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2300 Yonge Street
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December 16, 2019
Our File: EB20190082

Attn: Christine Long, Registrar & Board Secretary

Dear Ms. Long:

Re: EB-2019-0082 – Hydro One Transmission 2020-2022 – SEC Final Argument

We are counsel to the School Energy Coalition ("SEC"). Enclosed, please find SEC's Final Argument.

Yours very truly,
Shepherd Rubenstein P.C.

Original signed by

Mark Rubenstein

cc: Wayne McNally, SEC (by email)
Applicant and intervenors (by email)

EB-2019-0082

ONTARIO ENERGY BOARD

IN THE MATTER OF *the Ontario Energy Board Act, 1998*, S.O.1998, c. 15, (Schedule B);

AND IN THE MATTER OF an Application by Hydro One Networks Inc. for an order or orders made pursuant to section 78 of the *Ontario Energy Board Act*, *1998* approving rates for the transmission of electricity.

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FINAL ARGUMENT OF THE SCHOOL ENERGY COALITION

December 16, 2019

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1 OVERVIEW

1.1 *Introduction*

1.1.1 Hydro One Networks Inc. ("Hydro One") filed an application with the Ontario Energy Board ("the Board" or "OEB") pursuant to section 78 of the *Ontario Energy Board Act, 1998*, for approval of its transmission revenue requirement for 2020 to 2022 ("test period") based on a proposed custom incentive rate-setting framework ("Custom IR").

1.1.2 In this application, Hydro One is seeking approval to collect from domestic transmission customers a total of approximately $5.2Bn over the three-year test period.[1] This would result in an annual transmission rate increase of 6.2% per year for each of the next three years, including a 6.6% increase in 2020.[2]

1.1.3 As discussed in detail in this argument, the increased revenue requirement proposed, and the rates that would ultimately flow to customers, that are neither just nor reasonable. The Board must make a number of significant modifications to Hydro One's proposal to ensure that there is fair balance between the interests of customers and the company.[3]

1.1.4 This is the Final Argument of the School Energy Coalition ("SEC").

1.1.5 SEC has not addressed every issue in this application, but focused on the major components only. Silence on any given issue should not be construed as acceptance of Hydro One's proposal.

1.2 *Overview*

1.2.1 Hydro One's application represents an average annual transmission rate increase over the three-year period of 6.2%, which represents more than 3 times Hydro One's proposed inflation factor of 1.8%.[4] Even if one excludes the impact of load changes, the rate increase represents an amount more than double the inflation rate at an average increase

[1] Undertaking J1.1, p.3

[2] Undertaking J1.1, p.8; K1.1, p.7

[3] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.3

[4] Tr.8, p.18; OEB Staff Submission, p.18

of 4.5%.[5] The driver of the increase is primarily Hydro One's proposal to spend $3.86Bn in capital expenditures over the 2020 to 2022 test period. [6] This amount represents a 29% increase over the previous three-year period.[7]

1.2.2 Hydro One believes that the capital spending level is appropriate as it reflects the investment scenario that was selected by participants of its customer engagement survey. The problem is that Hydro One did not survey customers who represent 92% of those who ultimately bear the costs of the approved revenue requirement – distribution connected end-use customers.

1.2.3 The Board's Handbook on Utility Rate Applications sets out the expectation that a utility must have a customer focus. They are all expected to understand their customer's interests and preference, and demonstrate value for money in delivering the services customers require.[8] For all intents and purposes, this has not happened, as Hydro One did not speak to the customers who will actually pay transmission rates. Insofar as the directly connected transmission customers (local distribution companies, large transmission connected-end users, and generators) can be said to have endorsed the proposed level of spending, the evidence is clear that their priorities differ from non-large use customers, who would bear most of the cost of Hydro one's proposal.

1.2.4 At its core, this is an application to spend increasing amounts on capital, which produces a return on equity for Hydro One's shareholders, at the expense of its customers. The overall level of capital spending is simply not proportionate to the benefits that end-use customers will receive. While Hydro One has made improvements since its last major transmission application in EB-2016-0160, that does warrant some acknowledgment, it should not equate to being given green light for such a significant transmission rate increase. In a climate where the Government of Ontario is seeking to reduce overall bills

[5] K1.1, p.7

[6] Undertaking J1.1, p.6

[7] *Ibid*

[8] Handbook to Utility Rate Applications, October 13 2016, p.2-3

by an additional 12%[9], increasing the transmission line item by 6.2% each year, for three years, is simply not reasonable.

1.2.5 The Board's expectation is that Hydro One, like all utilities it regulates, will "demonstrate ongoing continuous improvement in their productivity and cost performance."[10] But the evidence provided by Pacific Economics Group ("PEG") shows that Hydro One's cost performance has been *declining* over time, and is now above the benchmark.[11] Based on PEG's analysis, Hydro One's expected cost performance is expected to continue to deteriorate throughout the test period.[12] At a more gradual level, the evidence is that Hydro One's unit cost performance is below what it forecast it would achieve in its last proceeding. The result is that Hydro One was able to spend its approved budget, but the cost to undertake that work ended up being higher than forecast. Customers, in the end got less work for what they paid. Additionally, on many of the larger projects that are spanning multiple applications, the costs keep increasing each time Hydro One appears before the Board.

1.2.6 In its EB-2016-0160 Decision, the Board gave Hydro One specific directions regarding its expectations on how to improve the capital planning process. This included the need for an independent third-party review of that planning process. Hydro One filed a third-party review, but one that was clearly not independent. This has robbed the Board and parties of the necessary input into their assessment of the revised planning process, and makes it difficult to determine if the improvements they have made are sufficient.

1.2.7 SEC submits the result is an application for transmission rates that are just and reasonable.

1.3 ***Summary of Key Submissions***

1.3.1 ***Custom IR Framework.*** While SEC accepts that Revenue Cap Index is the appropriate

[9] Exhibit I-07-1 (SEC Interrogatory No. 1)

[10] Handbook to Utility Rate Applications, October 13 2016, p.2-3

[11] Exhibit M1, p.38

[12] *Ibid*

starting point for Hydro One's Custom IR application, several adjustments to the various adjustment factors, and broader framework components are required.

(a) ***Inflation Factor.*** Hydro One's proposed inflation and productivity factors are appropriate.

(b) ***Stretch Factor.*** The Board should adopt the stretch factor proposed by Dr. Lowery of 0.30% that reflects Hydro One's declining cost performance.

(c) ***C-Factor.*** The proposed capital factor should be reduced to be in line with SEC's proposed adjustment to the capital plan, Additionally, the Board should adopt the proposed 0.31% additional capital stretch factor.

(d) ***CISVA.*** If the Board is to accept the proposed CISVA, the Board should make a number of adjustments to ensure that customers are appropriately protected.

(e) ***ESM.*** Hydro One's proposed ESM is appropriate.

1.3.2 ***Capital Plan.*** The proposed capital expenditures, and the corresponding in-service additions arising from the proposed capital plan, are not just and reasonable. The Board should reduce the proposed capital expenditures by $703.5M over the test period, to reflect a more appropriate balancing between system needs, and rate impacts for those who are responsible for paying Hydro One's transmission rates.

1.3.3 ***Compensation.*** Hydro One's compensation costs remain significantly above the market median. The Board has consistently told Hydro One that ratepayers should not be required to pay the premium that it pays in compensation. This continues to be true. Based on Hydro One's proposed plan, this would result in a capital expenditure reduction of $28.5M annually and $10.1M in OM&A in 2020. SEC submits that with respect to the capitalized portion of compensation, the Board should not simply reduce the overall capital expenditure envelope as it has in past decisions, because all that ends up happening is that Hydro One defers capital projects to account for the reduction in compensation funding provided to it. This time, the Board should, after making any other reductions to its capital plan, re-calculate the total cost of the premium based on the new approved capital plan, and then make the compensation-related reduction while holding

Hydro One to achieve the approved capital plan. This would be an attempt to ensure that the cost of the premium is paid by the shareholder, not Hydro One's ratepayers through deferred capital work.

1.3.4 ***OM&A.*** Hydro One should reduce its proposed OM&A by at least $14.1M in 2020 to reflect reductions in compensation costs and the lack of any progressive productivity built into the budget.

1.3.5 ***ETS Rate.*** SEC submits that the Board should maintain, if not, increase the ETS rate from the proposed $1.85/MWh amount that was agreed upon by way of a settlement in a previous proceeding. The Board should not accept arguments from parties to simply update the inputs to the methodology that was put forward in the EB-2014-0140 proceeding. It was itself a methodology that was never approved by the Board, and as noted in that settlement proposal and discussed at the hearing, is fundamentally flawed. Any application of that methodology would lead to export customers not paying their fair share, while domestic providers provide a cross-subsidy.

1.3.6 ***Effective Date.*** The Board should approve an effective date that is the earlier of the release of the Board's decision, or April 1, 2020. Based on Hydro One's previous experience and the Board's own metrics, Hydro One should have filed earlier if it wanted a January 1, 2020, effective date of January 1, 2020.

2 CUSTOM IR FRAMEWORK

2.1 *Overview*

2.1.1 Hydro One has proposed a Revenue Cap Index ("RCI") as the basic structure for its Custom IR plan. It proposes that the revenue requirement would be determined in 2020 on a traditional cost of service basis, with 2021 and 2022 inflated each year by an inflation factor, minus both a productivity and stretch factor.[13] In addition, Hydro One proposes to increase the 2021 and 2022 revenue requirement by including a capital factor, which would allow it to recover additional amounts over and above what would be collected from the RCI, so as to reconcile the amounts approved as part of the Transmission System Plan ("TSP"). [14] Based on the evidence Hydro One has filed from Mr. Fenrick and Power Systems Engineering ("PSE"), Hydro One has proposed both a productivity and stretch factor of zero.[15]

2.1.2 The implication of the proposed framework is that while the OM&A will increase each by the inflation amount set by the Board annually, because of the undiscounted capital factor Hydro One's TSP will be set on a straight cost of service basis.

2.1.3 In addition to these revenue requirement adjustment mechanisms, Hydro One proposes to continue two aspects of its most recent approved transmission plan, an earning sharing mechanism ("ESM") and a Capital In-Service Variance Account ("CISVA"), albeit with some modifications.[16]

2.1.4 As detailed below, SEC has no concerns with the use of an RCI as the main structure of the Custom IR plan. The issue is with respect to certain parameters of the RCI, and the broader Custom IR framework. SEC submits the proposal does not include the correct incentives to ensure that Hydro One becomes a more efficient transmission utility, considering the high level of capital spending it believes it is required to undertake.

[13] Exhibit A-3-1, p.9

[14] Exhibit A-3-1, p.9-10

[15] Exhibit A- 3-1, p.10

[16] *Ibid*

2.2 ***Inflation***

2.2.1 Hydro One proposes a custom inflation factor based on the weighted sum of the 86% annual percentage change in Canada's GDP-IPI and 14% annual percentage change in Ontario Average Weekly Earnings ("AWE").[17] These are the same input factors that the Board uses for IRM applications, with a transmission industry-specific weighting based on analysis undertaken by Power Systems Engineering ("PSE").[18] SEC submits the proposed inflation factor is reasonable. The transmission specific weighting proposed was also recently approved by the Board in the recent Hydro One SSM proceeding.[19]

2.3 ***Productivity and Stretch Factors***

2.3.1 In this proceeding, the Board once more witnessed a lengthy debate over the dueling econometric models, with each expert saying that their black box was better than the other's black box. One is tempted to call in a referee econometrician to determine who is right on each of the contested points.

2.3.2 Thankfully, that is not necessary. The Board, as it often does, acts as the referee, applying not just the technical rules of econometrics, but also the broader rules of common sense. Once the Board does this, SEC submits that, for most aspects of this evidence, the Board must conclude that the evidence of Dr. Lowry on behalf of PEG is to be preferred to that of Mr. Fenrick on behalf of PSE. While both reports have weaknesses – and SEC will touch on some of the details below – it is clear that the conclusions reached by Mr. Fenrick are simply not consistent with common sense.

2.3.3 There are three components to this common sense approach, which SEC will address below:

- ***(a)*** Expected Trajectory of Costs and Benchmarking/Productivity Results.
- ***(b)*** Past History of Costs and Benchmarking/Productivity Results.

[17] Exhibit A-4-1, p.5

[18] *Ibid;* Exhibit A-4-1, Attachment 1, p.50

[19] *Decision and Order* (EB-2018-0218 - Hydro One SSM), June 20 2019, p.16

(c) The nature of the criticisms by Mr. Fenrick of the work of Dr. Lowry.

2.3.4 In the end, SEC concludes that:

(a) The appropriate productivity factor is zero, consistent with the Board's regular practice.

(b) The appropriate stretch factor is 0.30%, as proposed by Dr. Lowry.

(c) As discussed in the next section, an additional stretch factor to reflect the Custom IR capital adder should be incorporated as proposed by Dr. Lowry, in the amount of 0.31%.

2.3.5 ***Expected Trajectory of Costs and Benchmarking/Productivity Results.*** The first common sense issue with Mr. Fenrick's benchmarking and productivity results is his forecast (based on Hydro One's spending plans) that Hydro One will be 32.9% below expected costs during the Custom IR plan term.[20] This is an improvement over the 29.5% below expected costs his model shows for 2016-2018. That would make sense if Hydro One was controlling costs in the Custom IR term, but that is not the case. Revenue requirement is increasing at more than 4% per year, and rates are forecast to rise 6% per year.[21]

2.3.6 While certainly, some component of the rate increase is the result of the declining load forecast, it is inconsistent with common sense that costs could go up at more than twice the inflation rate, and prices could go up at more than three times the inflation rate, yet Hydro One's benchmarking results would improve. This could only happen if the model Mr. Fenrick uses forecasts the industry as a whole as increasing costs and prices by even higher amounts. That is not credible.

2.3.7 Further, Mr. Fenrick's productivity results also show a substantial decline over the CIR period, from -0.18% to -1.70%.[22] This also implies that the industry as a whole will have massively poor productivity over the 2020-2022 period, and none of the regulators

[20] Tr.7, p.156

[21] Undertaking J1.1, p.3

[22] Tr.7, p.159

responsible for dealing with transmission companies (including the Board) will step in to stem this tide.

2.3.8 One of the reasons for the implausibility of Mr. Fenrick's results may be his theory that benchmarking results should average zero over the entire sample[23]. Indeed, he criticizes Dr. Lowry for using a model in which the average benchmarking results over the model are positive, saying that is evidence of bias[24] because the model does not average to zero. In fact, he proposes to "fix" this bias by a mathematical plug having no basis in the real world he is supposed to be modeling (which SEC discusses below).

2.3.9 What Mr. Fenrick fails to mention is that the Board's Benchmarking Model – a model that Mr. Fenrick worked on way back when – never averages to zero, and in recent years has not been close. In fact, benchmarking models only average to zero by accident. The individual results, and the mix of adjustment factors, ensure that such an average is unlikely.[25]

2.3.10 SEC is not, of course, econometrics or even benchmarking experts. However, if Mr. Fenrick has manipulated his results to ensure that he achieves an average benchmarking result of zero, it would appear to us that approach may be one of the reasons why his benchmarking forecasts are so implausible.

2.3.11 ***Past History of Costs and Benchmarking/Productivity Results.*** The same common sense issues arise when the Board looks at Hydro One's past spending and compares it to Mr. Fenrick's benchmarking results over the past period. Mr. Fenrick believes that Hydro One's benchmarking results have been improving, and Hydro One certainly believes that it the case.[26]

2.3.12 Meanwhile, Hydro One's actual transmission capital additions in 2008 were $409

[23] Tr.8, p.35; See also PSE Reply Report, p.4,8

[24] Tr.7, p.162

[25] Peer group benchmarking can and does average to zero. Econometric benchmarking adjusts expected costs using business condition variables, so there is no reason to believe that it will average to zero.

[26] Tr.8, p.60

million[27], and they are forecast to be $1,287.6 million in 2022, an increase of 215%.[28] This is a compound annual growth rate of 8.53% per year. With two-thirds of your overall costs going up at that rate over an extended period of time, it is not conceivable that you are improving relative to your peers. Unless, of course, the peer group is spending at an even greater pace.

2.3.13 Ignoring common sense, Mr. Fenrick concludes that Hydro One's benchmarking results have improved over that same period.[29] This contrasts with Dr. Lowry's results, which show that Hydro One's benchmarking results have gotten appreciably worse over that period. In fact, the results provided by Dr. Lowry almost exactly track the high capital spending levels of the 2008-2022 period, which is exactly what you would expect in a capital-intensive transmission utility with that level of excessive capital spending.[30]

2.3.14 ***Fenrick's Criticisms of Dr. Lowry's Studies.*** Mr. Fenrick has two main complaints about Dr. Lowry's work.

2.3.15 First, he says that Dr. Lowry has a bias in favour of recent results, and he goes to some length to demonstrate that this bias exists.[31] What is interesting is that Mr. Fenrick does not talk at all about what is wrong with the PEG model that it produces such a "bias". Mr. Fenrick just keeps repeating his mantra that the average and distribution of Dr. Lowry's benchmarking results show a bias.

2.3.16 Then, without having identified the actual error (just, in his view, the incorrect results), Mr. Fenrick proposes to "fix" the error by adding a quadratic into the model, thus reducing Hydro One's costs relative to expected costs by more than 25%.

2.3.17 This does not appear to us to be credible. When an equation is giving you the "wrong" answer, changing the formula to get the "right" answer is just a plug. It solves nothing.

[27] EB-2010-0002, Exhibit D1-1-1, p.4

[28] Undertaking J1.1

[29] PSE Reply Report, Table 1; Undertaking J8.1, Attachment 1

[30] *Ibid*

[31] PSE Reply Report, p.7-12.

If there is truly an error, the proper approach is to identify the error, then correct it in a logical and principled way, based on an understanding of the real world effects that are being described. The equation will then produce a new result, which presumably will be a better answer.

