

**NOVA SCOTIA UTILITY AND REVIEW BOARD**

**IN THE MATTER OF THE PUBLIC UTILITIES ACT**

- and -

**IN THE MATTER OF AN APPLICATION by NOVA SCOTIA POWER INCORPORATED**  
for approval of its **Annual Capital Expenditure Plan for 2021**

**BEFORE:** Roberta J. Clarke, Q.C., Panel Chair  
Steven M. Murphy, MBA, P.Eng., Member  
Richard J. Melanson, LL.B., Member

**APPLICANT:** **NOVA SCOTIA POWER INCORPORATED**  
Matthew Gorman, Regulatory Counsel

**INTERVENORS:** **CONSUMER ADVOCATE**  
William L. Mahody, Q.C.

**SMALL BUSINESS ADVOCATE**  
E.A. Nelson Blackburn, Q.C.  
Melissa P. MacAdam, Counsel

**INDUSTRIAL GROUP**  
Nancy G. Rubin, Q.C.  
Brienne E. Rudderham, Counsel

**PORT HAWKESBURY PAPER LP**  
David S. MacDougall, Counsel  
James A. MacDuff, Counsel

**PROVINCE OF NOVA SCOTIA**

Nova Scotia Department of Energy and Mines

Peter Craig

David Miller

Kendra Campbell

**BOARD COUNSEL:** S. Bruce Outhouse, Q.C.

**FINAL SUBMISSIONS:** April 27, 2021

**DECISION DATE:** June 10, 2021

**DECISION:** The Board approves the projects listed in Schedule “A” and the Routine Capital Expenditures in the 2021 ACE Plan in the total amount of \$147.1 million. The Board gives directions to Nova Scotia Power for future ACE Plan applications, as well as items to be considered in a stakeholder engagement process.

## TABLE OF CONTENTS

1.0	INTRODUCTION .....	4
2.0	ISSUE.....	5
3.0	ANALYSIS AND FINDINGS .....	5
3.1	Content of the 2021 ACE Plan.....	5
3.2	Spare Auto Transformer .....	7
3.3	Routine Capital Expenditures .....	11
3.4	Electric Vehicles .....	12
3.5	Cost Minimization .....	12
3.5.1	NS Power’s Capital Project Cost Minimization Effectiveness, including Capital Cost Budgeting .....	13
3.5.1.1	Findings .....	20
3.5.2	NS Power’s Capital Project Cost Minimization Practices .....	27
3.5.2.1	Findings .....	31
3.6	IT Investment and Project Management .....	39
3.7	Impact of COVID-19 on Capital Spending .....	40
3.8	Dam Safety .....	41
3.9	Items deferred to Stakeholder Engagement, including issues related to Contingencies and Contingency Guidelines .....	42
4.0	SUMMARY .....	46

## APPENDIX

Schedule “A” - 2021 ACE Plan Projects Approved by Board

## 1.0 INTRODUCTION

[1] Each year Nova Scotia Power Inc. files an Annual Capital Expenditure (ACE) Plan outlining its proposed capital expenditures for the upcoming year. As a result of an amendment to the *Public Utilities Act*, R.S.N.S.1989, c. 380, for a large-scale public utility, such as NS Power, capital projects exceeding \$1,000,000 must generally be approved by the Board. Prior to the amendment, the threshold was \$250,000.

[2] NS Power's 2021 ACE Plan sought approval for capital projects totalling \$147.1 million. This decision is about whether the Board should approve this proposed capital spending.

[3] Based on the evidence presented, and after considering the submissions made by the parties participating in this proceeding, the Board has determined there is sufficient justification for the need, and the corresponding cost estimates, for the proposed projects. Therefore, the Board approves the 2021 ACE Plan.

[4] In addition to considering the specific projects submitted for approval in the ACE Plan, the Board has taken the opportunity presented by the annual filing to address more general issues of interest or concern relating to capital spending and the approval process.

[5] In this decision, the Board has commented upon the following:

- Electric vehicles;
- Cost minimization;
- Capital spending and budgeting;
- Contingency and contingency guidelines;
- IT investment and project management;
- Impact of COVID-19 pandemic;
- Dam safety; and
- Items deferred to stakeholder engagement.

## **2.0 ISSUE**

[6] The main issue in this application is whether the ACE Plan program and spending that NS Power asked to have approved are prudent, necessary, and justified.

## **3.0 ANALYSIS AND FINDINGS**

[7] Each year when NS Power files its ACE Plan application, the Board takes the opportunity to explore issues which are related to the activities the utility proposes and the way in which spending is budgeted and justified. The Board identifies these issues early in the proceeding and seeks comments from the parties on the issues list before it is finalized.

[8] The Board considers these issues important, as there have been limited opportunities to publicly consider them. This is because there has been no general rate application by NS Power since 2013, partly due to the Rate Stabilization Period imposed by the Legislature.

[9] In this decision, the Board will first consider the 2021 ACE Plan application, and then address the issues which emerged as important through the process.

### **3.1 Content of the 2021 ACE Plan**

[10] NS Power's 2021 ACE Plan application provided a comprehensive overview of its capital expenditure program. It includes the following:

- A description of capital projects for which NS Power is seeking approval;
- Details regarding routine capital expenditures which require Board approval;
- A list of capital projects to be submitted for subsequent approval;
- Lists of capital items for which Board approval is not required;

- Responses to previous Board directives from prior ACE Plan proceedings; and
- Responses to stakeholder engagement commitments.

[11] NS Power forecasts total capital spending of \$361.8 million during 2021. This amount represents individual capital items, including capital items under \$1 million; Point Aconi items which do not require Board approval; routine capital expenditures; carryover spending from previous years; and items for subsequent submittal. NS Power stated that these expenditures are “focused on customers and providing safe, reliable, environmentally compliant, affordable and innovative electrical service.”

[12] The Board notes that, as part of the 2021 ACE Plan proceeding, NS Power requested approval for spending of \$147.1 million. The requested amount includes 16 individual capital projects totalling \$53.0 million. NS Power plans to spend \$24.7 million on these projects in 2021, and an additional \$28.2 million in 2022, and beyond. Board approval for \$94.1 million was also requested for routine capital expenditures in 2021.

[13] The list of 16 individual projects requested for Board approval includes 12 projects with a total estimated cost between \$1 million and \$5 million, and four projects with a cost estimate exceeding \$5 million. This is fewer than in the 2020 ACE Plan application.

[14] NS Power provided a detailed description, justification, and cost support for each of these capital work order applications. NS Power also provided substantial additional information in its responses to Information Requests (IRs) submitted by Intervenor and the Board.

[15] The Board notes that during the proceeding, other than the Consumer Advocate, no intervenor objected to any of the capital projects submitted for Board

approval in NS Power's 2021 ACE Plan. The CA's consultant objected to approval of one project, C0031050 – 138/69kV Spare Autotransformer Project which is discussed later in this decision. The CA's consultant also expressed concern about C0030887 – Hydrogen Degas Panel Phase 2 Project, but subsequently withdrew his concerns about that project. However, as appears in the SBA and CA submissions, intervenors examined several issues related to NS Power's capital spending, that are also discussed in this decision.

[16] The Board finds that the capital projects listed in Schedule "A" are necessary. Further, the Board is satisfied that the program is prudent and that the spending has been justified in accordance with the Board-approved Capital Expenditure Justification Criteria (CEJC).

[17] The Board approves the projects and capital expenditures set out in Schedule "A". Should any of them be cancelled, or deferred beyond 2021, NS Power must resubmit them for Board approval.

### **3.2 Spare Auto Transformer**

[18] NS Power sought approval for the purchase, assembly, installation, and commissioning of a 138/69 kV autotransformer for an amount of \$2,398,564. NS Power proposes to store the autotransformer in Onslow and use it as a spare. The company said it has ten autotransformers, several of which are approaching the end of their useful life. There is, therefore, an increased risk of failure. In fact, NS Power advised that there had been a recent unplanned failure of one of these units in November 2019.

[19] The company indicated that it could take between 12 to 15 weeks to obtain and install an autotransformer, if one is immediately available on the market, in the event of an unplanned failure. NS Power went on to state:

...While NS Power's grid is robust enough to withstand many single contingency scenarios brought about by a failure of one of these units, it comes at a cost to the flexibility of the transmission system and reduced ability to withstand additional contingencies. The availability of a spare to deploy immediately upon failure of one of these units significantly reduces the risks associated with these scenarios, such as loss of transmission flexibility or forced derating of an economic generation source.

[Exhibit N-1, p. 221]

[20] NS Power said that having a spare autotransformer would allow for immediate integration, if and where required, in the event of an unplanned failure. Deployment costs would be approximately \$1.4 million dollars. NS Power says the combined costs would be a less expensive mitigation strategy than the immediate purchase of a number of these units to replace the aging infrastructure. It gave a high-level estimate of approximately \$3 million dollars for each replacement unit. That said, in response to CA IR-9(d), NS Power indicated it would purchase another spare if the autotransformer, which is the subject of this application, had to be deployed. It anticipated a lag time of approximately 12 to 18 months if this became necessary.

[21] John Wilson of Resource Insight, the CA's consultant, filed evidence in this matter. He expressed concerns that there had been a lack of analysis of potential alternatives. Mr. Wilson recommended that approval be withheld until NS Power had done an analysis of potential alternatives, including justification pursuant to NS Power's Economic Analysis Model (EAM). He suggested that the following alternatives should be addressed:

- Purchase of a spare autotransformer (the proposed project), including costs to purchase, commission and store and install the spare of \$3.8 million;
- Status quo, assuming that a replacement unit would cost \$2.6 million based on the 2019 replacement of a failed transformer (CI C0024486);
- Replacement of one aging autotransformer, at a cost of about \$2.6 million, making the retired autotransformer the system spare, incurring additional costs for storage, etc.;

- Replacement of several autotransformers whose age exceeds the “estimated useful life of the asset of 40 years” at an estimated cost of \$3 million per site; and
- Replacement of all ten autotransformers at an estimated cost of \$3 million per site.

