

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 2020**

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

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Brian Curry (Counsel)

INTERVENORS: **CONSUMER ADVOCATE**
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SMALL BUSINESS ADVOCATE
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BOARD COUNSEL: S. Bruce Outhouse, Q.C.

FINAL SUBMISSIONS: **May 4, 2020**

DECISION DATE: **June 25, 2020**

DECISION: **The Board approves the projects listed in Schedule A and the Routine Capital Expenditures in the 2020 ACE Plan in the total amount of \$167.4 million. The Board gives directions to Nova Scotia Power for future ACE Plan applications.**

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APPENDIX

Schedule "A" - 2020 ACE Plan Projects Approved by Board

1.0 INTRODUCTION

[1] Each year Nova Scotia Power Inc. (NS Power) 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 (*PUA*), 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 2020 ACE Plan sought approval for capital projects totaling \$167.4 million. This case is about whether the Board should approve this proposed capital spending.

[3] Due to the impact of the COVID-19 pandemic, this application proceeded by way of a paper hearing, rather than a formal hearing; however, the process remained a public one, with accommodation for additional information requests (IRs) after the filing of Reply Evidence from NS Power.

[4] 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 2020 ACE Plan.

[5] In addition to the consideration of 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.

[6] In this Decision, the Board has commented upon the following:

- Hydro generation investment;

- Capital investment in thermal power plants;
- NS Power's Economic Analysis Model (EAM), including Replacement Energy Cost for hydro generation; the treatment of decommissioning for hydro generation; and the status of the guidebook;
- Cost minimization;
- The use of contingency amounts in capital work orders;
- Annually recurring projects under \$1million; and
- Regulatory efficiencies.

2.0 ISSUE

[7] 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

[8] 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.

[9] 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.

[10] In this Decision, the Board will first consider the 2020 ACE Plan application, and then address the identified issues.

3.1 Content of the 2020 ACE Plan

[11] NS Power's 2020 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 later 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.

[12] NS Power forecasts total capital spending of \$376.1 million during 2020. 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."

[13] The Board notes that, as part of the 2020 ACE Plan proceeding, NS Power requested approval for spending of \$167.4 million. The requested amount includes 26 individual capital projects in the total amount of \$83.1 million. NS Power plans to spend \$39 million on these projects in 2020, and an additional \$44.1 million in 2021, and beyond. Board approval for \$84.3 million was also requested for routine capital expenditures in 2020.

[14] The list of 26 individual projects requested for Board approval includes 19 projects with a total estimated cost between \$1 million and \$5 million, and seven projects with a cost estimate exceeding \$5 million. This is significantly fewer than in previous years due to the amendment to the *PUA*, which previously required approval for capital projects exceeding \$250,000.

[15] 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 IRs submitted by Intervenors and the Board.

[16] The Board notes that during the proceeding, no Intervenor objected to any of the capital projects submitted for Board approval in NS Power's 2020 ACE Plan. However, as noted in the SBA and CA submissions, Intervenors examined several issues related to NS Power's capital spending, that are also discussed in this Decision.

[17] 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).

[18] In response to Board IR-80, NS Power explained that, as a result of the COVID-19 pandemic, the timing of projects included in the 2020 capital plan may change. NS Power stated it would report on any such changes in the quarterly reports it files with the Board. The Board directs NS Power to provide more detailed information in the quarterly reports on the timing and anticipated costs of those projects deferred as a result of the COVID-19 pandemic.

[19] The Board approves the projects and capital expenditures set out in Schedule "A". Should any of them be cancelled, or deferred beyond 2020, NS Power must resubmit them for Board approval.

3.2 Routine Capital Expenditures

[20] Routine capital expenditures are recurring expenses incurred both to sustain NS Power's equipment and allow for system growth. NS Power requested approval for its Routine capital program in the amount of \$84,337,800, exclusive of Point Aconi Routine spending of \$918,996, which does not require Board approval.

[21] The proposed Routines budget in 2020 is similar in scope, but approximately 2.5% higher than the budget in recent years. The Board notes that the 2020 budget is lower than actual spending in 2019. The increased spending in 2019 was primarily due to damage resulting from Hurricane Dorian.

[22] The Board approves NS Power's 2019 Routine capital expenditures in the amount of \$84,337,800.

3.2.1 Hybrid Electric Vehicles

[23] The Board issued IRs to NS Power about the Routine P061 – Transportation Vehicle Replacements. UARB IR-14 requested a breakdown of the vehicle mix, individual unit price, as well as the identification of the types of engines for internal combustion or electric vehicles. In its response, NS Power stated that the 2020 ACE Plan budget only included Internal Combustion Engine vehicles, as it continues to develop a strategy around replacing the vehicles in their current fleet with some form of electric vehicle.

[24] In UARB IR-56, the Board asked NS Power to include information about Hybrid Electric Vehicles (HEV) that could be used as potential fleet vehicles. NS Power advised that HEVs were not considered, as they were not able to meet both criteria of performing all operational requirements of the vehicles being replaced, as well as having comparable costs.

[25] The Board considers that the information provided by NS Power suggests that there are some comparable HEVs which could meet both criteria. The Board further understands that NS Power, based on new information available since the filing of the application, will consider replacement of fleet vehicles with HEVs in future applications. In addition to economic considerations, the Board notes that the consequent reduction in greenhouse gas emissions could be a factor in such decisions.

[26] The Board expects 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.

3.3 Hydro Generation Investment

[27] According to NS Power's December 2018 Hydro Asset Study (HAS), NS Power's hydro power generation facilities consist of 17 individual hydro systems located throughout the Province. Together these systems produce an annual average of approximately one terawatt-hour of renewable electricity, with a net winter capacity totaling 377 MW. The systems currently generate electricity from 31 active powerhouses containing 50 generating units.

[28] NS Power plans to spend \$815.5 million on generation capital projects during the five-year period between 2020 and 2024. According to the company's

response to UARB IR-19, NS Power estimates that \$495.6 million of this total will be spent to complete capital projects on its aging hydro generation assets over this timeframe.

[29] In its 2020 ACE Plan Application, NS Power sought Board approval of three hydro related capital projects. The company estimated that approximately \$7.9 million in new hydro spending will be expended on these projects in 2020. NS Power also estimated that the total forecasted capital spending on these projects will be roughly \$13.6 million. In its Closing Submission, NS Power noted that no party raised any objection with respect to these hydro investments.