2.3.18 Mr. Fenrick, in his proposed "fix", appears to have forgotten that econometric models are supposed to model the real world, not just get the mathematical results he thinks are correct.

2.3.19 Perhaps the most interesting part of this particular criticism is that Dr. Lowry, in his evidence, criticizes the work of Mr. Fenrick as being a short-run cost model.[32]

2.3.20 Mr. Fenrick's second criticism is that Dr. Lowry changed his model from that used in the Hydro One SSM case[33], and further that the new model is more complex and harder to replicate (by Mr. Fenrick).

2.3.21 Before looking at the details, it is important to note that both experts have made changes to their models from the HOSSM proceeding to this proceeding, and even within the two proceedings. Dr. Lowry made a number of improvements that he felt were necessary on his own review and that of his staff. [34] Mr. Fenrick, on the other hand, made changes largely in response to errors that PEG found in his work.[35]

2.3.22 The problem for Mr. Fenrick appears to be that his changes are largely inconsequential[36], while Dr. Lowry's changes have a substantial impact on his results.

2.3.23 On the other hand, while Mr. Fenrick calls the main change by Dr. Lowry "manipulating the underlying data"[37], in fact, it was just a standard but sophisticated method of

[32] Tr.9, p.81-82

[33] PSE Reply Report, p.11-16

[34] Tr.9, p.121-146, Hydro One counsel goes through those changes in great detail, but does not demonstrate any problems with making them.

[35] Tr.8, p.28

[36] Tr.8, p.11-12

[37] Tr.7, p.165

correcting for autocorrelation.[38] According to Mr. Fenrick, Dr. Lowry uses the Prais-Winston method, whereas Mr. Fenrick uses Driscoll-Kraay. Mr. Fenrick claims that the method used by Dr. Lowry is wrong.

2.3.24 Dr. Lowry responded to the PSE Reply Report in his oral evidence, and in particular discussed the science of autocorrelation, and methods of correcting for it.[39] He agreed that the two experts used different methods of dealing with autocorrelation, but noted that the method he used is a more thorough correction because it corrects not just for standard error calculations (which Mr. Fenrick's method does), but also for the efficiency of the parameter estimates (which Mr. Fenrick's method does not). With all due respect to Mr. Fenrick, SEC prefers the explanation from Dr. Lowry to the criticism of Mr. Fenrick, especially in light of the fact that the method used by Dr. Lowry is one that PSE has also used in the past, and this Board has accepted in past econometrical modelling.

2.3.25 Mr. Fenrick also claims that the PEG method cannot be replicated. This was answered completely by Dr. Lowry, who noted that he used an off-the-shelf software package that is widely available.[40] This complaint by Mr. Fenrick is particularly surprising given that it is Mr. Fenrick who regularly appears before this Board with complex new variables for his models that are based on engineering assumptions that cannot be tested by the Board (such as the urban core variable), and are quite obviously problematic.[41]

2.3.26 SEC, therefore, submits that the criticisms by Mr. Fenrick of Dr. Lowry's work are unfounded.

2.3.27 ***Additional SEC Concern.*** Both of the experts assume in their work that declining peak demand NEVER has any impact on a transmission utility's costs[42]. There is a certain logic to this. In a capital intensive business, once you spend money on capital, you have

[38] Tr.9, p.53

[39] Tr.9, p.52-55

[40] Tr.9, p.55

[41] See for example, *Decision and Order* (EB-2014-0116 - Toronto Hydro-Electric System Limited 2015-19), December 2019 2015, p.16

[42] Tr.8, p.26, 31; Tr.9, p.75.

it for a long time. Declines in unit sales of your product, whatever it is, will not have immediate impacts on your sunk costs. The money has already been spent, and capital costs are to a large extent past spending being amortized over the current and future periods.

2.3.28 On the other hand, to posit that declining demand never has any impact on costs cannot be true. Peak demand in 2006 was 27,005 MW.[43] If peak demand was 1,000 MW today, would we have been adding to capital at a rate of 8.53% per year over the last fourteen years, and would we plan to continue such a pattern? Clearly, the answer is no. We might have a stranded assets problem, but we would not assume that our costs are based on a 27,005 MW system.

2.3.29 Demand today is not 1,000 MW, but it is 19,856 MW in 2020, a decline of 26.5% over fourteen years.[44] Both Mr. Fenrick and Dr. Lowry assume that this decline in peak demand has no impact on Hydro One's costs, and will continue to have no impact in the foreseeable future. In effect, their assumption is that the changes in the electricity system due to less concentration of generation, end-user conservation, and other factors do not save ratepayers any money on infrastructure costs.

2.3.30 In fact, their assumption is that the opposite is true. Because our billing determinants go down, our unit costs for the transmission system will go up over time. In addition to its high level of planned capital spending, Hydro One has to increase rates because billing determinants are declining.

2.3.31 SEC submits that, in the competitive markets, if you cannot sell as many of your products, you do not have an unlimited ability to raise your prices to compensate for lower volumes. In the real world, companies have to cut their costs aggressively if the demand for their product declines, and that is true even in capital-intensive companies. A widget manufacturer that has already spent money on a building full of expensive production machinery cannot go back and un-spend that money, even if that production

[43] Exhibit A-4-1, Attachment 1, p.38
[44] Exhibit A-3-1, p.26; Tr.8, p.66

machinery is now being underutilized. However, it still has to cut costs, and that means tough decisions about future capital (to avoid stranding even more assets), and greater restraint in operating costs. In a competitive environment, declining sales exerts a downward pressure on costs, even if you have significant sunk costs.

2.3.32 SEC believes that the Board should be concerned with a utility that wants to keep pumping out high capital plans, while its ability to sell its product is declining. Further, the Board should scrutinize even more carefully than usual the conclusions of economists who refuse to acknowledge that declining demand for your product places downward pressure on costs.

2.3.33 ***SEC Recommendation***. SEC is concerned that the work of the economists in this proceeding was not as helpful to the Board as it could have been. It does not assist the Board very much to drill down into econometrics esoterica and results such as those of Mr. Fenrick that are contrary to common sense just muddy the waters for the Board.

2.3.34 SEC is also concerned that both of the models assume that declining demand does not reduce costs[45], and for a transmission utility like Hydro One this assumption will tend to overstate productivity and set a cost benchmarking standard that is insufficiently stringent.

2.3.35 Aside from that issue, it is our conclusion that the results and trends shown in the work of Dr. Lowry are more consistent with past history, and with future cost forecasts. The PEG benchmarking and productivity results are also more consistent with each other.[46] SEC is also, frankly, concerned that, whenever Mr. Fenrick studies the productivity or benchmarking of his Ontario utility clients, he always concludes that his clients are strong cost performers relative to their peers, and have improving productivity relative to their

[45] We are also concerned that both models use Toronto construction costs for their capital model (Tr.8:6), even though clearly Toronto construction costs have in recent years been under unusual and significant upward pressure, but that appears to us to be less of an issue.

[46] Tr.9, p.74 While we recognize that benchmarking and productivity measure different things, they are both still cost models, and if they go in different directions (as is the case with the Fenrick results), an explanation is required. The PSE explanations (the industry as a whole is getting increasingly less productive) are not convincing.

peers.

2.3.36 SEC, therefore, submits that the Board should prefer the conclusions of Dr. Lowry when he and Mr. Fenrick come to different results.

2.3.37 That having been said, SEC does not agree with one of the recommendations of Dr. Lowry. Dr. Lowry proposes the use of a negative productivity factor in the Hydro One IRM formula. SEC disagrees. The Board has always insisted that the productivity factor in IRM should not be below zero, and for good reason. Hydro One, with its long history of high cost increases, should not be an exception to that rule.

2.3.38 SEC submits that the productivity factor should be zero, and the stretch factor should, as Dr. Lowry proposes, be 0.30%.

2.4 ***Capital Factor***

2.4.1 Hydro One has proposed a capital factor as a method to recover the incremental revenue in each test year associated with its proposed in-service additions.[47] SEC has long been concerned that any ratemaking structure that flows through capital costs, whether as a capital tracker, an adder, an ICM or ACM, or the various other approaches proposed by utilities, over-recovers costs in rates, and reduces the incentive for utilities to control their costs.

2.4.2 Dr. Lowry has proposed an additional stretch factor that is "roughly equivalent" to the formula used for ICM/ACM purposes[48], to be applied to Hydro One's proposed capital factor, in order to reflect the potential for over-recovery of capital. Using a method similar to that used in Hydro One recent distribution application (EB-2017-0049) and approved by the Board, Dr. Lowry calculates the additional stretch factor to be 0.31%.[49]

2.4.3 SEC does not agree that an additional stretch factor of 0.31% is sufficient to adjust for the ability to pass through capital under a Custom IR structure. In our view, there are three

[47] Exhibit A-3-1, p.8

[48] Tr.9, p.94

[49] Tr.9, p.104

aspects that need to be addressed.

2.4.4 First, the formula should adjust for the potential double collection through the normal IRM formula, plus the capital adder. The ICM/ACM formula seeks to do that, and SEC is long on record as believing that the 10% deadband in that formula is insufficient to adjust for that, but accepts that the Board has established that formula. SEC further accepts that the PEG additional stretch factor correctly converts that for the purpose of the IRM formula.

2.4.5 Second, the formula should add an explicit stretch factor to capital spending. The IRM formula does not do that. While many utilities take the view that the 10% ICM/ACM deadband is a stretch factor, it is not. The deadband originated with the need to reflect potential double-collection. Without an additional stretch factor on capital, there is no downward pressure on capital costs.

2.4.6 Third, the Hydro One Custom IR proposal essentially funds capital on a forecast cost of service basis. The normal ICM/ACM starts with the assumption that less significant capital projects will be managed by the utility within the IRM envelope (which is an envelope for all utility costs). Custom IR removes this expectation in theory, because Custom IR will contain other benefits to customers that offset the capital flow-through. Since this Application does not offer customers any cost reductions that would qualify as an offset, it would be appropriate to add a further stretch to replace that expectation of management restraint.

2.4.7 The Board has no evidence on the record that would support an adjustment for either the second or the third aspect of this problem. That would require a more comprehensive look at the incentives in Fourth Generation IRM to contain capital costs (or lack thereof), and the methods the Board could consider to maximize those incentives.[50] SEC urges the Board to initiate such a review as soon as possible.

[50] As Dr. Lowry correctly points out (Tr.9, p.115-116), the incentives on capital in Custom IR are weak, and utilities in fact have a positive incentive to exaggerate their needs. This would be an additional aspect that a review of the capital funding options in IRM should address.

2.4.8 In the meantime, though, the only evidence before the Board on capital stretch factor is PEG's proposal of 0.31% on top of the normal formula components and after the Board has made the proposed adjustments to the approved in-service additions SEC recommends. While SEC believes that is not sufficient, it is what is available, and should Board adopt this proposal for Hydro One's transmission business in this proceeding.

2.5 ***Capital In-Service Variance Account***

2.5.1 Hydro One has proposed the creation of a CISVA. The account would track the cumulative difference over the test period between the revenue requirement of a) the Board approved in-service additions, and b) actual in-service additions, for any capital that is 98% lower than the Board approved levels.[51]

2.5.2 SEC has been on the record in previous Board proceedings in the last few years opposing the creation of this type of variance account. While on the surface the account is intended to protect the ratepayers from material underspending on capital, it creates a perverse incentive for the utility, which in the longer term may make customers worse off.

2.5.3 The nature of the variance account only protects ratepayers against aggregate underspending of more than 2%. It does not ensure that the correct amount of work gets done, or that the work is done at the forecast cost. If Hydro One does less work, or different work, but the overall cost in doing so is above the proposed 98% threshold, then there would be no amount recorded in the account for disposition to ratepayers. As discussed in detail in section 3.5 of this argument, that is the real concern that the Board should have and what is occurring. Hydro One is able to execute on the overall capital spending budget it has had approved, but it is doing less work for the money. Unit costs and total project costs are increased from what was presented in its last application.

2.5.4 From a financial point of view, Hydro One is in the same position if it undertakes less work but spends the same total budget. Yet, customers are worse off. A variance account such as this does nothing to protect customers against worsening productivity and the

[51] Exhibit A-3-1, p.10

inability to meet project and unit cost forecasts. The variance account, as designed, incents Hydro One to spend money up to 98% of its budget. It does not incent Hydro One to complete all or most of its capital program. The motivation is to spend the amount that is approved, because the alternative is to return it to ratepayers. This can promote profligacy, rather than efficiency. This could be reflected in higher than necessary unit costs, or completion of work that, in the interests of efficiency, could be avoided.

2.5.5 Hydro One explicitly recognizes these perverse incentives, and has attempted to deal with the issue in two ways.[52] First, it includes the 2% dead band, so as to allow it to retain the benefits of underspending of that amount. Second, it has proposed to exclude from the calculation, any underspending that could be linked to verified productivity savings.[53] In doing so, Hydro One has proposed two ways it can underspend and still collect from customers as if they spent the higher amounts. They have, on the other hand, proposed no way that customers are protected from overspending on projects, while staying within the overall approved budget, or achieving lower than forecast productivity.

2.5.6 While the conditions and adjustments to the account are better than nothing, it is insufficient to properly protect customers. Unless the variance account can track refund underachievement of the approved capital plan based on unit costs, or based on percentage completion of the substantive work plan (in units, rather than in dollars), the perverse incentives for the company will remain.

2.5.7 With respect to excluding productivity savings from the variance account calculation in their entirety, as discussed in detail in section 2.7, SEC has concerns regarding Hydro One's approach to calculating and verifying productivity savings.

2.5.8 If the Board is to approve a CISVA, as generally proposed by Hydro One, then it should do so on the following conditions.

2.5.9 First, it should make clear to Hydro One that the onus is on the company to demonstrate

[52] Exhibit A-4-1, p.11

[53] Exhibit A-4-1, p.10-11

at its next Custom IR application that both the amount of excluded incremental productivity savings is determined appropriately, and that it is appropriate for Hydro One to retain those amounts. If Hydro One is able to demonstrate that it has incremental productivity savings, as it implemented new initiatives that are above what is built into its application, yet its actual unit and project costs have increased so as to provide less value for money to customers, the future Board panel should be allowed the discretion to order that those productivity savings should be included in the CISVA balance.

2.5.10 Second, as proposed, the CISVA will capture the difference between approved and actual capital-related revenue requirements *if* there is a difference between in-service additions of more than 2%. What the variance account will not capture is the difference in capital-related revenue requirements that could be caused by factors besides variance in actual versus approved in-service additions.

2.5.11 For example, Hydro One's actual versus approved depreciation expense between 2017 and 2018 was approximately $75M or 3.4%.[54] This compared to a similar variance in in-service additions of less than 1% over the same period.[55] This is not captured in the CISVA.

2.5.12 The reason for the variance in the depreciation expenses was the difference in the mix of assets that were actually put in-service, versus what was forecast and included in the approved revenue requirement. As Hydro One explained, "the primary driver is there were projects that were in certain US of A accounts that have a higher depreciation that were either scaled back or not being proceeded with, and we proceeded with projects that were on the transmission side that have a lower depreciation rate".[56] But these are not real savings, just an issue of timing. Since Hydro One essentially put in service the total approved in-service additions, those amounts will be recovered through depreciation over the life of those assets. The $75M less that Hydro One spent on actual deprecation in

[54] Exhibit I-2-87 (AMPCO Interrogatory No. 87); K1.3, p.15; Tr.5, p.85-86

[55] Exhibit C-2-1, p.2; K1.2, p.6

[56] Tr.5, p.86

2017 and 2018 will be collected from customers again over time. Practically speaking, Hydro One will collect that $75M twice. This is unfair to ratepayers.

2.5.13 The same type of situation could occur with respect to variances in taxes. Depending on the actual mix of assets that it installs, Hydro One may bring in-service its approved capital budget, but have a variance in the amount of taxes it paid versus what was built into rates, caused by the differing Capital Cost Allowance rates based on a different mix in assets.

2.5.14 SEC submits that the CISVA should not simply track the difference in the capital related revenue requirement caused by variance in actual versus approved in-service additions in excess of 2%, but any capital related variance regardless of the cause. This would include variances in depreciation and taxes that are caused by the changes in the actual assets that Hydro One puts into-service. Since Hydro One has control of the changes in asset mix, it remains appropriate that the account remains asymmetrical in favor of ratepayers. If the intent of the CISVA is to protect customers from overpaying, then it must not simply be with respect to the difference in the revenue requirement caused by variances in in-service additions. It must capture variances caused by all aspects of the capital-related revenue requirement.

2.6 ***Earning Sharing Mechanism***

2.6.1 Hydro One has proposed an ESM that would share with customers 50% of earnings above the OEB's allowed ROE in any year of the plan term, above a 100 basis points dead band.[57] The ESM would use the mid-year approved rate base to ensure there is no double counting with the proposed CISVA.[58] SEC accepts this approach, as it is generally consistent with other ESMs that have been approved by the Board, including what was approved in Hydro One's recent distribution application.[59]

[57] Exhibit A-4-1, p.10-11; Undertaking J9.2

[58] *Ibid*

[59] *Decision and Order* (EB-2017-0049 – Hydro One Dx 2018-22), March 7 2019, p.39-40

2.7 ***Productivity***

2.7.1 ***Productivity.*** Hydro One has placed significant emphasis in its application on the level of productivity it has achieved historically, and that it forecasts to include in its test period capital and OM&A budget. The productivity savings are broken down into two general categories: (a) savings that will arise from past initiatives that have been validated, and (b) what it calls "progressive productivity", which are savings from either new incremental initiatives that have not been validated (defined), or that it has not yet determined how it will achieve (undefined). Hydro One claims that it is providing $370M in productivity savings over the test period.[60]

2.7.2 The Board should discount the claim of the total productivity savings that are built into the proposed plan. The vast majority of those savings are not incremental and reflects the persistent impact of past initiatives that carry on into the test period. Only the $117M of progressive productivity can one even claim are incremental.[61]

2.7.3 Hydro One calculates its productivity savings through what it calls its Productivity Governance Framework. For each initiative, Hydro One calculates a baseline cost, then measures the actual (or in this case forecast) costs every year against the baseline. The difference is how those savings are calculated.