Each alternative should include a risk-adjusted consideration of the system costs related to loss of transmission flexibility or forced derating of an economic generation source based on the duration of the outages. In the case of the proposed project, once the spare is used, NS Power indicates that it will be without a spare for 16-18 months.

[Exhibit N-7, pp. 34-35]

[22] In its reply evidence, NS Power said none of Mr. Wilson's suggested alternatives were appropriate risk mitigation strategies for the following reasons:

- The status quo option was essentially a "run to failure" proposition with a risk exposure time of between seventeen to twenty-one weeks.
- Using a damaged autotransformer as a spare would not adequately mitigate the risk associated with not having a readily available unit.
- The immediate replacement of several units would result in prematurely removing the assets from service.
- Replacing all ten units would also result in premature retirements and be much more costly.

[23] A further clarification was provided by Lia MacDonald, NS Power's Vice-President, Transmission, Distribution and Delivery, during the hearing. She indicated the overall plan for the autotransformers was not to simply react to failures by buying a new spare each time there was an unplanned failure. She said:

The plan is to have the spare, which we recommend as mitigating the risk in the event that our planned program for the 10 needs something supplemental in advance.

But it is those two things together. And perhaps because we haven't yet filed that plan because it is not prepared; we will submit it when it is prepared, that might -- that will help clarify. But this is more context of how it all fits together.

[Transcript, p. 94]

[24] NS Power filed undertaking U-3 with the Board. It showed the risk profile for the ten autotransformer units currently in service. The condition and criticality align with NS Power's Asset Management Mechanism, which is incorporated in the CEJC. The

company indicated “The proposed mitigating measure of a critical spare reduces the overall risk of the autotransformer fleet while planned replacements are completed.”

[25] As with any part of NS Power’s infrastructure which involves an aging fleet of expensive capital equipment, a comprehensive plan related to the timing of replacements would be preferable to isolated approvals to address immediate needs. At this stage, a plan is apparently being developed by NS Power, but has yet to be finalized. While NS Power says the plan is not to “run to failure” that is in fact what happened with the unit which needed replacement after the 2019 failure.

[26] That said, NS Power must be in a position to operate its system in a reliable and cost-efficient way while a plan is being developed. In the Board’s view, whether or not to approve this capital item at this time turns on the current risk of failure and the likelihood that any plan associated with the autotransformer fleet will involve the replacement of at least one unit.

[27] Given the age of the units and a previous unplanned failure, the Board agrees with NS Power that the *status quo* entails sufficient risk to warrant mitigation at this time. The Board notes that all of Mr. Wilson’s suggested alternatives, with the exception of the *status quo* option, would involve purchasing at least one autotransformer. The Board is satisfied that any reasonable mitigation plan would involve the purchase of at least one unit. It would be reasonable to purchase such a unit at this time. The Board is, therefore, prepared to approve this capital expenditure, despite the fact that there is not a completed comprehensive plan at this time, on the assumption such a plan is being developed.

[28] The Board cautions NS Power that it appears prudent to develop a comprehensive replacement plan with respect to autotransformers as soon as possible. If the autotransformer approved in this application needs to be deployed, such a plan might well form an integral part of any consideration with respect to the purchase of a subsequent unit.

[29] In response to NSUARB IR-46, the company indicated it was working on an update to its transformer and systems spares study this year. The Board anticipates this study will provide guidance on what is required with respect to the autotransformer fleet, which is one of the systems being reviewed. In the circumstances, the Board directs NS Power to report back to the Board as to the status of the management plan for the autotransformer fleet, as part of the 2022 ACE Plan filing.

### **3.3 Routine Capital Expenditures**

[30] Routine capital expenditures are recurring annual expenses incurred to sustain NS Power's equipment, and to allow for both system growth and addition of customers to the system. NS Power requested approval for its Routine capital program in the amount of \$94,090,144, exclusive of Point Aconi Routine spending of \$742,818, which does not require Board approval.

[31] The proposed Routines budget in 2021 is approximately 12% higher than the 2020 ACE Plan budget; however, the Board notes that it is lower than actual spending in 2020. The increased spending in 2020 was primarily due to above-average distribution-related work.

[32] The Board approves NS Power's 2021 Routine capital expenditures in the amount of \$94,090,144.

### **3.4 Electric Vehicles**

[33] In its 2020 ACE Plan decision [2020 NSUARB 82], the Board considered the use of hybrid electric vehicles (HEVs) by NS Power as potential fleet vehicles. In its decision, the Board advised that it expected NS Power to “fully consider all types of electric vehicles as an option for replacements to its fleet and report further in the 2021 ACE Plan application.”

[34] NS Power confirmed in response to various IRs that HEVs have not been included in NS Power’s transportation fleet for the 2021 ACE Plan, but agreed that a number of HEVs have a comparable cost to similar internal combustion engine (ICE) vehicles. However, NS Power stated that the 2021 ACE Plan budget for its transportation vehicle replacement Routine includes nine Ford Escape plug-in hybrid electric vehicles that are replacing ICE SUVs in its fleet.

[35] NS Power asserted that in order to incorporate greater adoption of electric vehicles going forward, it would require the availability of a pickup truck electric vehicle. The Board accepts that NS Power must weigh both the total ownership costs and emissions against the storage capacity and functionality requirements of a vehicle selection. The Board welcomes further consideration of these vehicles in future ACE Plans, as the automobile industry continues to manufacture a wider range of electric vehicle models that may meet NS Power’s functionality requirements, at a steadily decreasing cost.

### **3.5 Cost Minimization**

[36] The issue of NS Power’s capital cost minimization efforts became an area of focus for the Board and stakeholders during the 2019 ACE Plan proceeding. Through

that and subsequent ACE Plan proceedings, this issue has evolved to the point that the Board now considers it useful to address cost minimization through two separate themes: the effectiveness of NS Power's cost minimization practices, including capital cost budgeting; and NS Power's capital project cost minimization practices themselves.

### **3.5.1 NS Power's Capital Project Cost Minimization Effectiveness, including Capital Cost Budgeting**

[37] The Board's 2020 ACE Plan Order directed the following:

8. NS Power is directed to continue to track the information related to contingency spending noted in Paragraph 73 of the Board's 2019 ACE Plan Decision, with the following modifications: For each capital project submitted for Board approval in 2017, 2018, 2019 and 2020 (either through or outside of the ACE Plan proceedings, including projects submitted for subsequent approval, but excluding U&U projects) that has been completed, the Board directs NS Power to provide the following information in its 2021 ACE Plan application:

- The Board approved original project cost (i.e., not Board approved ATO's or Final Costs). For projects that were originally estimated to be under \$250k in the 2017 to 2019 ACE Plans and under \$1M in 2020 ACE Plan but exceeded these thresholds and required Board approval, the original project cost is to be the ACE Plan estimate (note that NS Power can identify the subsequently Board approved amount in a "Notes" column);
- The total contingency amount included in the original Board approved project cost;
- The actual final incurred project cost;
- The variance between the final incurred project cost and the original Board approved project cost;
- The proposed in-service date identified in the original Board approved project application; and,
- The actual in-service date for the project.

9. NS Power is directed to continue to track the information related to contingency spending, including information related to projects approved by the Board after 2020, and report it in subsequent ACE Plan applications. This reporting shall also categorize projects by function (i.e., generation, transmission, distribution and general plant), with "generation" projects further categorized by type of project (i.e., hydro, steam, gas, other renewables).

[38] NS Power provided this information in Appendix E of its 2021 ACE Plan application. Appendix E provides insight about the company's spending on recently

completed capital projects. In particular, Appendix E provides the Board with information to better assess NS Power's capital cost minimization and capital cost budgeting effectiveness, as well as its use of contingencies.

[39] With respect to the data provided in Appendix E, NS Power confirmed the following in response to UARB IR-55 and undertaking U-7 (the Board has provided the comparative figures from the 2020 ACE Plan proceeding in brackets):

- The average variance for the listed projects amounts to approximately +10.8% (+10.47%) of the original submission approved project cost estimate.
- The total variance of \$15,935,203 (\$11,290,526) for the listed projects is over and above the total contingency amount of \$7,780,713 (\$5,428,162) included in the total of the original submission approved cost estimates.
- The average contingency amount for the listed projects amounts to approximately 5.6% (5.03%) of the original submission approved cost estimate less the contingency amount.
- For projects approved by the Board prior to November 8, 2019 that have an original submission approved cost estimate greater than \$250,000 but less than \$5,000,000, amounting to 135 projects in total:
  - a. 28% (31%) had a negative variance;
  - b. 72% (69%) had a positive variance; and
  - c. Of the projects that had a positive variance, 92% (91%), or 89 projects, did not require an ATO submission to the Board.
- There were no projects approved by the Board after November 8, 2019 that have an original submission approved cost estimate greater than \$1,000,000 but less than \$5,000,000.
- For projects that have an original submission approved cost estimate greater than \$5,000,000, amounting to 4 projects in total:
  - a. 0% (33%) had a negative variance;
  - b. 100% (67%) had a positive variance; and
  - c. Of the projects that had a positive variance, none required an ATO submission to the Board.
- For all projects that have an original submission approved cost estimate less than \$250,000, amounting to 15 projects in total, the total sum of the individual

project variances as a percentage of the total sum of the individual project original submission approved cost estimates is 206% (210%). Updated for their subsequently approved greater than \$250,000 submissions, the total sum of the individual project variances as a percentage of the total sum of the individual project original submission approved cost estimates is 10% (9%).

[40] A further review by the Board of the data submitted by NS Power in Appendix E reveals the following (the Board has provided the comparative figures from the 2020 ACE Plan proceeding in brackets):

- For projects that have a negative variance, the total variance amount is approximately -\$3.93 million (-\$3.35 million), or 2.7% (3.1%) of the total of the original approved cost estimates.
- For projects that have a positive variance, the total variance amount is approximately \$19.87 million (\$14.64 million), or 13.5% (13.6%) of the total of the original approved cost estimates.