[30] The company also expects that the Mersey Redevelopment Phase 1 project will be submitted to the Board for subsequent approval later in 2020. The Wreck Cove LEM Unit Rehabilitation project was submitted to the Board on February 21, 2020. Projected spending on the Mersey Redevelopment project is \$22.0 million in 2020 and \$161.0 million in total, while projected spending for the Wreck Cove LEM Unit Rehabilitation project is \$11.7 million in 2020 and \$109.7 million in total. In the 2019 ACE Plan, NS Power estimated total spending for the Mersey Redevelopment project to be \$115.5 million and \$53.7 million for the Wreck Cove Unit 1 overhaul. The Board notes that the scope of work for the Wreck Cove project described in the 2019 ACE Plan only included the Unit 1 overhaul. The scope of work for Wreck Cove described in the 2020 ACE Plan includes an overhaul for both Units 1 and 2, as well as an overhaul of the intake structure.

[31] The largest hydro capital project submitted for Board approval through the 2020 ACE Plan proceeding is the Lake Mulgrave Dam Refurbishments. Lake Mulgrave is part of the Bear River hydro system. NS Power estimated the total capital cost for this

project to be \$5,853,650 with project spending of \$5,539,967 in 2020. In response to UARB IR-48(e), NS Power confirmed that an extensive field investigation program was completed at the project site in 2019, with test pits and boreholes completed along the lengths of all structures, which identified the foundation elevations of the dams. The company also confirmed that archaeological investigations (initial scoping and shovel testing) have been completed at the site and the related dam designs were modified to avoid high archeological potential areas. In response to UARB IR-48(k), NS Power also confirmed that the capital cost estimate for the project includes costs related to access road upgrades and related bridge construction.

[32] The next largest hydro capital project submitted for Board approval through the 2020 ACE Plan proceeding is the Marshall Falls Main Dam Refurbishment project. The estimated capital cost for this project is \$5,452,794, with project spending of \$270,267 in 2020. The third hydro generation capital project submitted for 2020 ACE Plan approval is the Weymouth Falls Unit 1 Generator Refurbishment Project. Estimated total spending on this project is \$2,264,326, with estimated spending of \$2,070,568 in 2020.

[33] Two of the three hydro generation capital projects submitted for approval through the 2020 ACE Plan Application involve dam refurbishments. NS Power's response to UARB IR-67(e) and IR-68(b) confirmed that Nova Scotia Environment (NSE) does not provide explicit or implicit direction or regulatory guidance to NS Power regarding the standard of repair or condition assessments for interpretation of its dam safety standards; nor does the Province of Nova Scotia have any provincially enacted

dam safety regulations. NS Power, as a dam owner is, therefore, left to apply industry best practices at its own discretion.

[34] NS Power uses the Canadian Dam Association (CDA) Guidelines to assess its hydro system dams and determine any required scope of refurbishment work. As it relates to dam safety assessment, the CDA acknowledges that, as a non-governmental organization, it is not well positioned to answer questions relating to, or setting standards relative to, societal norms and acceptable levels of risk. Absent any socially determined levels of acceptable risks, it is up to NS Power to decide the acceptable level of risk and the required scope of work for any of its hydro dam refurbishment projects. In response to UARB IR-48(g), the company stated:

... As part of NS Power's Asset Management approach, dams are refurbished to meet the most current version of the CDA Guidelines when alternative mitigation strategies, (e.g. increased monitoring, or instrumentation) are not capable of addressing changes to the CDA guidelines and reducing risk to a level determined to be acceptable by NS Power's dam safety program.

[Exhibit N-13, p. 9]

[35] The CDA Guidelines describe two means for conducting dam safety reviews/assessments. These include the Standards Based approach and the Risk Informed approach. In response to UARB IR-49(e), NS Power described these approaches as follows:

1. The Traditional Standards Based Approach is still the most used approach by consultants in Atlantic Canada based on NS Power's experience. The Standards based Approach is still an acceptable approach given the nature of the NS Power hydro systems and the types of dams and water-retaining structures in those hydro systems. For the Sheet Harbour Hydro System specifically, the system is a fairly simple system in terms of the dam structures, which can be assessed adequately using the Standards Based Approach.
2. The Risk-Informed Approach is generally used on more complex systems or dams, probable failure modes analyses (PFMA) are typically completed, and significantly more work is required to complete these types of assessments. With additional works

being required to complete the Risk-Informed Approach, the costs to undertake the studies are also higher.

[Exhibit N-13, pp. 4-5]

[36] In response to UARB IR-67(g), NS Power indicated that it has generally used the Standards Based approach to complete its dam safety reviews and assessments. The company argued that the Standards Based approach continues to be widely used in the dam safety industry.

[37] In the 2013 edition of the CDA Guidelines, the CDA provided additional commentary on the appropriate application of the Standards Based and Risk Informed approaches. In view of the large uncertainties involved with dam engineering, the 2013 Edition encourages the use of the Risk Informed approach to dam safety assessments. However, it also recognizes challenges in Risk Informed approach applications, while acknowledging weaknesses with each approach. Specifically, with respect to the Standards Based approach, the 2013 CDA Guidelines state that limitations associated with this approach include:

- Focus on extreme natural hazards in isolation, which can lead to preferentially implementing expensive solutions that may not necessarily improve the safety of the dam over that which could be achieved by other more economical means
- Inability to define standards for a number of dam failure modes, which may lead to inappropriate or misleading assessment of safety

[Canadian Dam Association Dam Safety Guidelines 2007 (2013 Edition), p. iii]

[38] In UARB IR-67(g)(i), NS Power was asked to provide examples of when it has used the Risk Informed approach on prior dam safety assessments. The company was also asked to provide examples of when it has compared the potential difference in outcomes when utilizing the Risk Informed approach versus the Standards Based approach to dam safety assessment. NS Power responded as follows:

NS Power has not evaluated the costs of the Risk-Informed approach against the Standards Based approach and are unable to provide the estimated cost comparisons at this time but will commit to evaluation in future reviews.

[Exhibit N-15, p. 8]

[39] NS Power is a large utility with over 200 dams listed in its dam safety risk prioritization matrix. NS Power also plans to spend a great deal of capital on its dam safety work and refurbishment of its hydro systems over the next few years. At the same time, based on several recent dam refurbishment projects submitted for Board approval, it appears, at the initial stages of such projects, the company has not demonstrated a full understanding of the costs required to complete these projects. This has resulted in project cost escalations and budget overspending. The Board finds, therefore, that there could be benefit in NS Power undertaking a more advanced approach to dam safety assessments.

