Release for Niagara Tunnel Project" provide the following key historical facts:

91. Ontario Hydro began studying the predecessor of the current Niagara tunnel project in 1982. Detailed studies were conducted from 1988 through 1994. OPG approved the Execution Phase of the Niagara Tunnel Project in July 2005.

92. Notwithstanding the long study effort, OPG's 2005 plans proved to be wrong on many fronts.

93. OPG adopted a contracting strategy of finding a contractor willing to enter into a fixed price/fixed term deal.

94. The project "required several TBM (Tunnel Boring Machine) outages for modifications to the initial support area immediately behind the cutterhead." (Exhibit D1/1/2 Tab 1 p.9)

95. Unforeseen weak crown rock conditions plagued the project, notwithstanding the fact that two large diameter tunnels had been driven through this same rock in the 1950s. It appears that weak rock conditions were exacerbated by unprotected bore holes drilled for exploratory purposes. Extensive break occurred, often immediately behind the cutter head of the TBM. Crown reinforcement and extra spoils slowed progress.

96. About half way through the tunneling effort, relations with the contractor deteriorated to the point where arbitration was sought.

97. In the ensuing negotiations for the completion of the tunnel, OPG took on a large amount of commercial risk, including responsibility for the mechanical health of key elements of the TBM such as the main bearing, even though it is owned by Strabag.

98. The following excerpt from the "Niagara Tunnel Project, Project Execution Plan" dated September 2010, describes the new burden on OPG.

> *8.4 Risk Allocation*
> *The ADBA (Amended Design Build Agreement) has changed the risk allocation for the remainder of the Project. OPG has accepted risks for baselined items (extent of overbreak in the tunnel crown, escalation, diesel fuel price, etc) and for low probability, high consequence tunnel construction events (TBM main bearing failure, significant damage to the tunnel conveyor, tunnel flooding, etc). Close monitoring and prompt response will be required to minimize impacts. Appropriate cost and schedule contingencies have been included in the superseding release.*
> (Exhibit JX 2.4 Attachment 1 (NON-CONFIDENTIAL), Pages 8.1-8.2)

99. Another major issue identified in Exhibit JX 2.4 relates to the completion date for the tunnel. As noted on page 11-1 (page 62 of the pdf) the project completion date, once subject to a contractual date certain, is now “non-contractual”. This description from OPG raises concerns for AMPCO about the certainty of the completion plan for the project.

100. Exhibit JX 2.4 was entered into the record after the oral hearing was completed. AMPCO has attempted to review thoroughly the evidence on the tunnel produced prior to the filing of Exhibit JX 2.4, whether pre-filed, filed in response to interrogatories and undertakings and also in oral testimony. AMPCO cannot identify where the “non-contractual” nature of the project completion plan is clearly set out. The Business Case Summary (BCS), filed at Exhibit D1, Tab 1 Schedule 2 Attachment 1 makes clear there is a revised “target date” for the tunnel to go into service. It does not make clear that the date is “non-contractual”.

101. AMPCO’s counsel sought an explanation as to the scope of the revised commercial arrangements between OPG and the tunneling contractor Strabag, in particular the completion plan;

> *MR. LORD: And that amendment was in part intended to account for, or at least react to some of the problems that you had experienced thus far in the project with respect to overbreak, tunnel liners, difficult rock conditions; is that correct?*
> *MR. MAZZA: Yeah. It was to account for the past difficult rock conditions and an estimate of what the future expectations were along the alignment.*
> *MR. LORD: And that contract includes revised target costs and target schedules. Is that not correct?*
> *MR. MAZZA: Yes, it does.*
> (Transcript 1, Page 123)

102. A future prudence review will have to grapple with some difficult questions. It is not clear how carefully OPG considered the contractor's selection of the TBM equipment. At the half way point of the project, the contractor would have

become thoroughly expert on the project's geotechnical and other complications. At the beginning of the project, the contractor might reasonably have required a premium to take on delivery risk because of the uncertainties of what they might find underground. Whereas time-and-materials might have been a reasonable contracting strategy at the beginning, at the half way point, was OPG correct to contract the remaining job on a version of time-and-materials? In contracting for services and administering the tunnel project, what lessons from the Pickering A restart project were incorporated?

103. Exhibit J1.6 makes it clear that OPG will be spending capital dollars in the test period on the Beck project not covered by O. Reg. 53/05 section 6.2.4.

104. As noted in OPG's plan with respect to the Darlington refurbishment project, OPG proposes to provide the OEB with an annual monitoring report indicating the project status. (OPG Argument-in-Chief, Page 78) AMPCO submits that it would be appropriate for the Board to order OPG to produce a comparable annual monitoring report on the tunnel project.

Issue 4.3: Are the proposed in-service additions for regulated hydroelectric projects appropriate?

AMPCO has concerns with respect to SAB 1 Unit G9 Rehabilitation and the St. Lawrence Power Visitor Centre.