[41] In addition, NS Power provided the following information in response to undertaking U-8 (the Board has provided the comparative figures from the 2020 ACE Plan proceeding in brackets):

- For the 93 projects that were originally estimated to cost more than \$250,000 and were identified as having a positive variance but did not require an ATO, total project spending exceeding the original approved cost estimate is approximately \$9.73 million (\$5.79 million).
- For the 38 projects that were originally estimated to cost more than \$250,000 and were identified as having a negative variance, total project spending is approximately \$3.93 million (\$3.35 million) less than the original approved cost estimate.
- The net positive variance for these projects is \$5.8 million (\$2.44 million).

[42] Mr. Wilson completed his own analysis of the data contained in Appendix E, and submitted the following in his evidence:

Data filed by NS Power in Appendix E include 32 projects not included in Attachment 1 of its response to UARB IR-62 in the 2020 ACE Plan proceeding. It is worth noting that none of the newly listed projects were approved in the 2020 ACE Plan, and most were approved prior to the 2019 ACE Plan.

The following summary updates the Board's review of the 2020 ACE Plan proceeding, utilizing the 2021 ACE Plan data filed in Appendix E:

- The average variance for listed projects amounts to approximately +10% of the original submission approved cost estimate, unchanged from 2020;
- The total variance of \$15,935,203 for the listed projects is over and above the total contingency amount of \$7,780,713 included in the total of the original submission approved cost estimates (for newly listed projects, these values are \$4,067,651 and \$2,352,551);
- The average contingency amount for the listed projects amounts to approximately 5% of the original submission approved cost estimate, with the newly listed projects having an average contingency of approximately 6%;
- Considering all 154 projects (the 32 newly listed projects):
  - 25% (22%) had a negative variance;
  - 75% (78%) had a positive variance; and
- Only one newly listed project required an ATO submission to the board; and
- For the three newly listed projects that have an original submission approved cost estimate less than \$250,000, the total sum of the individual project variances as a percentage of the total sum of the individual project original submission approved cost estimates is 190 percent, compared to 210 percent for the under-\$250,000 projects in the Board's 2020 analysis. Updated for their subsequently approved greater-than-\$250,000 submissions, the total sum of the individual project variances as a percentage of the total sum of the individual project original submission approved cost estimates is 150 percent, compared to 9 percent in the Board's 2020 analysis.
- For projects that have a negative variance, the total variance amount is approximately -\$3.93 million, or 12.9% of the original approved cost estimates (for newly listed projects, these values are -\$0.91 million and 14.9%); and
- For projects that have a positive variance, the total variance amount is approximately \$19.87 million, or 17.0% of the total of the original approved cost estimates; for newly listed projects, these values are \$4.97 million and 14.7%.

In comparison to the contingency data provided by NS Power in the 2020 ACE Plan Proceeding, the new data continue to show that NS Power appears, on average, to underestimate project costs, inclusive of estimated contingency amounts. If anything, the newly listed projects underestimate project costs a bit more, on average, than the previously listed projects.

[Exhibit N-7, pp. 4-6]

Mr. Wilson asserted that the reasons NS Power has more frequent and larger capital cost overruns than under-budget capital costs are either that the company has inadequate practices to minimize cost, or because its capital budgeting practices are inadequate.

[43] In its reply evidence, NS Power challenged Mr. Wilson's assertion, and presented an analysis of its capital spending and budgeting in the context of industry standards. NS Power stated the bulk of its capital project cost estimates presented in the ACE Plan are at a Class 3 level, in accordance with the Association for Advancement of Cost Engineering (AACE) International Recommended Practice. With respect to the expected accuracy range of a Class 3 capital cost estimate, NS Power noted that AACE states:

**Expected Accuracy Range:**

Typical accuracy ranges for Class 3 estimates are -10% to -20% on the low side, and +10% to +30% on the high side, depending on the technological complexity of the project, appropriate reference information, and other risks (after inclusion of an appropriate contingency determination). Ranges could exceed those shown if there are unusual risks.

[Exhibit N-9, p. 14]

[44] Referring to the project data contained in Appendix E of the application, NS Power's reply evidence presented an analysis comparing Board approved project budget amounts to final spending on the related projects. Based on this analysis, NS Power noted that the company's total spend on those projects is, on average, 7% greater than the approved Board budget amounts. NS Power stated that this result is within the expected AACE accuracy range for a Class 3 estimate and is on the low end of the range. The company also indicated that 77.1% of the projects reviewed in the analysis fall within the expected AACE Class 3 accuracy range, with approximately 14% of the projects exceeding the maximum expected accuracy limit of +30%. Further, NS Power noted that its average capital project overspend of 7% on these projects is also within the AACE expected accuracy range of -10% to +15% for Class 1 estimates, which is considered to be the most accurate level of capital cost estimate. To highlight this point, the company stated that 41% of the projects listed in Appendix E are overspent by less than 15%, which

is within the upper accuracy range of Class 1 estimate. NS Power believes that all of this data is reflective of strong cost minimization and project execution. Based on this data, the company also claimed it is inaccurate to suggest that NS Power's capital cost minimization or budgeting practices are inadequate.

[45] The data contained in Appendix E, and the related analyses completed by NS Power were explored further during the hearing. With respect to NS Power's statement that its average overspend of 7% on the Appendix E projects is on the low end of the AACE Class 3 estimate accuracy range, the following exchange took place during Board questioning:

Q. So, Mr. Dandurand, this is where I think you were referring to earlier about, you know, the average overspend is roughly 7 percent on the projects that are noted in Appendix E. But you suggest in there, or the company suggests that -- well, first of all, it says the accuracy range for a Class 3 estimate is minus 20 to minus 30 percent, which you confirmed earlier. But then towards the bottom of the page you note that on average the overspend is 7 percent and that it's in the low end of that range. Why do you believe it's in the low end of the range? The midpoint of that range is 5 percent, if I'm doing my math correctly, so why do you believe 7 percent is in the low end of that range?

A. (Dandurand) Yes, Mr. Murphy, so when looking at the range of minus 20 percent to plus 30, and obviously plus 30 being the upper end of the range for a Class 3 estimate, and looking at on average the projects being completed with an average variance of plus 7 percent, it's just merely suggesting that that is on the lower end of that range from minus 20 to plus 30. But, certainly, as part of our ongoing efforts to minimize costs for customers that we look for ways to improve upon that for all variance, but it's really to suggest that a 7 percent variance, as considered with respect to the minus 20 to plus 30 percent variability in a Class 3 estimate, is on the lower end of that range between the two.

Q. I'm not really sure I'm following. I would have thought it's in the upper range. If the midpoint's 5 percent, and you got a range there of 50, minus 20 to plus 30, that's a 50 percent range, so the midpoint, to me, would be plus 5 percent. Plus 7 percent is above that midpoint.

A. (Dandurand) Yes, Mr. Murphy, that's a fair comment, of course, and I guess the lower end of the positive range I would say is probably -- would be more appropriate, but, again, you know, looking at the range from minus 20 to plus 30, 7 percent, you know, being within a reasonable range of accuracy for the projects that we execute.

Q. It does fall within that minus 20 to 30, but you would agree that it's in the higher end of that range, the plus 7 percent?

A. (Dandurand) I would -- yes, I would say that that 7 percent is closer to the midpoint of the range as you've mentioned, yes.

[Transcript, pp. 251-253]

[46] During the hearing, the Board also asked NS Power about the number of projects in Appendix E that had variances which exceeded the maximum expected accuracy limit of +30% for AACE Class 3 estimates:

Q. Okay. Am I correct that the AACE cost estimating methodology states that there should only be a 10 percent probability that final project costs should exceed that 30 percent upper accuracy limit?

A. (Dandurand) I would need to confirm that, Mr. Murphy, subject to check. I do believe it is 10 percent, yes.

Q. I believe it was in the rebuttal evidence. I think the rebuttal evidence suggested that within the band of minus 20 to the plus 30, 80 percent of the project's final cost should fall within that range, and then 10 percent should fall below the minus 20 percent and 10 percent probably would fall above that 30 percent. That's what I recall, but if you want to check it or if you want to confirm it now, that's fine.

A. (Dandurand) Yes, that is my understanding, Mr. Murphy, but it is subject to check, if that is acceptable to you.

Q. So on this -- and on this particular IR response, it notes that approximately 14 percent of the projects that are included within Appendix B [sic] exceeded that 30 percent upper accuracy range. So that's an exceedance of the expectation of 10 percent. So, again, in that context, do you still believe that your cost estimating and cost minimization efforts are effective?

A. (Dandurand) So I do, ---

Q. If so, maybe explain why you ---

A. (Dandurand) So I do, Mr. Murphy, again, just with respect to the overall result and how we're delivering all of our capital projects in aggregate minimizing costs for customers, we're looking at what the variance is relative to the approved amount for a Class 3 estimate, again, being at 7 percent, and I guess there are 14 percent that are over that upper end of the threshold, but as I would have mentioned earlier, in earlier conversations through this hearing, certainly, the company remains focused on a continuous improvement and finding ways to continually improve their cost minimization efforts. And so moving, you know, more of those projects from on a scale of over that threshold into the acceptable threshold would certainly be, you know, part of our goal and objective, in terms of delivery of our capital program.

[Transcript, pp. 255-257]

[47] One further argument that NS Power put forward to support its claim to have strong capital cost minimization and budgeting practices, relates to the company's ATO

performance. In its reply evidence, NS Power indicated that it had analyzed its capital project spending history as part of the Board's 2017 Matter M08162 – Tusket Falls Main Dam Refurbishment. The result of this analysis was that over a prior 5-year period, the company had submitted 659 capital projects for Board approval, of which only 37 projects required an ATO application. The company indicated that this represents only 5.6% of the projects submitted for Board approval over that period. NS Power asserted that this data cannot be considered a pattern of capital cost overages. It further stated that this data is not indicative of issues related to capital cost budgeting or cost minimization.

[48] The Board notes that in response to Midgard Consulting's IR-28 in Matter M08162, NS Power amended the above information as follows: over the prior 5-year period, the company had submitted 610 capital projects for Board approval, of which only 32 projects required an ATO application. The company indicated that this represents only 5.2% of the projects submitted for Board approval over that period.