[40] The Board believes that the use of the more sophisticated CDA Risk Informed approach could allow NS Power to better understand dam safety risks, better optimize its dam safety priorities, and obtain a better grasp on the required level of capital investment for these type of projects. Additionally, the Board is concerned that limiting dam safety assessments to only the CDA Standards Based approach may be overly conservative. This could result in NS Power investing excess capital in its hydro dam projects, unnecessarily increasing rate base. Further, within the context of a rate-based utility, which is required to balance societally acceptable levels of risk and performance, with costs imposed on ratepayers, the Board believes it is difficult to achieve that balance without regulatory guidance. However, without a more thorough and comprehensive assessment, it is difficult for the Board to confirm whether the highest possible margin of safety may or may not be required for a specific project.

[41] Therefore, the Board intends to engage a consultant to complete a study that will provide guidance to the Board regarding the application of the CDA Guidelines when reviewing applications that relate to dam safety. The study will include a discussion on the application of both the Standards Based and Risk Informed approaches and how they may result in different dam maintenance and capital spending conclusions. In addition, absent any provincial definition of acceptable levels of dam safety risk and performance, the study will include a literature review of dam safety practices in other jurisdictions involving regulated power and water utilities. The Board intends to have the study complete by the end of 2020. The Board will use the findings of the study to help assess future dam related capital applications submitted by NS Power for approval. For each of these applications, the Board expects NS Power to identify which approach it used for the associated dam safety review, and to justify why the approach is more appropriate than the alternative.

[42] The Board understands the importance of NS Power's hydro systems, particularly as it relates to the company's obligations with respect to renewable energy targets, and the need for renewable sources to provide firm dispatchable capacity. Nevertheless, given the magnitude of the forecast hydro expenditures in the company's current Hydro Interval Plan (HIP) (provided in response to UARB IR-57) and HAS, the Board welcomes the further evaluation of continued operation of each of NS Power's hydroelectric facilities, based upon HIP and HAS inputs, in the company's ongoing Integrated Resource Plan (IRP) process. In this evaluation, it will be important for the Board to understand how the costs identified in the HIP and HAS impact the overall assessment of NS Power's hydro assets.

[43] In this context, NS Power is reminded that the Board expects further vetting and testing of the sustaining and decommissioning costs identified in the HAS will be conducted during the IRP process. The Board notes that for a number of NS Power's hydro systems, a very wide range of potential archeological related decommissioning costs were identified in Appendix F of the HAS. NS Power has carried the high end of these cost ranges in its estimated total decommissioning costs for these hydro systems. However, the use of archeological costs at the low end, or even middle, of these ranges would have a very significant impact on overall system decommissioning costs. Furthermore, there may be opportunities to evaluate partial decommissioning of some hydro systems, particularly those that have multiple powerhouses, such as the Sheet Harbour and St. Margaret's Bay systems.

[44] Finally, in UARB IR-74(a) and (b), NS Power was asked to identify the percentage of the estimated annual capital sustaining costs in the updated 2020 HIP (submitted in response to UARB IR-57) that represent expected archeological and Mi'kmaq engagement costs associated with those capital sustaining costs. NS Power responded that it could not produce this historical percentage estimate within the time provided to respond. NS Power is directed to provide this information to the Board no later than August 31, 2020.

3.4 Capital Investment in Thermal Power Plants

[45] In its response to UARB IR-16, NS Power provided anticipated annual capacity factors for its thermal generating units. According to the information provided, Lingan Unit 2 is planned for retirement upon the commencement of the delivery of the Nova Scotia Block of energy and related firm capacity from the Maritime Link. While the

original plan was to retire the unit in 2020, given the uncertainty as to when the Nova Scotia Block will be available, this plan will have to be revisited. The other thermal units are currently expected to be in operation until at least the year 2029. An updated retirement schedule will likely be developed as part of the upcoming IRP.

[46] The Intervenors did not take issue with any of the specific projects that were submitted for Board approval in the 2020 ACE Plan. However, the CA raised several issues related to annually recurring capital projects under \$1 million, including some associated with the thermal power plants. These issues arise as a result of the recent amendment to the *PUA*, which provides that large utilities, such as NS Power, are no longer required to obtain Board approval for capital investments under \$1 million.

[47] This issue of the inter-relationship between recurring capital costs and the \$1 million threshold will be discussed in more detail in section 3.8 of this Decision.

3.5 Economic Analysis Model

3.5.1 Replacement Energy Cost for Hydro Generation

[48] NS Power's Economic Analysis Model (EAM) is a standard software model used to calculate the economic benefits of any project. The EAM is a very useful tool to evaluate the cost efficiency of proposed projects and their alternatives. The CEJC outlines the EAM approach where a project is submitted based on the economic justification criteria.

[49] NS Power uses the Port Hawkesbury biomass co-generation unit as a proxy for the Replacement Energy Cost (REC) calculation for hydro generation. No consensus has been achieved among stakeholders on the use of this proxy.

[50] In the 2019 ACE Plan Decision (2019 NSUARB 60), the Board expressed concerns with using Port Hawkesbury biomass cogeneration costs in the REC in all circumstances.

[51] The REC for hydro generation is of considerable importance in those hydro projects where possible refurbishment or decommissioning options are considered for a hydro facility. Several of these projects are currently before the Board. The opportunity to address the issue may arise in those proceedings.

[52] There are no hydro projects submitted for approval in the 2020 ACE Plan which are based on the economic justification criteria. Accordingly, no replacement energy cost information was provided in this application. The issue will, therefore, not be further discussed in this Decision.

3.5.2 Treatment of Decommissioning for Hydro Generation

[53] The treatment of decommissioning costs for hydro generation has been on the Board's radar since NS Power began a planned large-scale refurbishment and replacement program of its hydro assets. Areas of concern for the Board include:

- whether current depreciation rates and the methodology used to include decommissioning costs always favour refurbishment or replacement options;
- how to treat decommissioning costs, which will invariably be a one-event cost, in a series of refurbishment or replacement projects related to the same hydro system;
- how to ensure costs and benefits of project alternatives, including decommissioning costs, are properly compared in a consistent manner.

[54] NS Power summarized its general position on decommissioning costs in its responses to UARB IR-53(b):

Full life cycle Economic Analysis Models (EAMs) submitted with future Hydro capital item applications will include either decommissioning costs at the end of the expected useful life

of the current redevelopment, or refurbishment costs to further extend the life of the asset. EAMs which include decommissioning at the end of the useful life will also model appropriate end-effects, replacing energy and capacity on a perpetual basis.

