ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, Sch.B, as amended;

AND IN THE MATTER OF an Application by Ontario Power Generation Inc. under Section 78.1 of the Act for an order approving just and reasonable payment amounts for electricity generation to be effective January 1, 2022.

FINAL ARGUMENT
OF THE
SCHOOL ENERGY COALITION

August 31, 2021

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1 GENERAL COMMENTS

1.1 *Introduction*

1.1.1 On December 31, 2020, the Applicant Ontario Power Generation Inc. filed an Application seeking an order of the Ontario Energy Board (the "Board") approving just and reasonable payment amounts for electricity generation from the Applicant's prescribed nuclear and hydroelectric facilities, such payment amounts to be effective January 1, 2022 and to continue, with adjustments, until December 31, 2026.

1.1.2 On July 16, 2021, the Applicant and Intervenors filed a Settlement Proposal with the Board proposing a settlement of most of the issues in the Application. After asking certain questions about the terms of settlement, and receiving answers, the Board accepted the Settlement Proposal in an oral decision on August 6, 2021 (with more detailed reasons to follow).

1.1.3 At this point, the unsettled and outstanding issues are:

a. Qualification of spending related to Small Modular Reactors to be charged to the Nuclear Development Variance Account (Issue 13.1 and parts of Issues 1.2 and 14.1)
b. The inclusion of the costs of the D2O Project in the Capacity Refurbishment Variance Account and in rate base (Issue 7.6)
c. Rate Smoothing (Issue 15.1)

1.1.4 On August 4-6, 2021, the Board held a virtual oral hearing with regard to all of the unsettled issues except Rate Smoothing. In Procedural Order #4, the Board ordered that Rate Smoothing be dealt with after the revenue requirement issues had been determined by the Board, and advised that a further PO would be issued in that regard.

1.1.5 The Applicant filed its Argument-in-Chief on June 29, 2021. This is the Final Argument of SEC on the unsettled issues other than Rate Smoothing.

1.1.6 The Board will be aware that the customer groups who intervened in this proceeding have worked together closely throughout the proceeding to avoid duplication, including sharing ideas, positions, and drafts, and assigned responsibility between them with respect to aspects of each issue. We have been assisted in preparing this Final Argument by that co-operation amongst parties.

1.1.7 The unsettled issues have a number of complexities, only some of which are dealt with directly in this Final Argument. Where we are in agreement with the Applicant or with any other party on a particular point, we say that explicitly in these Submissions. The fact that we are silent on others should not be taken as implied agreement with the

Applicant or any other party.

1.2 ***Summary of Submissions***

1.2.1 The detailed submissions of SEC in this Final Argument can be summarized as follows.

1.2.2 ***Small Modular Reactors.*** The narrow issue remaining to be determined is whether the anticipated spending on SMRs in the test period qualifies for inclusion in the Nuclear Development Variance Account (NDVA). The prudence of the expected spending is not being reviewed, nor whether SMRs are an appropriate generation option in the future.

1.2.3 SEC submits that recording costs related to SMRs in the NDVA is inconsistent with the purpose of the NDVA. It treats the NDVA as a deferral account rather than a variance account. The deferral account for nuclear development was ended in 2013. Until OPG has a Board-approved budget for SMR Costs, in our submission SMR Costs are not recordable in the NDVA and are not recoverable from customers.

1.2.4 ***The D2O Project.*** The Applicant spent almost five times the original budget on this project, and incurred delays so long that the first major use of the asset (Unit 2 refurbishment) was frustrated. Despite this, and contrary to the evidence, the Applicant claims that the cost overruns and delays were solely the result of bad forecasting (both of costs and schedules), and no part of the $400 million of incremental costs was the result of imprudent management.

1.2.5 OPG is relying on precisely the same argument as was explicitly rejected by the Board in the EB-2016-0152 Decision with respect to the Auxiliary Heating System (AHS) and the Operations Support Building (OSB), two companion projects that were forecast and managed in the same way as D2O, and had the same problems as documented by largely the same evidence. The Board determined for each of those projects that 50% of the capital cost overrun from the first Release Quality Estimate to the final cost would be disallowed as imprudent.

1.2.6 The D2O Project was as poorly executed as the AHS and the OSB, perhaps even worse. SEC therefore submits that, at best, the Board should, consistent with the EB-2016-0152 Decision, disallow 50% of the capital cost increase from the first Release Quality Estimate ($110 million) to the final cost ($510 million). This is a disallowance of $200 million of capital cost. This would reduce the revenue requirement in the five year Test Period by $79.2 million, and reduce the current balance in the CRVA by $2.8 million.

2 SMALL MODULAR REACTORS

2.1 *Introduction*

2.1.1 OPG records, and intends to continue to record, the costs related to evaluating and assessing feasibility of the SMR projects (the "SMR Costs"), in the Nuclear Development Variance Account ("NDVA"). The actual amount currently recorded in the NDVA is approximately $166 million.

2.1.2 SEC submits that recording the SMR Costs in the NDVA is inconsistent with the purpose of the NDVA and inconsistent with its status as a variance rather than a deferral account.

2.2 *The Legislation*

2.2.1 Pursuant to Section 5.4 (1) of O. Reg. 53/05, OPG may record in the NDVA[1]:

> *"differences between actual non-capital costs incurred and firm financial commitments made and the amount included in payments made under that section for planning and preparation for the development of proposed new nuclear generation facilities" (emphasis added).*

2.2.2 As such, the plain reading of the Regulation sets out a prerequisite to any amount to be recorded in NDVA: the recorded amount has to be the difference between actual spending and some amount already included in payments approved under Section 78.1 of the Act.

2.3 *SMR Costs Not Included in Payment Amounts*

2.3.1 Recording the SMR Costs in the NDVA as a recoverable amount is inappropriate because, as OPG admits in its own application, "*there was no forecast of planning and preparation expenditures for the development of an SMR included in EB-2016-0156*."[2]

2.3.2 Thus, the issue presented to the Board is whether there is in fact a difference between a variance account and a deferral account, and if so whether it is merely theoretical, or it has consequences.

2.3.3 SEC submits that the difference between a variance account and a deferral account is contained in the Board's initial review of the baseline costs in a variance account. For a deferral account, the Board when it sets the account up reviews the characteristics of

[1] O. Reg. 53/05, s. 5.4 (1)
[2] EB-2020-0290, Ex. F2-8-1, p.1

the category of costs to be included, but does not approve any costs. In a variance account, the Board has a proposed amount or amounts to be included in rates, which it reviews before approval.

2.3.4 A variance account therefore has a baseline that is tied to a Board review of proposed costs. The overall quantum, for example, is considered for reasonableness. Later, when the account is cleared, the Board looks at the variances in the context of the original budget. The costs in the account must not only be of the same type (category) as the costs in the budget, but they must be reasonable variances from the budget.

2.3.5 Contrast that with a deferral account. The Applicant advises the Board that it may have costs of a certain category, but unknown amounts, and seeks Board approval to include those costs in a deferral account for future review by the Board. This is not about adjusting known costs for variability. This is about deferring the regulator's review of a category of costs until a later date.

2.3.6 We note that OPG had a Nuclear Development Deferral Account, but that account was terminated by O.Reg 312/13 in 2013. In fact, that account specifically named the categories of costs the OPG is claiming today: environmental assessment, licences and permits, technology assessment, and defining requirements.

2.3.7 That account applied only up to the date of the Board's first order under s. 78.1, and now it is gone.

2.3.8 In parallel with the NDDA, O.Reg. 53/05 required the creation of the NDVA, which still exists. That account takes effect from and after the date of the Board's first order under s. 78.1, presumably because at that point OPG would have a payment amounts order from the OEB, and the OEB would have determined an appropriate baseline budget for nuclear development activities. A variance account was thus appropriate.

2.3.9 It should be noted that the NDVA does not enumerate the categories set out in the NDDA, nor does it refer to them. It says, instead, that the expenditures to be included are "for planning and preparation for the development of proposed new generation facilities".

2.3.10 The other salient fact is that the NDVA does have a monthly reference amount, from which variances are calculated. That amount is $0.19 million per month[3]. No part of this amount is made up of any SMR Costs.

2.3.11 OPG is now saying that they were allowed to throw a new category of costs into this account, SMR Costs, to the tune of $166 million, on the basis that the specific wording of the account does not distinguish between conventional new nuclear facilities, and

[3] EB-2016-0152, Rate Order, Schedule G, p. 15.

Small Modular Reactors, a newer technology not contemplated at the time the account was created.

2.3.12 Further, OPG is also saying that they can continue to do so, treating their SMR reference amount as zero going forward, thus avoiding any requirement to provide the Board with a budget and forecast of those costs for the Test Period. There will be such costs, they say. We just don't need to tell the regulator what we think they will be.

2.3.13 SEC submits that the Board should reject both arguments:

(a) The $166 million of costs in the account today are not of a similar type to the costs making up the monthly reference amount, and were not contemplated at the time the account was last approved in EB-2016-0152. They are also more than an order of magnitude larger than the reference amount.

(b) If OPG wishes to spend money on SMR Costs in the Test Period, it should provide a budget to be included in payment amounts (and thus to be reviewed in advance by the Board), and then record variances from that amount in the NDVA, or in another account set up for that purpose. It should not try to treat a variance account as if it were a deferral account.

2.4 ***Different Category of Costs***

2.4.1 It is notable that the NDDA and the NDVA from the outset were directed at costs that were described quite differently. The NDDA, now gone, listed specific types of early stage expenditures. The NDVA, on the other hand, has always been broader in scope.

2.4.2 The legal principle is "*expressio unius, excludio altero*", which roughly translates as "if some items are specifically enumerated, things that are not in the list are presumed to be excluded."