SAB 1 Unit G9 Rehabilitation

105. The forecasted cost and schedule for G9 as presented in both the evidence (Exhibit D1, Tab 1, Schedule 2, Attachment 1, Tab 4) and OPG's Argument in Chief (Pages 9-10) are less favourable than the Board was previously told. Both the increases and

delays raise concerns. OPG's presentation of data on cost and schedule should be clearer when the key facts presented to the Board are changed.

106. OPG's Argument-in-Chief reports that the G9 upgrade is currently on schedule with an in-service date of December of this year and on budget, which is $32.1 million. (Page 10) In EB-2007-0905, however, OPG reported a budget of $30 million, with an in-service date of 2009. (Decision With Reasons, Page 44)

107. Particularly with respect to capital projects of long duration, the applicant bears an onus to ensure that the Board is made aware of how not only the spending and expected time to completion is currently estimated but how the budgets and projected in-service dates evolve when these projects may span multiple payment amount applications.

108. AMPCO's counsel raised this concern in cross-examination:

> *MR. LORD: And would you agree with me that, where a particular project was dealt with in a previous application, and is dealt with again in the current application, that it's helpful to the Board to provide them not only with the latest information but with the identification of things that have changed with respect to budgeting, so that they know they're always comparing apples to apples from application to application?*
> *MR. MAZZA: Well, we did provide -- we did provide the information that we thought was relevant in this filing.*
> *MR. LORD: Okay.*
> *MR. MAZZA: It is useful, I guess, to provide information from the past.*
> (Transcript Volume 1, Page 132)

109. AMPCO notes that the G9 BCS (Exhibit D1, Tab 1, Schedule 1, Appendix 1, Tab 4), reflecting the delayed schedule and the increase budget, was submitted internally within OPG days after OPG submitted its reply argument in EB-2007-0905.

110. AMPCO recommends that the Board find that where a particular OPG project was dealt with in a previous application, and is to be considered again in a subsequent application, that OPG provide not only the latest information but also identify

those aspects of the project relevant to the Board's mandate, such as budgeting and scheduling of in-service dates, that have changed.

111. Although the magnitude of the G9 overrun relative to the evidence presented in EB-2007-0905 is only $2.1 million of the proposed final $32.1 budget, AMPCO submits that the increase has not been adequately justified and that a reduction in the proposed rate base addition by $1 million is called for. The G9 project follows the nearly adjacent G7 project. OPG should have learned from the earlier project. The G7 experience should have provided learning, tooling and infrastructure opportunities. More importantly, with the G9 project OPG should have had the opportunity to take advantage of the delay in the in-service date for the tunnel to be able to reorganize the G9 project in a more optimal fashion, reducing costs associated with urgency.

Visitor Centre at Saunders

112. AMPCO supports Board staff's recommended approach regarding the visitor centre at Saunders.

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?

113. AMPCO supports the exploration of a refurbishment option for Darlington but opposes any suggestion that approval to proceed with further project definition constitutes any kind of approval of the prudence of the project.

114. At page 31 of its submission, Board staff presents a series of helpful clarifying questions on the framework for decision making on Darlington refurbishment. In summary, this is AMPCO's approach.

Q - Does the Board have a regulatory oversight role of the project including the ability to perform a prudence review of refurbished station costs upon project completion?
A- Yes, that is the letter and intent of O.Reg. 53/05.

Q - Does the Board have to accept whatever these costs might be in the absence of a prudence review?
A - The Board has some discretion over the proposed capital budget, but there is a reasonable basis for OPG to proceed with its further development of the Darlington refurbishment plan as filed without the CWIP element and with no presumption that proceeding with the development programs described in the prefiled evidence constitutes in any way a prudence review.

Q - If the Board were to approve OPG's test period requests would this be considered an implicit Board approval of the entire project?
A - No. After-the-fact prudence reviews for all the key further steps of the project will be required.

Q - What is our understanding and expectation of what Board approval of OPG's CWIP proposal would signify regarding prudence of the review itself?
A - If the Board disagrees with us and approves OPG's CWIP proposal, even if the Board approves CWIP recovery on an interest cost only basis, there is no practical change in the need for or scope of the prudence review, although there would be some fettering of the discretion of future panels as a result of the fact that a significant portion of the cost of the project will have been collected. This problem of fettering a future panel's discretion is another reason to turn down OPG’s request to have CWIP funds payment recovered in advance.

115. The long term prospects for the economics of the Darlington refurbishment remain highly uncertain, contrary to OPG’s assurances. There are major deficiencies and uncertainties in OPG’s analysis.

116. In response to a question from Pollution Probe’s counsel, OPG acknowledged that the future economics of the project are a key consideration.
(Transcript Volume 6, Pages 191-192)

117. For the purposes of operational planning and O&M target setting, OPG assumes that O&M costs will escalate at a rate of 4% (Transcript Volume 3, Page 47), more than twice the inflation rate. The approach OPG uses for economic assessment of the Darlington refurbishment, however, assumes no escalation.