2.7.4 For example, Hydro One has included as one of its capital productivity initiatives an 'Overtime Reduction' that it began in 2017.[62] The initiative involves various efforts it took to reduce the number of overtime hours.[63] The baseline used is the 2015 percentage of overtime hours as a proportion of base hours. Insofar, as the percentage of overtime hours in any subsequent year is less than that in 2015, then the cost of those hours is considered a productivity improvement.[64]

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[60] K1.1, p.8

[61] Exhibit B-1-1, TSP Section 1.6, p.7; K6.2, p.64

[62] Undertaking JT 2.08; 1.2, p.86; Ex. I-07-25 (SEC Interrogatory No. 25)

[63] *Ibid*

[64] Exhibit I-07-25 (SEC Interrogatory No. 25)

2.7.5 The problem with this approach is that as time goes on, annual changes in the proportion of overtime to base hours have little to do with the initial productivity initiatives put in place in 2017. In 2022, the last year of the plan term, there will be 7 years removed from the baseline calculation. Measuring against 2015 simply becomes marginal and does not reflect any ongoing productivity improvements.

2.7.6 As another example of the problem with the calculations, is with respect to procurement, the single largest category of productivity initiatives. Hydro One undertook a number of changes to the way it does procurement, to create opportunities for lower costs. It measures the benefits of those initiatives by comparing the unit costs of each one of the "tens of thousands of materials" it tracks against a baseline. The problem is that Hydro One is unable to differentiate the changes in unit costs that are due to those specific initiatives, versus reductions caused by the broader market for the specific material.[65]

2.7.7 None of this is to suggest that Productivity Governance Framework is not moving Hydro One in the right direction. Tracking the impact of the various initiatives it has undertaken is important. But the importance of what is included, and how the initiatives are measured over time, is important as it is the way that Hydro One proposes to measure, not just its past initiatives, but those that are new and included in its progressive productivity amount. Additionally, Hydro One proposes that the framework be the way in which it calculates the level of productivity that would be included in the CISVA calculation.[66]

2.7.8 The concern is that due to the scale of the calculations that underlie the framework, intervenors and the Board, are unable to assess the accuracy and appropriateness of how each initiative category is measured. This is not a criticism of Hydro One. It is just the nature of the Board's process. But having a detailed look at the calculations and their reasonableness is important. SEC submits that the Board should require Hydro One to undertake a truly independent third-party audit of the framework for its next application for rates beginning in 2023. This will allow the Board and ratepayers to have greater

[65] Tr.6, p.97

[66] Tr.9, p.19

certainty in how these productivity initiatives are tracked and measured, to define how reliable and appropriate it is.

2.7.9 ***Progressive Productivity.*** Hydro One has proposed the inclusion into its forecast capital budget of what it calls "progressive productivity". Progressive productivity are amounts that have been built into the capital budget for 2020 to 2022 that represent productivity gains that are either yet to be identified (undefined), or are based on initiatives that have yet to be validated (defined).[67] To incorporate the progressive productivity savings into the capital plan, it reduced the capital expenditure budget by a total of $117M over the 2020 to 2022 test period.[68] Hydro One has characterized these progressive productivity savings as an upfront commitment from the company to find further efficiencies over the plan term.

2.7.10 At a high-level, the progressive productivity savings concept is a positive incremental improvement over what Hydro One proposed in its last transmission application. It builds in productivity savings into the proposed capital plan. SEC's concern is not with the concept of building in an amount for future productivity, but its execution.

2.7.11 ***How was the amount chosen?*** It is not entirely clear how Hydro One determined the appropriate amount of progressive productivity to build into the plan. The evidence is that Hydro One selected between 1-3% per year of the total capital plan. On an incremental basis, the amount represents a year-over-year increase of about 1.5% of the capital expenditure basis.[69] SEC is unclear how this number was chosen, as opposed to a higher or even lower number. No analysis appears to have been undertaken to show how Hydro One has previously performed in generating incremental productivity savings, and thus what is an appropriate amount to forecast into the test period as incremental. The lack of any such analysis, and the seemingly arbitrarily selection of the amount of progressive productivity, leads one to conclude that the amount is not high enough.

[67] Tr.1, p.61-62

[68] Exhibit B-1-1, TSP Section 1.6, p.7; K6.2, p.64

[69] Tr.9, p.19

2.7.12 SEC notes that when it posited to Hydro One, the hypothetical, about what would happen if it did not achieve the progressive productivity savings included in the application, it called it the hypothetical "extreme".[70] If not achieving its progressive productivity amount built into the applications is considered "extreme", then those amounts are clearly insufficient. If the intent is as Hydro One testified, "stretching ourselves"[71], then progressive productivity amounts built into the budget must be a challenge to achieve, with a strong possibility it will not be able to meet the target.

2.7.13 ***Risk.*** Hydro One's view is that these progressive productivity savings represent upfront savings to customers, as they are a reduction of the proposed capital expenditures. The problem is the way the proposal is structured. This is only partially correct.

2.7.14 Hydro One was asked what would happen if it did not meet its progressive productivity savings targets built into the forecast capital budget. Would it scale back spending to stay within the overall approved budget, or overspend to complete the work?[72] Its response is that it would still do the work and overspend to get it done.[73] The problem with this approach is that while ratepayers may get the benefit of progressive productivity savings over the term of this plan, upon rebasing in 2023, it loses that benefit. Hydro One will seek to include the higher capital costs in its rate base caused by it not meeting its progressive productivity targets. Considering that the useful life of transmission assets is generally in excess of 40 years, including some up to 90 years[74], that means ratepayers will get a tiny upfront benefit if Hydro One cannot meet its own fairly easy targets. The financial risk to Hydro One is very small based on the long useful life of these assets.

2.7.15 A more appropriate approach is that any approved progressive productivity amount is a permanent reduction from Hydro One's rate base, regardless of its ability to achieve those savings. That would be a true upfront productivity commitment from Hydro One and

[70] Tr.6, p.76

[71] *Ibid*

[72] Tr.6, p.76-77

[73] Tr.6, p.75

[74] See Exhibit F-6-1, Attachment 1, p.24-26

would provide a more appropriate incentive for it to find the efficiencies. This appropriately transfers the full risk of achieving these upfront savings to those who can control them – Hydro One.

2.7.16 ***No Progressive Productivity for OM&A.*** Notable in Hydro One's progressive productivity proposal is that it has not included any for its proposed 2020 OM&A budget.[75] The same reasons that Hydro One believes it should and can achieve additional incremental productivity in capital, even if it has not identified or validated the initiatives at this time, should apply to its OM&A budget. SEC submits Hydro One should build in a progressive productivity amount, on a similar 1-3% of the total OM&A budget, for 2020. Ratepayers expect Hydro One to deliver its OM&A programs in the same way it does its capital spending – seeking out greater efficiencies. Those benefits should also be upfront and built into the budget.

2.8 ***Scorecard and Metrics***

2.8.1 Hydro One is seeking approval of its proposed transmission scorecard.[76] The proposed scorecard is an attempt to be responsive to the Board's comments in the EB-2016-0160 Decision. In that decision, the Board noted that "plan execution is important but it should not be driven by a performance indicator solely based on ensuring the level of spending originally considered reasonable is spent."[77]

2.8.2 In response, Hydro One has added the 'OM&A Program Accomplishment (composite index)' and 'Capital Program Accomplishment (composite index)'.[78] These metrics at a high-level attempt to compare weighted actual in-service accomplishment, for a number of specific programs as compared to the budget, weighted by the budget.[79] The problem with these two metrics is they only measure the level of accomplishments (i.e. how many

[75] Exhibit B-1-1, TSP Section 1.6, p.7; K6.2, p.64

[76] Exhibit B-1-1-1 TSP Section 1.5, p.5; K1.2, p.87; Updated in JT.2.25

[77] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.39

[78] Exhibit B-1-1 TSP Section 1.5, p.8; K1.2, p.90

[79] See Undertaking J1.2 for the detailed calculations for the 'Capital Program Accomplishment (composite index)' metric.

assets were put in-service versus forecast), not the cost to complete the work as compared to the budget. Hydro One could hit its target of 100%, but customers would not know from the metric that Hydro One accomplished the forecast work at a cost that was higher than budgeted. For customers, both parts, the work accomplished and budget variances are equally important, and the need to drive Hydro One's performance. The metrics should compare weighted actual in-service accomplishments as compared to forecast, against the weighted actual costs compared to budget.

2.8.3 SEC is also concerned that Hydro One's scorecard has no metrics that look at project cost control. In addition to the composite metrics discussed above, Hydro One has proposed no metrics that look at cost control for capital projects or programs. As discussed above, the composite metric does not look at the cost per unit of accomplishment (i.e. unit cost). But even if this is remedied, as SEC proposes, the metric still only looks at a number of specific programs. In contrast, Hydro One's proposed capital plan is primarily made up of projects, not programs. Only about 20% of Hydro One's proposed system renewal budget is made up of programs.[80]

2.8.4 As discussed later in this argument, Hydro One has had a problem with the increasing cost of its projects, especially those that involve replacements of multiple asset types over numerous years. It is for these program costs that it is hard for the Board and customers to track Hydro One's progress over time. It is this area that requires a metric to monitor Hydro One's performance.

2.8.5 It is not as if Hydro One would need to develop new metrics. Its evidence is it has begun to internally have several portfolio level measures that look at project management. [81] These include metrics such as 'Project Cost Performance: Number of Projects complete within AACE Estimate Class Range documented in original approval' (measured in percentage), Project Cost Performance: Value of Projects complete within AACE Estimate Class Range documented in original approval' (measured in percentage), 'Cost

[80] Tr.1, p.115-116

[81] Tr.1, p.117-118; Undertaking JT1.16; Undertaking J1.3

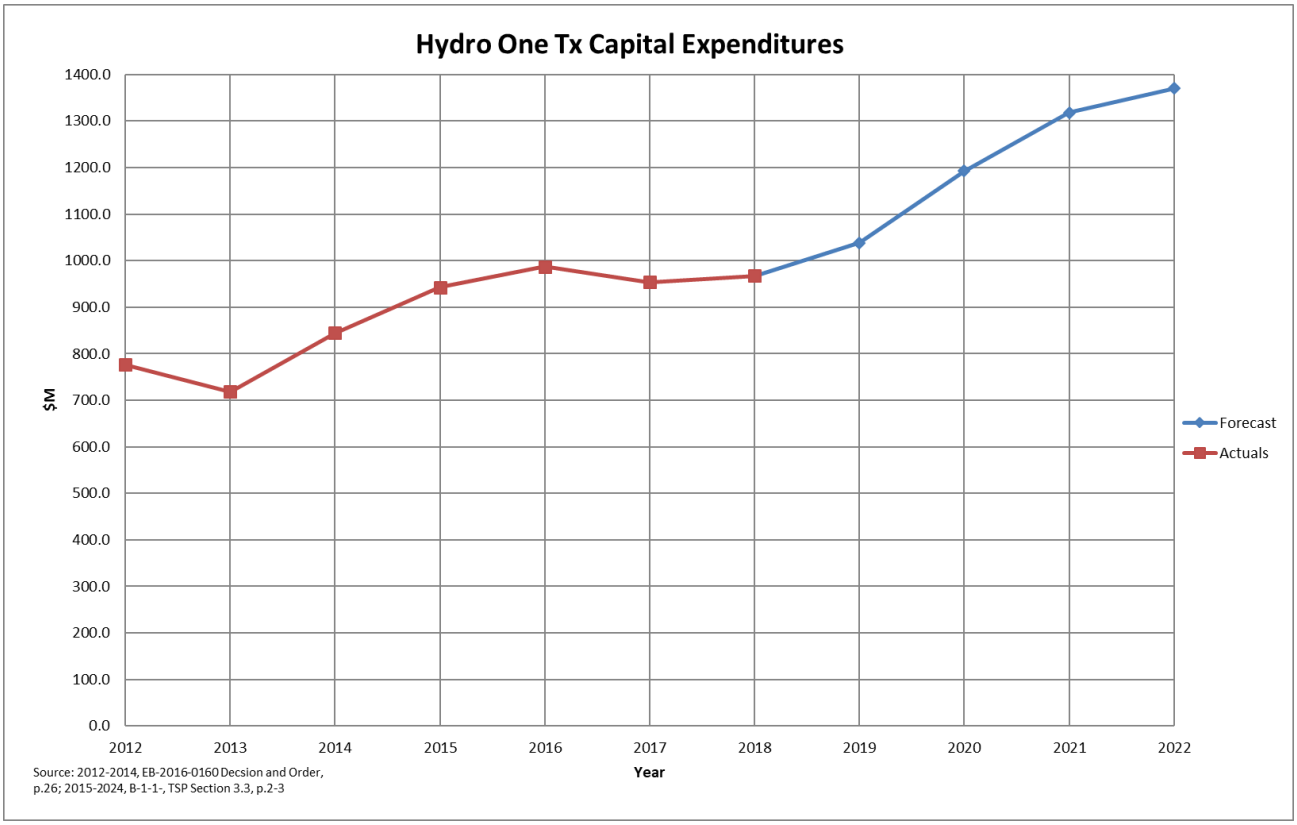
Variance Distribution: Portion of Project Portfolio Delivered On Budget, Over Budget, Under Budget', among many others.[82] Hydro One has targets for a number of these metrics. It is these controls and asset management metrics that Hydro One should be including in its scorecard.

[82] Undertaking J1.3

3 CAPITAL PLAN

3.1 *Overview*

3.1.1 Hydro One is seeking the Board's approval to significantly increase its spending on capital. It is seeking the approval to spend $3.86Bn in capital expenditures, over the 2020-2022 test period, net of its proposed progressive productivity.[83] This would result in an increase of approximately 29% over the previous three years (2017-2019).[84] Furthermore, since the 2019 revenue requirement was determined by way of a revenue cap adjustment, the Board never was asked to specifically approve the capital expenditure budget. The proposed average annual capital expenditure of $1.29Bn in the test period is 32% higher than the previous average Board approved annual amount in its 2017 to 2018 application.[85]

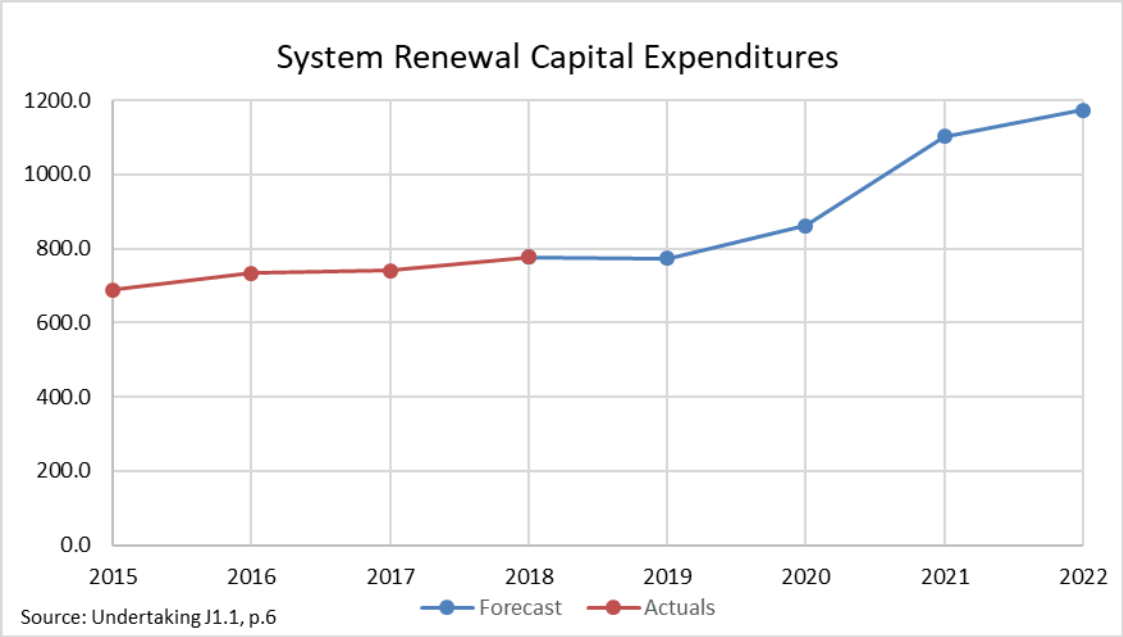


[83] Undertaking J1.1, p.6

[84] *Ibid*

[85] Undertaking J1.1, p.6 as compared to 2017-2018 'Plan' amounts in Exhibit B-1-1, TSP Section 3.3, p.2

3.1.2 The main driver of the increase in spending is the System Renewal category. In 2018, the most recent year of actuals, Hydro One spent $773M on System Renewal capital. By 2022, it seeks approval to increase that amount by 52% to $1.173Bn.[86]



3.1.3 With respect to in-service additions, Hydro One seeks approval to add to the rate base $3.61Bn over the 2020-2022 test period, an increase over the previous three years of approximately 21%.[87]

3.1.4 As discussed in detail, these significant increases are simply not warranted based on the evidence.

3.1.5 The proposed average annual capital expenditure budget of approximately $1.3Bn (~1.29Bn) was based primarily on a fundamentally flawed customer engagement exercise that, among other problems, did not include the views of the vast majority of customers who actually pay transmission rates. Furthermore, Hydro One's project planning and execution, while improving, remains problematic.