2.4.3 SEC would therefore conclude, based on the wording of the NDVA and the NDDA, that the Legislature intended the category of costs in the NDDA to be a subset of the broader category "planning and preparation" described in the NDVA.

2.4.4 The converse of the legal principle is that, if something is enumerated to be part of a broader set, then that broader set by definition includes those costs.

2.4.5 SEC therefore submits that the types of costs being incurred by OPG in their investigation of SMRs are broadly part of "planning and preparation of proposed nuclear facilities" since if they were not then they could not have been included in that category in the NDDA listing.

2.4.6 It of course is clear that many of the costs proffered by OPG in this account may be

excluded from collection from ratepayers for other reasons: not part of the regulated business, for example, or not prudently incurred.

2.4.7 However, where some parties may submit that SMR Costs do not come within the definition set out in the Regulation, SEC does not agree. Once a baseline of SMR Costs is established by the Board, OPG can in the future utilize the NDVA to record variances from that baseline.

2.5 ***SEC Recommendation***

2.5.1 SEC recommends the Board direct OPG to apply to recover a forecast of SMR Costs as part of its OM&A budget in its next payment amounts application, or in a special purpose application if the Board so determines.

2.5.2 However, SEC submits that the amounts of SMR Costs already recorded in the NDVA, and recorded in the future but prior to a Board-approved SMR budget, should not be recoverable from customers.

3 THE D2O PROJECT

3.1 *Background*

3.1.1 ***Project History.*** The D2O project started in about 2004[4] as a relatively smaller scale project to solve operational limitations in the Tritium Removal Facility ("TRF", also called the Heavy Water Management Building, or "HWMB"). At that time, the estimated cost was $11-20 million[5].

3.1.2 Around 2008 it became clear that the Darlington Refurbishment Project ("DRP") was likely going to go ahead, and there would be an additional need to store (and perhaps detritiate) heavy water drained from the units as they were being refurbished[6]. The consistent plan – until the problems discussed in more detail below – was that the D2O would be operational in time for the Unit 2 refurbishment, originally planned for 2016.

3.1.3 As it eventually evolved, it appeared that there were actually five reasons for the D2O project, as discussed with the OPG witnesses on the second day of the hearing[7]:

(a) Alleviating the original operational limitations;

(b) Dewatering Darlington units during refurbishment;

(c) Potential long term storage of heavy water from decommissioned units[8];

(d) Generation of increased ancillary revenues from heavy water storage and related services[9];

(e) Avoid, delay, or assist with the eventual replacement or refurbishment of the TRF/HWMB[10].

3.1.4 As the project grew from its initial modest scope to the $510 million capital spend that eventually took place, OPG started referring to it as a "first-of-a-kind" project. As it transpired, internally it was actually referred to as a "FOAK/FIAW" project, meaning "first of a kind/first in a while"[11].

[4] Staff 165, Attachment 1, p. 1.
[5] Staff 165, Attachment 1, p. 8.
[6] Tr.2:97
[7] Tr.2:97-100
[8] Tr.2:98
[9] Tr.2:18,99
[10] Tr.2:101-2
[11] SEC 104, Attachment 1, p. 15 and Tr.2:103-109.

3.1.5 ***Cost Overruns and Delays***. It is common ground among the Parties, including the Applicant, that this project had serious cost overruns and delays. The debate around the prudence of the spending focused not on whether more money was spent than originally planned, but rather on the reasons for that additional cost.

3.1.6 For example, the original in-service date of 2015[12] ended up being March, 2020[13], with the result that the D2O was not even available for the Unit 2 dewatering, one of the significant purposes of the spending. Even the after-the-fact estimate of the project's construction – as flawed as it was – had to assume that the time to construct should have been much less than the time it actually took[14].

3.1.7 It was, however, in the costs that the most striking problems emerged. There were numerous forecasts of the cost of the project, from the earliest $11-20 million estimate[15] to the eventual final cost of about $510 million. The estimates that were presented as high quality estimates based on the full functionality eventually built ranged from $110 million to $510 million, as summarized in the following table[16]:

Evolution of Business Cases

($ millions)

Category	*May-13*	*Mar-15*	*Jan-18*	*Increase*	*Percent*
OPG Project Management	1.4	6.7	12.4	11.0	
OPG Engineering (incl. Design)	4.6	7.4	16.3	11.7	
OPG Procured Materials	0.0	1.4	10.3	10.3	
OPG TRF	0.0	0.0	3.0	3.0	
OPG Other	2.8	18.6	22.6	19.8	
Subtotal	8.8	34.1	64.6	55.8	634.1%
Design Contracts	0.0	7.1	14.3	14.3	
Construction Contracts	0.0	40.8	44.4	44.4	
EPC Contracts	77.8	244.9	331.6	253.8	
Consultants	0.0	0.1	0.2	0.2	
Other Contracts/Costs	0.7	0.1	0.1	-0.6	
Interest	7.5	20.1	43.3	35.8	
Subtotal	86.0	313.1	433.9	347.9	404.5%
Contingency/Mgmt. Reserve	15.2	33.9	11.5	-3.7	
Total	110.0	381.1	510.0	400.0	363.7%

Source: Ex. D2-2-10, Attach 2p (p. 17) and Attach 2q (p.16)

3.1.8 It is that $400 million increase in cost, from $110 million in 2013[17] to $510 million less than five years later, which is at the centre of the dispute between the Applicant and its customers in this proceeding.

[12] EB-2013-0321, Ex. D2-2-1, p. 25.
[13] At Tr.2:57, the OPG witness says 20-21, but this appears to be in error.
[14] Bates White Report, p. 9. Bates White assumed a construction period of six years, so 2013-2019.
[15] Staff 165, Attachment 1, p. 8.
[16] K2.1, p. 2. There are a number of more detailed summaries of the cost escalations, including Staff #151 and SEC #3. See also D2-2-10, Attachment 2a.
[17] The estimate actually reported to the Board in 2013 was $108.1 million: EB-2013-0321, Ex.D2-2-1, p. 25.

3.1.9 ***EB-2016-0152.*** The D2O project was one of the "Campus Plan" projects, a group of projects related to the DRP that were ancillary to the central activities of the DRP, but were still essential to the successful completion of the DRP.

3.1.10 Three of the Campus Plan projects were proposed for inclusion in rate base in OPG's EB-2016-0152 rate application: the Auxiliary Heating System (AHS), the Operations Support Building (OSB), and the D2O project[18]. All were managed in a similar way, and all suffered from a similar set of problems, not just in terms of outcomes (serious cost overruns and delays), but also the reasons for those unfavourable outcomes. There was also a common set of evidence relating to those projects, because many of the problems came up in a common set of external documents analyzing all three[19].

3.1.11 During the EB-2016-0152 proceeding, OPG was having significant challenges associated with the D2O, many of which have been documented in some detail in the current proceeding. Thus, on February 22, 2017 OPG filed Exhibit N2-01-01 in that proceeding, the Second Impact Statement, removing the D2O project from its Application. At that time, OPG was in the midst of a dispute[20] with its second contractor on the D2O project, CanAtom, and the then-current project estimate of $381.1 million[21] was in doubt.

3.1.12 The Board did proceed with a review of the AHS and OSB projects, both of which had expansions of scope and project management issues (the same as with D2O), and resulting cost overruns.

3.1.13 The Board described the position of OPG on the cost overruns on the AHS as follows[22]:

> *"OPG submitted that the majority of the variances relate to initial estimation concerns and scope additions, and that the OEB should accept the OPG proposal as filed. Had the work been properly estimated and the full scope of work been known initially, OPG submitted that the original cost would be close to the current cost." [enphasis added]*

3.1.14 After its thorough review of the evidence (much of it the same as the evidence in this proceeding, the Board concluded as follows[23]:

> *"The OEB does not accept OPG's position. The current cost is not the same as*

[18] EB-2016-0152, Ex. D2-2-10, s. 2.4.
[19] Including the Auditor General (K1.9), Modus/Burns&McDonnell (Burns Modus)(K2.1 p. 28-61), OPG Internal Audit 2016 (K2.1, p. 63-83), and OPG Lessons Learned 2013 (J1.5, Attachment 1).
[20] Ex. D2/2/10, Attach. 4, p. 6.
[21] J3.3.
[22] EB-2016-0152, Decision with Reasons, p. 20. Also in K2.1, p. 10.
[23] Ibid. p. 20-1.

> *the prudently incurred cost. It is not obvious whether the best alternative was selected or whether costs for the alternative selected were contained. The Modus report states that, "P&M gave only token consideration to determining which contractor had a better approach for executing the work. P&M chose the 'low bidder' even though the other contractor's qualifications and project approach were viewed more favorably." CME submitted that the evidence demonstrates that OPG's management of the AHS fell short of what ratepayers should expect: "OPG's argument that ratepayers are receiving value for the scope of work which was ultimately involved in completing the AHS project fails to take into account the lost opportunity to pursue alternative and less costly options for achieving the same outcome." In response to cross-examination by SEC, OPG agreed that poor baseline information can lead to cost increases and schedule delays….*
>
> *The OEB is prepared to accept that there may be some merit to OPG's argument that there was an increase in scope. However, the OEB is not prepared to accept that the entire increase in cost is due to an increase in scope. The evidence shows that there were other options available to OPG when selecting a contractor that may not have been adequately explored. In addition, the Modus report speaks to issues with management of the project. The OEB cannot determine on an exact basis how much of the increased cost is due to additional scope and how much is due to project management issues. Therefore the OEB has considered both factors and has determined it will allow 50% of the increased cost on account of increased scope and disallow 50% of the increased cost to account for poor management." [emphasis added]*

3.1.15 The Board estimated that they were therefore disallowing 50% of a $54 million (about 110%) cost overrun[24].

3.1.16 The Board then went on to apply the same logic to the +30% cost overrun for the OSB, with the resulting disallowance 50% of the increase in capital costs for that project.