[Exhibit N-13, p.2]

[55] In response to UARB IR-72, NS Power provided further insight on its approach to decommissioning costs. The Board has summarized NS Power's major points as follows:

- A life cycle cost benefit analysis generally takes account of the full benefits and the full costs of a project, including decommissioning of the asset;
- In cases where the expected outcome at the end of the expected useful life of an asset is reinvestment as opposed to decommissioning, the decommissioning costs may be incurred far enough in to the future so as not to have a material impact on an economic analysis on a discounted cash flow basis;
- Individual assets have an expected useful life and will need to be either replaced or decommissioned at the end of life. However, when considering a system or group of assets, in some cases continued operation can be assumed and may make the timing of inclusion of decommissioning costs uncertain or immaterial to the outcome of an economic analysis;
- Decision points to either invest to extend the life of an asset or to retire an asset can occur multiple times over an asset's life. When decommissioning of generating assets is modelled, replacement energy and capacity costs may need to be considered. This is not a consideration when modelling reinvestment costs to extend the life of generating assets;
- Not every capital investment decision requires a comparison of the cost of reinvestment as compared to decommissioning as continued operation of the asset has previously been determined to be the preferred option for customers;
- When approaching a major investment interval, it is not appropriate to disregard decommissioning costs since they were considered at the previous major investment interval;
- In the case of generating assets, the updated cost of decommissioning and procuring replacement energy, capacity and grid services should be compared against the cost of reinvestment and continued operation to determine the lowest cost option for customers. Reinvesting in the unit again may be the best option for customers;

- When major investment intervals are approached, technically feasible alternatives are examined by the Company to determine the lowest cost option for customers.
- The economic analysis that is completed to determine the lowest cost option for investment in a hydro asset includes comparison of the reinvestment cost to an appropriate alternate resource, included in the economic analysis as replacement energy and capacity cost, to confirm that the reinvestment decision is economic. If the cost of decommissioning and procuring replacement energy and capacity is lower than the cost of reinvestment and continued operation of the hydro asset, decommissioning would be pursued.
- The economic analysis process does not have a bias in favour of continual replacement / refurbishment of hydro assets.

[56] In its Closing Submission, the CA stated:

It is the view of the Consumer Advocate that when NSPI submits project applications, the analyses should consider the cost of decommissioning at the end of the estimated lifetime of all options that extend the operating life of the system. This will help ensure that NSPI does not request further cost recovery for potentially uneconomic investments. It will also help ensure that the Board and stakeholders receive the most comprehensive analysis comparing decommissioning to a major sustaining capital investment project in order to manage rate impacts for NSPI customers.

[57] The foregoing evidence and discussion highlights the complexity of an economic analysis related to a long-lasting and integrated hydro system, comprised of many components, most with high sustaining and capital costs, all of which are usually required for the system to generate power.

[58] The Board continues to have concerns and questions with respect to the best approach to take in relation to decommissioning costs, including:

- From an accounting perspective, in order to properly capture the full cost of reinvestment, should future decommissioning costs be included as a current liability, incurred when any reinvestment benefit is realized?
- Should decommissioning costs be considered in every economic analysis, regardless of materiality?

- Is it appropriate to consider full decommissioning costs of a hydro system at every major investment interval, and compare them to the costs of a sub-system or component of the overall hydro system?
- Should the continued long-term operation of particular hydro systems be assumed?
- Does an economic analysis need to be made of an entire hydro system over the entire lifecycle in order to capture the true cost of maintaining a generating system as a whole and weigh it against the reinvestments required to obtain economic and energy benefits over the same time period?
- Since decommissioning can only occur once, is there a true matching of costs and benefits if the full costs associated with decommissioning are considered at each major investment intervals, which can occur more than once?

[59] The treatment of decommissioning costs can be an important factor in some projects where the decision as to whether a hydro facility should be refurbished or decommissioned is considered on an economic basis. In an ideal world, a clear determination on how to treat the decommissioning costs would be made prior to the submission and review of such projects. That said, there are no hydro projects submitted for approval in the 2020 ACE Plan that required a decommissioning cost analysis.

[60] There are currently applications before the Board where decommissioning costs form part of the economic analysis. While the Board is of the opinion parties should be aware of its concerns, it has not made any determinations on the answers to the foregoing questions in the context of this proceeding. Detailed findings or directions on the issue are best left to matters where the implications can be addressed in a more concrete way, with the benefit of an actual economic analysis which includes decommissioning costs.

3.5.3 Status of Guidebook

[61] In the 2018 ACE Plan Decision the Board “encouraged the company to update its Guidebook for the economic analysis model and ensure it is used appropriately.” The updated Guidebook was not ready for the 2019 ACE Plan. NS Power explained it was re-evaluating the purpose and the use of the EAM in light of the Board’s direction in the 2018 ACE Plan Decision. Following the clarifications provided in the 2019 ACE Plan proceeding, the Board urged NS Power again to update the Guidebook.

[62] The 2020 ACE Plan Application does not mention the Guidebook. In its response to UARB IR-11, NS Power explained:

NS Power has not updated the EAM Guidebook. NS Power is evaluating the current EAM to determine opportunities for potential improvements and/or modifications to the model. If an updated EAM is created, work instructions for use of the new model would be prepared in parallel. However, if the evaluation determines that the current EAM model will remain in use as is then the Company will update the existing EAM Guidebook. The determination on the creation of a new EAM and/or updates required to the EAM Guidebook will be made and communicated to the NSUARB and stakeholders prior to submission of the 2021 ACE Plan. In the interim the Company continues to rely upon training and review conducted by internal staff experienced with the use of the EAM.

[Exhibit N- 5, p.1]

[63] The continued reliance upon training and review conducted by internal staff experienced with the use of the EAM, for a capital-intensive undertaking, is not ideal in a company the size of NS Power. The version of NS Power’s “User Manual” for the EAM, dated January 2006, has 16 pages. The Board anticipated changes or additions to a user manual this size would be completed by now.

[64] The Board was not aware NS Power was undertaking a comprehensive review of the EAM. This will undoubtedly require stakeholder input and could be a lengthy endeavor. A current Guidebook might be helpful in this process. It can always be modified at a later date, in conjunction with any changes or modifications to the EAM.

[65] The EAM is an essential tool which is used to assess the economic value of capital projects. A new EAM is not likely to be in place prior to the submission of the 2021 ACE Plan. The Board, therefore, directs NS Power to provide a copy of the updated Guidebook for the existing EAM, at the latest, with the filing of the 2021 ACE Plan.

3.6 Cost Minimization

[66] In its 2019 ACE Plan Decision, 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.” NS Power stated in its application that “Cost minimization is at the forefront of all stages of capital project development and execution.” The company went on to say that it follows processes which are intended to “obtain best value for customers at the lowest cost.” However, NS Power said it does not track cost minimization on individual projects.