[86] Exhibit B-1-1, TSP Section 3.1, p.3; Tr.1, p.41

[87] Undertaking J1.1, p.7 (Comparing 2017-2019 to 2020-2022).

3.1.6 SEC submits that determining a reasonable test period capital budget, the Board must look not just at each individual project and program, but at the total overall budget. Dissecting each individual item and project when the proposed increase is so large, is not so helpful. It may be that any given cost item is reasonable in isolation, but added together they may not be. The sum of a collection of reasonable projects and programs does not necessarily lead to a reasonable total budget. This is similar to how most customers have to look at their own budgets, be it a school, a business, or even an individual homeowner. There are many expenditures that can be justified individually, but added together are simply unaffordable and imprudent.

3.1.7 While SEC details some of the significant issues it has with many of Hydro One's specific programs and projects, regardless of the Board's finding on those items, the overall proposed capital budget is unreasonable and should not be accepted.

3.1.8 SEC submits that based on the issues with Hydro One addressed in this section, including its reliance on budget constraints that were based on a customer engagement that does not reflect the views of the vast majority of customers who will ultimately be responsible for paying for the work, the capital budget is not reasonable. SEC submits that a more appropriate level would be a total envelope amount for 2020 that is equivalent to the 2019 forecast of $1,035M[88] The 2019 amount itself is a sizable 7% increase over the 2018 actuals, and a 3.5% increase over the 2018 Board approved amount.[89] The annual increase for 2020 and 2021 should be at Hydro One's proposed inflation factor which for 2020 is 1.8%.[90] This would result in a revised capital plan of $1,053.6M and $1,172.6 in 2021 and 2022, and represents a total reduction of $703.5M from Hydro One's capital expenditure proposal of the test period.

3.1.9 The revenue requirement and resulting rates that the Board has previously approved, which has also been primarily driven by capital, have been more than enough to meet

[88] Undertaking J1.1, p.6

[89] *Ibid*

[90] Tr.8, p.18; OEB Staff Submission, p.18

Hydro One's actual needs. It has over-earned in each of the past 5 years, in some years by a significant amount.[91]

3.2 ***Customer Engagement***

3.2.1 A key component to Hydro One's capital planning process was the results of its customer engagement activities. Those customer engagement activities were the primary driver of the overall budget constraints Hydro One used in setting its budget.[92] As Hydro One has noted, the budget constraints are consistent with the customer preference for Scenario C which was based on a 5-year capital investment plan of $6.6Bn from 2019-2023 or $1.3Bn per year.[93] The proposed capital plan included in the application is an average annual capital expenditure request of $1.29Bn.[94]

3.2.2 Hydro One's customer engagement activities are fundamentally flawed. They reflect most of the same deficiencies that the Board identified in the EB-2016-0160 Decision. The reason for this is that Hydro One undertook the customer engagement activities for this application *before* the Board had rendered the decision in the previous application.

3.2.3 Hydro One rationalized this choice on the basis that it had expected to file a 2019 to 2023 transmission application, and thus it needed to undertake the customer engagement work sufficiently in advance of the filing, even if that means before the Board's decision had been released.[95] Even if that was a legitimate reason to undertake the customer engagement before the Board's decision had been released, Hydro One ended up not filing a Custom IR application for 2019 rates, and delayed the application for a year. Even with this additional time available to the company, it chose not to either re-do its customer engagement in light of the Board's decision, or even do any supplementary

[91] Exhibit I-2-24(b) (EP Interrogatory No. 24); K9.1, p.37

[92] Tr.7, p.125

[93] Interrogatory Response I-7-29 (SEC-29); K1.2, p.18

[94] J1.1, p.6

[95] Tr.6, p.152

engagement in an attempt to remedy the obvious problems.[96] Hydro One simply "relied upon [its] ongoing engagement."[97] Those ongoing engagements do not appear to have led to any changes in the overall budget constraints.

3.2.4 ***End-Use Customers.*** The fundamental flaw in Hydro One's customer engagement activities was that it did not reflect the views of those who will actually bear most of the costs of Hydro One's proposed revenue requirement. Hydro One's customer engagement was a survey for those who are directly connected to its system, large directly connected end-use customers, local distribution companies ("LDC"), and generators. 92% of the proposed 2020-22 revenue requirement is expected to be recovered from LDCs, with the remaining 7% to be collected from large transmission connected end-use customers, and 1% from generators.[98]

3.2.5 Unlike large transmission connected end-use customers and generators, LDCs do not pay transmission rates themselves.[99] They are a direct pass-through to their customers. Thus, 92% of the revenue requirement that Hydro One seeks to recover based on its application was not represented in the customer engagement survey and its results. On this basis alone, the Board should reject any notion that customers are supportive of Hydro One's capital plan and application.

3.2.6 LDC views are not the same of their customers. While Hydro One says they asked LDCs to represent their customers' view in their engagement[100], the evidence is clear that LDCs did not. Hydro One's take away from the customer engagement information survey is that cost was not one of the most important outcomes for its customers.[101] In fact, it was not

[96] *Ibid*

[97] *Ibid*

[98] I-7-12; K6.4, p.41; Tr.6, p.147

[99] Tr.6, p.148

[100] Tr.6, p.149

[101] Exhibit B-1-1, TSP Section 1.3, Attach 1, p.10; K6.2, p.18; I-1-83, p.2(e); K1.2, p.30

one of the listed priorities at all.[102]

3.2.7 The problem is that every single customer engagement survey that SEC is aware of, including Hydro One's own distribution customers, shows that cost and rates are the number one priority of all customer segments, with the exception, on occasion, of the largest volume customers.[103] Most of these customer engagement surveys were undertaken by Innovative Research.

3.2.8 In its most recent distribution application, Hydro One filed the results of its customer engagement activities undertaken by Ipsos. The results are that by far the top customer priorities across almost all segments was "[k]eeping costs as low as possible".[104] With respect to other LDCs who have recently filed reports summarizing the results of their customer engagement in support of their distribution rate applications, price/rates is the number one priority in almost all customer classes with the exception of large users, where it was second, for each of Alectra[105], Toronto Hydro[106], Enwin[107], Kitchener-Wilmont Hydro[108], and Energy+.[109] Notably, each one of these surveys was also conducted by Innovative Research.

3.2.9 As confirmed by Mr. Lyle, on behalf of Innovative Research, there is a difference between how the transmission customers surveyed look at priorities and outcomes compared to distribution end-use customers.

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[102] Exhibit I-1-83(e) (OEB Staff Interrogatory No. 83); K1.2, p.30; Tr.7, 12

[103] These customers are of a similar size as the who are similar in size of the directly-connected transmission end-use customers.

[104] K6.2, p.44-50

[105] K6.2, p.52; 6, Tr.6, p.158

[106] Tr.6, p.158-159, K6.2, p.53-544, 56-58. "Customers consistently, across rate classes value price and reliability above other priorities, with price consistently at the top priority for non-large use customers." [emphasis added] (K6.2, p.54)

[107] Tr.6, p.159; K6.2, p.59-60. "The top priority, consistent across groups, *was the need to deliver electricity at a reasonable price*" [emphasis in the original]. (K6.2, p.60)

[108] Tr.6, p.159, K6.2, p.62,66

[109] K6.2, p.68-70

> MR. RUBENSTEIN: So what I take away from this is for the transmission connected customers, cost is way down there, whereas reliability is number one. And what we see from when you asked the distribution customers or end use customers, price is number one. Is that fair?
>
> MR. LYLE: Yes.[110]

3.2.10 Hydro One expressly asked LDCs if they considered the views of their end-use customers by asking if their responses had been informed by their own customer engagement activities or other research. Notably, a majority (17 out of 20) of those asked admitted they had not.[111] Based on this, and their responses to the full survey, it is clear that LDCs did not represent the interests of their customers.

3.2.11 It is not as if this is the first time Hydro One was aware of the disconnect problem between its customer engagement activities and those who actually pay for its services. The same problem was discussed in Hydro One's EB-2016-0160 application.[112] In the decision, the Board ordered Hydro One to have discussions with LDCs to determine ways to seek input from their end-use customers.[113] In response, Hydro One spoke to LDCs who made a number of suggestions, including the review of LDC survey information.[114] With the exception of noting that it had done so as a result of the Board's EB-2016-0160 Decision, there is no mention anywhere else in the application where the findings from LDC surveys of their own customers, whose results are diametrically opposed to Hydro One's customer engagement survey, are actually considered in the investment planning process. SEC submits they simply are not. This is further demonstrated by the customer engagement information that Hydro One presented to its Board of Directors in seeking approval for its rate application. The only information that is presented is from the Innovative Research survey.[115] The slide itself notes that it was this engagement survey

[110] Tr.6, p.160

[111] Exhibit B-1-1, TSP Section 1.3, Attach 1, p.10; K6.2, p.56; K6.2, p.26

[112] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.23

[113] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.24

[114] Ex.B-1-1, TSP Section, p.13, p.29; K6.2, p.12

[115] Exhibit I-7-2 Attach 1, p.7 (SEC Interrogatory No. 2); K6.5, p.126

information that was integrated into the transmission plan.[116] There is no mention of LDCs surveys of end-use customers' priorities or anything similar.

3.2.12 Hydro One itself recognizes that its current approach is entirely insufficient, as it testified that for the next transmission application, it plans to survey LDC connected end-use customers by a general population survey.[117] As Mr. Lyle said, "what we understand the Board to be looking for is also add to that the views of the LDCs' end-users in terms of what they think about the choices that are being made here."[118] SEC submits that this expectation from the Board is not new. Hydro One knew of the Board's expectation after the EB-2016-0160 Decision and yet did not undertake such a survey. There is no reason such a survey could not have been undertaken to inform the plan in this application. If it had, and Hydro One had taken those views seriously, based on the evidence in distribution surveys of cost and price is by far the number one concern, one would have expected to see a much smaller capital investment plan.

3.2.13 ***Scenario C is Misleading.*** Putting aside the issue of who participated, the customer engagement survey itself is fundamentally flawed. Hydro One provided participants with four investment scenarios that anchored the numerical range that customers choose from. Listed as, Scenario C is titled "[m]aintain current level of investment".[119] But as noted on the page, the level of investment that is being maintained is based on the investment plan that was before the Board at the time. The problem is that the plan was not approved, as the Board found numerous deficiencies and mad a significant reduction.[120] In fact, what the Board did approve in the EB-2016-0160 Decision was an investment plan closer to Scenario B.[121]

3.2.14 ***Reliability Risk.*** Included in the comparison of the four scenarios is the change in the

[116] *Ibid*

[117] Tr.7, p.73

[118] Tr.7, p.73

[119] Exhibit B-1-1, TSP Section 1.3, Attach 1, p.117; K1.2, p.28

[120] Exhibit B-1-1, TSP Section 1.3, Attach 1, p.115; K1.2, p.26

[121] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.30

reliability risk associated with each level of capital spending. As Hydro One explained reliability risk at the hearing, "[i]t is a simplified approach that takes into account the hazard curves of assets, the age of the assets, their failure rates, and what the potential impact on reliability is."[122] Scenarios A and B would see an increase in the reliability risk (30% and 10% respectively) and Scenarios C and D would see a decrease in the reliability risk (10% and 15% respectively).[123]

3.2.15 Reliability risk as a concept, and the specific model used, were a significant issue in Hydro One's last proceeding.[124] In that proceeding, many parties identified significant shortcomings in the model.

3.2.16 In its Decision, the Board noted that "[r]egarding the [Risk Reliability Model], the OEB finds that the model needs further refinement and testing if it is to be used to convey to customers information about the value of capital investments in terms of system reliability."[125]

3.2.17 The Reliability Risk Model used in the customer engagement material in this application, is the exact same model, including data from the same time period, as was before the Board in Hydro One's last application.[126] No refinements have been made. SEC has included as an Appendix A to this argument, its submissions in the EB-2016-0160 proceeding on the issue of the flawed Reliability Risk Model. As Hydro One itself has noted, the criticisms from parties and the Board were generally similar to those found by METSCO, which was retained by Hydro One to review the model. [127]

3.2.18 Yet, the flawed Risk Reliability Model is still a significant part of the information Hydro One presented to participants as part of its customer engagement survey. It is using the

[122] Tr 1., p.68

[123] Exhibit B-1-1, TSP Section 1.3, Attach 1, p.117; K1.2, p.28

[124] Tr.1, p.68-69

[125] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.24

[126] Tr.1, p.69

[127] Exhibit B1-1-1, TSP Section 1.3, Attachment 4, p.1-2; Exhibit B1-1-1, TSP Section 1.4, Attachment 14, p.86-96; Tr.1, p.71

model in the same fashion as the last application to help explain the relationship between capital expenditures and reliability. But the Board in the EB-2016-0160 Decision told Hydro One that the model required refinement and testing before it was going to be used to "convey information about the value of capital investments in terms of system reliability".[128] Based in part on the shortcomings of the Risk Reliability Model, the Board stated that it "will not rely on the outcome as reported by Hydro One as compelling evidence of customer support for the proposed level of capital expenditures".[129]

3.2.19 ***Incomplete Rate Impacts.*** For each scenario, Hydro One included an average annual total bill and total transmission rate increase associated with a given level of capital expenditures. But the total increase information provided does not include the impact of changes in the load forecast. As the Board is aware, and as is evident in this application, the change in load forecast has a significant impact on the proposed rate increase. Based on the updated rate impacts provided, approximately 27% of the average 3 year-transmission rate increase is caused by the reduction in forecast transmission loads.[130]

3.2.20 SEC submits that if customers were aware of the real increase in rates associated with each scenario of the capital investment levels, and where there would be significant additional rate increases due to the reduction in transmission loads, they may have very likely have selected an option of a different proposed level of capital spending. When asked about this at the oral hearing, Mr. Lyle from Innovative Research said that the people who were responding to the questions, either from LDC or transmission connected customers, are sophisticated enough to know provincial trends in loads. As he put it, "[t]hey have a sense of where all of this is going; it's not a big mystery to them."[131]

3.2.21 While the respondents to the customer engagement survey may have broad knowledge of the changes in provincial loads, there is no reason that they are intimately familiar with

[128] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.24

[129] *Ibid*

[130] Tr.6, p.166; K1.1, p.7, 3 year average transmission rate increase of 6.2%, 3 year average transmission rate increase excluding load reductions is 4.5%.

[131] Tr.6, p.170

the specifics of transmission loads, and with how that is arithmetically translated into changes in those rates. They are not experts in transmission load forecasting or rate design. The full picture of how transmission rates were expected to increase should have been included in the information presented to survey participants.

3.2.22 ***Reliability Driver.*** Hydro One's system renewal budget spending is intended to return reliability performance to the top quartile.[132] Hydro One has taken the view that spending to a level to be in the top quartile of transmission reliability is based on an internal business objective and "validated consistent with the customer engagement process".[133] Its view is that the customer engagement survey feedback was clear "that reliability performance is a priority outcome".[134] SEC agrees that the customer engagement does show that those who were surveyed do believe that reliability is the top priority, but as discussed above, the vast majority of customers who will actually pay the transmission rates, disagree. They believe that costs and rates are of a higher priority than reliability. Obviously, reliability is important to all customers, directly connected or end-use, but that has to be balanced against costs.

3.2.23 Even with respect to those who did take part in the customer engagement survey, they were not provided with any information that explained that currently, Hydro One's reliability is still above average. While it may be the case that those surveyed prioritize reliability, there is no information that puts Hydro One's reliability in context so that those surveyed are able to properly assess the trade-off that has to occur between overall spending and changes in reliability. Directly connected transmission end-use customers do value reliability over cost, but how far they are willing to have rates increased to improve that reliability, may very well depend on how they view Hydro One's performance relative to other transmission utilities. Hydro One has not provided that necessary context.

[132] Exhibit.B-1-1, TSP Section 3.1, p.3; Exhibit I-1-83(a) (OEB Staff Interrogatory #83)

[133] Exhibit B-1-1, TSP Section 3.1, p.3; Exhibit I-1-83(b) (OEB Staff Interrogatory No. 83)

[134] *Ibid*

3.2.24 ***Insufficient information provided to Participants.*** A further concern with customer engagement is the level of information that was reviewed by participants. Hydro One provided little in the way of background information as part of the survey to provide the necessary context about Hydro One's transmission system, its assets, reliability. To get the information, participants were required to access a separate document, which provided the necessary contextual information.[135] The information was not provided upfront as they responded to the survey questions. Innovative Research did not track the number of participants who accessed the information document.[136] Without that information, we do not know the level of information each participant had when they answered the survey. Important contextual information should be provided upfront to all participants so that they all can consider it when they respond. It is likely most did not review the additional information, which required being taken to a different page in the workbook.

3.2.25 ***Most of The Concerns Are Not New***. What is most disappointing about how Hydro One proceeded, is that most of the concerns with respect to customer engagement are not new to the company. They are the same ones that customer groups raised in Hydro One's stakeholder meetings with customers back in 2017, which occurred before the Board's decision was released in EB-2016-0160, and more importantly, before it undertook the customer engagement survey.[137] Stakeholders raised concerns regarding the need for the Board's decision to be issued before the engagement was to take place[138], the use of the Risk Reliability Model[139], and LDCs speaking for their end-use customers in the customer engagement survey.[140] Ultimately, Hydro One did not heed stakeholders' concerns, and simply went ahead as planned. The result is a customer engagement

[135] Tr.7, p.92; Exhibit B-1-1, TSP Section 1.3 Attach 3, Appendix 1.3

[136] Tr.7, p.92

[137] Exhibit B-1-1, TSP Section 1.3 Attach 3; K6.5, p.18-27

[138] Exhibit B-1-1, TSP Section 1.3 Attach 3, p.3; K6.5, p.20; Tr.6, p.178-179

[139] Exhibit B-1-1, TSP Section 1.3 Attach 3, p.4-5; K6.5, p.21-22; Tr.6, p.179-180

[140] Exhibit B-1-1, TSP Section 1.3 Attach 3, p.6-7; K6.5, p.23-24; Tr.6, p.180

process that is fundamentally flawed and should not be considered representative of the views of those who will ultimately pay transmission rates.