3.1.17 As will be seen below, if the references in the OEB Decision in EB-2016-0152 to the AHS and the OSB were replaced with D2O, the factual statements, critique (including relevant external documents), and conclusions would continue to be valid, and the reasoning indistinguishable from that which flows from the evidence in the current proceeding..

3.1.18 ***Amounts in Issue.*** The first Full Execution Release estimate for D2O is dated May,

[24] Ibid, p. 21.

2013, and forecasts the cost of D2O as $110.015 million[25]. The total cost of the D2O is $510 million, so the difference between first Full Execution Release estimate and the final cost is $400 million (actually, $399.985 million).

3.1.19 If the Board's analysis in EB-2016-0152 is applied by this Board panel in a similar way, $200 million of the capital cost of the D2O would be disallowed. That would allow an increase of $200 million for scope enhancements, but would disallow $200 million for the known project management issues[26].

3.2 ***The Applicant's Position***

3.2.1 Perhaps surprisingly, given the Board's decision in EB-2016-0152, the Applicant's position on the D2O in this proceeding is identical to its position in the prior case on AHS and OSB. This is clearly demonstrated in the following exchange during the oral hearing. SEC read out the quote from the Board's Decision, set out in para. 3.1.13 above, and Mr. Reiner admitted their position in this case is the same[27]:

> *MR. SHEPHERD: .. I'm correct am I not, Mr. Reiner, that's exactly what you're saying about D2O?*
> *MR. REINER: Relative to those initial estimates on D2O, we are saying yes, those initial estimates were not reflective of the scope of work in the design of those facilities, because that information was not known at the time those estimates were provided.*
> *MR. SHEPHERD: And you're also saying that if the full scope of the work had been known initially, OPG submits that the original cost would be close to the current cost. You're saying that, too, aren't you?*
> *MR. REINER: Yes, we are saying that…*[28]"

3.2.2 In fact, however, despite the evidence of severe problems with project management, accepted by the Board in EB-2016-0152, and detailed below with respect to D2O specifically, OPG's witnesses refused to admit that they did a less than stellar job on project management of this project[29]:

> *"MR. SHEPHERD: Okay. Can we also agree …or can we try to agree that*

[25] D2-2-10, Attach 2o, p. 1.
[26] We note that, had OPG not withdrawn D2O from consideration in EB-2016-0152, there is every reason to believe that the Board would have disallowed its cost overrun on the same basis as AHS and OSB. That disallowance would have been about $135.5 million. OPG would then be coming to this Board panel with an additional request for cost overruns totaling a further $129 million. It is not clear how the Board would respond to further capital spending on a project that already had a substantial disallowance for imprudence.
[27] Tr.2:117.
[28] Mr. Reiner went on to refer to the Burns Modus Supplemental Report in support of this, and we will come to that later in our Final Argument.
[29] Tr.2:93.

> *the project was not executed or managed well by OPG? Is that fair?*
> *MR. REINER: No, I would -- I would not agree with that. Yes, there were shortcomings in the management of all of the efforts surrounding this project in particular, and this is where in the evidence and the supporting material we provided in particular, in getting cost estimates and schedules from our contractors.*
> *But in terms of the actual work that was done in constructing this facility, when you look at our management and our oversight of the construction of this -- beginning with the design of this facility and the construction of this facility, I would argue that OPG did a very good job." [emphasis added]*

3.2.3 In fact, no-one else who has commented on this project, including even internal reviewers at OPG[30], agrees that "OPG did a very good job". Firing management staff, terminating one general contractor and almost terminating their replacement, making significant changes to the project management structure because it wasn't working, experiencing regulatory disallowances of similar projects, and going almost 400% over budget, are a set of circumstances rarely present when you refer to something as "a very good job".

3.2.4 The OPG position, as set out in their evidence and summarized in their Argument-in-Chief, is:

(a) The original budget for the project was far too low, and even the subsequent budgets were still too low[31].

(b) The project was managed well and the spending on the project was prudent.

(c) The final capital cost of the project was exactly what it should have been.

3.2.5 This is identical to the positions taken by OPG, and rejected by this Board, with respect to the AHS and OSB projects. It is – just as clearly – not credible.

3.3 ***OPG Has the Onus and Burden of Demonstrating Prudence***

3.3.1 In their Argument in Chief, OPG goes through four pages of analysis of what they see as the standard of review of prudence by this Board panel[32]. In it, they focus on the only Supreme Court of Canada decision commenting on prudence analysis by the Ontario Energy Board[33], and on particular words in that decision that they claim

[30] J1.5, Attachment 1, K2.1, p. 63-83.
[31] Although, interestingly, OPG will not even admit that the original estimates were bad. Mr. Rose claimed, instead, that with the information available at the time, the $110 million was a good estimate: Tr.2:92-3. This is particularly surprising in light of the serious allegation that those early estimates were deliberately understated: see K2.1, p. 34.
[32] AIC p. 7-11.
[33] *Ontario Energy Board v. Ontario Power Generation Inc*. (2015), 2015 SCC 44.

authorize the Board to continue doing prudence reviews as they have done in the past. Based on this, they urge on the Board the conclusion that "*the continued application of the OEB's historical approach to prudence review is appropriate in this proceeding*."[34]

3.3.2 ***Presumption of Prudence.*** Buried in a footnote, the Applicant notes that the SCC made a finding in that case with respect to the presumption of prudence, but OPG argues that finding is not relevant here because OPG is not relying on the presumption of prudence.

3.3.3 In SEC's submission, the legal obligation (both onus and burden) on OPG to demonstrate that their $510 million spending on the D2O was prudent is an important foundation for the Board's consideration of this Application. Ignoring the advice and guidance of the SCC on the Board's statutory responsibility in this regard is inappropriate.

3.3.4 What the Supreme Court of Canada actually said about the presumption of prudence is as follows[35]:

> *"[79] Regarding whether a presumption of prudence must be applied to OPG's decisions to incur costs, neither the Ontario Energy Board Act, 1998 nor O. Reg. 53/05 expressly establishes such a presumption. Indeed, the Ontario Energy Board Act, 1998 places the burden on the applicant utility to establish that payment amounts approved by the Board are just and reasonable: s. 78.1(6) and (7). It would thus seem inconsistent with the statutory scheme to presume that utility decisions to incur costs were prudent.*
>
> *[80] Justice Abella concludes that the Board's review of OPG's costs should have consisted of "an after-the-fact prudence review, with a rebuttable presumption that the utility's expenditures were reasonable": para. 150. Such an approach is contrary to the statutory scheme. While the Board has considerable methodological discretion, it does not have the freedom to displace the burden of proof established by s. 78.1(6) of the Ontario Energy Board Act, 1998 ". . . the burden of proof is on the applicant in an application made under this section". Of course, this does not imply that the applicant must systematically prove that every single cost is just and reasonable. The Board has broad discretion to determine the methods it may use to examine costs — it just cannot shift the burden of proof contrary to the statutory scheme." [emphasis added]*

3.3.5 It should be noted that the SCC expressly rejected the proposition by Madame Justice

[34] AIC, p. 10.
[35] *Ontario Energy Board v. Ontario Power Generation Inc*. (2015), 2015 SCC 44, para. 79-80.

Abella that the Board should continue with the RP-2001-0032 approach to prudence reviews, which the Applicant correctly notes was approved by the Ontario Divisional Court in the *Enbridge* case[36].

3.3.6 SEC submits that the SCC changed the approach to prudence reviews by focusing on the statutory scheme, and what it requires. Simply put, the statutory scheme requires that the Applicant provide sufficient evidence of prudence that the Board can make a finding with respect to just and reasonable rates. The Board cannot "presume" anything. While the Board has a broad discretion as to how it assesses the Applicant's evidence in support of prudence, what the Board must do at all times is adhere to the terms of the statute from which all of its powers and mandate arise.

3.3.7 ***Hindsight.*** The Argument in Chief spends a lot of time talking about "hindsight". It is important, in our submission, to distinguish between "hindsight" and "outcomes".

3.3.8 The fact that the final capital cost is $400 million more than the First Execution Quality Estimate is an outcome. Any reasonable person looking at a 400% cost overrun would ask the question "Why did this happen?" It is not hindsight to look back at what happened, trying to figure out what went wrong, and applying the knowledge that something massively adverse did indeed happen. The outcome – a 400% cost overrun – is what frames the question about the capital spending.

3.3.9 Similarly, the fact that the actual amount spent was $510 million is not evidence of prudence. The $510 million is an outcome. As the Board pointed out in EB-2016-0152, "The current cost is not the same as the prudently incurred cost."[37]

3.3.10 The outcomes of this project are known to this Board, and they are the framework within which the Board can assess whether the capital costs for this project were prudent. Using the facts that we have today to assess what happened in the past is not the application of hindsight. It is a lens[38].

3.3.11 We also know many of the mistakes that were made in this project along the way, as they have been extensively documented in contemporaneous and subsequent materials. They have also been confirmed to be mistakes by the specific corrective actions that were taken by OPG in response to those mistakes. Again, using current knowledge to identify and assess what mistakes were made in the past is not the application of hindsight.

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[36] *Enbridge Gas Distribution v. Ontario Energy Board* (2005) 75 OR (3d) 72 (Div. Ct.)
[37] EB-2016-0152, Decision with Reasons, p. 20.
[38] A lens doesn't change the thing you are looking at. It simply allows you to look at it more clearly. A lens to past actions doesn't change what happened in the past, nor whether (for example) it was prudent. What it does do is help you understand it better, because you see it more clearly. You see more clearly, for example, what mistakes people made, and why they made them. This is not hindsight. This is regulatory review.