### **3.5.1.1 Findings**

[49] In its reply to closing submissions, NS Power stated that there was no evidence presented during the hearing challenging the effectiveness of the company's cost minimization practices. The Board agrees that there was no new evidence presented during the hearing to this effect. However, as noted above, the effectiveness of these practices was certainly questioned, particularly by the Board, during the hearing. Further, Mr. Wilson's evidence presented an analysis of the Appendix E data, leading him to contend that NS Power continues to underestimate project costs and has more frequent and larger capital cost overruns than those under budget. He attributed this to NS Power having inadequate practices to minimize costs or inadequate capital budgeting practices.

[50] NS Power's reply to closing submissions stated that the record of the 2021 ACE Plan proceeding reflects the following:

- **Project Spending Is Reflective of Strong Cost Minimization** - A review of NS Power's project data included in Appendix E, which was modified to include approved NSUARB budget amounts, shows that the Company's total project spend is, on average, 7.0 percent greater than approved NSUARB budget amounts, well within AACE Guidelines for Class 3 estimates.
- **Historical ATO Data Is Reflective of Strong Cost Minimization** - Over the 5-year period examined, NS Power submitted 659 projects for approval, with only 37 projects requiring an ATO application to the NSUARB. This represents approximately 5.6 percent of the projects put before the NSUARB during that time period.

[Exhibit N-17. P. 5]

[51] The Board agrees with NS Power that the data presented in Appendix E of the application shows that the company's spending on the related projects is, on average, 7% higher than the budget amount approved by the Board. The Board also agrees that this average overspend amount is within the accuracy limits as described by the AACE Guidelines for Class 3 capital cost estimates. However, the Board is concerned with other aspects of NS Power's capital spending data as presented in Appendix E. While NS Power's average capital overspend of 7% on the Appendix E projects is within AACE accuracy expectations, it is above the midpoint of the -20% to +30% range. Further, 14% of the Appendix E projects incurred overspending beyond the AACE +30% upper accuracy limit for Class 3 estimates. This exceeds the 10% expectation prescribed by AACE. Mr. Dandurand stated during hearing testimony that AACE Guidelines do state that for projects with a higher degree of complexity and risk, the AACE expected accuracy range could be broader than -20% to +30%. However, the Board was not presented with any evidence during this proceeding to indicate that any of the Appendix E projects were subject to an increased level of complexity and risk. The Board finds that these items are

indicative of less than ideal capital cost minimization and/or budgeting performance as it relates to AACE expectations.

[52] The Board also finds NS Power's references to its capital overspending being within the accuracy limits of AACE Class 1 estimates must be considered in context. It is correct that NS Power's average capital project overspend of 7% on the Appendix E projects is within the AACE expected accuracy range of -10% to +15% for Class 1 estimates. However, as noted above, NS Power's reply evidence indicated that 14% of the Appendix E projects incurred overspending beyond the AACE +30% upper accuracy limit for Class 3 estimates. This certainly implies that more than 14% of the Appendix E projects would exceed the AACE +15% upper accuracy limit for Class 1 estimates. This is beyond the AACE expectation that only 10% of the projects should incur spending above the upper accuracy limit for Class 1 estimates.

[53] In addition, during the hearing, the Board questioned NS Power about what incentives it has in place for project managers to keep capital project spending within budget. Mr. Dandurand responded that on NS Power's Balanced Score Card specific to capital projects, the goal for projects that have budgets greater than \$1 million is to execute those projects such that at least 90% are completed within -10% and +2% of budget. He noted that all NS Power employees and project managers working on those projects are directly incented by that goal, which is designed to minimize costs for customers in the execution of those projects. The Board finds that NS Power's average capital project overspending of 7% beyond budget does not match this goal. This is concerning to the Board, as it suggests that the company's noted incentive may not be

particularly effective. Alternatively, it may suggest that NS Power's cost minimization efforts and practices are not effective at achieving this goal.

[54] The Board finds NS Power's claim that its historic ATO data is reflective of strong cost minimization is not entirely persuasive. It is true that over the five-year period examined by NS Power in Matter M08162 (a period which predates the threshold change from a limit of \$250,000 to \$1 million above which Board approval of capital projects is required), only 5.2% of the capital projects submitted for Board approval required an ATO. However, NS Power failed to mention the following concerns described by Midgard Consulting in its Review Report Update in Matter M08162:

In response to Midgard's concerns, NSPI provided statistics on Approvals to Overspend ("ATO") that it has filed for its projects over the past five years:

- NSPI has submitted 610 projects for approval in the past five years.
- 32 of those projects (representing 5.2%) required an ATO.
- ATO increases represented 2.3% of total costs.

NSPI asserted that the statistics show that its behavior "cannot be considered a pattern of cost overages." Midgard has the following concerns with NSPI's conclusion:

- NSPI confirmed that projects can overspend by the greater of 5% or \$250,000 without requiring an ATO.
  - Overages up to these amounts would therefore not be reported in the NSPI statistics.
  - For example, 414 of the 610 projects cited (68%) had estimated costs of less than \$1,000,000, which means they could all have incurred cost overages of 25%+ without any of them being included in NSPI's ATO statistics.

...

Overall, Midgard remains uncomfortable with NSPI's approach to project cost estimation. NSPI does not appear to follow good industry practices for cost estimation, which would include the establishment of a cost estimation standard, and periodic reviews of its estimation techniques, accuracy, and contingency allowances.

[55] ATO applications to the Board are only required if capital project spending exceeds the Board approved cost estimate by the greater of 5% or \$250,000. As such, prior to the change in the threshold limits, for Board approved capital projects ranging in

value from \$250,000 to \$5 million, NS Power could overspend between 5% and 100% of the project's estimated cost before requiring an ATO application. Any such overspending on the 610 projects noted by NS Power in Matter M08162 would increase the overall overspending beyond the 2.3% of total costs noted for the ATO projects only. Further, this overspending amount does not require Board approval and is added to NS Power's rate base upon which the company earns a return. The Board notes that the amount of overspending that did not require an ATO for these projects was not provided in Matter M08162 nor in the 2021 ACE Plan proceeding. Nevertheless, this issue presents another potential reason for the Board to question the effectiveness of NS Power's capital cost minimization efforts.

[56] The Board has additional concerns with the capital cost spending information provided by NS Power in response to Board IR-55 and undertaking U-7, as well as the Appendix E analysis completed by Mr. Wilson. Based on this information, it is clear to the Board that, on average, NS Power continues to overspend on capital projects. The Board also finds that this data shows that there has essentially been no improvement in the company's overspending measures summarized by this information over the past year. It is not clear to the Board whether this overspending pattern is related to inadequate NS Power capital cost estimating/budgeting practices, inadequate costs minimization efforts by NS Power, or a combination of both.

[57] Another Board concern associated with the Appendix E data submitted by NS Power relates to projects where final spending exceeds the original approved estimate but does not require an ATO application. The project data submitted by NS Power in undertaking U-8 shows that the company spent a total of approximately \$9.73 million

more than the original approved cost estimates for those projects that were originally estimated to cost more than \$250,000 and had a positive variance but did not require an ATO. This overspending was offset by underspending of roughly \$3.93 million on projects that were originally estimated to cost more than \$250,000. The net overspending on these projects was, therefore, \$5.8 million. This represents a \$3.36 million net increase, or 138% increase, over the net amount of \$2.44 million noted in the 2020 ACE Plan proceeding. This amount also represents approximately 6.9% of the original submission approved cost estimate for these projects, as compared to 2.3% noted in the 2020 ACE Plan proceeding. This overspending amount does not require Board approval and is also added to NS Power's rate base upon which the company earns a return. This presents another reason for the Board to question NS Power's capital cost minimization efforts. The Board expressed this same concern in its 2020 ACE Plan decision, and notes that related performance has worsened in the 2021 ACE Plan application compared to the same measures identified in the 2020 ACE Plan proceeding.

[58] The Board also notes that a number of the underspent projects in Appendix E have negative variances greater than 25% of the original approved cost estimate. Underspending of this magnitude could suggest project over-scoping at the original cost estimate stage, or a significant reduction or cancellation of the originally planned work scope. Just as large positive variances can skew overall capital project spending results upward, large negative variance can skew overall spending results downward. NS Power generally must report on such large positive variances through the ATO process. For capital projects with large negative variances, reporting generally takes place in a Final Cost application. The Board is also typically made aware of project cancellations in ACE

Plan filings. However, the Board is sometimes not made aware of the reasons for the large underspending on these projects. Items such as project cancellation or major scope reduction can result in significant negative variances that improve the overall Appendix E capital spending performance measures. The Board will address this issue by including an additional reporting component in future ACE Plan applications, as noted in the following paragraph.

[59] The Board directs NS Power to continue to track the information noted in Paragraph 92 of the Board's 2020 ACE Plan decision for each completed capital project that was submitted for Board approval in 2017, 2018, 2019, 2020 and 2021 (either through or outside of the ACE Plan proceedings, including projects submitted for subsequent approval, but excluding U&U projects). Further the Board directs that the following additional information be included in the related 2022 ACE Plan reporting:

- NS Power is to identify all new projects that have been added to the report; and
- For any capital projects that have a negative variance greater than or equal to 25% of the Board approved capital cost estimate, NS Power shall provide an explanation detailing the reasons for the variance.

[60] The Board directs NS Power to continue to track this information, including information related to projects approved by the Board after 2021, and report it in subsequent ACE Plan applications. The Board finds the format of Appendix E of the 2021 ACE Plan application a useful means of presenting this data. The Board, therefore, directs that the data continue to be presented in this format in subsequent ACE Plan applications (subject to the modifications noted in the preceding paragraph). This reporting shall also categorize projects by function (i.e., generation, transmission, distribution, and general

plant), with “generation” projects further categorized by type of project (i.e., hydro, steam, gas, other renewables).