3.3 ***Planning Process Review***

3.3.1 In the Board's EB-2016-0160 Decision, it ordered Hydro One to complete an independent third-party assessment of the TSP that included not just a review of the asset condition assessment, but also its capital investment planning process. The Board recognized that this was not a regular requirement, but that it could be beneficial in providing confidence in the planning process going forward, presumably in light of the litany of issues that it found with Hydro One's planning process in place at the time.[141] It stated:

> The OEB requires Hydro One to complete an independent third-party assessment of its TSP and to file this assessment with its next transmission rate application. This assessment should include Hydro One's asset condition assessment and capital investment planning processes. While this type of assessment is not a standard requirement in similar rate cases, the OEB finds on a case-by-case basis that such an assessment could be beneficial in providing confidence to both the OEB and the applicant going forward. [emphasis added][142]

3.3.2 In fact, the Board had noted that it had previously recommended that Hydro One undertake such an assessment, but that in the end, the company had determined that it would forgo that in the lead-up to its EB-2016-0160 application, in favor of undertaking some customer engagement activities.[143]

3.3.3 In this application, and to meet the Board's requirement for an independent third-party assessment of its planning process, Hydro One engaged the Boston Consulting Group ("BCG") to undertake the review and produce a report which it then filed with its pre-filed evidence.[144] SEC submits that while there is no doubt that the review was

[141] *Ibid*

[142] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.18

[143] *Ibid*

[144] Exhibit B1-1-1, TSP Section 1.4, Attachment 14, Boston Consulting Group, *Assessing Hydro One's Investment Planning Process Final Report* (March 13, 2018)

undertaken by a third-party, it was far from independent, and thus the Board should give little weight to its assessment of Hydro One's planning process.

3.3.4 BCG did not come to the issue of its review of Hydro One's planning process with a non-biased independent view. Over the previous few years, it has been working side-by-side with Hydro One as part of the company's Good to Great program. The Good to Great program was a company-wide program undertaken after the IPO to make the company a more commercial enterprise and make improvements in its processes.[145] As BCG itself recognized in its retainer letter, "[p]rior to the OEB decision, Hydro One had recognized some of the challenges it faced in investment planning, and conducted an internal assessment of its existing process with the help of a BCG team, as part of its Good to Great program". [146]

3.3.5 Its notable that BCG did not see its job as simply providing an assessment of the planning process, but that the work "would likely be crucial to Hydro One's ability to secure additional capital for system development and renewal in coming years" through its application to the Board. BCG appears to have been selling its services to Hydro One as being able to provide a report that was going to meet the company's wants – securing approval of additional capital to the Board. BCG notes in that same retainer letter that "describing the impact of these changes will be [a] critical component of the report to demonstrate to the OEB that Hydro One had been proactive in improving its process".[147] It had presumably felt comfortable making these statements on the outcome of its assessment before it had even started because it had worked with Hydro One as part of the Good to Great Program.

3.3.6 Clearly, BCG went into the engagement with the goal and promise of producing a conclusion supportive of Hydro One's plan. BCG noted that it was "uniquely qualified"

March 13, 2018

[145] Tr.1, p.85

[146] Exhibit I-7-16, Attachment 1, p.1 (SEC Interrogatory No. 16); K1.2, p.51

[147] *Ibid*

for this engagement, in part, not only because of its "intimate knowledge of Hydro One's planning process given our involvement in the Good to Great Program", but also "providing program management support for the 2019-2023 Transmission rate filing". [148]

3.3.7 SEC submits these are in fact reasons why it was uniquely *unqualified* to undertake the assessment. Its past involvement with Hydro One's Good to Great program, which included work assessing its capital planning process, put BCG in the position of assessing, in part, its own work.[149] The intent of the Board's requirement that Hydro One undertake an independent third-party assessment is that there would be a review by an uninterested expert. BCG clearly has had a significant interest and involvement in Hydro One's capital planning work, in addition to some limited involvement in supporting what was supposed to be this application.

3.3.8 BCG's involvement in the Good to Great program was far from minor. Based on the materials on the record related to the Good to Great program, most of which Hydro One has unilaterally decided to redact, BCG was acting not only as an advisor to the program, but as a facilitator.[150] They were involved in all aspects of the program and were essentially embedded within the company as it was undertaken.[151] Hydro One's own evidence is that the transmission segment of the company alone paid BCG a total of $6.7M over the past 5 years.[152]

3.3.9 Moreover, its involvement was not just with program management related to the previously planned 2019-2023 transmission application[153], but also the development of Hydro one's regulatory strategy. The evidence is that BCG as part of the Good to Great program was involved in the development of the regulatory strategy at the time related to the 2017-18 transmission application, the 2018-2022 distribution application, and what

[148] *Ibid*

[149] Tr.1, p.87

[150] Undertaking JT1.11

[151] *Ibid*

[152] Exhibit I-7-15, p.2 (SEC Interrogatory No. 15)

[153] Tr.1, p.74; Technical Conference Tr.1, p.74-75

was then expected to be a 2019-2023 transmission application.[154]

3.3.10 The choice of BCG to undertake the Board ordered capital planning process assessment is very regrettable. It robs the Board and intervenors of a truly independent assessment of Hydro One's planning process, which was a major issue in its most recent cost of service application. It is notable that Hydro One did not even present the authors of the BCG report as witnesses at the oral hearing.

3.3.11 The Board made findings that the previous planning process in place at the time of its last application included many deficiencies, and because of that did not approve the proposed level of capital expenditures.[155] The Board and intervenors now do not have the benefit of a truly independent assessment of the revised planning process. While SEC accepts, that Hydro One has remedied a number of the deficiencies identified by the Board in the EB-2016-0160 Decision, that does not provide much comfort regarding the entirety of the process, which underlies an application that is seeking a substantial increase in capital expenditures. The benefit of the independent third-party review process is that the reviewer had the opportunity to meet with members of the company, review its actual planning systems and data, and undertake a much more in-depth review than the regulatory process allows. This provides the Board and intervenors with a much better starting point for their review.

3.3.12 SEC submits the Board should require Hydro One to undertake, a true independent third-party assessment, of its planning processes to be filed in its Custom IR application for 2023 rates. To ensure the independence of the third-party, the assessor should be chosen by way of an RFP that explicitly excludes entities who have done previous work for Hydro One. The RFP and selection criteria should also be developed in consultation with intervenors and Board Staff. As an alternative, Board Staff should be the ones to select the consultant.

[154] Undertaking JT1.1.1, Attachment 2, p.3, 6-7; K1.2, p.57, 60-61

[155] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.16-18, 28-30

3.4 ***Progressive Productivity Impact on Budget***

3.4.1 What is telling is that when Hydro One applied the progressive productivity to its capital plans, it did not end up reducing the overall capital budget.[156] Hydro One decided to take those savings, which initially lowered the budget, and simply added more capital work to the plan.[157] Since the Board approves the overall budget, from a financial point of view, Hydro One would be in the same position it was if it had not added the progressive productivity savings.

3.4.2 A more appropriate approach is simply to reduce the entire capital budget by the savings. Customers should benefit from those savings not just with the promise of additional capital work to be done, but by having their rates reduced to incorporate those savings. The Board should reduce Hydro One's capital budget by the $117M of progressive productivity savings that Hydro One has included in the test year budget, so that customers benefit, through their rates from it. [158]

3.5 ***Unit Costs***

3.5.1 Hydro One has primarily explained the need to increase the amount of capital work it has to do based on the condition of its major asset types reflected in the ACA results.[159] SEC is concerned that based on its previous history, Hydro One will simply replace either fewer assets based on the budget it has been provided with, or overspend to replace those assets. In all but one major asset category, its actual unit costs were higher than those that were previously forecasted.

3.5.2 At the time of its Draft Rate Order in EB-2016-0160, Hydro One was required to provide a revised forecast of its capital costs. This required a forecast of the number of replacement units for each of its major assets for 2017 and 2018. Moreover, in that last application, it forecast, the then bridge year 2016, capital costs and the number of

[156] Tr.1, p.57; Exhibit I-7-28 (SEC Interrogatory No. 28)

[157] Tr.1, p.57

[158] Undertaking J1.1, p.5

[159] Argument-in-Chief, p.6, 44, 46-47

replacements for each asset. If one looks at either the forecast of 2016 to 2018, or just 2017 and 2018, forecast unit cost per major asset category, with the exception of circuit breakers, Hydro One replaced its assets at a higher unit cost than forecast and built into its rates. The impact from a customer's perspective is that they got less for what they paid in rates.

3.5.3 For example, Hydro One in its last application forecast to spend a total of $269.5M in 2017 and 2018 to replace 49 transformers, at a cost of on average, $5.5M each.[160] In the end, it hit that budget right on at $269.4M, yet only replaced 43 transformers, at a cost of on average $6.27M each, which is 13.9% higher.[161] The impact of the variance is that customers paid $33M more in total then they should have based on the number of transformers actually replaced. A similar variance in actual compared to forecast unit cost occurs for protection systems, conductors, wood poles, steel structures and underground cable portfolio. The total impact, even if one includes the lower than forecast unit cost of circuit breakers, is that customers got $83.6M less in value than was forecasted in the last application.

[160] K6.2, p.65

[161] *Ibid*

	Forecast 2017-2018	Actuals 2017-2018	*Unit Cost Variance (%)*	*Cost Variance ($M)*
Transformer Portfolio				
# Replacements	49	43		
Capital ($M)	269.5	269.4		
$M/# Replacement	5.500	6.264	*13.9%*	*$32.9*
Circuit Breaker Portfolio				
# Replacements	198	263		
Capital ($M)	138.6	132.6		
$M/# Replacement	0.700	0.504	*-28.0%*	*-$51.5*
Protection Systems Portfolio				
# Replacements	977	623		
Capital ($M)	122.1	103.3		
$M/# Replacement	0.125	0.166	*32.6%*	*$25.4*
Conductor Portfolio				
Replacements (km)	632	170		
Capital ($M)	210.2	88.5		
$M/# Replacement	0.333	0.521	*56.5%*	*$32.0*
Wood Pole Portfolio				
# Replacements	1785	1701		
Capital ($M)	72.7	76.5		
$M/# Replacement	0.041	0.045	*10.4%*	*$7.2*
Steel Structure Portfolio[++]				
# Renewal	2745	1775		
Capital ($M)	65.2	79.8		
$M/# Replacement	0.024	0.045	*89.3%*	*$37.6*
Underground Cable Portfolio				
Replacements (km)	4.8	0		
Capital ($M)	24.8	27.2		
$M/# Replacement	5.167	NA	*NA*	*NA*
Source: K1.2, p.65; 2016-2018 Data from JT1.24				

3.5.4 When asked about this, Hydro One witnesses tried to explain away the increases in different ways.

3.5.5 First, with respect to some of the asset categories that are undertaken through projects, Hydro One's view is that it all depends on what specific work is being done, since the

assets that make up the category are not all the same.[162] The problem with that is that with the exception of circuit breakers, all the other categories trend in the same direction, i.e. higher unit costs than forecast. If there was roughly the same number of asset types that ended up being higher and other lower, then that could be explained by the specific projects that were ultimately undertaken as compared to those forecasts. But that is not what has happened, and it demonstrates a systematic under-forecasting of costs, or more likely, the inability to execute the work at the cost level that was expected.

3.5.6 Second, with respect to the assets that are replaced by way of programs, wood poles, and steel structures, Hydro One had separate rationales for each. With respect to wood poles, Hydro One agreed that it is easier to look at unit costs, and yet tried to explain away the difference due to where the work is being done.[163] SEC submits that there is no evidence to suggest that the fewer poles it did, were disproportionately in areas that have higher costs, and definitely nothing to explain an over 10% variance in the unit cost.

3.6 ***Project Costs***

3.6.1 Approximately 80% of Hydro One's proposed system renewal budget over the test period is composed of individual projects, as opposed to programs.[164] These projects in many cases are of significant size and are undertaken over numerous years, with different components going in-service as the projects progress.[165] In the EB-2016-0160 Decision, the Board required Hydro One to report on the execution of its planned projects on a project-by-project basis, the forecast capital expenditures and in-service additions, against actuals.[166] It is also required to file similar information with respect to planned versus actual in-service dates. Hydro One has provided the required information in its pre-filed evidence.[167]

[162] Tr.1, p.94-95

[163] Tr.1, p.96-97

[164] Tr.1, p.115-116

[165] Tr.1, p.99

[166] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.31-32

[167] See Exhibit C-2-1, Attachment 1

3.6.2 The problem with this type of reporting is that, while it is helpful in understanding variances from the previous application period, it masks changes in the overall budget for projects over-time which will span, in many cases, multiple applications.[168] When one looks at the overall cost of the projects over time, they are increasing.

3.6.3 By way of a specific example, Hydro One had estimated at the Draft Rate Order stage of the last proceeding that it would spend $32.7M over the 2017 and 2018 test period on its Air Blast Circuit Breaker Beck #2 TS project.[169] In the end, it spent $36.4M over the same period, which represented an increase of 11.31%.[170] But this masked a larger issue with respect to the project. In the EB-2016-0160 application, it had forecast the entire project, which would be completed in 2021, would cost a total of $90.7M.[171] The revised total cost has ballooned to $110.2M, an increase of 21.5%, with an in-service date expected a year earlier, in 2020.[172]

3.6.4 In 6 out of 7 of the Air-Blast Circuit Breaker Replacement projects that were included in the last application, total costs are higher.[173] The amounts for some of these projects are very significant, with cost increases of up to 46%.[174]

3.6.5 Hydro One tried to explain away each of the six specific Air-Blast Circuit Breaker Replacement projects that were included in the last application and since have increased in costs. For example, it stated many of the projects were just at the planning stage, and as the project got further into execution the scope and cost estimated were refined.[175] While there are going to be some changes in scope, and issues that arise during project execution, the problem is the scale and the consistency of the increases.

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[168] Tr.1, p.103

[169] See Exhibit C-2-1, Attachment 1, p.36

[170] *Ibid*, Tr.1, p.,101

[171] Tr.1, p.101-102; Exhibit EB-2016-0160, Ex. B1-03-11-S02, p.2; K1.2, p.69

[172] Tr.1, p.101; Ex. Exhibit B-1-1, TSP Section 3.3, ISD SR-01, p.9; K1.2, p.82

[173] Tr.1, p.105-108; Exhibit B-1-1, TSP Section 3.3, ISD SR-01; K1.2, p.80-82; EB-2016-0160, Ex. B1-03-11-S01-S07; K1.2, p.69-79

[174] *Ibid*

[175] Tr.1, p.101-108

3.6.6 The issue is not constrained just to Air-Blast Circuit Breaker Replacement projects. In response to a request from the Board panel, Hydro One provided a comprehensive list in Undertaking J4.7 of all projects over $20M that were included in both its previous and current application.[176] The revised forecast (or actual) costs contained in this application are on average 12.64% higher than what was provided in Hydro One's last application.[177] 40 of the 55 projects have higher costs and on a total cost basis, the increase is 7.1%.[178]

3.6.7 If one looks just at the system renewal projects, the problem is even worse. The average variance in the forecast or actual costs in this application, as compared to the previous application, is 17.7%, with 35 of the 45 projects showing an increase.[179] On a total cost basis, this represents an increase of 14.4%.[180]

3.6.8 What this all demonstrates is that while Hydro One may sometimes be able to stay within its budget on a given project within the year, the total cost of the project tends to simply increase over time. While planning forecasts have ranges of accuracy, for Hydro One, as time goes on the costs tend to go only in one direction, higher.

3.7 ***Condition Assessment - Data Issues***

3.7.1 A significant issue in Hydro One's last transmission application was the quality of the data included in its asset analytics program.[181] The data is used in determining which assets to replace, and the overall level of spending on certain asset classes. The data quality issues were significant enough that the Auditor General of Ontario commented on the issue.[182] Since then, Hydro One worked hard to address the underlying issue of the quality of the data it uses as part of its planning process. But the evidence demonstrates that there is still work to be done, and there remain data availability issues that are

[176] Undertaking J4.7

[177] *Ibid*, p.2

[178] *Ibid*

[179] *Ibid*

[180] *Ibid*

[181] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.15

[182] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.15

impacting the planning process.

3.7.2 The most critical area where there appears to be insufficient data is with respect to transformers. Based on the METSCO analysis of the asset analytics program, Hydro One only has condition data for 65.2% and criticality data for 59.8% of its transformers.[183] METSCO had the view that while this "may seem insufficient, [it] finds it to be robust, considering the size of [Hydro One's] asset base, the span of its territory, and the manner of presentation of the condition score realities to many other utilities".[184] SEC disagrees with METSCO's assessment, considering how the data is being used to determine the level of transformer spending.

3.7.3 Hydro One's position is that the degradation in the asset condition of transformers since the last application (17% up from 15%[185]) is a justification to continue to spend a significant amount ($293.6M[186]) on its transformer portfolio during the test period. SEC questions how Hydro One can properly make an assessment on this level of spending when two of the major components of the asset health score index are unavailable for more than one-third of its transformers.