3.3.12 In our submission, if the Board wishes to go through a detailed analysis of the many problems that arose in this project, it has at least some evidence on which to base such a formalized review. That process, however, would have three steps:

(a) Identify a decision, action, or failure to act that resulted in an adverse outcome;

(b) Determine why that result arose, e.g. inexperience/incompetence, wrongful acts, insufficient information, supervening events, etc.

(c) Assess whether a prudent person, or a prudent utility, would have been likely to avoid that adverse outcome by a different decision, action or failure to act. This includes questions (among others) like whether the prudent person/utility would have or should have identified the risk of that adverse outcome, whether the decision, action or failure to act was well-considered and thoughtful, and what information a prudent person/utility would have had, or would have sought to obtain, at the time.

3.3.13 All of that involves understanding what actually happened, but none of it involves inappropriate application of hindsight.

3.3.14 Of course, the Board may determine that such a line-by-line, step-by-step review is not warranted, given the evidence and the EB-2016-0152 precedent. In that case, a determination of a 50/50 allocation between justified and unjustified cost overruns would also be equally justifiable, and is in fact what SEC will propose.

3.3.15 In our submission, therefore, the issue isn't hindsight. The key issue is whether, without relying on any presumption of prudence, OPG can discharge its burden of demonstrating - with real evidence - that it acted prudently in spending this $510 million of ratepayer funds. SEC believes they have failed to do so.

3.4 ***Is There Any Evidence Supporting Prudence?***

3.4.1 This then leads to reviewing the evidence to see if OPG has discharged their burden.

3.4.2 In this regard, it would appear to SEC that there are five main ways that a utility such as OPG can discharge the burden of showing that a capital cost was prudently incurred:

(a) Benchmarking the cost against the cost of similar capital projects that have been found, or can be shown, to be prudent.

(b) Evidence that the project unfolded as forecast in accordance with a well-considered plan of action based on reliable and sufficiently complete information.

(c) Verifiable external evidence that, at each stage in the project's development and execution, OPG applied reasonable best practices to make decisions and incur costs associated with the project.

(d) An independent review of the project, its development, execution, and final costs, to demonstrate that no material imprudent actions or decisions were taken.

(e) Admission of the problems and challenges of the project, along with compelling explanations as to why in each case they did not involve imprudence.

3.4.3 The record in this proceeding shows that no serious attempt has been made to demonstrate prudence through the first three methods:

(a) ***Benchmarking.*** OPG's continued references to "first of a kind" status for the D2O project make clear OPG's view that this project cannot be benchmarked to any other. It's uniqueness necessarily means that there are no other projects, by anyone anywhere, that the Board could use to make a comparison of the appropriate costs, and no comparisons OPG can rely on to meet its burden of proof[39].

(b) ***Execution of a Plan.*** Clearly OPG cannot argue that this was the execution of a well-thought-out plan. Their whole case on prudence is based on the idea that they didn't know about the complexities of the project at the outset[40], they didn't have a solid plan[41], and they were modifying the project extensively as they went along[42]. A $400 million cost overrun is pretty conclusive evidence that this was not the successful execution of a plan.

(c) ***Step-by-Step Prudence.*** This is the normal way that utilities show prudence when a capital cost exceeds original release quality estimates. They show that, for each step in the process of developing and executing the project, they did the appropriate things in the manner that you would expect from a well-managed utility acting prudently. OPG makes some attempt to do this here, but the problem is that in each case their actions and decisions are not, by their own admission, initially prudent and consistent with best practices. Instead, in each case they make serious mistakes, identify (or are shown) the mistakes,

[39] See Tr.2:103-9.
[40] Tr.2:127-8 and many other references.
[41] E.g. J1.5, Attachment 1, p.11,17, where more planning is referred to as a "critical need".
[42] Tr.2:118, 127-8, 158 and many other references. Mr. Reiner goes so far as to say "The final outcome is the final design.": Tr.2:45. External parties treated this evolution as uncontrolled scope creep (e.g. Tr.2:138 and many other references) rather than "scope clarification", the term Mr. Reiner prefers (Tr.3:35).

and take action to mitigate the damage caused by those mistakes. That is not good management. That is good firefighting. The former is best practices. The latter is scrambling, and devolves into the fifth method of trying to demonstrate prudence (explanations).

3.4.4 That leaves independent review and explanations as the only two approaches remaining available to OPG to meet their burden of proof.

3.4.5 OPG argues that the big reason why D2O is different from AHS and OSB is that they have the Bates White Report[43], in their minds an "independent review".

3.4.6 Unfortunately for OPG, the experts from Bates White were categorical that their analysis was not only not a prudence review, but that it was not a suitable basis on which to reach conclusions relating to prudence. What they said, specifically, was[44]:

> *"MR. POLLOCK: ...[F]rom your analysis and from the fact that OPG came in at $510 million, we cannot conclude with any type of certainty that they were prudent in their management of the project, correct?*
> *DR. GEORGE: We express no opinion regarding prudence, nor do we suggest that any opinion regarding prudence can be discerned from the analysis we performed." [emphasis added]*

3.4.7 SEC will look more closely at the Bates White Report later in these submissions.

3.4.8 That leaves "explanations" as the sole basis on which this Board could conclude that all or any part of the $510 million spending on the D2O project was prudent.

3.4.9 We will look at some of those explanations in more detail below, but at their root they are simply the unsubstantiated testimony of OPG employees that their actions were prudent and they did "a very good job". Saying OPG acted prudently does not make it so, nor does it meet the burden of proof on prudence, nor specifically does it overcome the implications of (among many other things):

(a) The assignment of this project to an existing group within the organization that had neither the training nor the skills to handle it[45], a problem so serious that ultimately the person in charge had to be terminated from the company and the Applicant reached the shocking conclusion that people managing major projects like D2O should be trained in project management[46].

[43] Tr.2:135.
[44] Tr.3:77-8.
[45] The Auditor General Report (K1.9), Tr.3:13-4, and Tr.2:155.
[46] Tr.2:156.

(b) Charging ahead full speed on a project about which the Applicant had – by their own admission - literally no idea of its complexities[47], and continuing to do so as the problems with that strategy mounted higher and higher.

(c) Terminating a respected contractor with whom the Applicant had a longstanding relationship[48] when, as it turns out, the contractor was correct in its assessment of the situation[49].

(d) Producing a series of increasing cost estimates with such massive increases[50] that any well-run organization should have quickly recognized that the house was on fire, and stepped in to put a stop to that problem (and the problems that arise from bad estimates) early on.

(e) Threatening to terminate a second respected contractor with whom the Applicant had an even more significant relationship[51], largely for the same reasons as the first contractor.

(f) Missing the key deadline for in-service to meet the most important immediate functional need (Unit 2), and missing it not by a few months but by years.

(g) In the face of pointed criticisms from many independent perspectives, including significantly the Applicant's regulator in EB-2016-0152, taking no action to address those criticisms (in fact, denying they were even criticisms[52]) and putting up witnesses that professed not to be familiar with the regulator's concerns[53].

3.4.10 The Board's difficult task here is to assess the Applicant's explanations against the clear empirical evidence of a project fraught with problems.

3.5 ***Was Bad Forecasting to Blame?***

3.5.1 ***Redefining the "Cost Overrun.*** There is no doubt that the Full Execution Release Estimate in 2013, $110 million, was much less than what the project actually cost.

[47] Tr.1:117, Tr. 2:127-8, 158. Even though the design was supposedly completed in 2015 (Tr.3:28), the cost overruns by CanAtom were still ascribed to the evolving design: Tr.3:16.
[48] Tr.1:107; Tr.2:125.
[49] K2.1, p. 23-27 (SEC 96, Attachment 2).
[50] The most shocking, perhaps being one that caused some confusion initially. It appeared that a $167 million estimate was made in May 2013, at the same time as a formal BCS was produced at $110 million (Tr.2:54 et. seq.). It turned out that there was a typo in the document, and the $167 million estimate was in May 2014, a year later (K2.4). That means the $214 million increase from that estimate to the $381 million estimate in August 2014 was over a period of only three months.
[51] Tr.2:126.
[52] Tr.2:113.
[53] Tr.1:105, but see Tr.2:114-6, where the witnesses partially walked that back.

Further, OPG claims that estimate was in fact well done, given the information available at the time[54]. The essence of the OPG argument (here and in EB-2016-0152) is that as the project unfolded, and it became clear what was really involved in building the D2O, OPG slowly over time got to the "right" number, and that is what they ended up spending.

3.5.2 If there is a difference between an empirical fact and a baseline against which it is being compared, there are two ways to reduce the apparent size of that difference: challenge the empirical fact, or change the baseline. A cost overrun is smaller if either the final actual cost is lower, or the forecast cost is retroactively adjusted to be higher.

3.5.3 In this case, the Board knows how much the D2O cost (because it is the amount that OPG wants to collect from customers), so one of the comparisons is fixed. The only solution OPG has is to try to convince the Board that the baseline – their own Class 2 estimate of the project cost – is, now that we have hindsight, wrong.

3.5.4 ***Relationship to Prudence.*** We note that this has absolutely nothing to do with whether $510 million of costs were prudently incurred. Whether not the first execution estimate was a good one, or a bad one, or neither, may have in fact affected whether the Applicant made appropriate management decisions about the project. As they freely admit, poor baselines tend to cause increased costs and delays[55].

3.5.5 Thus, the fact that they underestimated their costs initially is evidence supporting a conclusion of imprudence. On the other hand, what the estimate should have been at the time – even if OPG's assertions in that respect are correct – does not in any way support a finding of prudence for the amount actually spent, or any other amount. That after-the-fact estimate is not what actually happened, and it is not the basis on which OPG took actions, good or bad, during the course of designing and implementing the project.