118. Frequently throughout the oral portion of the hearing, OPG described itself as a learning organization. This objective is to be encouraged, but the evidence suggests that OPG does not follow that approach. For example, CME's counsel established in cross-examination that OPG's nuclear division is not aware of major business developments related to the company's hydro-electric operations. (Transcript Volume 2, Pages 162-163)

119. AMPCO submits that unless OPG determines its contracting strategy and contracting costs, any cost estimates for the project can only be guesses. The general contracting strategy for the major re-tubing work at Darlington has yet to be determined. (Transcript Volume 8, Page 17) In response to a question from counsel for Pollution Probe, OPG replied "We are also looking at specific contracting strategies that ensure that we have got all of the vendors appropriately aligned on a common set of objectives that align with our objective for the refurbishment, which would be to execute the project on schedule and on budget." (Transcript Volume 6, Page 171) OPG has not made any assumption about the future role of AECL. (Exhibit L, Tab 2, Schedule 15) It is important to note, however, that AECL is the only contractor that has done full-scale retubing work for Canadian and international Candu 600 reactors to date.

> *MR. CROCKER: Okay. AECL has been and probably still is the principal re-tubing contractor for CANDU reactors, aren't they?*
> *MR. REINER: That's correct. If you base that on, you know, who is doing the re-tubing work today in the CANDU refurbishments, that would be correct.*

120. OPG has not received an expression of interest from General Electric, which is expected to be a potential candidate. (Transcript Volume 8, Page 18)

121. It appears that OPG is contemplating being its own general contractor.

122. Under questioning from SEC's counsel about its contracting strategy, OPG's witness indicated, "I mean, we would expect by 2012 to have already engaged

some of the key contractors that we would be working with." (Transcript Volume 6, Page 59)

123. AMPCO submits that OPG should be required by the Board to fully apprise it of OPG's intentions with respect to its contracting and procurement plans, including guarantees, warrantees, liabilities and reporting requirement, before OPG is permitted to make major and irrevocable financial commitments.

124. The ongoing commercial problems with the nuclear refurbishments at the Candu reactors at Bruce and Point Lepreau in New Brunswick are of so little interest to OPG that the company only relies on press releases and newspaper stories to track the progress of those overruns. (Exhibit L, Tab 2, Schedule 15b) OPG has not even examined the press releases it has relied upon to determine their accuracy:

> *MR. CROCKER: … Can I assume from this, referring specifically for the moment to the costs for Bruce 1 and 2, that those costs are only the direct costs to Bruce? Do you know that?*
> *MR. REINER: I don't know that for certain. And specific to Bruce, I don't know whether they're looking at any sort of lost opportunity and factoring that into those costs. I do not know.*
> *MR. CROCKER: All right.*
> *MR. ROSE: I don't believe we even know if this has escalated fully loaded with interest costs or net of that, either. We only have the information that was in the report. I am not certain of the details of that.*
> *MR. CROCKER: You haven't -- you haven't enquired further? You just accepted the information and reproduced it here?*
> *MR. ROSE: Yes.*
> (Transcript Volume 8, Page 27)

125. OPG was unable to identify whether the costs it uses for the Point Lepreau refurbishment contain replacement power cost or whether all of AECL's costs are reflected in the numbers used. (Transcript Volume 8, Page 28)

126. OPG suggests it is studying comparable refurbishment projects to the project underway for Darlington (Exhibit D2, Tab 2, Schedule 1, Page 7 line 24), but, it

seems, has considered technical issues only. OPG was completely unable to provide the Board with any useful information on the commercial implications of those projects.

> *MR. CROCKER: Okay, we are going to get to that in a sec.*
> *What you didn't say that you discussed, and I am interested in whether you do, is financial information. Is that shared?*
> *MR. ROSE: Not beyond what we currently have publicly. We don't get into specifics. I don't know, as an example, the detailed breakdown of the information we have, the public information that we have here on the G2 or the Point Lepreau costs or the Wolsong costs.*
> *MR. CROCKER: But you --*
> *MR. ROSE: It is really about -- we really talk about schedule, planning issues, you know, how they're approaching the refurbishment. We exchange some of our planning activities. We get input from everybody who is participating.*
> *MR. CROCKER: Do you even discuss, in a general sense -- without specifics -- the real costs that these owners are incurring with respect to their refurbishments?*
> *MR. ROSE: At the meetings that I've been at -- and I have attended - I have only attended one meeting to date - we don't get into any specific conversations about costs.*
> (Transcript Volume 8, Page 22)

127. AMPCO introduced into evidence an excerpt from AECL's most recent Annual Report that clearly indicates that AECL is suffering substantial financial losses and contingent liabilities related to the ongoing refurbishment contracts it has for reactors at Wolsong, Point Lepreau and Bruce Power. (Exhibit K8.1) OPG is unaware of and appears to be uninterested in the losses and contingent liabilities that AECL is suffering on those Candu refurbishment projects.