3.7.4 Adding to data concerns with respect to transformer data, Hydro One retained EPRI to do an in-depth condition assessment of its transformers.[187] EPRI found that 80.5% of Hydro One's transformer asset condition assessments align with its findings based on its methodology, which analyzed dissolved gas data for historical oil data records.[188] But that means that 19.5% were not aligned due to issues related to oil cross contamination between the tap changer and the main oil tank.[189] While Hydro One has said that it will (or has already) fixed the incorrect data (defined as data entry or collection error), it is not

[183] Exhibit B-1-1, TSP Section 1.4, Attach 13, p.40; K2.1, p.46

[184] *Ibid*

[185] Undertaking JT 1.21

[186] K3.4, p.9; Undertaking JT 1.24

[187] Exhibit B-1-1-1, TSP Section 1.4, p.8

[188] Exhibit B-1-1-1, TSP Section 1.4, p.8-9

[189] *Ibid*

planning to do much with results in condition assessments that differ from those using the EPRI methodology.[190] This category presumably makes up most of the 19.5% variance between the Hydro One and EPRI results. This is a further reason the Board should be skeptical of the level of spending that Hydro One is proposing regarding transformers.

3.7.5 Moreover, EPRI's analysis shows that based on its methodology, only 47% of Hydro One's proposed 93 planned transformer replacements between 2020 and 2024, that it had tested, are in high or very high risk categories.[191] This means 56% are in very good, good or fair risk categories. The implication is that either Hydro One's own asset condition information is so wildly off base that it does not need to replace even half the transformers it plans to do, or the ones it is planning to replace the wrong transformers. If it the former, then the Board should make a significant reduction to Hydro One's transformer replacement budget. If it is the latter, Hydro One should be required to justify at its next rebasing application that it fact only replaced those that are required based on asset condition, or risk a disallowance.

3.7.6 SEC submits that similar problems likely exist with respect to many other assets. While Hydro One's asset condition assessment methodology is advanced, that should be expected for a transmission utility of its size, and a prerequisite for approval of capital spending at its historic levels. To support the proposed capital expenditure amount it is seeking in this application, Hydro One needs condition assessment processes that are not just advanced, but represent industry best practices. Hydro One is moving in that direction, but as demonstrated by the continued issues with transformers, it is not yet there.

3.8 ***Projects & Programs***

3.8.1 As discussed earlier, SEC submits the Board should look at the overall level of spending to determine the appropriate capital budget that should be approved. With that said, even looking at certain individual projects and programs, it is clear that Hydro One has not

[190] Exhibit I-5-13(a),(b) (CME Interrogatory No. 13); K2.1, p.47

[191] Exhibit I-5-19(c), Attachment 1; (CME Interrogatory No. 19)

justified the level of its proposed spending.

3.8.2 ***Conductors.*** Hydro One proposes to spend $553.9M over the plan term on overhead conductor replacement projects.[192] This is an increase of more than 2.5 times the $216.1M it spent (or forecast to spend) over the most recent 3-year period (2017-2019).[193] Hydro One plans to replace 1342km of conductor over the test period, as compared to only 310km replaced between 2017 and 2019.[194] In 2022 alone, Hydro One plans to replace 795km of conductor.[195] The problem is the evidence does not demonstrate the need for an increase in spending on conductors.

3.8.3 The evidence is that forced outages, whether measured in frequency or duration, are *decreasing* over time.[196] Additionally, based on the analysis EPRI was asked to undertake, conductors are lasting significantly longer than Hydro One had thought, and had told the Board in previous applications. Based on EPRI analysis, Hydro One increased the expected useful life of its ACSR conductors, which represent 97.7% of its conductor's fleet[197], from 70 to 90 years.[198]

3.8.4 This is likely the reason that Hydro One undertook much less conductor replacement work than it had forecast to do after the Board's EB-2016-0160 Decision. At that time, Hydro One told the Board, as part of the Draft Rate Order process, that it would spend $210.1M in 2017 and 2018 on conductor projects, which was made up of projects that would replace 632km.[199] Hydro One determined during those two years that it did not need to replace as much conductor, and ultimately only spent $88.5M to replace

[192] Undertaking JT1.24, Attachment 1; K1.2, p.64

[193] *Ibid*

[194] *Ibid*

[195] *Ibid*

[196] Exhibit B-1-1, TSP Section 2.2, p.58

[197] Exhibit B-1-1, TSP Section 2.2 p.55

[198] Exhibit B-1-1, TSP Section 2.2 p.54

[199] Undertaking JT1.24, Attachment 1; K1.2, p.64

170km.[200]

3.8.5 SEC submits that the evidence does not demonstrate the need to increase spending on conductor replacements. The Board should reduce the capital spending on conductors from the proposed $553.9M to what it has historically spent over the last three years, $216.1M.

3.8.6 ***Protection Systems.*** As part of its capital plan, Hydro One proposes to spend $198M to replace protection systems.[201] The proposal is to replace 1338 protection systems during the test period, compared to 1075 it has or planned to replace over the previous three-year period (2017-2019).[202] To accomplish the 24.4% increase in protection systems, Hydro One proposes to spend an additional $31M over the test period, or $10M a year.[203] If one excluded the 2019 forecast replacements, which itself is a significant increase compared to the previous pace of replacements, the increase is even more substantial.[204] Hydro One proposes a 43% increase in annual average replacements in the test period as compared to 2017-2018, at an annual cost increase of $14.6M.[205]

3.8.7 SEC submits the condition information simply does not justify the increased expenditures. There has been no change in condition, measured as a percentage of protection systems in high and very high risk, from what was provided to the Board in the EB-2016-0160 application.[206] In that application, Hydro One had proposed to replace 977 protection systems in 2017 and 2018. Presumably, as part of the Board ordered reductions and other priorities, Hydro One reduced the level of replacements by 622. Yet, even by reducing its planned replacements by a third, it was still able to maintain the

[200] *Ibid*

[201] Tr.3, p.133-134, 136; Undertaking JT1.24, Attachment 1; K1.2, p.64

[202] Undertaking JT1.24, Attachment 1; K1.2, p.64

[203] *Ibid*

[204] Tr.2, p.76-77; Tr.3, p.133-134; Undertaking JT1.24, Attachment 1; K1.2, p.64;

[205] Undertaking JT1.24, Attachment 1; K1.2, p.64

[206] Tr.3, p.133-134; Undertaking JT1.21

overall condition of this class of assets. [207]

3.8.8 Hydro One has also provided evidence that a certain type of solid-state protection system, Programmable Auxiliary Logic Controllers, are showing an increase in recorded defects and trouble calls. While there may have historically been a significant number of failures of the asset, it has consistently declined each year since 2013, when there were 29. In the last reported year (2017), there were only 3.[208]

3.8.9 SEC submits the Board should not approve any expenditure for replacement of protection systems above what Hydro One spent annually between 2017 and 2018. This would result in an annual reduction of approximately $14.6M.

3.8.10 ***SONET System Replacement***. Hydro One proposes to spend $57.7M over the test period on a new SONET system.[209] The program involves the replacement of Hydro One's current SONET system with a new packet-based technology. The SONET system is used by Hydro One's SCADA system that provides communication and automation systems to its stations.[210] Hydro One proposes to replace the system as it has reached its end of life. SEC's concern is not with the need for an updated system, but that it appears Hydro One's request for funds is premature.

3.8.11 In its evidence, Hydro One commented that the "main risk to the Project is finding a solution that satisfies Hydro One's functional and economical requirements."[211] It noted that it was looking for a technology, and that would be completed by the end of 2019 as part of the development phase, "before pursing implementation".[212] In response to questions on the status of the project at the oral hearing, which the witnesses were unable

[207] Undertaking JT1.24, Attachment 1; K1.2, p.64

[208] Exhibit B-1-1, TSP Section 2.2, p.26

[209] Exhibit B-1-1, TSP Section 3.3 ISD SR-11, p.1

[210] Exhibit B-1-1, TSP Section 3.3 ISD SR-11, p.3

[211] Exhibit B-1-1, TSP Section 3.3 ISD SR-11, p.9

[212] *Ibid*

to address, Hydro One provided Undertaking J3.8.[213] In its response to the undertaking, Hydro One says that the project remains in the development and estimation phase.[214] This would appear to indicate, at the very least, that the technology has yet to be selected, as was expected by the end of 2019. Hydro One does say that project execution will begin in 2021, consistent with the plan included in the application.[215]

3.8.12 SEC submits that the status of the project raises two concerns.

3.8.13 First, Hydro One appears to be behind schedule on the project, as it has yet to select a technology to meet its requirements, as it had expected. Without this information, it is not clear it could properly estimate the project costs, or determine the execution schedule. It appears this is taking longer than expected with the development stage is moving into 2020.

3.8.14 Second, while Hydro One notes that the 2021 project execution remains consistent with the application, this does not appear to be correct. SEC is not aware of what reference in the application Hydro One is referring to, but notes that Hydro One has forecast, and had included in its forecast in-service additions, SONET assets to be in-service (i.e. in execution) in 2020. In response to an interrogatory, Hydro One provided the capital expenditures to in-service addition ratio for each of its projects and programs.[216] This ratio represents what percentage of the capital expenditures spent in a given year is put in-service. Hydro One notes for the SONET system replacement project that ratio is 1.00.[217] It has included in the forecast in-service additions budget the same amount per year as included in the capital expenditure budget. It has forecast in-service additions of $4.1M in 2020[218], which is before it begins execution in 2021.

[213] Tr.3, p.161-162

[214] Undertaking J3.8

[215] *Ibid*

[216] Exhibit I-7-42 (SEC Interrogatory No. 42)

[217] *Ibid*

[218] Exhibit B-1-1, TSP Section 3.3 ISD SR-11, p.8

3.8.15 SEC submits that the Board should significantly reduce the proposed capital expenditures related to the SONET replacement program, by deferring the project costs or reducing the capital to in-service addition ratio to more appropriately reflect the timing of the project. The evidence is that the project will not begin to be implemented in 2020 as in the application, or even 2021 as Hydro One says in its Undertaking Response, based on the current progress.

3.8.16 ***ISOC.*** The Integrated System Operations Centre ("ISOC") is a project whose costs have increased in every single application,[219] The ISOC, is which has a planned in-service date of 2021, will house a new backup control centre, a telecom management centre, a data centre, and a security monitoring centre.[220] The total forecast cost of the project is $159.8M, with a portion allocated to the distribution business.[221] The total project cost is an increase from what was presented for approval in Hydro One's most recent distribution proceeding, where the total project cost was estimated at $138M as of a February 2018 update[222], itself an increase over the originally filed forecast of $130M.[223]

3.8.17 Hydro One has attempted to explain the significant cost increase as being a result of external factors, including competition for local construction resources and foreign tariffs that were in place at the time.[224] The revised forecast ended up consistent with the results of the RFP.[225] SEC accepts the reasons for the increase. However, what the evidence does not demonstrate is that once the significant increase in costs was known, Hydro One did not make any adjustments to the design to reduce costs.[226] Hydro One testified that it did re-look at the design, but determined that "there wasn't anything of significance that we

[219] Exhibit B-1-1, TSP Section 3.3, GP-01, p.1

[220] *Ibid*

[221] Exhibit B-1-1, TSP Section 3.3, GP-01, p.30

[222] EB-2017-0049, Exhibit B1-1-1, DSP Section 3.8, GP 18, p.22; K4.1

[223] EB-2017-0049, Exhibit B1-1-1, DSP Section 3.8, GP 18 (updated), p.22; K4.2

[224] Exhibit I- 07-38(b) (SEC Interrogatory No. 38)

[225] *Ibid*; Tr.4, p.75-76

[226] Tr.4, p.76

could have taken out".[227]

3.8.18 In support of the reasonableness of the proposed costs of the project, Hydro One provided a benchmarking analysis comparing the ISOC to other similar facilities that have been constructed across North America on a cost per square foot basis.[228] Even after explaining the discrepancies in Undertaking J4.4, the project is still about 11% above the average (inflation-adjusted).[229]

3.8.19 With the project increasing by 16% in just over a year, and it still is 11% above the benchmarking average, ratepayers expect Hydro One to find ways to reduce the cost. Hydro One's approach appeared to be that, it will build the ISOC as designed, at whatever cost it takes. Thankfully, by the time the project was presented to the Board of Directors for approval after the filing of the application, the final cost had been reduced to $154M.[230] Hydro One has <u>not</u> updated its evidence to reflect the revised amount in the evidence to date, as it proposed to do so at the Draft Rate Order stage.[231]

3.8.20 Regardless, the overall increase in project costs has not been justified. Hydro One should have found ways to reduce the overall costs. SEC submits a reasonable disallowance is 50% of the increase from the updated forecast in Hydro One's distribution application. This would result in a revised total budget of $146M.

[227] *Ibid*

[228] Exhibit B-1-1, TSP Section 3.3, GP-01, p.32; EB-2017-0049, Exhibit B1-1-1, DSP Section 3.8, GP 18 (updated), p.23; K4.2.

[229] Tr.4, p.76-78; Undertaking J4.4; SEC notes in trying to explain the above average benchmarking results in the Undertaking J4.4, Hydro One has provided new information regarding further comparators, which are not even identified (i.e. it simply says Project 1, Project 2 etc) and so accuracy or comparability have not been tested. The Board should give no weight to this new evidence.

[230] Tr.4, p.84-85; Undertaking J4.6

[231] Undertaking J4.6

4 OM&A

4.1.1 ***Overview.*** Hydro One seeks approval of a 2020 OM&A budget of $374.1M.[232] The amount represents a material reduction from the approved 2018 OM&A of $394.3M, but still represents a 4.9% increase over the forecast 2019 OM&A budget of $356.4M.[233] SEC accepts that Hydro One has made progress related to its OM&A spending, but there is still more progress required before the amounts are reasonable. The Board should approve an OM&A budget that is closer to the 2019 forecast.

4.1.2 SEC submits the Board should reduce Hydro One's 2020 OM&A budget by at least $14.1M to reflect an appropriate reduction in compensation costs and the lack of any progressive productivity.

4.1.3 ***Increase Not Justified.*** SEC submits Hydro One has not justified a 4.9% OM&A increase compared to 2019. Hydro One's rationale for the increase is that in 2019 it was needed as "to align to the funding envelope approved in Hydro One's 2019 transmission revenue cap adjustment application."[234] In its view, the "2019 was a one-time reduction and such the funding level is not sustainable over the long term".[235]

4.1.4 SEC disagrees that Hydro One was required to make such a reduction in 2019 due to the funding envelope provided by the price cap adjustment. Hydro One's 2018 Board approved budget of $394.3M, which was included in the revenue requirement that was *escalated* as part of the 2019 approved revenue cap adjustment, was higher than what Hydro One plans to spend in 2019, and even in 2020.[236]

4.1.5 SEC submits that the 2019 OM&A budget appears closer to a normal level of spending. A 4.9% increase is not required to efficiently and productively operate the transmission system, even after adjusting for the one-time reductions made in 2019.

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[232] Undertaking J1.1, p.2

[233] Undertaking J1.1, p.2

[234] Exhibit I-1-186(a) (OEB Staff Interrogatory No. 186)

[235] *Ibid*

[236] Exhibit F-1-1, p.3

4.1.6 ***Compensation.*** Hydro One's compensation costs remain significantly above-market. As discussed in the detail in section 5.2 of these submissions, the Board should reduce Hydro One's OM&A by $10.1M, which represents the premium between the benchmark P50, and the actual level of compensation.

4.1.7 ***Productivity.*** Hydro One has not included any progressive productivity in its OM&A budget for 2020. SEC sees no reason why the progressive productivity concept should not be included in the 2020 OM&A. As discussed in section 2.7.16, the Board should similarly require a reduction of between 1-3% in 2020 to incorporate incremental productivity improvements that it has either not identified, or not validated at this time. This would result in a reduction of at least $3.7M in 2020, based on a 1% reduction.

5 COMPENSATION

5.1 *Overview*

5.1.1 Hydro One seeks to recover a total of $2.1Bn in compensation-related costs during the test period.[237] The amount is to be recorded partly through both capital and OM&A costs. Historically compensation costs have been considered to be primarily an OM&A cost, but due to the significant work program Hydro One is proposing, it is primarily an issue of capital spending. Hydro One's allocation methodology results in approximately 75% of the forecast compensation costs to be allocated to capital, with 25% to OM&A.[238]

	2020	2021	2022
Capital Tx Allocated Compensation ($)	506,498,946	542,636,628	543,823,133
OM&A Tx Allocated Compensation ($)	179,413,328	171,377,284	169,214,468
Total Transmission Compensation ($)	**685,912,274**	**714,013,912**	**713,037,600**
Capital Tx Allocated Compensation (%)	73.84%	76.00%	76.27%
OM&A Tx Allocated Compensation (%)	26.16%	24.00%	23.73%
Source: SEC-58			

5.1.2 One consistent criticism from the Board in almost every single Hydro One rate decision, for both transmission and distribution parts of the business, has been its high-level of compensation paid to its employees. As the Board noted in Hydro One's most recent distribution decision, "[th]is concern has been expressed in almost every OEB decision involving both the distribution and transmission costs of Hydro One for the last 10 years."[239]

5.1.3 The evidence in this proceeding is that Hydro One's compensation costs remain a problem, and there does not appear to be any improvement in sight. The major benchmarking evidence filed in this proceeding is the same as filed in the recent distribution application, in which the Board found that the "ongoing concern about Hydro One's compensation costs being higher than comparable companies has not been

[237] Exhibit I-7-58 (SEC Interrogatory No. 58)

[238] *Ibid*; Tr.6, p.54-55

[239] *Decision and Order* (EB-2017-0049 – Hydro One Dx 2018-22), March 7 2019, p.110

satisfactorily addressed."[240] Nothing has changed in over two years between the filing of the two applications. The Board must again send a strong message to Hydro One that these above- market costs are imprudent and that ratepayers should not bear this premium. The Board should reduce the compensation envelope accordingly.