3.5.6 It is useful for the Board to contrast the counterfactual with the reality. Imagine that OPG had in fact done a thorough design, with proper investigation of the facts and a complete understanding of what they needed and how to achieve it. Imagine that, based on that design, they had estimated the cost at $510 million, and then had executed precisely according to that plan, ultimately spending $510 million.

3.5.7 In that hypothetical, the Board would typically review the initial plan to see if it was reasonable (e.g. not overbuilding, etc.), then review the steps OPG took to implement the plan. If both were prudent, there would be a finding of prudence.

3.5.8 Contrast that with what actually happened. OPG did not understand what they needed,

[54] Tr.2:92-3.
[55] Tr.2:129-30.

nor what design and costs would be appropriate. They stumbled forward anyway, based on what turns out to have been a very low cost estimate, and made a series of well-documented and serious errors along the way.

3.5.9 Thus, OPG did not do a solid plan, and then execute to that plan. Their argument instead appears to be that the whole project was a mess, but luckily for them they ended up with the "right result" – perhaps more by a fluke than anything else – and so "no harm, no foul".

3.5.10 ***No Evidence of Prudence.*** In order for that argument to be considered, though, they would still have to have evidence that the $510 million is the "right result". That could be through any of the methods we have discussed earlier – benchmarking, for example –, but nothing of that sort is offered in this proceeding.

3.5.11 The only conclusion to draw is that, whether or not the early estimates were good or bad, that information is not helpful to the Board. The Applicant's positive obligation is to show prudence. The fact that the early estimates were too low, if proved, does not do anything to show prudence of the final spend. In fact, if anything it suggests that the final spend was likely too high, because the project's management was, by their own admission, based on poor information.

3.5.12 It is easy to focus on the delta between forecast and actual, as if narrowing that delta any way you can somehow makes prudence more likely. It doesn't. You still have a final number that needs to be justified on the basis of evidence. None has been provided[56].

3.6 ***What About the Alternative – Management Failure?***

3.6.1 The evidence is replete with information on serious management failures by OPG, some of them through inexperience, some of them through poor communication, some through a poor management strategy, and a few even potentially intentional. We will touch on some of them, but the external reports present a more complete picture of a project with ongoing problems of many different types.

3.6.2 ***Projects and Modifications.*** Undoubtedly the biggest problem with the D2O project (and other Campus Plan projects) happened at the outset, when OPG assigned

[56] In fact, the only independent assessment of the prudent cost of the D2O is by Burns Modus. In their Supplemental Report (Staff 105, Attach. 2, p. 18), they say that the then-current estimate of the cost of the D2O, $276 million, was a reasonable cost for the D2O facility. In fact, OPG witnesses quoted the Burns Modus Supplemental Report on this, but then - faced with the implications - backed off and said Burns Modus was not engaged to give fair value estimates: Tr.2:118-9. If Burns Modus was right, then OPG in fact spent $234 million more than fair value on the D2O. Thus, the only independent assessment of reasonableness would produce a greater disallowance than SEC and other parties are proposing.

responsibility for what they now describe as the most complex[57] of the DRP projects to their Projects and Modifications Group. This group had insufficient training, experience, and resources to manage the D2O project, and so they made many mistakes. Eventually, the head of the group was terminated, the person above him retired, and new management was brought in. Although there continued to be problems with cost overruns and delays after that, there is no evidence before the Board, other than the outcomes, that the specific Projects and Modifications problems previously identified had continued.

3.6.3 The Q2 2014 Burns Modus Report[58] is the clearest explication of the many management problems that beset this project, as summarized in the following quote from that Report[59]:

> *"Our findings show that the predominant cause was OPG's Projects & Modifications ("P&M") organization, who is managing this work for the DR Project, incorrectly applied an "oversight" project management approach for its EPC contracting strategy, leading to a series of cascading management failures and contractor performance issues, including misunderstandings of scope, uncontrolled scope creep, poor quality cost estimates, unrealistic and incorrect schedules and an inability to manage known risks, additional costs and delays. For multiple reasons described herein, P&M was completely overwhelmed in trying to manage Campus Plan Projects – in particular, the two largest of these projects, the D2O Storage Facility and Auxiliary Heat Steam Plant ("AHS") which were the "pilot" projects for this new contracting model." [emphasis added]*

3.6.4 Part of the problem was that the personnel in Projects and Modifications were inexperienced and untrained, and did not have strong enough management[60]:

> *"Moreover, it is apparent that the P&M Team did not have the necessary experience, training or internal management direction to properly manage this work."*

3.6.5 Largely because they were in over their heads, they[61]:

- ***(a)*** "Routinely accepted poor quality schedules and cost estimates without adequate vetting";

[57] Mr. Reiner says: "…*this is the most complex engineering modification under the Darlington refurbishment project*." Tr.2:109. He goes on to repeat that a number of times over the succeeding pages.
[58] K2.1, p. 28-61.
[59] K2.1, p. 29.
[60] K2.1, p. 33.
[61] K2.1, p. 33-4.

(b) "Mischaracterized the nature of these estimates.."

(c) "Failed to establish accountability standards for contractors"

(d) "Failed to identify and mitigate known risks"

(e) "Did not effectively react to problems when they materialized and accurately and timely report the extent of cost overruns, schedule delays and scope increases to senior management"

(f) "Did not seek to lock down the scope at start of this work.." and allowed scope creep without reporting it to senior management.

3.6.6 These and other problems with management of the project resulted in Burns Modus telling the OPG Board of Directors:

> *"As a direct consequence of P&M's failure to report these cost and schedule variances, senior management was deprived of the ability to:*
> - *Stop the design changes that led to these increases;*
> - *Stop the project entirely and resort to one of the other evaluated options;*
> - *Identify and characterize the cost increases that are not related to Refurbishment and subject these changes to the same value-enhancing criteria as the remainder of the DR Project's work; and*
> - *Mitigate the impact of the schedule delays and overruns.*
>
> *Thus, the consequences to OPG are two projects[AHS and D2O] that may cause external stakeholders to question OPG's management prudence."[emphasis added]*

3.6.7 ***Senior Management Responsibility.*** If the Board reads through Mr. Reiner's evidence, particularly in cross-examination, you will see that what Burns Modus say, above, becomes part of his theme. OPG responded appropriately to the problems in management of the D2O project, once they knew about them. This is why he says OPG did a "very good job". What he appears to have meant is that senior management was in the dark, but once they realized how much of a botch-up the D2O project was, they reacted promptly and appropriately[62]. In short, Projects & Modifications may have screwed up, but senior management did not[63].

3.6.8 In SEC's submission, assigning a complex project to inexperienced and untrained

[62] See, for example, Tr.2:93.
[63] It is probably worthwhile to understand this in context. During 2015 and 2016, Projects & Modifications reported to Mr. Reiner as the senior management person overseeing that group, but he makes clear that he was not assigned that role because of any problems in P&M: Tr. 1:125.

staff, and then leaving them on their own without any serious oversight, to the point where the situation got well out of hand, is not prudent management. One could legitimately say that the day to day project management problems in D2O were within Projects and Modifications. In the end, however, it is senior management that had responsibility to deliver the project on time and on budget. Their mistakes, both initially and through lack of ongoing oversight, were manifestly imprudent. Even when some of the mistakes were corrected, costs overruns continued to balloon, and it doesn't appear that senior management ever had proper control of this project.

3.6.9 ***Deliberate Actions.*** We note that Burns Modus also alleges that some part of the problem was due to a deliberate strategy of unwise (although not necessarily improper) actions within Projects and Modifications. It is described this way[64]:

> *"From interviews with the current P&M staff and the contractors, it appears that these initial BCS estimates were poorly characterized as part of a deliberate management strategy directed by the former VP of P&M. P&M's managers told us that the contractors were challenged to reduce their bid prices and remove all contingencies for unknowns, despite the extreme immaturity of project definition underlying their respective bids…*
>
> *…Thus, P&M created the conditions for a perfect storm of cost and schedule overruns. Because the work is largely based on a cost-reimbursable target price with no caps on size, P&M's artificial beating down the contractors' prices in the bid phase was a Pyrrhic victory: P&M's actions did not reduce cost and only served to deprive senior management of realistic cost projections for this work."*

3.6.10 ***No Review of Whether to Proceed.*** All of these issues were then exacerbated by the fact that Burns Modus specifically recommended to the Board of Directors that OPG should examine alternatives to completing the D2O, in light of the increasing costs, saying the following[65]:

> *"OPG should also examine other options in light of the overruns on these projects, as less permanent solutions that were narrowly rejected in the upfront BCS may now prove to be more economical solutions."*

There is no evidence that OPG did so.

3.6.11 ***OPG Still Doesn't Get It.*** The management of this and the other Campus Plan projects has been criticized – quite fairly – by the Ontario Energy Board in EB-2016-

[64] K2.1, p. 34.
[65] K2.1, p. 39.

0152[66], Burns Modus in multiple reports to the OPG Board of Directors[67], the Auditor General in an assessment of the Campus Plan spending[68], an Internal Audit team at OPG[69], other internal review groups at OPG[70], a respected contractor doing the work initially[71], and others.