[67] After setting out information about the processes it employs, NS Power provided examples of cost minimization in several projects in 2019. In IRs, the CA, the Industrial Group, and the Board questioned the usefulness of examples NS Power had provided and requested more specific examples of cost savings achieved through project execution minimization efforts.

[68] In response to the Industrial Group IR-11, NS Power acknowledged that the examples provided “are deferrals of costs” but maintained that they are “also considered costs savings for customers.” In the IR response, NS Power also described its efforts to minimize costs through collaboration with New Brunswick Power for procurement.

Further examples of cost minimization were described for two specific projects (Gaspereau Dam Safety and Tusket Falls) in response to CA IR-2.

[69] In the evidence on behalf of the CA, Paul Chernick and John Wilson, of Resource Insight, agreed that the practices described by NS Power in the application are prudent, but said they do not necessarily result in cost minimization. They suggested more detail about these efforts should be provided and recommended that NS Power continue to report on its cost minimization practices in the ACE Plan and conduct post-project reviews or audits.

[70] In its Reply Evidence, NS Power said it “has robust procurement and project management practices to ensure cost minimization efforts are inherent in the process.” NS Power disputed the need for further reporting as recommended by the CA’s experts.

[71] In his Closing Submission, the CA noted “a lack of information regarding NSPI’s efforts to minimize costs throughout project execution.” The CA expressed concern about what he submitted is NS Power’s “lack of willingness to track and provide information demonstrating the steps it takes to minimize costs for ratepayers throughout project execution.” The CA recommended that NS Power track and report on its cost-minimization practices during project execution.

[72] The SBA, in his Closing Submission, encouraged NS Power to “continue to do all it can to minimize short term costs” and suggested that additional detail on cost-savings completed in 2020 should be provided in the 2021 ACE Plan. He noted that this would not only allow ratepayers and the Board to better understand the cost-saving achievements, but also “encourage NS Power to redouble its efforts to minimize the costs of capital projects through more pre-project planning and diligent project management.”

[73] In both its Closing and Reply Submissions, NS Power disagreed that any additional tracking or reporting is required. It stated in its reply:

NS Power disagrees that any additional tracking or reporting is required and remains concerned that imposing any such requirements would only serve to further decrease regulatory efficiency in a process that has already expanded significantly over the years. However, the Company confirms its willingness to implement internal post project reviews in the context of an ATO or FIN application within those existing processes.

[Exhibit N-20, p. 2]

[74] The Board directed NS Power to provide specific examples of cost minimization in ACE Plans as part of its 2019 Decision. The Board does not consider that the examples provided in this application were responsive to this direction. They generally represent deferrals, which merely postpone costs; the Board notes there are potential savings of interest as a result. However, the Board notes that through IR responses and evidence, more information was ultimately forthcoming about processes and practices employed by NS Power.

[75] The Board understands NS Power's concerns about regulatory efficiency and how this might be impacted by additional reporting requirements. The Board also agrees with the SBA and the CA about the importance of adequate information being made available to satisfy ratepayers and the Board that NS Power adheres to its mantra that cost minimization is at the forefront of its activities. The Board welcomes NS Power's willingness to do "internal post project reviews." The Board does not believe that regulatory efficiency will be unduly compromised by additional reporting; indeed, in its view, the Board considers that the efficiency of ACE Plan proceedings in the future might be improved. Therefore, the Board directs that in subsequent ACE Plan applications, NS Power is to provide examples of cost minimization during execution and construction from the prior year's projects, with specific cost minimization being fully described.

3.7 Use of Contingency Amount in Capital Work Orders

[76] Generally, NS Power's capital project cost estimates are a compilation of estimates for labour, materials, external contractors and more. NS Power indicated that these estimates are based on the best information available at the time of submission for Board approval. To address unknowns that may arise during project execution, NS Power includes a contingency amount in some of its capital cost estimates. When applicable, contingency amounts are included in capital work order submissions to the Board, noting the percent of the contingency and the related dollar amount. In response to SBA IR-8(b), NS Power stated the following with respect to how it applies contingencies to capital project cost estimates:

The requirement for contingency is determined on a case-by-case basis for each project and a range of contingency percentage amounts, or none at all, can be expected given the varying levels of uncertainty within each project. Contingency can be calculated as a percentage of capital projects as a whole or can be applied to specific project components if there is a specific level of uncertainty with those components. For example an additional contingency may be applied to materials to account for unknowns related to steel tariffs, as was the case in CI C0002539 - HYD Bridge Remediation 2019.

Applying contingency to a project will depend on the potential range of uncertainty associated with aspects of the project. For example, the contingency can be impacted by the firmness of vendor pricing estimates or the number of unknowns on a project. For some projects, the level of uncertainty is so low that applying a contingency factor is unnecessary, such as for an Unforeseen and Unbudgeted (U&U) item filed with the NSUARB after the project has been completed will not have any contingency as the project is complete. The requirement for contingency on any given project is determined by NS Power on a case by case basis.

[Exhibit N-6, pp. 1-2]

[77] NS Power typically calculates a project contingency amount as a percentage of the total project capital cost estimate, excluding Administrative Overhead and Allowance for Funds Used During Construction. For projects with an estimated cost greater than \$1 million, the Board reviews all elements of the related capital work orders, including contingency budgets, and determines their appropriateness for inclusion in the capital approvals. During the 2019 ACE Plan hearing, NS Power confirmed that the

company typically expects approved contingency amounts will be spent over the course of a project.

[78] In the CA's IR-19(a), NS Power was asked to confirm that a core benefit of the use of project contingencies is to provide the Board with a forecast of the upper range of potential costs for capital projects. In response, NS Power stated:

Not confirmed. The purpose of project contingencies is to accurately budget capital projects by including costs related to the aspects of the project for which there is some measure of uncertainty.

[Exhibit N-12, p. 1]

[79] In response to the CA's IR-21, NS Power further elaborated:

... A benefit of project contingencies is to attempt to accurately budget capital projects by including costs related to the aspects of the project for which there is some measure of uncertainty. This is not the same as providing the Board with the benefit of a forecast upper range of potential costs for capital projects as there is still potential for higher projects cost that could result from uncertainty not known at the time the project application is submitted.

[Exhibit N-14, p. 1]

[80] In its 2019 ACE Plan Decision, the Board directed NS Power to provide the following information in its 2020 ACE Plan application for each capital project submitted for Board approval in 2017, 2018 and 2019 (either through or outside of the ACE Plan proceedings):

- The Board approved original project cost (i.e., not Board approved ATO's or Final Costs);
- 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.

In accordance with this directive, NS Power submitted its Contingency Report as Appendix F to its 2020 ACE Plan Application.