### **3.5.2 NS Power’s Capital Project Cost Minimization Practices**

[61] In its 2019 ACE Plan Order, the Board directed NS Power to provide, in subsequent ACE Plan applications, “specific examples of project execution cost minimization efforts for the prior year, complete with a description of the cost savings accrued by these efforts.” In its 2020 ACE Plan decision, the Board found that the cost minimization examples provided by NS Power in its 2020 ACE Plan application were not responsive to this direction. As a result, the Board’s 2020 ACE Plan Order extended its 2019 direction to provide, in subsequent ACE Plan applications, “examples of cost minimization during execution and construction from the prior year’s projects, with specific cost minimization being fully described.”

[62] In response to this directive, and as it did in its 2020 ACE Plan application, NS Power began by once again stating in its 2021 ACE Plan application that “Cost minimization is at the forefront of all stages of capital project development and execution.” The company went on to reiterate that it follows cost minimization processes that are intended to “obtain best value for customers at the lowest cost.” NS Power then described some of the general cost minimization processes that it typically employs throughout the course of capital project execution. These processes are essentially the same ones that were outlined by the company during the 2019 and 2020 ACE Plan proceedings.

[63] Section 11.1.5 of NS Power’s 2021 ACE Plan application then described a number of capital cost minimization efforts undertaken by the company over the past year. These efforts were categorized by the company into three categories, namely “design

and detailed engineering,” “project execution efficiencies,” and “procurement process/negotiated savings.” The total project cost savings NS Power assigned to these efforts was \$9.0 million, as presented in Figure 69 of the application. For each of these categories, NS Power’s application described specific project cost minimization examples (six in total) that were completed to help achieve these project cost savings.

[64] These cost minimization efforts were canvassed further through the IR processes and in Mr. Wilson’s evidence. In particular, in its IR-1, the CA asked NS Power to provide further details regarding the cost minimization efforts and associated cost savings used to develop Figure 69 in the application. In response, NS Power provided 58 examples of cost minimization efforts and related savings details for 35 capital projects. NS Power indicated that these projects had been randomly selected by the company to produce the data in Figure 69. In his evidence, Mr. Wilson argued that while NS Power’s evidence did provide specific examples of cost minimization efforts, it did not demonstrate that the company’s cost minimization practice is effective. He therefore recommended:

NS Power should improve its cost minimization practices based on references or input from industry experts. NS Power should demonstrate implementation of those practices through documentation that is used for training, references in project planning, and future project evaluations. One specific practice that NS Power should implement is post project reviews.

[Exhibit N-7, p. 7]

[65] The specific examples of capital cost minimization submitted by NS Power were explored further during the hearing. During questioning from the Board related to the cost minimization examples associated with using fewer units than were estimated in the original tender documents, the following exchange occurred:

Q. There's a number there, maybe five or six, that reference cost savings associated using fewer units than were estimated in the -- I suppose the original tender documents. And my question to you, Mr. Dandurand, is really are those examples necessarily sort of proactive

cost minimization efforts on the part of Nova Scotia Power, or they're just simply the fact that, you know, the in-field quantities that were encountered were different than what might have been estimated?

A. (Dandurand) Yes, Mr. Murphy, I'd have to look at the specific references for each, but I think that certainly, and in some cases, if the amount is -- that is used in the execution of a project is less than what the unit estimate was in the project estimate, it could certainly be a result of how the project was executed in the field, in terms of decisions that were made in the execution of the project. But it could also be, as you've mentioned, a result of, you know, the assumed amount of, I'll say quantities of a particular material, for example, that was estimated to be required, and then when the project was executed, not needing that level of material, for example. So it could be the any of the two.

[Transcript, pp. 217-218]

[66] Additional Board questioning focused on NS Power's cost minimization example related to procurement savings on the Lake Mulgrave Dam Refurbishment project:

Q. There's an item there, a \$2.3 million cost savings associated with the Lake Mulgrave Dam refurbishment.

...

And it says, "Procurement process led to a lower-cost option as the contractor supported savings but [sic] reopening an on-site burrow pit."

So this item was also mentioned in response to Board IR-31, and I'll just -- maybe I'll just read the response. It says:

A competitive request for proposal was used to select a general contractor performed construction works in the construction of the Lake Mulgrave Dam. At the time that the 2020 Ace Plan was prepared, the Class 3 detailed cost estimate included costs based on rates charged by construction firms in Nova Scotia, which was provided to Nova Scotia Power by independent engineering consultant engaged on the project. During the RFP process, the successful proponent had a competitive advantage with regards to location of aggregates to be sourced for the project, resulting in lower transportation costs, proximity of labour to the construction site, and the general familiarity of the scope of work from other projects. (As read)

So this is similar to my -- not my last question, but my prior question. Isn't this -- again, isn't this -- this is an example more of -- I would suggest that perhaps it's more of an example of a contractor being smart during a bidding period rather than something that, you know, that was proactively undertaken by Nova Scotia Power. So I'd like some clarification of why you might think that \$2.3 million was indicative of a cost minimization effort on the part of Nova Scotia Power rather than by a, you know, a smart contractor?

A. (Dandurand) Yes, Mr. Murphy. So I think in the context of the overall project execution, the way that we have approached this is really to look at the entire lifecycle of a project, beginning, you know, from the concept phase through to the detailed engineering and scoping and estimating phases, and then at the procurement phase of the project as well.

And so looking at the RFP process itself and going out for competitive bids with this specific scope and a design for a project resulting in a number of bids and approaches from our contractors, some in this particular case resulting in a very competitive approach, an approach that saves a substantial amount of money for customers, based on the source of supply for those particular material; again, relative to the estimate for the project, the budget for the project, feel that looking at all of those things together as part of the execution of the project and the project lifecycle results in an example of minimizing costs for our customers, as we've outlined in our response.

Q. Okay. I understand what you're saying, but again, that cost savings was really, I guess, the result of a contractor doing something sort of on his own accord, rather than something he was directed to do by Nova Scotia Power.

And if I might add, ---

A. (Sidebottom) I think, Mr. -- I think -- oh, sorry, go ahead, Mr. ---

Q. No, no, go ahead, Mr. Sidebottom. Sorry.

A. (Sidebottom) I think the way to look at this, because there's a full lifecycle to cost minimization, starting from the inception of the project to making sure there's great competitive pressures for contractors who won't bring that forward if they don't feel the competitive pressures, and negotiating the right deals and then optimizing it through the lifecycle.

Some of the best pricing opportunities and cost opportunities happen in the very early stages of a project, including that.

So, you know, we do really encourage and invite clever and innovative bidding from the right proponents. And, you know, that's a very important and critical part of cost minimization. I know it feels very standard, but if not done correctly, it can actually be a significant piece of cost pressure.

[Transcript, pp. 223-227]

[67] Other issues raised during the hearing concerning NS Power's specific costs minimization examples included:

- The majority (71%) of the \$9.0 million in savings noted in Figure 69 accrued from two of the 35 projects, namely the Tuskett Falls and Lake Mulgrave Dam Refurbishment projects; and
- Some of the cost savings identified in the data underlying Figure 69 (specially those related to the Tuskett Falls Dam Refurbishment project) are cost savings associated with extra costs that were not part of what was originally approved by the Board.

[68] Finally, NS Power has agreed to complete internal post-project reviews for capital projects over \$5 million in cost. The company also stated that it believes post-

project reviews for lesser value projects may not add customer value commensurate with the cost of conducting such reviews, thereby suggesting that such reviews are not warranted. NS Power noted that it believes this approach will strike the right balance between formalizing internal post-project analyses, while not creating additional processes that will lead to inefficiencies. Further, the company stated that the evidence presented in this proceeding supports its claim that its project spending and historical ATO data demonstrate strong cost minimization. Therefore, NS Power does not believe that the recommendations presented by the CA related to further enhanced project tracking and retention of a third-party expert are required.

#### **3.5.2.1 Findings**

[69] In its 2020 ACE Plan decision, the Board directed NS Power to provide specific examples of cost minimization during execution and construction from the prior year's projects, with specific cost minimization being fully described. The Board considers the examples provided in the 2021 ACE Plan to be an improvement over those provided in the 2020 ACE Plan application and responsive to the 2020 decision direction. Further, the Board notes that through the IR process, NS Power provided more information about these examples, including the related cost minimization processes and practices employed by NS Power. The Board found that information to be very useful. Therefore, the Board directs that in subsequent ACE Plan applications, NS Power is to continue to provide specific examples of cost minimization practices used during execution and construction of the prior year's projects, with specific cost minimization efforts being fully described. In particular, the Board directs that this information continues to be presented in the format used in Section 11.1.5 of the 2021 ACE Plan application. This material is to

be supplemented with additional specific project details in the format used in Attachment 1 of NS Power's response to the CA's IR-1 in the 2021 ACE Plan proceeding.

[70] During the hearing, NS Power revealed that the 35 projects used to produce the cost minimization data in Figure 69 of the 2021 ACE Plan application were selected by the company at random. The Board reiterates that the extent of cost minimization examples provided in the 2021 ACE Plan application is an improvement over information submitted in the 2020 ACE Plan application. The Board is, however, concerned that the projects used to produce Figure 69 were selected at random. The Board believes that the number and types of opportunities for cost minimization can vary across capital projects of differing size. These can also vary across project function class and asset type. The Board finds, therefore, that the criteria for selection of projects to include as specific examples of cost minimization needs to be more defined than simply being done at random. The Board believes that projects selected need to vary in overall cost, as well as asset type. Rather than the Board directing how these criteria are developed, the Board directs that these criteria be developed through a stakeholder consultation process. This process is discussed later in this decision.

[71] In his opening statement, the CA stated that NS Power's 2021 ACE Plan evidence regarding its cost minimization efforts is underwhelming and has identified minimal specific cost minimization results. In his closing submission, he elaborated further on his concerns. In particular, he noted concerns with the cost minimization examples related to using fewer units than estimated in original tender documents, as well as the efforts associated with astute bidding by the successful contractor on the Lake Mulgrave Dam Refurbishment project. The CA suggested that these efforts were not

examples of proactive measures taken directly by NS Power. He also reiterated the issue raised during the hearing associated with costs savings on the Tuskett Falls Dam project being related to extra costs. The CA also appeared to suggest concern that 71% of the total capital cost minimization savings identified by NS Power in Figure 69 of the application resulted from efforts on only two capital projects.