128. OPG witnesses were presented by counsel for AMPCO financial statements from AECL indicating that it had received $436 million in cash injections from the federal government over the last two years related to refurbishment losses and that AECL had declared a contingent liability of $599 million to reflect exposure to liquidated damages and guarantees. Those witnesses clearly didn't see any significance in the fact that the refurbishment contractor at Point Lepreau and Bruce was losing

significant money. This failure is particularly distressing in light of the problems with the Beck tunnel where the consequences of contractor losses have resulted in cost overruns, delays and the assumption of increased commercial risks by OPG. (Transcript Volume 8, Pages 29 to 33.)

129. When pressed for examples of any ability to deliver on time and budget, OPG could only point to three modest sized projects, two of which are routine events practiced by OPG and its predecessor many times: the Darlington VBO, Pickering VBO and Pickering safe store. (Exhibit J8.3) OPG picked the only favourable examples. As discussed under Issue 4.6, AMPCO suggests that OPG's management of some small, routine capital projects, which are really simple commercial projects that happen to be located at complex nuclear sites, provide clearer insights as to OPG's lack of capacity as a nuclear project manager.

130. OPG appears willfully blind to the history of nuclear cost overruns, an unacceptable starting point for another major nuclear investment.

131. There is only one important structural difference between OPG as a project manager now and OPG as a project manager during the Pickering A restart operation since OPG today has the same structure of incentives for the organization to succeed, and the same accountability to its shareholder. The only difference is that now OPG must obtain the approval of the Ontario Energy Board for expenditures related to the Darlington project.

132. AMPCO submits that the Board should carefully monitor the progress and outlook of the Darlington refurbishment project.

Issue 4.6: Are the proposed in-service additions for nuclear projects appropriate?

133. Both the Pickering Cafeteria and the Darlington Change Room are capital projects included in OPG's opening rate base. The current case is the Board's opportunity to issue a prudence decision on those projects. AMPCO submits that the original estimates for those projects represent a reasonable value for those projects but that the Board should disallow the overruns from inclusion in rate base for the reasons outlined below. This downward adjustment to rate base would be $*** million for the cafeteria and $7.76 million for the change room.

134. More importantly, AMPCO suggests that these projects provide a clear view of OPG's difficulties in dealing with small, commercially-oriented capital projects on its nuclear sites. The handling of these projects also raises serious questions about OPG's current ability to manage much more complex nuclear undertakings.

135. AMPCO accepts the need for OPG to replace its cafeteria at Pickering and refurbish its change room at Darlington. AMPCO submits, however, that the cost and schedule deficiencies of the projects are of concern not just with respect to the inclusion of the full costs of these projects in rate base but also raise concerns about OPG's capacity to manage even minor capital projects within its nuclear operations.

Pickering Cafeteria

136. Redacted.

137. Redacted.

138. Redacted.

139. Redacted.

Darlington Change Room

140. The initial Business Case Summary for the project was for $16.02 million. OPG is seeking approval to include $23.781 million in rate base for the project. (Transcript Volume 5, Page 201)

141. When asked to explain how a large industrial change room can cost $1,252 per square foot OPG explained that "the project was executed on a fast track" (Transcript Volume 5, Page 204) in order to meet the requirements of the staff increase associated with the 2009 vacuum building outage (VBO). The VBO is a regulated requirement, the date for which is known to OPG many years in advance. OPG suggests it was caught by surprise by the condition of the asset due to mold and other deficiencies.

> *MR. CROCKER: I'm not going to dwell on the issues that you spoke of, but does one discover that it's uninhabitable suddenly?*
> *MR. ARNONE: We had been repairing it for a number of years, and it had been functioning.*
> (Transcript Volume 8, Page 206)

142. AMPCO submits that OPG's track record with the Darlington change room suggests that it is not tracking its asset condition and making refurbishment decisions in a timely fashion.

Issue 5.1: Is the proposed regulated hydroelectric production forecast appropriate?

143. AMPCO accepts OPG's base forecast for hydro-electric production.

144. For the purposes of calculating the impact of SBG volumes, OPG issued a forecast based on input from the 2009 IESO 18 Month Outlook. The actual SBG impact on hydro-electric operations is exceptionally difficult to forecast.

145. In its Argument in Chief at page 12, OPG acknowledges that a variance account might be acceptable. Board staff has proposed a four point approach to create a

SBG compensation system designed to provide a flow through of the impacts to consumers and to indemnify OPG in a neutral fashion. AMPCO agrees with Board staff's approach, although AMPCO follows the position of SEC that it should include the clarification that only IESO-ordered SBG actions can be included in the deferral account.

Issue 5.2: Is the proposed nuclear production forecast appropriate?

146. OPG has submitted two different test period nuclear production forecasts to the Board – 98.9 TWh and 100.9 TWh -- inviting the Board to formulate rates on the basis of the lower forecast. These competing forecasts appear in OPG's 2010-2014 Business Plan and its 2010-2014 Nuclear Business Plan respectively. The revenue deficiency of the forecasted output difference is approximately $200 million. (Board Staff Submission, Page 87) AMPCO submits that the appropriate basis for the calculation of payment amounts is the larger of OPG's forecasts.