3.6.12 Despite all of this, OPG argues not just that on balance its performance was acceptable, but rather that it did everything right. In fact, Mr. Reiner was blunt in that assessment, as seen in the following exchange:

> *"MR. SHEPHERD: I guess I took what you were saying to be OPG did a great job; we ran this exactly the way you should run a project, but we got let down by our contractors; they were the ones who screwed up. Am I reading too much into what you said?*
> *MR. REINER: Let me -- let me maybe restate slightly. So if looking backwards, hindsight, now that we know the exact outcomes, one might argue, well, you made this decision and you should have made that decision. But we need to put ourselves in the shoes of what we knew at the time that decisions were made, the challenges were encountered, and the actions we took at that point in time.*
> *I would argue the actions were all the right actions. They were prudent decisions and they were prudent corrective actions that were taken with the information that we knew at the time." [emphasis added]*

3.6.13 In SEC's submission, charging full speed ahead on a half a billion dollar project because you haven't done your homework first is not prudent management. Assigning a complicated project to a group within the organization that has neither the training nor the experience to handle it is not prudent management. Learning about EPC contracting through the most challenging project you have to execute is not prudent management.

3.6.14 OPG had two main contractors, both highly experienced in major projects. There were significant cost overruns and delays with both. The problems they had with contractor #1 were repeated with contractor #2.

3.6.15 There is a common element here: OPG were the ones in charge.

[66] K2.1, p. 3-22.
[67] Including K2.1, p. 28-61 and Staff 105, Attachment 2.
[68] K1.9.
[69] K2.1, p. 63-83.
[70] J1.5, Attachment 1.
[71] K2.1, p. 23-27.

3.7 ***Was the Project Just Inherently Too Complex?***

3.7.1 OPG says[72] that the D2O project was, at least in retrospect, the most difficult and complex project they had to complete during the Darlington Refurbishment Project.

3.7.2 There is reason to be skeptical of that statement, of course. You don't see it in the earlier reports on the D2O. In fact, OPG said that the Campus Plan projects, including D2O, were the projects they were using to learn more about how to do EPC contracting, which was new to OPG. That suggests that they thought, at least at some point, that D2O would be less challenging than other aspects of DRP, rather than more challenging.

3.7.3 However, if they are taken at their word that the D2O was the most complex of the DRP projects, that leads to two conclusions:

(a) Management acted imprudently in assigning D2O to Projects and Modifications. If a project is particularly complex and challenging, you don't assign it to your least experienced staff. You look for the most experienced and capable people available, and you assign it to them. Even then, you keep a close eye on it, precisely because you expect it to be hard to execute.

(b) Management also acted imprudently in doing insufficient design[73], information gathering, and planning before moving forward. The more difficult and complex a project, the more important it is to investigate thoroughly, identify and mitigate all risks, and ensure that you know exactly what you're doing before you start[74]. You don't manage the hardest projects through scrambling. You manage them through planning and care. That is, in fact, the definition of prudence in that context.

3.7.4 Interestingly, asked by Commissioner Janigan what he would do differently in hindsight, Mr. Reiner had a different – and surprising – view[75]:

> *"I think what we would do differently, if I may go there, and have done differently as a result of this, is not to put such a precise estimate against a project of this complexity that early in the process, and through this stage-gated improvement that we've made in our project management, it lends itself to correcting that problem so that before we get to an estimate with appropriate contingency, that we would then measure performance against --*

[72] Tr.2-109-111.
[73] Tr. 2:44, 45.
[74] OPG generally agrees: Tr. 1:111; J1.5, Attachment 1, p. 11, 17.
[75] Tr.3:27.

we would do more development of the engineering." [emphasis added]

3.7.5 Thus, while he recognizes that more planning and engineering at the front end would have been better, his emphasis is on the estimates. Don't do estimates that come back to haunt you, he appears to be saying.

3.8 ***Contractor Selection Problems***

3.8.1 The fact that the first contractor, Black & McDonald, was selected based on criteria too heavily weighted on price is an obvious problem, one that was discussed in the hearing, specifically called out in the Burns Modus Report, and corrected in the selection of the second contractor, CanAtom.

3.8.2 There is little doubt that choosing Black & McDonald based 50/50 on price and technical quality was ill-conceived. Burns Modus, under the heading "The Flawed Bidding/Estimating Process", describes it as follows:

> *"In August 2011, OPG produced a BCS for D2O Storage that estimated its cost at $210.6M, . At the project's next gate in June 2012, the estimated cost had dropped from $210M to $108M. However, BMcD/Modus could not find any attempt by P&M to rationalize or otherwise explain how the cost estimate for this building was cut virtually in half from one approval gate to the next. Moreover, the estimate for design and construction was $52.2M, which P&M characterized as a "Class 2 Estimate" despite the fact that at the time of the estimate, Black & McDonald had little experience with this type of construction and had performed no engineering or scope definition…. P&M clearly overvalued price as a consideration in the contractor selection process, especially in light of the fact that the work was going to be performed on a cost-reimbursable basis and the bid prices were not binding. P&M gave only token consideration to determining which contractor had a better approach for executing the work. P&M chose the "low bidder" even though the other contractor's qualifications and project approach were viewed more favorably." [emphasis added]*

3.8.3 As a result, OPG made a significant mistake in choosing a contractor on the wrong basis, and then compounded that mistake by relying too heavily on cost estimates from that contractor, who had little experience and could be expected to bid low because it didn't matter.

3.8.4 When pressed about this, OPG witnesses insisted that the selection of Black & MacDonald was done appropriately[76]. Both bidders in the first round were qualified,

[76] Tr.1:107.

and therefore the criteria were suitable[77]. What that misses is that, if qualification is only a threshold, then any comparison of technical ability isn't relevant at all. If that was OPG's thinking at the time, then they were in fact deciding primarily based on price, which they should have known at the time was completely irrelevant in a cost-plus contract.

3.8.5 The only saving grace here is that they had the same problems – cost overruns and delays – with their second round contractor, who was selected with a greater emphasis on technical ability. That suggests that the selection process was not the root cause of the problem. OPG's poor management oversight of the project was in fact the source of the cost overruns and delays.

3.9 ***Construction Issues***

3.9.1 The project experienced numerous challenges during construction, which OPG brings forward as reasons for cost escalation. The truth appears to be that, for the most part, OPG knew about those challenges in advance, and either did not plan for them effectively, or did not execute well.

3.9.2 ***Excavation Issues.*** We could go through a number of those challenges and look at them individually, but it is efficient to focus on just one: excavation issues. This had two parts: i) the challenge of a water table that was 2.5 metres below the surface, when the depth of excavation was 13 metres; and ii) the tritium levels in the soil and the ground water, which increased disposal costs.

3.9.3 If these were in fact surprises (and thus intervening events), they were surprises that OPG should have known about at the time, and did. In fact, Mr. Simpson is blunt about it[78]:

> *"MR. SIMPSON:…So to say that we were surprised by ground water is not factual."*

3.9.4 The amount of water was reported early on in the Trow Associates Geotechnical Study[79], and then confirmed with a further warning in their later study. Trow talked about water welling up out of their test boreholes[80], and warned it would be a problem. There was lots of ground water. Everyone knew that.

3.9.5 As far as the tritium levels in the soil and groundwater, OPG was aware that there was a tritium spill at that location in 2009, but instructed the bidders on the contract to

[77] Tr.2:129.
[78] Tr.2:69.
[79] AMPCO 94.
[80] Tr.2:137.

ignore that. OPG apparently – and without having studied the incremental cost associated with the contaminated soil – planned to pay for that cost out of the project contingency[81].

3.9.6 This was obviously wrong. You can't pay a known cost out of contingency. You need that contingency for things that are actually contingent. If you have already spent your contingency on known items before you start, then you are proceeding with a project without a contingency. That is not prudent.

3.9.7 ***Impact of Construction Issues.*** While the construction issues were matters that should have been considered, with proper planning of this project, they appear to have had only a small impact on the final cost.

3.9.8 In 2014, Burns Modus did an assessment of the cost overruns on D2O, which they estimated at that time to be $159.3 million[82]. At its highest, the construction issues were estimated to be $31.5 million, less than 20% of the total, and that is even if the building relocation and the pipe chase are considered to be issues arising during construction, rather than just examples of poor planning.

3.9.9 OPG in their evidence puts a lot of emphasis on the "unexpected" challenges that arose during construction. It turns out that the construction challenges were not unexpected, and they were not a significant cause of the cost overruns and delays.

3.10 ***The Bates White Evidence***

3.10.1 It is more than a little surprising that, having gone on at length in Argument-in-Chief about the evils of using hindsight in a prudence review, the **only** expert evidence offered by OPG with respect to D2O is based entirely on hindsight.

3.10.2 ***Scope of the Bates White Report.*** It is important as a first step to understand what the Bates White evidence is not:

(a) It is not an opinion, direct or indirect, on any aspect of prudence[83].

(b) It does not address whether other alternatives to the project would have been better, or even should have been considered[84].

(c) It expresses no opinion on the management of the project, nor the problems

[81] Tr.2:135.
[82] K2.1, p. 56.
[83] Tr.3:74, 76, 78 and other places.
[84] Tr.3:78.

associated with the project, as that was not in scope[85].

(d) It expresses no opinion or view on the design of the D2O or any component of it, nor whether the design or the as-built were influenced by scope creep, whether justified or unjustified[86].

(e) It provides no information on the appropriate quantities of equipment, including piping, tanks, etc., because it assumes that what was purchased was exactly what was needed in the circumstances[87].

(f) It provides no information on about $58 million of costs for which there was no readily available benchmark, because it assumes that the amount spent was the appropriate amount[88].

(g) It provides no reliable opinion on actual labour costs, because it assumes that labour productivity was 39%, as opposed to the 53-55% OPG says is what they actually experience at the Darlington site[89].

(h) It is not properly independent, because it was prepared with full knowledge of the actual costs, and the resulting number OPG wanted[90]. In fact, the cost estimate appears to have been prepared in close consultation with OPG throughout[91].