[72] In both its closing submission and reply submission, NS Power contended that through the 2021 ACE Plan proceeding it has identified a number of specific capital cost minimization examples and achievements for the Board and stakeholders. The company also refuted some of the concerns expressed by the CA in his closing submission:

- With respect to the first four bullets of its closing submission, no conclusion regarding NS Power's cost minimization practices can be drawn from the fact that the majority of the cost savings identified by NS Power within Figure 69 of the 2021 ACE Plan are from two projects. As stated during the 2021 ACE Plan Hearing, the 35 projects were randomly selected, and cost minimization is not a uniform concept that can be equally applied with equal results expected across all projects. Opportunities to achieve identifiable cost minimizations in relation to a project are specific to the facts, circumstances, and timing of the project.
- With respect to the fifth bullet, the CA states that "[m]any of the cost minimization actions underlying Fig. 69 reference cost savings associated with using fewer units than were estimated in the original tender documents (Transcript page 217)" [emphasis added]. NS Power notes that only 4 of the 58 cost minimization actions underlying Figure 69, and outlined in Attachment 1 to CA IR-1, are associated with using fewer units. These are examples of cost minimization achievements.

...

As noted by Mr. Dandurand, such savings associated with using fewer units than were estimated could certainly be a result of how the project was executed in the field, and should not be discounted as an item that does not reduce costs for customers.

- With respect to the sixth bullet, the CA states that "[s]ome of the cost savings identified in the data underlying Fig. 69 are in fact cost savings associated with extra cost that were not part of what was originally approved by the board. (Transcript pages 221 and 222)". NS Power disagrees with the general implication of this bullet that these or similar cost minimization efforts or achievements are somehow diminished because of this context. Cost minimization achievements, even within required additional scope, should not be discounted as value is still being created for customers.

With respect to the seventh bullet, the CA states that "some of the cost savings underlying Fig. 69 are examples of contractors undertaking astute bidding rather than proactive steps

by NS Power. (Transcript page 224)" NS Power disagrees with the assertion that obtaining best value for customers by way of competitive bids is not representative of cost minimization achievements. As shown in prior cost minimization reporting to the NSUARB, competitive bidding and RFP processes can significantly minimize costs for customers, and are part of NS Power's multi-faceted project management processes aimed at providing the best value for customers...

[Exhibit N-17, pp. 6-8]

[73] The Board agrees with NS Power that although 71% of the cost savings identified by NS Power in Figure 69 result from only two capital projects, this does not necessarily imply inadequate cost minimization practices. Additionally, the CA is correct that the noted Tusket Falls Dam project savings are associated with extra costs beyond the Board approved project budget. The fact that extra costs have been incurred on that project may suggest there were issues related to how NS Power estimated the scope and/or cost for the project at the time of submission for Board approval. However, the Board agrees with NS Power that simply because the noted cost savings are related to extra costs does not suggest the company failed to implement cost minimization practices to try and reduce these costs.

[74] The Board does, however, have some concerns with NS Power's reply submissions related to cost savings associated with using fewer units than estimated in tender documents and with its procurement practices. First, NS Power noted that only four of the 58 cost minimization actions underlying Figure 69, and outlined in Attachment 1 to CA IR-1, are associated with using fewer units. However, the Board's review of the Attachment finds there are, in fact, nine examples of cost minimization using fewer units. This notwithstanding, the Board understands NS Power's contention that the related costs savings could be a result of how NS Power executed projects in the field. While this could explain some of these cost savings, the Board is not convinced that a portion (if not a large portion) of these savings is attributable to NS Power using fewer units than it had

estimated. In this case, these cost savings would not represent examples of proactive cost minimization practices by the company, but instead would be a result of NS Power simply overestimating units/quantities when it prepared capital cost budget estimates.

[75] Similarly, the Board understands and agrees with NS Power's assertion that seeking competitive bids is a means of obtaining value and minimizing costs for customers. However, the Board considers this a general example of obtaining best value, and one that the Board would expect NS Power to use for the bulk of its capital projects. As such, the Board does not consider the \$2.3 million in costs savings on the Lake Mulgrave Dam Refurbishment project to be a specific example of a proactive cost minimization practice by the company. Instead, the Board finds this cost savings is primarily related to astute bidding practices on the part of the low bidder. For future ACE Plan applications, the Board asks NS Power to be mindful of these findings when providing specific examples of cost minimization during project execution and construction.

[76] NS Power has agreed to complete internal post-project reviews for capital projects over \$5 million in cost. The Board appreciates the company's commitment in this regard. However, the Board is not convinced that \$5 million is the proper threshold above which such reviews would be completed. In reviewing NS Power's ACE Plan applications from 2017 to 2021, it appears that between a low of 2.3% and a high of 5.3% of the projects included in the ACE plans (including projects that do not require Board approval) are greater than \$5 million in value. Based on this data, it appears that a low percentage of NS Power's ACE Plan projects exceed \$5 million in value. In addition, the Board believes that cost minimization opportunities, as well as the likelihood of project

overspending, can vary across projects of varying sizes. The Board finds, therefore, that a capital cost threshold of \$5 million for NS Power to conduct internal post-project reviews is too high. This needs to be countered though by concerns about regulatory efficiency and associated costs to complete more post-project reviews at a lower threshold. Rather than the Board directing an appropriate threshold, the Board directs that it be developed through a stakeholder consultation process. This process is discussed later in this decision.

[77] In his closing submission, the CA stated:

- Importantly, NS Power was unable to identify any specific examples where learnings from the Fig. 69 data has used in other capital projects. (Transcript page 56 and 58).

Mr. Wilson's recommendations regarding cost minimization include enhanced tracking and reporting of cost minimization activities and the retention of a third-party expert to ensure that NS Power is using industry leading practices to reduce cost on capital project execution. To the degree that NS Power relies on the data at Fig. 69 to support its rejection of Mr. Wilson's recommendations, the Consumer Advocate would urge the Board to carefully consider the significant limitations associated with the data underlying Fig. 69.

It is to be noted that regulated utilities always bear the burden of demonstrating cost minimization. In the present matter, NS Power must be able to demonstrate to this Board that NS Power is effectively minimizing cost in relation to capital planning and execution. With respect, the Consumer Advocate does not view Fig. 69 as fulfilling NS Power's burden. Additional actions are required. Mr. Wilson's recommendations regarding cost minimization tracking and the retention of third-party expertise should be implemented.

[Exhibit N-15, p. 3]

[78] NS Power responded by stating:

- In the eighth bullet, the CA states that, "[i]mportantly, NS Power was unable to identify any specific examples where learnings from the Figure 69 data has used in other capital projects. (Transcript page 56 and 58)." With respect, this is not an accurate characterization of the evidence. Mr. Dandurand testified as follows:

A. (Dandurand) Yes. So the lessons that we learned through the execution of our capital projects are integrated into our project management methodologies.

Q. Okay. And so I'll come at it this way, Mr. Dandurand, has anything changed in Nova Scotia Power's capital execution processes as a result of having developed the data in Figure 69; and, if so, what exactly?

A. (Dandurand) Yeah, so Mr. Mahody, I wouldn't say that anything has changed with respect to the data that is -- is presented here in Figure 69, and the reason for that, as we've articulated in our evidence and in our -- in our reply evidence as well, is that cost minimization is at the root of all that we do throughout the various phases of our capital projects.

And so while this -- this information has been helpful for us, as I mentioned before, in terms of understanding where the savings are being derived from on these particular projects, the processes that we have in place in order to minimize costs for customers are well established, and we continue to execute our programs and our projects with minimizing costs for customers at the forefront.

So nothing specific has changed as a result of this work. Again, the reason for that is that our processes are established, and we have cost minimization at the forefront of the execution of our projects and our capital program.

Simply because certain established practices have not immediately changed following cost minimization reporting, is not indicative of whether or not relevant experience or learnings have been gained. As testified by Mr. Dandurand, the identified cost minimization achievements in Figure 69 have provided helpful insight into where the savings are being derived from particular projects and how those savings are being derived in the context of existing practices. The absence of a revision or change to those practices does not mean that experience has not been gained or a lesson has not been learned.

[Exhibit N-17, pp. 9-10]

[79] As outlined in Section 3.5.1.1 of this decision, the Board has found that there has not been any meaningful improvement over the past year in the measures used to assess the effectiveness of NS Power's cost minimization practices. In that same section, the Board has also expressed several other concerns associated with the effectiveness of NS Power's capital cost minimization and budgeting practices. As such, the Board does not fully agree with NS Power that the recommendations presented by Mr. Wilson are not required. The Board finds that the enhanced capital project tracking, specifically as it relates to "lessons learned," should be implemented by NS Power. However, the Board does not believe that engagement of a third-party expert to review NS Power's cost minimization practices is required at this time. This does not preclude the Board from directing such a review in the future should the Board continue to express concerns with NS Power's cost minimization practices.

[80] With respect to “lessons learned” project tracking, Mr. Wilson stated:

Fundamentally, NS Power needs to adopt a meaningful “lessons learned” business practice. While NS Power does refer to “lessons learned exercises,” it has not referred to any specific findings from those exercises in any of its evidence submitted in the 2020 or 2021 ACE Plan proceedings.

...

The Board does not desire additional reporting that compromises regulatory efficiency, a position that I fully concur with. An effective “lessons learned” business practice will result in documentation that is used for training, reference in project planning, and future project evaluations. Examples of this material and, as appropriate, business practices formally adopted by NS Power should provide the Board with sufficient evidence that effective cost minimization are in place.

[Exhibit N-7, pp. 10-11]

[81] The Board agrees with Mr. Wilson and directs NS Power to work with stakeholders to develop the framework and reporting protocols for a “lessons learned” business practice.