147. The same basic reasoning that caused OPG to adopt the higher target for the purposes of setting performance improvement targets for the nuclear operation should guide the Board.

> *MR. CROCKER: Okay. And then you say at line 19, toward the end:*
> *"OPG has established a stretch performance target that is 2.0 TWh higher than the 2010 - 2014 Business Plan production forecast."*
> *Am I right in suggesting that what you've said in the first paragraph under 3.5 is that you are taking away two terawatt-hours, and then, in the next paragraph, you are adding it on?*
> *MS. CARMICHAEL: What we did is we developed a production forecast that we thought would be the most accurate forecast possible, which included the two terawatts.*
> *Then we -- to drive the organization to performance improvement at the station levels, we basically, in essence, added back the two terawatts to come up with the station targets so that all performance metrics and*

measurements and incentive plans would be geared towards that number. (Transcript Volume 6, Page 23-4)

148. OPG's Argument-in-Chief stresses that nuclear production in the test period is forecast to improve relative to actual production in 2008-2009. (Page 39) While true, this approach overlooks OPG's evidence to this Board in EB-2007-0905.

149. In comparing the forecasted nuclear for the period 2008-2009 as presented in EB-2007-0905 and currently proposed production for 2011-2012, OPG is proposing production that is 2.4 TWh lower. (Transcript Volume 6, Page 20) This reduction in forecasts arises notwithstanding the fact that the period 2008-2009 included a heavy schedule of major planned outages including the 4 week Darlington VBO in 2009 and extended planned outages for Pickering 6 and Pickering 4. It is also noteworthy that OPG completed a vacuum building outage for Pickering in 2010 and that the derating of Pickering A was relieved in 2009. (Transcript Volume 6, Page 31) With both Darlington and Pickering having recently completed VBOs which included major and costly work packages and other major work having recently been completed on specific units, some performance improvement might reasonably be expected.

150. A partial off-set to these established improvements is the increased outage time required for the Pickering B continued operations program. This amount of production loss, however, is estimated at 1.9 TWh (OPG Argument-in-Chief, Page 39) whereas the expected production loss from a 30 day VBO at Darlington would be in the order of 2.4 TWh assuming a 5% unplanned loss rate for normal operations.

151. OPG has invested heavily in performance improvements for many years.

MR. CROCKER: Okay. The chart goes back to 2005, and so to say the obvious, improving or -- or to ask the obvious, improving the condition of the nuclear units is

nothing new. It goes back at least to 2005 and probably much earlier than that. You would agree with that, wouldn't you?
MR. ALLEN: What I would tell you, and based on what we said in the evidence, is that in periods prior -- oops, sorry. In periods prior to 2004, we had not performed, you know, enough maintenance to keep these units in good operating condition. And in 2003-2004 time frame, we initiated programmatic improvements to improve the material condition of the plant, starting with Darlington, and then to Pickering B, and now intense on Pickering A.
So I wouldn't say -- I don't know about the efforts before 2004, except to say, from 2004 on, is where we really kicked into this improvement initiative.
(Transcript Volume 6, Pages 27-28)

152. Having invested heavily in performance improvement, with the Board's approval in past 3 years, consumers have a reasonable expectation that forecasted production should improve, not decline relative to the forecast presented in the previous case, as OPG has suggested.

Issue 6.3: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

153. AMPCO has two specific O&M concerns it wishes to focus on – Pickering A's base O&M and Pickering B retubing and associated regulatory costs.

Pickering A

154. Notwithstanding OPG's renewed interest in austerity, particularly in comparison to the steep increases proposed in the last case, AMPCO submits that the costs for operation of Pickering A, which the Board previously found to be excessive, continue to be excessive. For the same reasons the Board found that not all of the proposed costs should be recovered from ratepayers, AMPCO submits that substantially the same facts apply and that the Board should find as it did in EB-2007-0905.

155. As per OPG's evidence in EB-2007-0905 the Production Unit Energy Costs (PUEC) for 2008 were forecast to be $76/MWh, and in 2009 $77/MWh. (Decision with

Reasons Page 25) OPG achieved slightly better than target in 2008 but fell substantially short of this operating cost per unit target for Pickering A in 2009. The actual results for 2008 and 2009 were $73.9/MWh and $84.2/MWh. (Exhibit L, Tab 2, Schedule 22 part C) As discussed in response to Issue 6.5, Pickering A is uncompetitive relative to its peers. The reasons for Pickering A's poor performance have been discussed at great length over two hearings, but AMPCO submits the general point is that this deficiency ought not to be imposed only on consumers. OPG's shareholder ought to bear some of the burden.