[81] Mr. Chernick and Mr. Wilson completed an analysis of the data contained in the Application's original Appendix F and submitted the related findings in their evidence. Based on these findings, the CA stated the following in his Closing Submission:

NSPI's project contingency data demonstrates that the Company may not be applying contingencies effectively to its projects.

Projects for which NSPI added no contingency to the project budget experienced on average a 7.6% cost overrun (NSPI Response to CA IR-18(a)). When project contingencies were used, NSPI's percentage cost overrun relative to the pre-contingency estimates was, on average, 10.4% (NSPI Response to CA IR-18(a)). This demonstrates that:

- i) even when project contingencies are used, they are not on average sufficient to cover the aggregate cost overruns (actual spend remains 1.2% more than the approved project cost estimate, including the contingency); and
- ii) the cost overruns for projects without contingencies are, on average, slightly lower than when project contingencies are used, but not enough to suggest that NS Power has effectively identified projects that need a contingency.

...

The Consumer Advocate also recommends that NSPI should develop non-binding guidelines as to how it determines when a contingency is merited and at what level. If NSPI chooses to depart from the guidelines, it should explain the reason for doing so in its application or ACE Plan filing. NSPI should not anticipate recovery of costs in excess of its budget, including contingency, unless NSPI can demonstrate that new information resulted in "broadening and evolution of scope."

[Exhibit N-17, pp. 5-6]

[82] In response to UARB IR-46, NS Power submitted a revised Appendix F of the Application. This revision was necessary, as the original Appendix F did not include projects that were completed by the end of 2019. Upon review of the revised Appendix F, in UARB IR-62 the Board requested NS Power to submit a further revised Appendix F. The Appendix F version submitted in response to UARB IR-46 included the Board approved cost estimate for a number of projects from prior ACE Plans that were originally

estimated to cost less than \$250,000 but subsequently required Board approval as a result of exceeding the \$250,000 threshold. In the revised version of Appendix F submitted in response to UARB IR-62, the original ACE Plan cost estimates for these projects were provided rather than the Board approved amount. Further, as NS Power noted in response to SBA IR-8, Unforeseen and Unbudgeted (U&U) projects filed with the Board after they have been completed do not include any contingency amounts. Even when U&U are not complete, the related work scopes and cost estimates are typically well-defined/known when an application is submitted to the Board for approval. The revised Appendix F submitted in response to UARB IR-62, therefore, had all U&U projects (including those that had been final costed) removed. These revisions were to provide the Board with better information to assess NS Power's ACE Plan cost estimating effectiveness and use of contingencies.

[83] With respect to the data submitted by NS Power as Attachment 1 to its response to UARB IR-62, in response to UARB IR-76, the company confirmed the following:

- The average variance for the listed projects amounts to approximately +10% of the original submission approved project cost estimate;
- The total variance of \$11,290,526 for the listed projects is over and above the total contingency amount of \$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% of the original submission approved cost estimate;
- For projects that have an original submission approved cost estimate greater than \$250,000 but less than \$5,000,000:
 - a. 31 percent had a negative variance;
 - b. 69 percent had a positive variance; and

- c. Of the projects that had a positive variance, 91 percent did not require an ATO submission to the Board.
- For projects that have an original submission approved cost estimate greater than \$5,000,000:
 - a. 33 percent had a negative variance;
 - b. 67 percent had a positive variance; and
 - c. Of the projects that had a positive variance, none required an ATO submission to the Board; and
- For all 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 210 percent. 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 9 percent.

[84] A further review by the Board of the data submitted by NS Power in response to UARB IR-76, reveals the following:

- For projects that have a negative variance, the total variance amount is approximately -\$3.35 million, or 3.1% of the total of the original approved cost estimates;
- For projects that have a positive variance, the total variance amount is approximately \$14.64 million, or 13.6% of the total of the original approved cost estimates;
- Of the 69 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 \$5.79 million; and
- Of the 35 projects that were originally estimated to cost more than \$250,000 and were identified as having a negative variance, total project spending was approximately \$3.35 million less than the original approved cost estimate.

[85] The contingency data provided by NS Power presents concerns to the Board. It is clear to the Board that on average the costs of NS Power capital projects typically exceed the original approved cost estimate by approximately 10%. The Board

understands that unforeseen conditions and issues often arise in capital construction projects, and these can have an impact on final project costs. However, as noted by NS Power, the purpose of using contingencies in project cost estimates is to accurately budget capital projects by including costs related to the aspects of the project for which there is some measure of uncertainty. The Board recognizes that it is difficult to always accurately assess and account for the magnitude of unforeseen conditions and issues that could arise in a capital project. Nevertheless, NS Power appears, on average, to underestimate project costs, inclusive of estimated contingency amounts.

[86] In response to UARB IR-76(j)(ii), NS Power stated that it believes its use of contingencies has achieved the noted purpose to accurately budget capital projects.

When asked what it considers to be an accurate capital budget, NS Power stated:

NS Power considers an accurate budget to be a budget that reflects the best information available at the time the budget is created to support management decision making. In addition, in the context of capital budgets, it would be to bring forward to the NSUARB an estimate of costs given the best information available at the time, to allow the Board to make a determination of the appropriateness of the expenditure. Measuring that budget to actual costs can give an indication of the accuracy in some cases, but there can be unforeseen circumstances that have a positive or negative impact on the actual costs compared to budget.

[Exhibit N-15, p. 4]

[87] The Board does not necessarily agree with NS Power that the company's use of contingencies has achieved the noted purpose to accurately budget capital projects. Further, it is not clear to the Board whether the average underestimating of project costs is related to general issues with NS Power cost estimating practices, under-scoping of projects at the original approval submission stage and/or use of inadequate project contingencies.

[88] Another Board concern associated with contingency data submitted by NS Power relates to projects where final spending exceeds the original approved estimate

but does not require Board Approval to Overspend (ATO). NS Power is required to submit an ATO when spending on a capital project exceeds the greater of \$250,000 or 5% of the approved project amount. The project data submitted by NS Power in response to UARB IR-76, and further analysed by the Board, shows that the company spent a total of approximately \$5.79 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 \$3.35 million on projects that were originally estimated to cost more than \$250,000. The net overspending on these projects was, therefore, \$2.44 million. This represents approximately 2.3% of the original submission approved cost estimate for these projects.