[82] In his closing submission, the SBA stated:

The 2021 ACE Plan hearing raised issues with the proposed Contingency Guidelines and Cost Minimization Efforts, among other items. The SBA believes that these issues are well suited for ongoing stakeholder discussions, leading into the 2022 ACE Plan.

...

During the ACE Plan hearing there was significant discussion about cost minimization in general and how that practice can be better displayed or explained to Stakeholders and the Board. The SBA sees cost minimization as an essential part of NSPI's obligation to ratepayers and supports a process by which NSPI provides that additional information, without incurring additional costs to do so. There must be a balance struck between information sharing and additional costs. What that balance is remains difficult to determine without knowing what additional costs NSPI would incur to provide that information and how those costs could increase with additional disclosure requirements. This issue may be better addressed through an initial Stakeholder consultation process, with a follow up report to the Board.

[Exhibit N-14, pp. 1-3]

[83] In its reply submissions, NS Power agreed that stakeholder consultation is a preferred forum to address the issue of cost minimization. The Board agrees.

[84] The Board directs NS Power to undertake a stakeholder consultation process to address the following:

- provide stakeholders with a better understanding of NS Power's cost minimization and project management practices;
- develop criteria for the selection of projects to be included as specific examples of NS Power's cost minimization efforts;
- agree upon the capital cost threshold for which NS Power will conduct internal post-project reviews; and
- develop a framework and reporting protocols for a capital cost "lessons learned" business practice.

NS Power is to prepare a draft schedule, complete with milestone dates and a description of associated deliverables, for this stakeholder consultation process by July 9, 2021. The draft schedule is to be submitted to the Board and stakeholders for review and comments. The stakeholder consultation process is to conclude with a report to the Board (as directed in Section 3.9 of this decision) describing the outcomes of the consultations.

### **3.6 IT Investment and Project Management**

[85] In response to Board IR-52, NS Power provided a copy of its 2021 IT Investment Plan and a report on the status of the 2020 Plan. The Plan outlined the principles governing investment with continuation of the Cyber Security Program, T & D Work & Asset Management, Enterprise Business Intelligence and Customer Information System extending to 2025, with completion at various points during the period.

[86] For projects under the 2020 Plan, NS Power reported many to be in progress. Some were deferred, mainly to 2021, and some were cancelled. Only one project was completed.

[87] The company stated that it attempts to maintain economic balance between internal and external project managers. Only one project in the IT component of the 2021 ACE Plan will have an external project manager. That role is limited to the preliminary

phase of CI 49094 IT Privileged Access Management (PAM); internal managers are otherwise occupied during this phase but are expected to be engaged in the future.

[88] The PAM project was the subject of IRs from both the Board and the CA. It is designed to provide protection from cyber-attacks. Mr. Wilson questioned the large increase in costs from the 2020 ACE Plan, which NS Power explained was based on preliminary scoping.

[89] Mr. Wilson recommended that the Board might wish to obtain detail on the total ownership cost for the PAM project, including ongoing operational costs, license renewals, warranty extensions, and annual costs for maintenance, support, and subscriptions. Further, he recommended that the Board consider seeking such information for all IT projects with capital budgets of \$1 million or more.

[90] While NS Power submitted that the PAM project was not justified on economics, and therefore the information Mr. Wilson identified had not been provided, the company agreed that where alternatives were technically feasible, an analysis of the total cost of ownership would be provided. Finally, in its closing submission, NS Power advised that this recommendation by Mr. Wilson would be included in the topics for the stakeholder engagement which is discussed further in this decision.

### **3.7 Impact of COVID-19 on Capital Spending**

[91] NS Power reported that the capital spending in its 2020 ACE Plan was significantly reduced, with some capital projects deferred to 2021 or 2022, or even later years. As a result of the COVID-19 pandemic, the company was forced to evaluate its work plans, in part due to supply chain interruptions, as well as external contractor restrictions.

[92] However, not all the underspending was related to COVID-19. In response to U-6, NS Power provided information on the direct and indirect impacts of COVID-19 on 2020 capital projects. Both positive and negative variances in spending resulted because of changes to work plans. The company reported 31 deferred projects and spending of \$5.3 million directly impacted, and 21 projects with spending of \$4.3 million indirectly impacted.

[93] The SBA submitted that there were likely lessons to be learned from the COVID-19 experience and urged that the issue be included in a stakeholder engagement process. In its closing submission and reply submission, NS Power agreed to further discussion. The Board considers such further consideration by stakeholders would be useful.

[94] In the 2020 ACE Plan decision, the Board directed NS Power to provide information in its quarterly reports on the impact of the pandemic on the timing and completion of capital projects. NS Power complied with that direction. It appears to the Board reasonable to assume that COVID-19 will continue to be a factor in projects outlined in the 2021 ACE Plan. Therefore, the Board directs NS Power to continue with these reports in future quarterly filings.

### **3.8 Dam Safety**

[95] In its 2020 ACE Plan decision, the Board advised the parties it would engage a consultant to report on dam safety issues. The goal of the study was to provide guidance to the Board regarding the application of the Canadian Dam Association Guidelines.

[96] On December 1, 2020, Stephen Rigbey, of SJR Consulting Inc., submitted his report titled “Guidance Document for the Review of Dam Safety Projects” to the Board. The report was filed under Matter M09499 and can be found on the Board’s public website.

[97] The Board undertook further examination of dam safety issues, and as a result, directed NS Power to provide answers to eleven questions in advance of the 2021 ACE Plan hearing. NS Power’s responses to these questions, received on March 10, 2021, were filed as Exhibit N-8 in this proceeding. Board Counsel also requested additional information with respect to dam safety issues during the 2021 ACE Plan hearing.

[98] The findings of the study, as well as additional information provided by NS Power during the 2021 ACE Plan proceeding, should assist the Board and all stakeholders with assessing future dam related capital applications submitted for approval.

### **3.9 Items deferred to Stakeholder Engagement, including issues related to Contingencies and Contingency Guidelines**

[99] For a number of years, NS Power has hosted a stakeholder engagement process to address various issues raised during the ACE Plan proceedings. These issues can include technical, process, and policy considerations related to capital spending, where parties may have differing perspectives.

[100] This process is a useful way to generate a more fulsome and collaborative exchange of ideas and information outside of the arena of an adversarial proceeding. Transparency is maintained by a public report outlining where consensus has been

achieved and what issues remain unresolved. The Board retains oversight jurisdiction over the issues that are referred to the stakeholder engagement process.

[101] In his evidence, Mr. Wilson made ten recommendations. Consensus could not be reached on most of these recommendations prior to the hearing. NS Power and the CA agreed that seven of the ten recommendations should be referred to the stakeholder engagement process for further discussion.

[102] The matters NS Power and the CA submit can be further addressed in a stakeholder engagement process are summarized by the Board as follows:

- Whether the Board's Contingency Directive should be expanded to require data on all projects with budgets or spending over \$250,000, and whether the scope of the data request should be wider.
- Whether NS Power should be directed to improve its Non-Binding Contingency Guidelines to identify specific budget and planning practices that improve accuracy and support cost minimization in capital projects by: i) fully implementing the AACE Recommended Practices, including creation of a checklist to classify project maturities; ii) documenting use of expert judgement when setting contingencies by applying predetermined guidelines using a matrix, or some other approach that demonstrates the basis for the budget contingency; and iii) applying contingencies to specific parts of the project budget, rather than routinely applying contingencies to the total project budget.
- Whether NS Power should leverage the project contingency to help drive cost minimization, using a continuous process to increase the cost estimate accuracy throughout the planning process.
- Whether the Board should direct NS Power to update the EAM to align with new practices and more recent data that affect the replacement cost of energy and the design of sensitivities.
- Whether NS Power should be directed to provide a full explanation of the current accounting treatment for all decommissioning-related costs.
- Whether AMI implementation IT projects should not only support the time-varying pricing, but also ensure all customers are able to access details of their energy consumption. Further, whether NS Power should coordinate with E1 so that customers have immediate access to relevant information about saving energy and money when they access that information.

- Whether NS Power should provide to the Board a total cost of ownership estimate for the PAM IT project (49094), and whether NS Power should be directed to routinely provide such information for IT projects with capital budgets over \$1 million.

[103] The above listed items include issues related to NS Power's recently developed Non-Binding Contingency Guidelines. These arose from the Board's 2020 ACE Plan decision. In that proceeding, NS Power's development and use of contingencies was discussed in detail. The Board had concerns as to whether NS Power was adequately determining and applying contingencies in a consistent manner. This led the Board to agree with a recommendation from the CA that NS Power develop non-binding contingency guidelines. These guidelines were intended to describe how NS Power "...determines when a capital cost estimate contingency amount is merited and at what level." [2020 NSUARB 82, para. 91]

[104] NS Power filed the Non-Binding Contingency Guidelines as part of this proceeding. These guidelines were also the subject of comment by the SBA, who also submitted they should be discussed further through stakeholder consultations.

[105] NS Power agreed with the SBA that further discussion of the Non-Binding Contingency Guidelines would be useful. In its reply submissions, NS Power stated:

With respect to NS Power's Contingency Guidelines, the SBA states the following:

The proposed Contingency Guidelines are detailed in how they are to be used, but the proof will be in their actual implementation and use. The SBA believes that it is more efficient and productive for NSPI to implement the Contingency Guidelines as proposed, with a commitment to work with Stakeholders to show how the process is working. This will allow for real-time assessments of whether the Contingency Guidelines are consistent with real costs. There can then be a discussion of any necessary adjustments, either to the Contingency Guidelines or to the practice of NSPI, in a timely manner. Given the importance of the Contingency

Guidelines, it will also allow Stakeholders to gain better insight into the cost exposure potential for various projects.

The SBA further submits “that the stakeholder consultation should include a discussion of whether the contingency guidelines could or should be expanded beyond the probabilistic range of outcomes and explore whether there is the possibility of employing a contingency guideline that captures different types of risk than that currently considered by NSPI.”