156. In the Board's Decision with Reasons in EB-2007-0905, it was determined that "Under these circumstances, the Board believes that a reasonable action is to disallow 10% of the Base OM&A costs for Pickering A."
(Decision with Reasons, Page 31)

157. The disallowance did not impair OPG's ability to operate its reactors safely.

> *MR. CROCKER: Okay, thank you. Can you tell me, please, how the disallowance impacted OPG? For instance, I assume it didn't prevent the provision of any essential service. I assume that it didn't create any concerns for safety, anything like that.*
> *MR. PASQUET: We will operate these facilities in a safe, reliable manner, and so, you know, with the impact of the rate order, we are not going to operate these facilities in an unsafe manner.*
> (Transcript Volume 4, Page 15)

158. The directly comparable PUEC figures according to OPG's forecasts for 2010, 2011 and 2012 respectively are: $84.5/MWh, $73.9/MWh and $73.0/MWh. (Exhibit J4.1) These figures demonstrate that notwithstanding OPG's nuclear austerity measures, the results to its benchmarking studies, and its other management initiatives that the costs of operating Pickering A remain high and are making little real progress.

159. AMPCO expressed a concern in its final submission in EB-2007-0905 with respect to the viability of the Pickering A station, given its poor benchmarking results and high costs. AMPCO continues to have serious concerns about these same issues. The forecasted production unit costs are not substantially improved over the forecasted amounts presented by OPG in the EB-2007-0905 case.

160. Nuclear O&M austerity measures and productivity improvements have a long history in Ontario. As OPG's witnesses acknowledged regarding the history of these efforts, "the results were mixed." (Transcript Volume 4, Page 28) AMPCO submits that this is a polite characterization for a reactor fleet that over the years has experienced premature shutdowns and chronic production shortfalls. As discussed under Issues 6.5, AMPCO submits that the Board should closely monitor trends in maintenance backlogs to ensure that the material condition of the reactors is maintained.

161. AMPCO submits that the Board should reduce Pickering A's base O&M by 10% which would represent a reduction of $17.3 million in 2011 and $17.1 million in 2012.

Pickering B Retubing and Associated Regulatory Cost

162. As set out in Exhibit L, Tab 12, Schedule 27, CNSC fees are one of the fastest rising elements of OPG's O&M costs. OPG can influence these costs in terms of the new work that OPG presents to the CNSC to do. Some of this expense historically has been imprudently incurred. For the Pickering B retubing project, OPG submitted to the CNSC an Environmental Assessment in June 2006 and an Integrated Safety Review in September 2009. A decision on the Environmental Assessment actually had been rendered by the CNSC, although not so on the Integrated Safety Review when the Pickering B refurbishment project was cancelled.
(Transcript Volume 4, Pages 32-35)

163. The costs associated with environment, safety and economic studies concerning refurbishing of Pickering B, were $49.1 million. (Exhibit L, Tab 7, Schedule 23) Regulatory costs are included in these figures.

164. Particularly in light of what we have learned during and after the retubing of Pickering A, its shutdown, its subsequent restart, its operating and cost record since restart, and the benchmark ranking of Pickering B, it is clear that it was never worthwhile to study refurbishment of Pickering B.

165. AMPCO submits that there is a disallowance of $4.9 million reflecting the shareholder's responsibility for the imprudence of these expenditures.

Issue 6.4: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for OPG's nuclear facilities reasonable?

Issue 6.5: Has OPG responded appropriately to the observations and recommendations in the benchmarking report?

166. AMPCO's submissions deal with Issues 6.4 and 6.5 together. AMPCO supports OPG's benchmarking program but believes that the program can be enhanced to better guide future decisions on resource allocation and judgments about the reasonableness of particular cost claims.

167. In response to a question from AMPCO's counsel, OPG's witness acknowledged that the benchmarking effort ordered by the Board in the EB-2007-0905 decision was beneficial for the company:

> *"It was a good exercise, has led to a good outcome from our perspective, and it did, in fact, show some gaps, areas where we needed to accelerate our improvement and challenge the organization, which this business planning that is referred to in the evidence does."*
> (Transcript Volume 2, Pages 127-128)

168. In response to a question from Energy Probe, OPG made a similar statement:

> *So maybe just to carry on from that, I mean, we were very sensitive to the criticism of the company at the last rate hearing, around benchmarking and failure to leverage that.*
> *And so, you know, in part in reaction to that, in part because it is the right thing to do, we retained a credible external source to help us, if you will, holistically look at our performance.*
> (Transcript Volume 3, Page 79)

169. OPG's approach applies static benchmarks for setting some future planning targets and escalating benchmarks for others. While the safety and reliability metrics were taken from the last known data, the value-for-money benchmarks are escalated over time as per the EUCG panel historical trend. In general, AMPCO supports this approach however we have a concern with respect to the cost basket used to measure escalation.

170. The cost measures that OPG use to for its escalation analysis include nuclear fuel costs. (Transcript Volume 2, Page 138) AMPCO submits that because of the recent volatility of the world uranium market, the inclusion of uranium costs in the calculation of the escalator trend will mask the underlying cost trend.