3.10.3 What the Bates White Report does, instead, is answer the question "If we knew in 2013 exactly what ended up being built, and how much it actually cost, what would we have estimated the final cost to be?"[92]

3.10.4 Even within the very narrow scope of their mandate, Bates White appears to have done an analysis that is more of a black box than a rigorous analysis of anything. It appears to be an example of an "expert" firm making a number sought by their client look better by surrounding it with a plethora of apparently credible benchmarks and associations, and where the result is not quite right, adjusting assumptions to get where they wanted to go.

3.10.5 In SEC's view, the evidence of Bates White is simply not credible, and should be

[85] Tr.3:63.
[86] Tr.3:100 and many other places.
[87] Tr.3:62-3.
[88] $34 million for tanks and other invoiced equipment (Tr.3:108) and $24 million for dewatering costs (Tr.3:81).
[89] Tr.3:21.
[90] Tr.3:64, 117-120.
[91] Tr.3:122. Whenever Bates White had a cost estimate that was difficult, they consulted with OPG about it.
[92] The record does not appear to indicate how much Bates White was paid for the answer to this earthshaking question.

rejected entirely by the Board.

3.10.6 ***Specific Shortcomings of the Report.*** At the outset of the Bates White evidence, the witnesses noted that they had found an error of several million dollars the night before, so the Board did not even have their final estimate when it heard their oral testimony[93].

3.10.7 People make mistakes and, frankly, given the mass of numbers in their report and attachments, there is a good chance no-one would have spotted their $5.6 million error had they not flagged it themselves.

3.10.8 We are more concerned, however, that having flagged the error the witnesses did not appear to be at all clear what the page in question was actually about. The page in question was based on actuals, yet the witnesses claimed it was a calculation from RSMeans data. When it was brought to their attention that was incorrect, the witness said "I misspoke"[94]. When it was brought to their attention that the error was $5.7 million, not $4.4 million, they stumbled trying to explain why that would be[95]. The Bates White Report is a blizzard of numerical data, and it was disconcerting that the authors of the Report did not appear to have a sufficiently firm grasp of the Report's details and underlying logic to answer fairly simple questions.

3.10.9 That having been said, the problems with the Bates White Report are more substantive than a $5.7 million calculation error. Totally aside from the narrow scope, discussed above and below, even within that scope there were serious problems. Those problems include, by way of example (this list is not exhaustive):

(a) ***Contingency.*** The estimate includes a 10% contingency[96]. On the face of it, this appears logical, since it is normal industry practice to include a contingency when estimating project costs, and expect it to be spent. The problem is that, with perfect knowledge there is no uncertainty, and thus there is no possibility that a contingency spend will arise. All contingency costs are by definition built into the actual estimate components[97].

(b) ***Labour Productivity.*** The Report assumes that labour (OPG personnel and contractor personnel) is productive 39% of the time[98]. The evidence of OPG management in charge of that is that labour productivity at Darlington is 53-55%[99]. Further, since labour costs are a large part of the $510 million[100], and

[93] Tr.3:59.
[94] Tr.3:92.
[95] Tr.3:91. This was later explained in J3.4, which has not been tested through cross-examination. It also doesn't explain why a $5 million change in the base estimate results in a $17 million reduction in the P90 estimate.
[96] Tr.3:57.
[97] Asked to explain this, the witnesses were confused by the concept: Tr.3:95-7.
[98] Bates White p. 56, and Tr.3:110.
[99] Tr.3:21. Asked to explain the difference, OPG witnesses did not provide any useful information.

since labour productivity is a cost multiplier in that category, you would expect to see a large difference in estimate if the labour productivity rate is corrected. Instead, a 36% increase in labour productivity results in a $15.4 million reduction in project estimate[101], which is a 3% reduction in project cost caused by a 6% reduction in labour costs[102]. The sum total of the explanation from Bates White is ""*Bates White could apply the distributive property of numbers and model the sum of labour costs as a function of a single productivity rate*"[103]. Although required to show the formula or model as part of the undertaking, Bates White failed to do so, and their explanation is not helpful[104].

(c) Inclusion of Extraneous Costs. While the witnesses admit that some of the costs included in the Bill of Quantities were likely not actually installed in the D2O facility, they advise that making that distinction was not within their scope[105]. In essence, if OPG told them something was part of the D2O project, they assumed that to be true, even though in fact some of the equipment, including piping and electrical, was actually assets installed in the HWMB. Whether that was needed for D2O, or was the result of the TRF management getting wish list items included in the D2O project, is not something that Bates White looked at.

(d) Dewatering Cost. The expert witnesses claimed that the cost of dewatering was about $24.5 million in fact, and thus that is the amount they used in their estimate[106]. OPG witnesses claim the cost of dewatering was $8.9 million[107]. This has not been properly explained by anyone[108].

(e) Tank Estimates. There is uncertainty around the estimate of tank costs, since the tanks were of different types but appear to have been estimated as if they

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[100] See Bates White Report, p. 6, and J3.7 (more than half).
[101] J3.7, p. 3 ($512.1 - $496.7).
[102] $15.4 million divided by labour costs of $267.3 million: J3.7. On the face of it, one would have expected the impact of a 39% to 53% labour productivity change to be $71 million, almost five times the Bates White estimate. The actual hourly rate multiplier used to adjust for productivity was 1.7 (Tr.3:115), which is based on normal productivity being 66% (Bates White Report, p. 56). Mathematically, the hourly rate multiplier at 53% productivity would be 1.25, and the labour cost should therefore be $196.5 million.
[103] J3.7, p. 1.
[104] We note that adding further explanation in Reply Argument would be even less helpful, as it would then be both untested and unanswered evidence. We assume OPG will not attempt to do that.
[105] Tr. 3:106-7.
[106] Tr. 3:81.
[107] J2.5.
[108] Burns Modus estimated that the "environmental requirements" in the dewatering resulted in a cost overrun of $17.4 million, essentially because of tritium in the soil and groundwater. See K2.1, p. 56-7. It is not clear that this estimate is on the same basis as the $24.5 million and the $8.9 million.

were all the same type[109].

(f) Undocumented Analysis. Dr. Krahn claims to have done an analysis of the amount of pipe required by the design drawings, to see if it was the same as the Bill of Quantities. However, he also claims that his assessment that 11 km. of pipe was correct is completely undocumented, and there is no physical or electronic record of that analysis[110]. This is either not credible, or incredibly sloppy. Being an "old-school guy" is not a legitimate explanation for ignoring the fact that spreadsheets were invented in 1979[111], and have been in wide use for some years.

(g) Inconsistencies. The Bates White Report[112] claims that the six year project schedule was based on the need date for the DRP. In oral evidence, the witnesses claimed that the DRP schedule was not relevant to their report[113]. This is one of several areas in which it is difficult to square what they said to the Board under oath with their Report and answers to interrogatories and undertakings.

(h) Client Bias. The CVs of the witnesses appear to show that they virtually always conclude that the amount their utility clients spent, or think should have been spent, is the reasonable cost of a project. Asked about this, the witness claimed that there were existing situations in which he opined that costs were too high, which led to the following exchange[114]:

"MR. SHEPHERD: Okay. Dr. George, when was the last time, when you were representing a utility, that you gave an opinion that the reasonable cost of the utility or the properly estimated cost of the utility was less than what they actually spent? When was the last time you did that? I've look in your past.
DR. GEORGE: In two of my pending cases before the US Court of Federal Claims, those are my opinions. It wasn't clearly relevant here, but those are my opinions.
MR. SHEPHERD: <u>And those are opinions you're giving in situations where your utility client is claiming that the contractor overspent, right?</u>
<u>DR. GEORGE: I'm not describing the circumstance any more detail about it. These are matters under seal.</u>
But you asked a question and my response is that in two pending matters in the US Court of Federal Claims, my opinion is that the cost should

[109] Tr.3:84-5. J3.5 does not appear to give a proper explanation of this confusion.
[110] Tr.3:103-4.
[111] VisiCalc.
[112] At p. 9.
[113] Tr. 3:100.
[114] Tr.3:98-9.

> *have been less than that which the utility is claiming was expended." [emphasis added]*
>
> In fact, those cases are also in the CV, and it would appear clear that at least Dr. George has a history of giving his utility customers the numbers they want.

3.10.10 We could add more issues with the Report, but the overall issue is more fundamental. The Bates White Report appears to be a kind of "Fun with Numbers" exercise in which the experts simply adjusted assumptions and inputs to get to the result they wanted. "What, the estimate is only $408 million? What happens if we reduce this productivity assumption, and add another person to each crew?" Anyone who has done spreadsheet modelling knowns that this is possible. You can tune the assumptions and inputs in any comprehensive model to get closer to a target, whether it is ROE, cost, or anything else[115].

3.10.11 We hasten to add that we are not in any way alleging dishonesty or anything else untoward on the part of either Bates White or OPG. That could not be said, or alleged, without a lot clearer evidence than is on the record in this proceeding. Bates White is a credible company with a good reputation among utilities. No evidence exists of dishonesty or anything similar.

3.10.12 What we are saying, however, is that like many consultants Bates White clearly understand who is paying the bills, and just as clearly had the ability to be influenced by what OPG wanted them to say. This is best reflected in the following exchange at the end of the oral hearing[116]:

> *"MR. RICHLER: In appendix B to your report, you list all the documents you relied on in preparing your analysis. You don't have to turn that up, but I see it includes a number of OPG's business case summaries for the D2O project.*
> *And so you knew before you prepared your report that OPG's latest estimate for the project, as reflected in the 2018 superseding full execution of BCS, was 510 million dollars including management reserve?*
> *DR. GEORGE: We were in possession of that. We honestly did not let that colour our expectations as to where the number would come out. <u>It's -- I admit astonishing how close our estimate came out to what apparently was the actual cost.</u>*
> *But it's important to point out, for example, what OPG may have in a business case summary that may not reflect the actual amounts expended if, for example, a contractor quote-unquote ate a bunch of costs, that we*

[115] Excel even has a function for that.
[116] Tr.3:119.