NS Power agrees with the SBA that these issues would be best discussed during a stakeholder engagement process. In addition, and as set out in the 2021 ACE Plan, NS Power has committed to continued evaluation of the Contingency Guidelines and, further to stakeholder feedback, NS Power will: (1) review historical Company project data to inform the selection of contingency for projects within the ranges set out in the Contingency Guidelines; (2) for the 2022 ACE Plan and beyond, develop checklists for larger capital projects (either on the approval or subsequent submittal list); and (3) provide supplemental information with the detailed cost estimates for projects with higher contingency amounts. These items could be canvassed further during the stakeholder engagement process with NS Power reporting back to the Board on progress within its stakeholder engagement report.

[Exhibit N-17, pp. 2-3]

[106] Mr. Wilson also discussed the relationship between scope variation and contingencies in his evidence. While acknowledging that there could be budgetary provisions for both aspects in relation to the same project, he suggested that the Board should encourage NS Power to make greater use of scope variation allowances. He said these were more specific, thus allowing for greater accountability. He further suggested that for capital budget and reporting purposes, NS Power should be directed to present total contingency amounts, including any allowance for scope variations. The Board will not provide any specific direction at this time, but this issue should be discussed as part of the stakeholder engagement process related to contingencies.

[107] The Board acknowledges there were ongoing concerns raised in the evidence with respect to the use of contingencies. That said, as they do not directly impact the Board’s approval of the specific projects which were submitted for approval in the 2021 ACE Plan, it will defer further comment pending the stakeholder engagement report in due course.

[108] In addition to issues related to contingencies, the SBA also submitted that the COVID-19 pandemic had resulted in numerous project deferrals without any apparent significant impact on the safety and reliability of the grid. A recommendation was made that the stakeholder engagement process should include a discussion of any learnings derived from this experience and how these might be leveraged for future capital expenditure planning. NS Power was agreeable to discussing this item further with stakeholders.

[109] The Board is satisfied that NS Power and the stakeholders would benefit from further engagement on the items discussed in this part. Accordingly, the Board directs that they be referred to the stakeholder engagement process. The foregoing items would be in addition to the items discussed earlier in this decision with respect to cost minimization. In order to have a coordinated process, NS Power is directed to prepare a draft schedule similar to the one described in paragraph [84] for the items discussed in this section of the decision.

[110] NS Power suggested that it report back to the Board prior to the next ACE Plan application. The Board would, therefore, request that a report or reports be filed by September 30, 2021, in relation all the matters referred to the stakeholder engagement process.

#### **4.0 SUMMARY**

[111] In its 2021 ACE Plan application, NS Power asked the Board to approve spending in 2021 totalling \$147.1 million on individual capital projects and routine capital expenditures. NS Power also filed a proposed 2021 budget of \$361.8 million for individual

capital projects, including those under \$1 million, Point Aconi projects (which do not require Board approval), routine capital expenditures, and carryover spending.

[112] The CA opposed only one project of those submitted for approval, C0031050 - 138/69kV Spare Autotransformer Project. The Board has determined that this project should be approved. Therefore, the Board finds there is sufficient justification for the need, and the corresponding cost estimates, of all the projects submitted for approval, and approves the 2021 ACE Plan.

[113] The Board directs NS Power to report back to the Board as to the status of the management plan for the autotransformer fleet, as part of the 2022 ACE Plan filing.

[114] The Board directs NS Power to continue to provide more detailed information in its quarterly reports on the timing and anticipated costs of any projects deferred as a result of the COVID-19 pandemic.

[115] The Board directs NS Power to continue to track the information noted in Paragraph 92 of the Board's 2020 ACE Plan decision for each completed capital project that was submitted for Board approval in 2017, 2018, 2019, 2020 and 2021 (either through or outside of the ACE Plan proceedings, including projects submitted for subsequent approval, but excluding U&U projects). Further the Board directs that the following additional information be included in the related 2022 ACE Plan reporting:

- NS Power is to identify all new projects that have been added to the report; and
- For any capital projects that have a negative variance greater than or equal to 25% of the Board approved capital cost estimate, NS Power shall provide an explanation detailing the reasons for the variance.

[116] The Board directs NS Power to continue to track this information, including information related to projects approved by the Board after 2021, and report it in

subsequent ACE Plan applications. The Board finds the format of Appendix E of the 2021 ACE Plan application a useful means of presenting this data. The Board, therefore, directs that the data continue to be presented in this format in subsequent ACE Plan applications (subject to the modifications noted in the preceding paragraph). This reporting shall also categorize projects by function (i.e., generation, transmission, distribution, and general plant), with "generation" projects further categorized by type of project (i.e., hydro, steam, gas, other renewables).

[117] The Board directs that in subsequent ACE Plan applications, NS Power is to continue to provide specific examples of cost minimization practices used during execution and construction of the prior year's projects, with specific cost minimization efforts being fully described. In particular, the Board directs that this information continues to be presented in the format used in Section 11.1.5 of the 2021 ACE Plan application. This material is to be supplemented with additional specific project details in the format used in Attachment 1 of NS Power's response to the CA's IR-1 in the 2021 ACE Plan proceeding.

[118] The Board believes that projects selected as examples of cost minimization need to vary in overall cost, as well as asset type. Rather than the Board directing how these criteria are developed, the Board directs that these criteria be developed through a stakeholder consultation process.

[119] The Board directs stakeholder engagement to address the following issues:

- A better understanding of NS Power's cost minimization and project management practices;
- Development of criteria for the selection of projects to be included as specific examples of NS Power's cost minimization efforts;

- The capital cost threshold for which NS Power will conduct internal post project reviews;
- A framework and reporting protocols for a capital cost "lessons learned" business practice;
- Matters raised by the SBA in relation to the Non-Binding Contingency Guidelines, and the commitments made by NS Power, as set out in paragraph [105];
- Whether NS Power should be directed to improve its Non-Binding Contingency Guidelines to identify specific budget and planning practices that improve accuracy and support cost minimization in capital projects by: i) fully implementing the AACE Recommended Practices, including creation of a checklist to classify project maturities; ii) documenting use of expert judgement when setting contingencies by applying predetermined guidelines using a matrix, or some other approach that demonstrates the basis for the budget contingency; and iii) applying contingencies to specific parts of the project budget, rather than routinely applying contingencies to the total project budget;
- Whether the Board's Contingency Directive should be expanded to require data on all projects with budgets or spending over \$250,000, and whether the scope of the data request should be wider;
- Whether NS Power should leverage the project contingency to help drive cost minimization, using a continuous process to increase the cost estimate accuracy throughout the planning process;
- Whether NS Power should make a greater use of scope variation allowances and report total contingency amounts, including scope variations, when furnishing information on capital projects;
- Whether the Board should direct NS Power to update the EAM to align with new practices and more recent data that affect the replacement cost of energy and the design of sensitivities;
- Whether NS Power should be directed to provide a full explanation of the current accounting treatment for all decommissioning-related costs;
- Whether AMI implementation IT projects should not only support the time-varying pricing, but also ensure all customers are able to access details of their energy consumption. Further, whether NS Power should coordinate with E1 so that customers have immediate access to relevant information about saving energy and money when they access that information;
- Whether NS Power should provide to the Board a total cost of ownership estimate for the PAM IT project (49094), and whether NS Power should be directed to

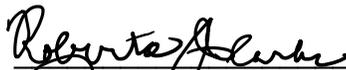
routinely provide such information for IT projects with capital budgets over \$1 million; and

- Whether any learnings were derived from the COVID-19 project deferral experience and how these might be leveraged for future capital expenditure planning.

[120] NS Power is to prepare a draft schedule, complete with milestone dates and a description of associated deliverables, for this stakeholder consultation process by July 9, 2021. The draft schedule is to be submitted to the Board and stakeholders for review and comments. The stakeholder consultation process is to conclude with a report to the Board (as directed in Section 3.9 of this decision) describing the outcomes of the consultations. The Board directs that a report or reports be filed by September 30, 2021, in relation to all the matters referred to the stakeholder engagement process.

[121] An Order will issue accordingly.

**DATED** at Halifax, Nova Scotia, this 10<sup>th</sup> day of June, 2021.



\_\_\_\_\_  
Roberta J. Clarke.



\_\_\_\_\_  
Steven M. Murphy

  
\_\_\_\_\_  
Richard J. Melanson



<b>SCHEDULE "A"</b>			
<b>2021 ACE Plan Approved Projects</b>			
CI Number	Title	2021 Budget	Project Total
<b>Generation</b>			
C0030528	TUC3 HP Turbine Refurbishment	\$2,085,088	\$2,085,094
C0020944	LM6000 - 191-443 Hot Section Engine Refurbishment	\$473,200	\$5,749,282
46483	CT - TUS Control System Upgrade	\$1,046,322	\$1,046,322
<b>Transmission</b>			
C0031263	2021/2022 Substation Polychlorinated Biphenyl (PCB) Equipment Removal	\$3,082,728	\$7,512,226
C0031089	2021/2022 Transmission Right-of-Way Widening 69kV	\$2,015,923	\$5,288,520
C0031122	L6539 Replacements and Upgrades	\$1,410,921	\$2,821,842
C0031085	L6516 Line Replacement and Upgrades	\$1,384,963	\$2,730,592
C0031050	New Spare Large Autotransformer	\$976,198	\$2,398,564
C0033644	2021/2022 Steel Tower Life Extension	\$793,248	\$2,332,746
C0033645	2021/2022 Steel Tower Refurbishment	\$1,190,655	\$1,944,005
C0031069	L6020 Replacements and Upgrades	\$926,286	\$1,825,300
C0031262	2020/2021 Transmission Switch and Breaker Replacement	\$814,495	\$1,483,048
C0031064	L5054 Replacements and Upgrades	\$1,045,362	\$1,134,737
<b>Distribution</b>			
C0031083	New Distribution Rights-of-Way Phase 6	\$4,160,074	\$9,762,735
C0031145	2021 Padmount Replacement Program	\$1,379,040	\$1,636,153
<b>General Plant</b>			
49094	IT - Privilege Access Management (PAM)	\$1,962,056	\$3,211,166
<b>TOTAL APPROVED AMOUNT</b>		<b>\$24,746,559</b>	<b>\$52,962,331</b>