171. AMPCO supports ScottMadden's conclusion in its report that non-fuel generating cost is generally not the best measure to use to understand CANDU's relative performance because CANDU enjoys a significant design advantage with respect to fuel. Notwithstanding this agreement, for purposes of future target setting, AMPCO submits that a non-fuel generating cost escalator trend be applied to non-fuel generating costs.

172. An annual increase in total generating costs of approximately 4 percent per annum is built into the benchmarks against which OPG is targeting performance in 2014. OPG acknowledges that this number is more than twice the forecasted rate of inflation. (Transcript Volume 2, Page 139) As previously noted with respect to the

assessment of the cost effectiveness of the Darlington refurbishment, the inflation-adjusted O&M escalation rate is highly relevant to any proper assessment of the economics of the Darlington refurbishment decision.

173. AMPCO recognizes that OPG's nuclear benchmarking practices are going to evolve over time, but one concern arising from a review of successive benchmarking efforts is the change in the scope of benchmarks and changes in units of measure. Particularly when unexplained, these changes make it difficult to track results. Given the emphasis that the Board has placed on benchmarking, the comparability of results between studies is significant. In EB-2007-0905, the main economic benchmark offered was Production Unit Energy Cost (PUEC), whereas in this case the main economic indicator is total generation cost. The updated benchmarking report for 2009 filed at Exhibit J3.5 reflects a loss of comparisons with U.S. reactors with respect to many safety and reliability indicators and a change in units of measure used in benchmarking radiation emissions thereby complicating comparisons with previous studies. AMPCO suggests that when changes are made between successive generations of reports, notes be provided to allow continuity.

174. According to the benchmarking methodology OPG has used, the international CANDUs appear to fare in the middle of the pack of the comparator units, but the Canadian CANDUs are all at the bottom. As OPG explained, the poor performance of the Canadian units is primarily due to forced loss rate performance rather than a capacity factor. (Transcript Volume 2, Page 148)

175. Using the World Association of Nuclear Operators Nuclear Performance Index and including 15 US nuclear operators, the performance of CANDU is as follows, extracted from Exhibit JT1.7 Part 2/3.

Table 1

	2006	2007	2008	2009
Int'l Candu	6	6	10	11
OPG Candu	16	16	17	17
Canada Candu 1	20	19	18	18
Canada Candu 2	17	20	19	19
Canada Candu 3	18	18	20	20

176. By age and by vintage, the international Candu 600 reactors are younger and more modern than OPG’s reactors which are younger than the other Canadian CANDUs. (Exhibit K2.4) OPG agreed that the newer reactors tend to do better than the older reactors over time. (Transcript Volume 2, Page 156)

177. In general, AMPCO supports the approach of benchmarking even with its deficiencies. Mr. Sequira from OPG’s consultant ScottMadden spoke to this point. “Our experience, and we've been doing this for a number of years, is that when you attempt to correct the benchmark itself prior to the comparison, it tends to dissolve into an exercise of finding excuses for why you're not at the benchmark. And to OPG's credit, while we did go down that route for several days, we recommend and they adopted -- the benchmark is what it is. It is where the industry is. It's never a 100 percent comparison.” (Transcript Volume 2, Page 159) AMPCO’s counsel pointed out during cross examination, however, this approach was not pursued exactly with respect to financial benchmarks for target-setting purposes.

178. OPG insists that Darlington is doing very well. “If we look at the Darlington plant, certainly over the last couple of years, its performance is very good.” (Transcript

Volume 2, Page 148) AMPCO submits that OPG is overstating things to claim that Darlington's performance is very good. Although it is true that Darlington has improved its performance in some categories in recent years, it is also true that Darlington's total generating cost per unit was $1.74/MWh below the best quartile cutoff in 2008, it was $2.09/MWh below in 2009. In terms of cost, Darlington is in the middle of the North American pack. Darlington's younger age may be a major factor for its apparently superior performance relative to the other Canadian CANDUs and not evidence of any particular operating successes on the part of OPG. Similarly, Pickering A's very poor performance may also be a function of its advanced age and not evidence of any operating failures on the part of OPG.

179. Based on the evidence presented in this case, there is no reason to believe that OPG is a superior operator relative to its CANDU peers.

180. Even if OPG meets its targets, Pickering A and B will be stuck in the bottom quartile for overall total generating cost per unit of production by 2014.
(Transcript Volume 2, Page 141)

181. In Exhibit L, Tab 1, Schedule 53 OPG provides a discussion of Pickering's results:

> *"Poor material condition is only one factor limiting the ability of Pickering A and B to achieve median total generating cost performance by 2014. Among the structural factors that drive higher costs at Pickering stations, as discussed in Exhibit F2, tab 1, schedule 1, at pages 13 and 14, are the size of the reactor units compared to industry median, the complexity of the CANDU technology compared to the benchmark reactors, which are predominantly PWR and BWR."*

182. Considering the period from 2009, when OPG's Board-ordered benchmarking initiatives began to take effect, through 2012, progress in dealing with OPG's elective maintenance backlog is expected to be very favourable at Pickering B, modestly favourable at Darlington, but showing only minimal improvement at Pickering A. (Exhibit E2, Tab 1, Schedule 1, Attachment 2, Page 2 Chart 1,

Transcript Volume 6, Pages 29-30) This is an aspect of performance the Board should continue to monitor.