[89] However, a number of the underspent projects have negative variances of greater than 30% 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 in the originally planned work scope. If the underspending on these particular projects are excluded from the total underspending amount noted above, total underspending on projects that were originally estimated to cost more than \$250,000 would be approximately \$1.95 million. This would result in net overspending of \$3.84 million, or 3.6% of the original submission approved cost estimate for these projects. This overspending amount does not require Board approval and goes to NS Power's rate base upon which the company earns a return. This overspending that does not require Board approval presents another reason for the Board to question NS Power's capital cost minimization efforts (as described earlier in this Decision).

[90] In its Reply Submission, NS Power disagreed with the CA's recommendation that ongoing contingency reporting by the company is required. The company stated:

NS Power reiterates that its processes relating to applying contingencies are appropriate, and development of a guideline is not required. NS Power's practice of determining contingency requirement on a case-by-case basis is appropriate, and projects with cost overruns requiring ATO applications are few. Moreover, as demonstrated through the evidence submitted by the Company through this process, the additional information requested by the CA is already provided through the existing Board-approved ATO/FIN processes.

[Exhibit N-20, p. 3]

[91] Based on the information submitted through this proceeding, the Board disagrees. The Board finds that NS Power does not adequately determine and apply contingencies in a consistent manner. Therefore, the Board accepts the CA's recommendation that NS Power develop non-binding guidelines describing how it determines when a capital cost estimate contingency amount is merited and at what level. The Board directs NS Power to submit these guidelines for comments in the stakeholder engagement process. The draft version of the guidelines is to be submitted to stakeholders by August 31, 2020. Once finalized, if NS Power chooses to depart from the guidelines, it should explain the reason for doing so in its related capital application or ACE Plan filing.

[92] The Board also directs NS Power to continue to track the information 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.

[93] The Board directs NS Power to continue to track this information, 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).

3.8 Annually Recurring Projects Under \$1 Million

[94] As previously discussed, as a result of recent amendments to the *PUA*, NS Power is not required to obtain Board approval for capital investments under \$1 million. In Closing Submissions filed on April 27, 2020, the CA called attention to the evidence of Mr. Chernick and Mr. Wilson, which indicates that they identified multiple projects in recent years that relate to the same asset. If grouped together, these capital items would exceed the \$1 million threshold. These projects fall into the following three categories:

- Annual boiler refurbishments;
- Annual, rotating refurbishment of one or two assets; and,
- Annual work to the same assets.

[95] In response to CA IR-14, NS Power commented that “work that spans multiple years such as boiler refurbishments occur in discrete sections of the boiler as separate projects and do not form a multi-year project.”

[96] Mr. Chernick and Mr. Wilson indicated that these boiler refurbishments may be more related, and less “discrete” than NS Power suggested, noting in their evidence:

Boiler refurbishments are essentially routine replacement in kind of equipment that is failing or close to failing. Similar routine projects are found in other parts of NS Power’s operations, such as the replacement of some number of overloaded or leaking line transformers each year. Those programs would never end, so long as the plant is kept in service, since by the time the last boiler tube has degraded to the point of replacement, tubes replaced years before will require another round of replacement.

[Exhibit N-7, p.14]

[97] The CA suggested that the Board review whether such related, foreseeable and ongoing projects should be considered part of a multi-year program. The CA also submitted that, in future ACE Plan applications, NS Power should provide evidence that repeated projects forming a multi-year program remain cost-effective compared to alternatives.

[98] NS Power asserts that adding more information on projects that are not subject to approval because of the recent amendments to the *PUA* would not be in keeping with the efficiencies contemplated by those amendments. NS Power states that the 2020 ACE Plan complies with the amended *PUA*, including its practices of grouping projects, and that it does not believe that any additional review is warranted.

[99] The *PUA* amendment exempting capital projects under \$1 million from the need for Board approval was only enacted in 2019. The amendment was clearly directed at lessening the administrative costs and burdens associated with the lower threshold of

\$250,000. The Board would not wish to impose additional reporting requirements contrary to the spirit and intent of the recent amendment.

[100] This said, in response to UARB IR-17, NS Power provided, for each of the thermal generating plants and units, a list of all projects that are included in the proposed 2020 ACE Plan. While the total cost estimate for these capital expenditures exceeds \$41 million, the budgeted amount for most of these projects is less than \$1 million. Therefore, Board approval was not required for most of these capital items. This information did not appear to take an inordinate amount of time to provide.

[101] The Board understands the CA's concerns. The CEJC already contemplates that NS Power must provide cost information on related projects for the last two years and projected costs for the next two years. The CEJC also indicates that when "...multiple projects relate to the same asset, or initiative they should be grouped as a package." The Board has the jurisdiction to assess whether related projects are sufficiently distinct so as to constitute individual capital work orders. The Board agrees with the CA that it must monitor the issue. This said, at this stage, the Board does not consider significant additional reporting is warranted.

[102] The Board found the information provided by NS Power in response to UARB IR-17 useful in assessing overall expenditures related to thermal generation. It can also provide the Board with an opportunity to review the relationship between various capital expenditures and confirm the appropriateness of their classification as individual capital items.

[103] The Board therefore directs that information in a similar format be provided as part of the 2021 ACE Plan. This will allow the Board to monitor the situation, at least,

at this stage, in relation to thermal generation, without imposing the type of burdens the 2019 *PUA* amendment was designed to reduce.

3.9 Regulatory Efficiencies

3.9.1 Earlier Filing

[104] In the 2019 ACE Plan Decision, the Board directed NS Power to engage with stakeholders to determine whether the ACE Plan application could be filed at an earlier date. NS Power was directed to report to the Board in the 2020 application. NS Power stated in its application that it had engagement with the CA and SBA. Counsel for the Industrial Group, although invited, did not participate. NS Power stated that it had indicated it could try to file the application in October, subject to discussion about filing a multi-year plan.

[105] The Board notes that the 2020 ACE Plan was filed on November 27, 2020, later than the date indicated. There was no explanation for this, and therefore, the Board directs this matter to further stakeholder engagement, with a report on the engagement to be filed with the Board in its next ACE Plan application. The Board expects that if NS Power is unable to file its application in the time determined to be feasible, an explanation will appear in the application.

3.9.2 Multi-Year Plan

[106] In the 2019 ACE Plan Decision, the Board discussed a suggestion from the CA for NS Power to file a multi-year ACE plan “even if restricted to larger projects.” The Board directed that this matter be discussed in stakeholder engagement and a report included in the 2020 application.

[107] NS Power stated in the application that the possibility was discussed with stakeholders, and that it intended to continue engagement to “discuss what this possibility may look like, including consideration of any positive or negative impacts for customers and how the approach to capital approvals may need to be adapted...” to move to a multi-year plan. NS Power said it had no additional feedback from stakeholders after the engagement.