> *didn't reflect that in the estimate as one example.*
> *So our cost estimate is really independent from what may exist in -- even in the latest BCS, and certainly does not reflect any costs which were incurred, though, which were not paid by OPG because a contractor assumed that risk and absorbed those costs." [emphasis added]*[117]

3.10.13 ***And If Those Shortcomings Were Not Present?*** Even without the obvious problems with this evidence, there is the more fundamental question of the extent of its probative value. Even if the Board were to accept everything Bates White says, there remains the clearly implied "And…?"

3.10.14 What can the Board glean from this evidence? It **cannot** conclude:

(a) The right asset was built.

(b) Rejected alternatives to the project were not better options.

(c) The final product doesn't include any imprudent waste.

(d) The project was managed prudently.

(e) Contractors were selected prudently.

(f) The appropriate quantities of materials were procured.

(g) The specialized components of the project cost the right amounts.

3.10.15 We could go on, but it would be repetitive.

3.10.16 In fact, at its highest, and even assuming that the Bates White figure was not influenced by the result OPG wanted them to reach (a big assumption), the very most that the Board can conclude is that for the quantities of goods actually purchased for which there are external benchmarks (but not labour, since those assumptions are clearly wrong), it is likely that OPG would have estimated exactly what they spent as the cost of those commodities, based on perfect information[118].

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[117] Also interesting is the fact that experts that claimed not to be influenced by how the project unfolded in fact, and only by the result and the empirical data, are quick to point out that OPG got a contractor to write off costs. Sadly, this makes the Bates White Report even less credible, because it demonstrates that their "astonishing" number even adjusts for the CanAtom writedown, which they claim not to have considered. In effect, they are claiming that their congruence with the net final number OPG wanted – and for which OPG was seeking recovery from customers - was "just lucky".

[118] We note that the evidence does not have a comparison table that shows what OPG estimated for the unit costs of commodities at the outset, and what Bates White now says would have been the appropriate unit costs for those commodities.

3.10.17 In this situation, however, it doesn't appear to us that anyone is saying that OPG paid too much per metre for stainless steel pipe (nor that they estimated the unit cost for that pipe too low at the outset). They may have built a Taj Mahal when a Quonset hut is what they really needed, they may have installed three times as much pipe as was appropriate, they may have wasted substantial costs scrambling to respond to the constant stream of errors they made in managing the project, and so on. No-one is suggesting that OPG's procurement group got the pipe pricing wrong.

3.10.18 ***SEC Recommendation.*** SEC therefore submits that the Board should give no weight to the Bates White Report. Within its stated scope, it adds little if any value. Even within that narrow scope, the conclusions are suspect at best.

3.11 *Final Argument of AMPCO/CCC*

3.11.1 SEC notes that we have had a chance to review the extensive and thorough submissions of AMPCO/CCC in draft, and we agree with the substance of those submissions.

3.11.2 However, for the assistance of the Board we have the following specific comments on certain of those submissions that we either have not addressed in this Final Argument, or address in a different way:

(a) As noted below, while we agree that the use of the D2O facility for decommissioning purposes should come out of the Decommissioning Fund, not incremental current rates, we have a different proposal for accomplishing that result.

(b) We agree with AMPCO/CCC that the D2O facility was grossly overbuilt, both in size and in design choices (including location, configuration, operational flexibility, etc.), with the result that the costs were much too high. Their analysis in this respect is compelling, and we adopt it[119].

(c) While we agree with the specific instances of imprudence cited by AMPCO/CCC, our approach comes from a different perspective. We start by asking whether OPG met their onus and burden of proof, not whether intervenors can demonstrate that OPG was imprudent. Although clearly that is not what AMPCO/CCC intends, there is a risk that OPG's onus could subconsciously be shifted. We think it is critical that the Board remain focused on whether OPG has met its onus and burden of prudence, not whether others have shown OPG to have been imprudent.

[119] We also draw to the Board's attention the conclusion of Burns Modus, who said that the project was hit by a "flood of OPG stakeholder generated late design changes". K2.1, p. 38.

(d) We agree with AMPCO/CCC that OPG's Value Engineering exercises were biased against alternatives that if chosen would likely have had lower costs and/or lower risks. While poor estimates played a part in this, as AMPCO/CCC point out there is also an aspect of OPG having already decided what they wanted.

(e) We agree with AMPCO/CCC that uncontrolled scope creep was a significant contributing factor to cost overruns and delays.

(f) We agree with AMPCO/CCC that costs would have been reduced had OPG taken the obvious and prudent course of applying lessons learned from the Bruce heavy water storage project and its problems.

(g) We agree with AMPCO/CCC that OPG dropped the ball when it came to the design changes proposed by CanAtom, and that the $77 million that CanAtom nominally "ate" did not cover that cost, since there remained a $129 million cost increase from 2015 even after that contractor adjustment.

(h) We agree with AMPCO/CCC's analysis of when the D2O – at whatever final capital cost – should be treated as in-service, and their proposed adjustments to take account of that issue[120].

3.11.3 Other than the above comments, we have attempted in this Final Argument to avoid replicating the analysis in the AMPCO/CCC argument, referring to the same items only to the extent necessary to make the points on which we are focusing.

3.12 ***What Really Happened Here?***

3.12.1 SEC submits that what really happened with the D2O project, as is apparent from the evidence, is that OPG moved forward with the D2O project without sufficient planning and investigation, then managed it poorly until it was too late, and paid the inevitable price with cost overruns and delays. Now they seek to have the ratepayers bear the costs associated with those mistakes.

3.12.2 SEC notes that the context may be relevant here. OPG was aware that the DRP would be a contentious project in which planning and careful, prudent execution would perhaps be even more critical than it normally is. If you look at the main parts of the DRP, OPG appears to have placed a heavy emphasis on checks and balances, close oversight of contractors and others, and mechanisms to ensure the project comes in on time and on budget. While the eventual success of that strategy is not yet known, the emphasis claimed by OPG is known.

[120] The OPG witness says it was Available for Service in March 2021: Tr.2:57. This appears to be a simple error.

3.12.3 Despite this, the most complex project, and one that was on the critical path, early in the process, and had a high cost, was managed differently from the rest of the DRP. The Board has heard no justification for that different approach. All the Board has heard is that, because of the problems with the Campus Plan projects, management of those projects was subsequently changed to be more like the rest of the DRP[121].

3.12.4 It is tempting to characterize this as "flying by the seat of your pants" management, but that is probably unfair. Significant mistakes were made at the outset - in planning, due diligence, project design, and organization management -, those mistakes were then exacerbated by poor oversight and a whole litany of related mistakes, and OPG was left scrambling to finish the project as best it could. Even the scrambling was not optimal, as evidenced by the fact that, once the initial problems were all known and being addressed, they continued to experience cost overruns from $381 million to $510 million.

3.13 ***SEC Recommendation***

3.13.1 ***Disallowance.*** Based on the evidence presented in this proceeding, which is almost identical to the evidence on AHS and OSB, SEC believes that the reasoning of the Board in EB-2016-0152 applies equally to the D2O. Thus, it is submitted that the Board should permanently disallow 50% of the cost overrun from the First Execution Estimate of $110 million to the final cost of $510 million, a net disallowance of $200 million.

3.13.2 ***Revenue Requirement Impacts***. SEC notes Undertaking J3.2, in which OPG estimates that the five year revenue requirement of the D2O as filed is $197.3 million in payment amounts, and the similarly calculated revenue requirement with a $200 million disallowance is $118.1 million, for a difference as a result of the disallowance of $79.2 million. Since the total nuclear revenue requirement for the same period is $16,064.8 million[122], the impact on nuclear revenue requirement is less than 0.5%, and the impact on payment amounts approximately half of that.

3.13.3 It is true that the undertaking response does not assume the AMPCO/CCC proposal that the in-service date be 2020, as discussed in their submissions. However, while the combined impact of the CRVA and revenue requirement using the corrected in-service date would be a net reduction in costs for customers (because some of the costs will be recovered later), the actual impact during the next five years is likely to be minimal due to rate smoothing. Further, the ultimate cost of the D2O remains the same, subject to the disallowance, just charged to customers later.

[121] Tr.2:143-7, Tr.1:105, and elsewhere.
[122] Revised Rate Smoothing Proposal, p. 5.

3.13.4 ***Allocation to Decommissioning Costs***. SEC agrees that it is likely some part of the cost of the D2O facility will end up being fairly allocable to the Decommissioning Fund. What OPG says today is that it is merely an option[123], and since D2O was built for a different purpose, no part of the capital cost will be allocated to decommissioning in the future[124].

3.13.5 SEC submits that the Board should direct OPG, in its next cost of service proceeding, to file a study or studies showing:

(a) The likely uses of the D2O facility for long term heavy water storage of decommissioned units;

(b) The costs currently set aside in the Decommissioning Fund for long term heavy water storage; and

(c) An integration of the two to show the extent to which the cost of the D2O facility should fairly be allocated to decommissioning costs.

3.13.6 Armed with that much more complete information, the Board can at that time determine if some part of the remaining unamortized net cost of the D2O facility, after any prudence disallowances, should be re-allocated to decommissioning costs, so that ratepayers don't pay for it twice – once in rates, and once in decommissioning costs**.**

[123] Tr.2:98.
[124] Tr.2:14.

4 OTHER MATTERS

4.1 *Costs*

4.1.1 The School Energy Coalition hereby requests that the Board order reimbursement of SEC's reasonably incurred costs in connection with its participation in this proceeding. It is submitted that the School Energy Coalition has participated responsibly in all aspects of the process, in a manner designed to assist the Board as efficiently as possible.

All of which is respectfully submitted.

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