Issue 6.7: Are the proposed expenditures related to continued operations at Pickering B appropriate?

183. AMPCO supports the approach to Pickering B continued operations proposed by Board Staff.

Issue 9.2: Is the hydroelectric incentive mechanism appropriate?

184. AMPCO submits that the Hydroelectric Incentive Mechanism ("HIM") has not been thoroughly assessed and is providing an excessive incentive.

185. AMPCO submits that OPG's evidence on the impact of HIM provides the Board with no useful information on whether or not the mechanism is encouraging OPG to achieve optimal efficiency.

186. The following two passages highlight AMPCO's concern about the lack of explanatory power in OPG's prefiled analysis.

> *MR. LORD: …I want to -- I had a bit of trouble understanding exactly the import of this metric, and was hoping that you could maybe cast some light on what we're to draw from these percentages. And I'll do that -- I propose to do that by way of offering some hypotheticals and asking how these hypotheticals might influence your operating decisions.*
> *So if, in 2010, it proves to be the case that the overall utilization of the PGS was more than 71 percent, as it was in the previous year, would you say that the impact of the hydroelectric incentive mechanism on your operating decisions was more or less effective than in the previous year?*
> *MR. PETERSON: I don't think you could suggest that it was either. It's just there are more or less opportunities in which to utilize the incentive mechanism.*
> (Transcript Volume 1, Page 143)

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> *MR. LORD: I want to look at, just as an illustration, sort of zoom in and focus on the numbers for February and the numbers for August. The market*

> *on/off-peak price spread in February was -- and the actual number is in table 1 -- was $14.2 per megawatt-hour, and in August was $14.3 per megawatt-hour. Is that correct?*
> *MR. PETERSON: That's correct.*
> *MR. LORD: So those are very close, in terms of market on/off-peak price spreads, right?*
> *MR. PETERSON: That's correct.*
> *MR. LORD: Then we look at the production-weighted price spread for those months, and in February it's 31.7, so more than double. But in August it's only $19.8 per megawatt-hour; is that correct?*
> *MR. PETERSON: That's correct.*
> *MR. LORD: So again, just trying to understand what this metric is telling us and telling the Panel. Does that mean that the incentive mechanism was more effective in August than it was in February -- or, sorry, in February than it was in August?*
> *MR. PETERSON: Not necessarily. Depends on the price spreads at the month.* (Transcript Volume 1, Pages 145-6)

187. AMPCO submits that a more appropriate review methodology would track not gross pumping and generating averages but how OPG's actual performance compares with what ideal performance would have been given perfect foresight.

188. The evidence in the case suggests that the HIM over-incentivizes OPG. Exhibit J1.11 indicates the following:

> "Actual Hydroelectric Incentive Mechanism ("HIM") incentive revenues in 2009 were $23.2M (Ex. E1-T2-S1, page 3, lines 3 and 4). Based on the forecast distribution of 2009 HIM revenues presented in EB-2007-0905, Ex. I1-T1-S1, page 15, line 19 to page 16 line 9, the probability of achieving incentive revenues of $23.2M or greater was calculated to be 1.7 per cent. While this probability is low, it is within the distribution of possible outcomes presented in EB-2007-0905."

189. Energy Probe, following up on a concern raised in EB-2007-0905, dealt with the issue of the circularity of the HIM formula with respect to the treatment of pumping energy. AMPCO continues to submit that the best solution is to "correct" the Hourly Average Rate (for the month) used in the HIM formula, to eliminate the "depressing" effect of PGS's turn-around energy losses. In place of Hourly Average

Rate (for the month), the HIM formula should use Hourly Average Rate (for the month) less 0.56 times Hourly Average PGS electricity consumption (for the month).

Issue 10.1: Is the nature or type of costs recorded in the deferral and variance accounts appropriate?

190. AMPCO has submissions on the Nuclear Fuel Cost Variance Account only. The purpose of this account is to record the difference between forecast and actual nuclear fuel expenses. The methodology for the calculation neglects to consider the impact of nuclear fuel expenses on working capital and fuel inventory. AMPCO submits that the account balances should be recalculated to take these impacts into account for the period since the beginning of the Board's oversight.

Issue 10.6: What other deferral and variance accounts, if any, should be established for the test period?

191. AMPCO commented previously in support of Board staff's proposals to create a deferral account to capture costs associated with SBG and a variance account for Pickering B life extension.

Costs

192. AMPCO submits that it has acted responsibly in this proceeding. AMPCO respectfully requests that it be awarded 100% of its reasonably incurred costs.

ALL OF WHICH IS RESPECTFULLY submitted this 16th day of February 2011.

David Crocker
Davis LLP
1 First Canadian Place
100 King Street West
Suite 5600
Toronto, ON M5X 1E2
416-941-5415
dcrocker@davis.ca