5.2 ***Benchmarking***

5.2.1 Hydro One has filed in support of its compensation costs a benchmarking study undertaken by Mercer. The Mercer benchmarking study, which was undertaken in 2017, and previously filed as an update in its last distribution proceeding, shows that Hydro One's compensation costs are 12% above the P50 market median.[241] While this was a slight improvement (1%) from where it was in 2016, it remains above where it was in 2013.[242]

5.2.2 If anything, the Mercer study likely understates Hydro One's compensation levels compared to the market. The Mercer study leaves out a significant component of compensation – overtime.[243] In 2017, the year the study was undertaken, overtime represented 13% of the total PWU transmission allocated compensation[244] (the amount has increased to approximately 14% in 2020-2022)[245], 4% for total Society transmission allocated compensation,[246] and 7% for total Temporary transmission allocated compensation (increasing to approximately 8-9% in 2020-2022).[247] Overtime is clearly a significant component of Hydro One's compensation.

5.2.3 Furthermore, as part of its most recent collective bargaining agreement with the PWU,

[240] *Ibid*

[241] Exhibit F-4-1, Attachment 2, p.5; K6.2, p.5

[242] *Ibid*

[243] Tr.5, p.47-48

[244] Exhibit I-7-58 (SEC Interrogatory No. 58); K6.2, p.42 (Transmission PWU Represented: Overtime/Transmission PWU Represented Total)

[245] *Ibid*

[246] Exhibit I-7-58, Attachment (SEC Interrogatory No. 58); K6.2, p.41-42 (Transmission Society Represented: Overtime/Transmission Society Represented Total)

[247] Exhibit I-7-58, Attachment (SEC Interrogatory No. 58); K6.2, p.43 (Transmission Temporary: Overtime/Temporary Transmission Total)

Hydro One changed its overtime policy, with each hour worked in excess of a regular work week is now paid at double the base rate, as compared to previously, where a threshold number of hours were paid at 1.5 times the base pay.[248]

5.2.4 The benefit of the Mercer study is that it allows the Board and Hydro One to monitor progress on roughly the same basis over time. With that said, the flaw in the study is that it compares all the benchmarked positions to only similar positions at other utility sector companies.[249] While this makes sense for certain positions many, other positions that Hydro One competes for talent are not restricted to this narrow type of business. Utility companies are likely to be highly unionized and better paying compared to the broader market.

5.2.5 This is demonstrated by the other compensation benchmarking studies that Hydro One has undertaken. It filed two studies undertaken by Willis Towers Watson ("WTW") that benchmarked total cash compensation[250] for the PWU and Society. These studies differ from Mercer, in that they do not compare all Hydro One positions with a comparator group of only energy and utility companies. It segments Hydro One's position into one of two categories based on who it competes for labour. Positions in which it competes against other energy companies (called "operations" segment) and those that compete for talent in the broader market (called "core services"), which includes positions such as IT, finance and human resources. [251]

5.2.6 The result was that, for the PWU, the weighted average was that Hydro One was 7% above the market median, and for Society, it was 10% above the market median.[252] This compares to the Mercer Study results of 1% for the PWU[253] and 3% for the Society[254]

[248] Tr.5, p.34-35

[249] Exhibit F-4-1, Attachment 2, p.11

[250] Defined as actual base salary and share grant (See Exhibit F-4-1, Attachment 3, p.7; Exhibit I-7-5, Attachment 1, p.6 (SEC Interrogatory No. 5)

[251] Exhibit F-4-1, Attachment 3; Exhibit I-7-5, Attachment 1 (SEC Interrogatory No. 5)

[252] Exhibit.F-4-1, Attachment 3, p.7; Exhibit I-7-58, Attachment 1, p.6 (SEC Interrogatory No. 5)

[253] Exhibit F-4-1, Attachment 2, p.19; K6.2, p.19

above the market median on the same basis, total cash compensation only.

5.2.7 If the WTW analyses included the value of employee pensions, as Mercer does, one would expect that Hydro One would be *significantly* higher than the 10% of the P50 market median.

5.2.8 Based on the Mercer same study in the last distribution proceeding which showed compensation at a level that is 10% above the market median, the Board disallowed the premium, noting that "there is no compelling reason for the ratepayers to continue to be burdened with this unreasonable compensation level after many years of the OEB finding issue with Hydro One's compensation."[255]

5.2.9 SEC sees no reason that the Board should not apply the same reasoning in this proceeding. Hydro One has provided no evidence that it has made any progress since its last distribution proceeding, where it found that the "ongoing concern about Hydro One's compensation costs being higher than comparable companies has not been satisfactorily addressed."[256] Nothing has changed, and in fact, simply filed the same Mercer benchmarking study.

5.2.10 Hydro One has said in this proceeding and others that its unionized workforce has made it hard to make significant progress on its compensation costs.[257] The Board has heard and rejected this argument in its decision in Hydro One's most recent distribution proceeding application:

> While the OEB understands the limitations associated with the collective agreements, it does not believe that sufficient progress has been made by Hydro One in the last few years to bring its compensation levels closer to market median. In fact, one could argue that the benchmarking results are getting worse (10% above median in 2013, 12% above median in 2017).
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> ……

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[254] Exhibit F-4-1, Attachment 2, p.18; K6.2, p.18

[255] *Decision and Order* (EB-2017-0049 – Hydro One Dx 2018-22), March 7 2019, p.111

[256] *Decision and Order* (EB-2017-0049 – Hydro One Dx 2018-22), March 7 2019, p.110

[257] Argument-in-Chief, p.106; Tr.6, p.102-103

> The OEB will disallow the full $17.5 million premium over market median as there is no compelling reason for the ratepayers to continue to be burdened with this unreasonable compensation level after many years of the OEB finding issue with Hydro One's compensation. [258]

5.2.11 Nothing has changed in this application. Hydro One has presented the exact same Mercer study. Based on Hydro One's estimate of the difference between its proposed compensation costs and the P50 market median, the Board should make reductions of $10.1M to the 2020 OM&A[259], and $28.5M in annual capital costs[260] for each of 2020 to 2022.

5.2.12 A reduction on this basis is consistent with what the Board has said regarding its role as the market proxy. It noted this in a similar situation involving Ontario Power Generation's attempt to pass on to ratepayers above-median compensation costs:

> One of the Board's important functions is to act as a market proxy. Regulation exists to prevent the abuse of monopoly power. Absent regulation, monopoly service providers would be able to pass on any cost to its captive consumers, and there would be little incentive for the provider to exercise cost control or seek efficiencies. The Board finds that it would not be reasonable to pass all of OPG's compensation costs on to ratepayers.[261]

5.2.13 In keeping with its analysis in OPG, and confirmed by the Supreme Court of Canada, the Board should, on behalf of the customers and in its role as market proxy, refuse to allow unreasonably high compensation levels to be included in rates.[262]

5.2.14 During the hearing, Hydro One pointed to the progress it has made with respect to pension contribution ratios over the last decade.[263] SEC agrees that Hydro One has made some considerable progress, but it has made no progress in its negotiation with its labour union on this issue between the filing of this application, and its last transmission

[258] *Decision and Order* (EB-2017-0049 – Hydro One Dx 2018-22), March 7 2019, p.110-111

[259] Undertaking JT 2.9; K6.2, p.35

[260] Exhibit I-7-55; K6.2, p.32

[261] *Decision with Reasons (*EB-2013-0321 - OPG), November 20 2014, p.80,

[262] *Ontario (Energy Board) v. Ontario Power Generation Inc*. 2015 SCC 44, para. 120

[263] Tr.6, p.123

application. The gains in pension contribution occurred in negotiations that occurred in 2015. It has made no progress since then, which will involve at least two further cycles of collective agreement negotiations and settlements, before the end of 2022.[264] The proposed contribution ratios for the 2020 to 2022 test period are the same ones that were in the last distribution application (2017 to 2022), in which the Board determined not enough progress had been made.[265] A further two years has passed with no more progress.

5.3 ***Hydro One Proposed Adjustments***

5.3.1 In the same interrogatory and undertaking response providing the reductions required to meet the Mercer P50, Hydro One says there are several offsetting reductions that should be made consistent with the Board's decision in the previous distribution decision. In that decision, as noted above, the Board decided to reduce the entire OM&A budget by the difference between Hydro One's proposed compensation amount and the P50. It offset the reduction in recognition of Hydro One's position that it made a number of other reductions to its compensation since the study.[266]

5.3.2 These offsetting adjustments were not explored during the Hydro One distribution proceeding, but they have been in this proceeding. A closer look at these adjustments demonstrates that they are an entirely different basis than the amount calculated by the Mercer study, and in some cases are not true reductions in the sense that the amounts were already protected by a variance account. This was confirmed by Mr. Morris of Mercer who testified that, "[t]here are aspects of these categories that would not affect Hydro One's relative position to market."[267] SEC submits, a with limited exception, they should not be considered as "offsets" to any reduction the Board may make regarding Hydro One's above median compensation levels. The only adjustments that are appropriate are those that ensure that there is no double counting.

[264] EB-2016-0160, C1-4-1, p.15; Exhibit F-4-1, p.27-29

[265] *Decision and Order* (EB-2017-0049 – Hydro One Dx 2018-22), March 7 2019, p.111

[266] *Decision and Order* (EB-2017-0049 – Hydro One Dx 2018-22), March 7 2019, p.106-107; p.111

[267] Tr.6, p.60

5.3.3 ***Pension and OPEB Reduction***. The two major adjustments that Hydro One says the Board should take into account are the reductions to the proposed OM&A budget that have resulted due to revaluation of the pension and OPEB amounts that are built into the burden amounts in compensation. Those reductions have nothing to do with the pension and OPEB amounts that are part of the Mercer calculation, which is a calculation of the value of the future pension and OPEB benefit to employees.[268] The pension and OPEB adjustments are related to changes in the amount Hydro One has to contribute to pension and OPEB funds based on the required annual valuation. With limited exceptions, the changes in the valuations are not being driven by changes to the benefits that employees will be receiving. They are primarily driven by changes in the discount rate, which caused by external factors, such as changes in actuarial assumptions and interest rates, i.e. factors Hydro One does not control. [269]

5.3.4 Moreover, Hydro One currently has a variance account for pensions and is proposing one for OPEBs, which would capture the difference between the amount built into rates and what they are required to pay, in any given year due to the annual plan valuations.[270]

5.3.5 ***Executive Compensation.*** Hydro One proposes an adjustment to reflect the removal of certain senior executive compensations, as required by the *Hydro One Accountability Act* (Bill-2).[271] SEC submits this is the only adjustment that is warranted to ensure there is no double0counting in the total above-market medium and that of the above-market component of positions that have been removed due to the implementation of the *Hydro One Accountability Act.* But how Hydro One has made the adjustment does not reflect ensuring that there is no double counting in reduction. Hydro One proposed to remove the entire compensation of these employees from the above-market medium total. This is not the correct approach.

[268] Tr.5, p.53, 63

[269] Tr.6, p.63

[270] Exhibit H-1-1, p.7; K6.2, p.61; H1-1-2, p.12; K6.2, p.67

[271] Exhibit I-7-55 (SEC Interrogatory No. 55); Tr.6, p.65

5.3.6 All that is required to be adjusted from the calculation is to remove the portion of the Bill-2 executive compensation that would be included in the above-market median total. Based on Mercer's methodology, there would be no material amount that would be double counted. This is because the non-represented category in the Mercer study was only 1% above the P50 median.[272] Thus, only 1% of the total amount of compensation for senior executives reflects amounts included in the Mercer study that are above the P50 and would make up part of the total premium included in the proposed capital and OM&A budgets.

5.4 ***Implementing the Reductions***

5.4.1 The Board has in the past reflected its concern with the above-market compensation either by making specific reductions, or by including them within the broader reductions, to Hydro One's OM&A and/or capital budget.[273] The problem with this approach is all that occurs is Hydro One simply does less work as it has a reduced budget due to the Board's reduction.

5.4.2 In doing so, Hydro One's shareholders do not actually bear the cost of the above-market compensation even after the reductions, ratepayers do. Hydro One simply does less capital and OM&A work for the now lower budget, based on its existing cost structure which includes its above-market compensation rates.

5.4.3 SEC submits the Board should consider modifying its approach to more appropriately address this long-standing issue with Hydro One. It should require Hydro One to do the same amount of capital and OM&A work that it approves, notwithstanding the reductions in compensation it may make. This would help ensure Hydro One shareholders, not ratepayers, pay the market premium. As Hydro One forecasts specific capital assets it will replace or construct, as opposed to OM&A, it may make sense to apply this expectation to only the approved capital budget.

[272] Exhibit F-4-1, Attachment 2, p.17

[273] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.

5.4.4 The Board can accomplish this by requiring Hydro One to recalculate the difference between its actual compensation levels and the Mercer P50 market median, at the Draft Rate Order stage, based on its revised work program. This would ensure there is no double counting, as some of the total above-market compensation amount is reflective of the number of FTEs that Hydro One has forecast to deliver its proposed capital and OM&A plan.

5.4.5 Only after those reductions are made, would the Board then make the compensation reduction, but would still expect Hydro One to still do the approved work program. This would attempt ensures that the burden of the above-market compensation reduction is borne by Hydro One's shareholders, not indirectly by ratepayers. SEC would expect that this approach would create a much stronger incentive for Hydro One to get its compensation costs under control.

5.4.6 The Board should also require Hydro One to complete an updated compensation benchmarking study, using the same Mercer methodology, for its 2023-2027 consolidated transmission and distribution application.

5.5 ***OPEB Capitalization***

5.5.1 Hydro One's is seeking approval to capitalize the non-service component of OPEB costs that are now prohibited by Financial Accounting Standards Board's Accounting Standards Update ("ASU") No.201-07.[274] Allowing Hydro One to capitalize costs that would otherwise not be allowed by the ASU 2017-07, would over the long-term, cost ratepayers more a through the return on capital applied to these amounts that would be included in its rate base.

5.5.2 Allowing Hydro One's proposed approach would also be contrary to the Board's comment in the EB-2016-0160 Decision, in which it noted that it "shares the concerns of those who question the appropriateness of large capitalization amounts that USGAAP allows compared to the amounts allowed under MIFS accounting purposes".[275] The

[274] Exhibit H-1-2; Undertaking J6.4; Argument-in-Chief, p.74-79
[275] *Decision and Order* (EB-2016-0160 - Hydro One Tx 2017-18), Revised November 1 2017, p.82

differential the Board had an issue with has now been partly reduced as a result of the change in USGAAP accounting standards. SEC is not aware of any other Board regulated utility that is on USGAAP has requested approval to continue the capitalization of these costs that are now prohibited by ASU 2017-07. Hydro One has not provided any reason for why its situation is any different.

5.5.3 In the alternative, Hydro One is seeking to continue to use the OPEB Cost Deferral Account.[276] SEC does not agree. There is no basis for a deferral account. The amount should be included in OM&A, even if that means an increase in short-term. The effect of including these costs in the deferral account, as opposed to OM&A, is they mask Hydro One's actual OPEB costs by not including them in its base revenue requirement.

[276] Argument-in-Chief, p.76

6 ETS, EFFECTIVE DATE, AND OTHER ISSUES

6.1 ***ETS Rate***

6.1.1 Hydro One proposes to maintain the current Export Transmission Service ("ETS") rate at $1.85/MWh. The current rate has been in place since 2015, and was set by way of an approved settlement proposal in Hydro One's EB-2014-0140 proceeding.[277]

6.1.2 SEC submits that Hydro One should not decrease the ETS rate that is expected to be argued by the Association of Power Procedures of Ontario ("APPrO"). If anything, the Board should consider increasing the ETS rate to keep pace with the rate increase that domestic customers have faced each since 2015, and continue to face during the test period.

6.1.3 In its decision in EB-2012-0031, the Board determined it would not adjust as proposed by some parties the then ETS rate of $2/MWh, but ordered Hydro One to undertake a cost allocation study to establish a cost basis for the ETS rate in the future.[278] Hydro One retained Michael Roger of Elenchus Research Associates ("Elenchus") to undertake the study and filed the study (the "Elenchus Study") in its EB-2014-0140 application. The study provided a range of options based on differing scenarios, but ultimately recommended an approach that would have yielded an ETS rate of $1.7/MWh.[279]

6.1.4 The parties settled on an ETS rate of $1.85/MWh, and explicitly noted in the settlement proposal that acceptance of the level "shall not be construed as acceptance of the methodology, assumptions, or scenarios used in the Elenchus Study".[280] The Settlement Proposal further went on to note that "the parties observe that the cost allocation methodology proposed by the Elenchus Study remains untested and the parties do not necessarily agree with its methodology."[281]

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[277] Exhibit I2-4-1, p.2

[278] Exhibit I2-4-1, p.1; *Decision and Order* (EB-2012-0031 - Hydro One Tx 2013-14), June 6 2013, p.9; K7.2, p.11

[279] Undertaking JT-1.36-Q02, Attachment 4, p.23; K9.2, p.26

[280] EB-2014-0140, Section II, Settlement Agreement, p.25; K7.5, p.20

[281] *Ibid*

6.1.5 SEC submits that the methodology used in the recommended option in the Elenchus Study is fundamentally flawed, and does not follow proper cost allocation principles. The methodology allocated only dedicated capital assets to serve export customers[282]. No portion of any shared capital assets are allocated, even though they are used by those exporting power outside of Ontario.[283] While the electricity that is exported may traverse hundreds of kilometers on the Hydro One transmission system from the generator to the boarder, only part of the capital portion of the transmission system it pays any part of, is the very end, the intertie.[284]

6.1.6 The rationale for this approach is that in Elenchus' view, exporters are more akin to interruptible loads rather than firm service, like domestic customers.[285] Elenchus' basis for this finding is an excerpt from the Board's decision in EB-2012-0031.[286] But the Board did not make comment regarding exports being more akin to interruptible loads as a reason for why non-shared assets should be allocated to exporters. It made the comment in the context of certain arguments that were advanced by some intervenors that the ETS rate should be set at the same level as domestic customers.[287]

6.1.7 Mr. Andre, on behalf of Hydro One, appeared to take issue with even the idea that exports are in fact less firm than domestic load.[288] He noted that once scheduled, with the exception of an emergency or supply issue, they are treated as firm as domestic load.[289] In fact, they are scheduled even, if they cause transmission congestion.[290]

6.1.8 Even accepting that export service is less firm then domestic service does not mean that no amount of the shared capital facilities should be allocated to them. It simply means

[282] Exhibit I2-4-1, p.2; Undertaking JT-1.36-Q02, Attachment 4, p.11; K7.5, p.14

[283] *Ibid*

[284] Tr.9, p.6-8

[285] Undertaking JT1.36-Q02, Attachment 4, p.10; K7.5, p.13

[286] *Ibid*

[287] *Decision and Order* (EB-2012-0031 - Hydro One Tx 2013-14), June 6 2013, p.5; K7.2, p.9; Tr.9, p.6-7

[288] Tr.9, p.8

[289] *Ibid*

[290] *Ibid*

they should not be allocated on the same basis as domestic customers. Elenchus did not look at how often exports are curtailed to determine the appropriate adjustment, nor did it consider how natural gas utilities price their interruptible service.[291] Most surprising, Elenchus admitted that it did not review the methodologies used to establish export transmission rates in other jurisdictions.[292]

6.1.9 SEC is not aware of a single other customer class in distribution or transmission that has costs allocated in a similar way. It also appears that Elenchus does not either. [293] The most apt comparison to the ETS rate may be the Board's methodology in setting the rate for the attachments on distribution poles. In that case, not only are pole attachments allocated the full cost of the dedicated part of the pole, but they are also allocated a share of the common costs of the pole, even though those costs would have been incurred regardless of their attachments to a given pole.[294] Similar to the Hydro One transmission system, which is designed and built for domestic and not export customers, pole attachments still pay for the common parts of the pole that they benefit from.[295]

6.1.10 SEC submits that updating the proposed approach in the Elenchus Study, which would result in a reduction to the ETS rate, would be entirely inappropriate. As the ETS rate is revenue offset to domestic customers, a reduction in the ETS rate from 1.85/MWh to $1.25/MWh[296] would result in domestic customers paying approximately $11.28M more than proposed per year.[297] Based on the evidence that is on the record allocating a share of the network assets to the export customers, it would be a more fair allocation of costs between domestic and export customers even though it would result in a significantly

[291] Tr.9, p.8-9

[292] EB-2014-0140, Exhibit I-9-10(c); K9.1, p.27-28; Tr.9, p.9

[293] EB-2014-0140, Exhibit I-9-10(b); K9.1, p.27

[294] Report of the Ontario Energy Board: Wireline Pole Attachment Charges (EB-2015-0304), March 22 2018, p.33

[295] Tr.9, p.13

[296] Exhibit I-3-1 (APPrO Interrogatory No. 1)

[297] Exhibit I-3-3(a) (APPrO Interrogatory No. 3) Total revenue based on forecast 18,000,000 MWh, $34,780,000 at $1.85/MWh and $23,500,000 at $1.25MWh

higher rate than the current $1.85/MWh.[298]

6.1.11 If the Board is persuaded that the $1.85/MWh rate, which was based on a settlement, should be adjusted using a cost-based method, then it may be appropriate to require Hydro One to undertake a more thorough study for its next application, one that accurately accounts for the use export customers use of network capital assets. A study where the authors will be available to testify.[299] In the meantime, the Board should, if anything, increase the ETS rate using the same average transmission increase that domestic customers are facing. Export customers should not be shielded from the cost increases that the Board may impose on Hydro One's domestic customers.

6.2 ***Effective Date***

6.2.1 Hydro One proposes an effective date of January 1, 2020. SEC submits that this date is unreasonable, and a more appropriate effective date is the earlier of the Board's issuance of its final decision, or April 1,' 2020 for an application that was only filed on March 21, 2019. A January 1st effective date would have allowed the Board just over 9 months to adjudicate an application seeking approval of $5Bn over three years[300], and the first transmission Custom IR application.

6.2.2 Hydro One's last major transmission application which had a two-year test period (2017-18) took approximately 16 months from filing to issuance of the Board decision.[301] Hydro One should have expected this application to take just as long, if not longer, and filed accordingly.

6.2.3 The Board in Hydro One's recent distribution decision made a similar finding related to the effective date. In its decision, it an effective date of May 1st, after it found that Hydro One should have expected that it would take at least a year from filing to issuance of the

[298] Tr.9, p.12

[299] Exhibit I-3-5 (APPrO Interrogatory No. 5)

[300] Undertaking J1.1, p.3

[301] *Decision and Order* (EB-2016-0160 – Hydro One Tx 2017-18), Revised November 1, 2018, p.5. The application was filed on May 31 2016, and the decision was issued on September 27, 2017, it was later revised.

decision.[302] The Board determined that one year from the completion date, given to the application, was a reasonable base for an effective date.[303] Since it the same company, Hydro One would have obviously been aware of the Board's expectations based on that decision, and should have filed much earlier for an effective date of January 1, 2020.

6.2.4 An April 1st effective date is also consistent with the Board's own metrics for cost-based applications that are greater than $500M of 355 days, from completeness letter issued to decision.[304] The Board's completeness letter was issued on April 4, 2019.[305]

6.3 ***Costs***

6.3.1 SEC submits that it has participated responsibly in this proceeding with a view to maximizing its assistance to the Board, and therefore requests that the Board order reimbursement of its reasonably incurred costs for so doing.

ALL OF WHICH IS RESPECFULLY SUBMITTED.

Original signed by

_____
Mark Rubenstein
Counsel for the School Energy Coalition

[302] *Decision and Order* (EB-2017-0049 – Hydro One Dx 2018-22), March 7 2019, p.175

[303] *Ibid*

[304] https://www.oeb.ca/sites/default/files/rates_cost_based_greater_than_500m_20190311.pdf

[305] Letter to Hydro One (Mr. D'Andrea), from Ms. Long (Registrar) Re: Hydro One Networks Inc. (Hydro One) Application for 2020-2022 Transmission Rates, dated April 4, 2019

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confused.[86] SEC submits that there is logic in this view but what that means is that the customer feedback is not reflective of those who will ultimately bear the impact of the rate changes. Since Hydro One never tested engaging with end-use customers of LDCs who pay their rates, we will never know if there was sufficient confusion so as not to think it was meaningful to engage with them at all. Most concerning to SEC is that Hydro One did not even use the information it had from its own distribution customers regarding their preferences for lower rates, to inform their transmission application.

3.3.14 After being confronted with the flaws of its customer consultation activities, Mr. Griffen, on behalf of IPSOS, appeared to try to walk back the significance of the engagement and the resulting report from it by implying that it really was not that important and really was only qualitative in nature. As he described it, "[t]he essential report is a giant footnote, for lack of a better term."[87] SEC agrees. The report is not quantitative at all. Even for the small subset of customers represented, there were differing numbers of participants representing each customer making the data unrepresentative of even that group.[88]

3.3.15 For the customers who were represented, the consultation does not provide an accurate or useful enough picture of their preferences to have an effect on Hydro One's investment plan. It appears the results of the investment plan were simply used to confirm their proposed spending plans. The consultation took place in the winter of 2016, with the draft report from ISPOS provided to Hydro One on March 29th and the final version provided on April 18th.[89] This was just over a month before the proposed plan was approved by Hydro One's Board of Directors on May 6th.[90] In fact, Hydro One's CEO and CFO reviewed the investment plan on April 12th, before the final report was even submitted.[91]

3.4 Reliability Risk Model

3.4.1 Hydro One has attempted to bolster its capital plan through the introduction of the Risk Reliability model. This model seeks to measure and thus demonstrate how changes to capital spending affect the *risk* of unreliability. This new model, which was developed only months before the filing of the application, was a central component to the customer engagement process

[86] I-6-13 (SEC IR #13)
[87] Tr.4, p.16
[88] B1-2-2, Attachment 2, p.11
[89] J8.1 Attach 1, p.2
[90] *Ibid*
[91] *Ibid*

Hydro One undertook, and the justification for need of the proposed capital spending. SEC submits the Board should place little weight on the model. It is untested, flawed, and misrepresents the actual changes in reliability risk as a result of the proposed capital spending.

3.4.2 The Reliability Risk model uses hazard curve information derived, for a subset of Hydro One's asset categories, to determine the probabilistic determinations of the failure risk of the entire asset based on age demographics of the assets measured.[92] Hydro One then adjusts the demographic profile of those assets based on its proposed capital plan and compares the new overall failure risk to determine the change in relative risk.[93]

3.4.3 Hydro One has categorized the reliability risk into three asset categories: lines, transformers and breakers, which it claims represent 84% of its total interruptions by duration. Based on its model, and weighted by interruption duration, the Hydro One view is that its proposed capital plan will have the effect of reduced reliability risk of 2% by the end of the test period. [94]

3.4.4 There are a number of problems with Hydro One's model and how it is presented in the evidence to justify the capital spending proposals.

(a) ***No Investment Scenario Unrealistic.*** Throughout the evidence, Hydro One has shown the results of the reliability risk model calculations, comparing the change in risk by the end of the test period after the proposed capital expenditures (investment plan), and without the proposed investments (-2% versus 10%).[95] At first glance it would be fair to assume this shows the difference between the proposed investment plan and one based on historical spending. But what it actually shows is the difference between the proposed plan and one where no expenditures are being made to replace existing assets. This is an entirely unrealistic scenario. No party would ever realistically suggest that Hydro One undertake no sustaining investment over the test period. The scenario should be completely excluded as it does not provide any realistic information and creates the impression that there is a false choice: approve the proposed investment plan and decrease reliability risk, or spend no money and see a very significant increase.

[92] I-1-15 1 (Board Staff IR #15)
[93] Staff IR 15
[94] B1-2-4, p.8
[95] See A-3-1, p.7; B1-2-4, p.8

(b) ***Many Major Asset Categories Not Included.*** Many major asset categories were not included in the model, although based on the category descriptions, should probably have been. While Hydro One uses the term 'lines' as a category, and allocates 69% of the interruption duration to the category for the purposes of the aggregate calculation, the underlying data used in the model is not for all of lines equipment but just 1of at least 8 asset categories that comprise of the lines category, that of conductors.[96] Undertaking J6.1 shows that conductors only represent 15% the interruptions caused by lines equipment failures.[97] It means that a share of the total system interposition duration is only 10%, not 69%.[98]

Whereas the other asset categories almost include all assets types in that group, with 'lines', it is only one small part of the category. It should really be reclassified as conductors. What is surprising about this is that Hydro One has the data to include many other 'lines' assets but chose not to include it. The Fosters Associates report, where Hydro One drew the data from the model, includes the necessary information for other 'lines' assets such as steel tower and wood poles. [99] Considering Hydro One is proposing significant sustaining spending on other 'lines' assets, the Board and Hydro One have no idea what actual effect the proposed capital work on 'lines' will have on reliability risk.

Hydro One's testimony when asked about this was that "[t]he reason there really is majority of the reliability problems that we have come from those three asset classes."[100] This is incorrect. The actual asset types (as opposed to asset "classes") make up less than half of the reliability issues, accounting for only 30% of the interruption durations due to equipment failure.[101]

(c) ***Aggregate Calculation Incorrect***. Hydro One's aggregate calculation of the total change in risk is also misleading since the weighting gives 16% to the 'Other' category (non-lines, transformers and breakers). The category is not actually part of the model as changes in spending have no impact on the risk. The calculation simply considers that there would be no change in reliability risk in those areas. Considering Hydro One is proposing to make significant expenditures in insulators, protection systems, among others, one would expect

[96] Tr.6, p.78-79
[97] J6.1
[98] 10.35% = 15% (conductor portion of lines) x 69% (total lines duration)
[99] Tr.6, p.85; I-1-20, Attachment 1 (Board Staff IR #20)
[100] Tr6, p.85
[101] 15% for conductors, 9% for transformers, and 6% for breakers.

the actual relative risk to decrease. This has the effect of underestimating the reduction in risk after the proposed expenditures.

(d) ***Model Is Age-Centric and Calculates Maximum Theoretical Risk.*** The underlying data that is compared in the model is a probabilistic calculation of the risk of failure of assets based on Hydro One's rate of failure at a given asset age. It is an age-centric calculation. The Board has previously commented that it is important to move away from simply asset age, and consider other factors such as condition.[102] Condition provides a much better indication than age on whether an asset needs replacing. While SEC recognizes they are correlated (i.e. old assets are more likely to be in worse condition), the model would not be able to take into account actual condition of assets and their probability of failure at any given investment level. Hydro One has said that when it actually chooses which asset to replace, it looks at condition of its assets.[103] The model only accounts for the change in assets by age and so it is likely underestimating the change in reliability risk based on the actual assets Hydro One will replace.

Further, the underlying hazard curves are derived from data that considers real-life asset failure to have occurred whenever Hydro One retired an asset. In some cases that may include actual failure, but more often, assets are removed before they fail, and in some cases significantly before if they are removed as part of an integrated replacement program.[104] The effect of this is that the model overestimates the risk of an actual failure. As Mr. Ng testified, the model calculates the "maximum theoretical risk. [emphasis added]"[105]

3.4.5 Shown below on the right is a more accurate version of Hydro One's Reliability Risk table when corrected for the presentation and calculation issues. What it shows is that, based on the models calculations, Hydro One's proposed investment plan will lead to a -3.8% change in relative risk at the end of 2018, with respect to assets that represent 25.4% of system interruptions due to equipment failure. This is a more accurate statement of what the model shows, than Hydro One's view that its proposed investment plan to a -2% reduction for its entire system (all of its assets).

[102] Decision and Order (Toronto Hydro - EB-2014-0116) , December 29 2015, p.24
[103] Tr.2, p.6
[104] Tr.5, p.146. An example of integrated replacement program is the proposed integrated station projects in which many parts of a station are replaced at the same time. This may include assets that may be replaced sooner than they otherwise would have,
[105] Tr.5, 146

Change in Reliability Risk of Proposed Investment Plan					
Hydro One			SEC Corrected		
	Relative Change in Reliability Risk	% of Total System Interruptions Duration Due to Equipment Failure		Relative Change in Reliability Risk	% of Total System Interruptions Duration Due to Equipment Failure
Lines	-2%	69%	Breakers	-2%	10.4%
Transformers	-9%	9%	Transformers	-9%	9%
Breakers	1%	6%	Breakers	1%	6%
Other		16%	Other	---	---
Total	-2%	***100%***	***Total***	***-3.8%***	***25.4%***

3.4.6 Surprisingly, a model that is so prominent in the evidence: the capital planning and the customer engagement process, was hastily put together not long before the plan was fully developed. The model was only first conceived of in the beginning of February 2016[106] and finalized two weeks later.[107]

3.4.7 Hydro One has pointed to the United Kingdom's Office of Gas and Electricity Markets ("Ofgem") as an example where similar analytical models have been developed and used.[108] But the model is not based or influenced by anything Ofgem has developed; Mr. Penstone testified that they only became aware of some sort of similar approach when they were developing the model.[109] Mr. Ng could only say that the similarities are that both are "based on outcome measures of investment plan for future system reliability performance".[110] That single observation is not even accurate, as the Reliability Risk model is an outcome measure based on reliability *risk,* not actual reliability.

3.4.8 While this reliability risk model approach is new, the general concept of measuring risk is not. Mr. Grunfeld commented that it is done by other transmitters in other jurisdictions.[111] Hydro One simply either did not know or chose not to engage or consult with any experts in the field who had experience in developing models in this sophisticated area.[112]

3.4.9 The model is also entirely untested. Hydro One did not attempt to validate or test the model by, for example, utilizing previous data to test out if past capital expenditures predicted the amount of

[106] J8.1, Attachment 1, p.1: February 4, 2016: Initial discussions on Reliability Risk Model concept/structure to link hazard curves, asset demographics and asset contributions to reliability"
[107] J8.1, Attachment 1, p.2: February 17, 2016: "Finalized Reliability Risk Model"
[108] I-1-14(b)(c) (Staff IR #14)
[109] Tr.2, p.137-138
[110] Tr.2, p.138
[111] Tr.3, p.50
[112] *Ibid*

actual asset failures.[113] In its Argument-in-Chief, Hydro One says the better approach to testing the model is to do it on a go-forward basis only, and "consider outcome measures calculated now and then testing these results against actual future baseline levels going forward".[114] SEC agrees that this an appropriate approach at this point. Until that happens the Board should give little to no weight to the model. It must wait until it can be tested based on the approved capital plan in this proceeding, and then if it is accurate, in the next proceeding, consider it an appropriate outcome measure for the purposes of capital planning.

3.4.10 While SEC is critical of the model, it supports Hydro One developing appropriate tools such as this to help in its planning process. The Reliability Risk model conceptually makes some sense, but it is simply untested at this time, does not include enough data, and has been improperly presented to the Board in the evidence, and to customers in the engagement process. A model that represents less than 30% of the interruptions due to equipment failures does not tell very much about the outcomes ostensibly driving such a significant level of spending.

3.5 Capital Program

3.5.1 In addition to the overarching concerns regarding Hydro One's capital budget and the underlying planning process, SEC has specific concerns with respect to a number of individual major asset categories that are central elements to the proposed investment plan. Hydro One's justification for the level and size of the replacements for each asset class are primarily based on their condition and performance.[115] They are the leading indicators of broader system reliability.

3.5.2 Yet, in many cases, the evidence with respect to condition and performance paint a very different picture than the change that the investment plan would indicate. In many cases, they show no need to increase the pace of replacements, and in some, indicate that a decrease in spending is appropriate.

3.5.3 ***Asset Condition Information Flawed.*** SEC has general concerns regarding the asset condition assessment information that Hydro One has provided in its evidence. Since it is such a significant driver of sustaining spending, one would have expected Hydro One to have a rigorous independent review undertaken regarding the condition of its assets generally, or even just the

[113] Tr.8, p.20-21
[114] Argument-in-Chief, p.31
[115] See B1-2-6