[108] The Board concludes that there is little interest in this topic and will, therefore, leave it to any further engagement NS Power undertakes with stakeholders. Should NS Power determine that a multi-year plan would be feasible, it should discuss this in the 2021 application so that the Board can give it greater consideration.

3.9.3 Implementation of Suggestions from 2019 Review Process

[109] After the Board released its 2019 ACE Plan Decision, Board staff engaged with NS Power and stakeholders in a collaborative way to obtain feedback on the process and canvass ideas for improvement. As a result, several conclusions were reached about the streamlining or changes to the ACE Plan filing with the Board. NS Power indicated in the application that the feedback had been implemented in the 2020 Plan.

4.0 SUMMARY

[110] In its 2020 ACE Plan application, NS Power asked the Board to approve spending in 2020 totalling \$167.4 million on individual capital projects and routine capital expenditures. NS Power also filed a proposed 2020 budget of \$376.1 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. No

Intervenor opposed any of the projects submitted for approval. The Board finds there is sufficient justification for the need, and the corresponding cost estimates, and approves the 2020 ACE Plan.

[111] NS Power is directed 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.

[112] The Board expects 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.

[113] The Board intends to engage a consultant to complete a study that will provide guidance to the Board regarding the application of the CDA Guidelines when reviewing applications that relate to dam safety. The study will include a discussion on the application of both the Standards Based and Risk Informed approaches and how they may result in different dam maintenance and capital spending conclusions. In addition, absent any provincial definition of acceptable levels of dam safety risk and performance, the study will include a literature review of dam safety practices in other jurisdictions involving regulated power and water utilities. The Board intends to have the study complete by the end of 2020. The Board will use the findings of the study to help assess future dam related capital applications submitted by NS Power for approval. For each of these applications, the Board expects NS Power to identify which approach it used for the associated dam safety review, and to justify why the approach is more appropriate than the alternative.

[114] In UARB IR-74(a) and (b), NS Power was asked to identify the percentage of the estimated annual capital sustaining costs in the updated 2020 HIP (submitted in response to UARB IR-57) that represent expected archeological and Mi'kmaq engagement costs associated with those capital sustaining costs. NS Power is directed to provide this information to the Board no later than August 31, 2020.

[115] The Board directs NS Power to provide a copy of the updated Guidebook for the existing EAM, at the latest, with the filing of the 2021 ACE Plan.

[116] The Board directs that in subsequent ACE Plan applications, NS Power is to provide examples of cost minimization during execution and construction from the prior year's projects, with specific cost minimization being fully described.

[117] The Board accepts the CA's recommendation that NS Power develop non-binding guidelines describing how it determines when a capital cost estimate contingency amount is merited and at what level. The Board directs NS Power to submit these guidelines for comments in the stakeholder engagement process. The draft version of the guidelines is to be submitted to stakeholders by August 31, 2020. Once finalized, if NS Power chooses to depart from the guidelines, it should explain the reason for doing so in its related capital application or ACE Plan filing.

[118] The Board also directs NS Power to continue to track the information 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.

[119] The Board directs NS Power to continue to track this information, 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).

[120] The Board found the information provided by NS Power in response to UARB IR-17 useful in assessing overall expenditures related to thermal generation. The Board therefore directs that information in a similar format be provided as part of the 2021 ACE Plan. This will allow the Board to monitor the situation, at least, at this stage, in relation to thermal generation, without imposing the type of burdens the 2019 *PUA* amendment was designed to reduce.

[121] Finally, the Board directs NS Power to engage with stakeholders on the issues identified in this Decision regarding the development of guidelines for contingency

amounts, as well as those which may contribute to regulatory efficiency. NS Power is directed to report on the outcome of the stakeholder engagements in the next ACE Plan application.

[122] An Order will issue accordingly.

DATED at Halifax, Nova Scotia, this 25th day of June, 2020.



Roberta J. Clarke



Steven M. Murphy



Richard J. Melanson



| SCHEDULE "A" | | | |
|--|---|-------------|---------------|
| 2020 ACE Plan Approved Projects | | | |
| CI Number | Title | 2020 Budget | Project Total |
| Generation | | | |
| C0006358 | HYD - Lake Mulgrave Dam Refurbishments | \$5,539,967 | \$5,853,650 |
| 49756 | HYD - Marshall Falls Main Dam Refurbishment | \$270,267 | \$5,452,794 |
| C0012878 | HYD - Weymouth Falls Unit 1 Generator Refurbishment | \$2,070,568 | \$2,264,326 |
| C0021584 | TUC3 Turbine Valves Refurbishments | \$1,041,020 | \$1,041,020 |
| 49949 | LM6000 TUC4 Control System Replacement | \$1,017,845 | \$1,149,996 |
| Transmission | | | |
| C0021102 | L5029 Replacements and Upgrades | \$1,585,260 | \$6,206,677 |
| C0020627 | 2020 Transmission Right-of-Way Widening 69kV | \$2,789,910 | \$5,489,820 |
| C0021123 | 2020/2021 Substation Polychlorinated Biphenyl (PCB) Equipment Removal | \$1,663,807 | \$5,197,372 |
| C0011261 | 101W Port Mersey Substation Expansion | \$1,697,593 | \$4,651,384 |
| C0021106 | L7005 Replacements and Upgrades Phase 1 | \$1,622,087 | \$3,576,991 |
| C0021107 | L8001 Replacements and Upgrades Phase 1 | \$1,058,782 | \$2,292,093 |
| C0021104 | L5550 Replacements and Upgrades Phase 1 | \$1,070,800 | \$2,234,816 |
| 52285 | L5524 Replacements and Upgrades | \$2,161,314 | \$2,161,314 |
| C0011321 | L5031 Replacements and Upgrades Phase 1 | \$1,113,114 | \$2,147,212 |
| C0021323 | Trenton 50N-T13 Replacement | \$459,773 | \$1,516,880 |
| C0021142 | 19W-T51 Transformer Replacement | \$282,554 | \$1,512,336 |
| C0010955 | 2020/2021 Wood Pole Retreatment Program | \$757,541 | \$1,410,561 |
| 52303 | L7019 Replacements and Upgrades | \$467,832 | \$1,374,092 |
| C0021026 | Willow Lane 15N-T3 Replacement | \$401,835 | \$1,326,647 |
| C0021122 | 2020/2021 Transmission Switch & Breaker Replacement | \$827,801 | \$1,312,643 |
| C0021130 | 48H Metalclad Switchgear Replacement | \$1,210,706 | \$1,210,706 |
| Distribution | | | |
| C0020623 | New Distribution Rights-of-Way Phase 5 | \$7,499,750 | \$10,015,266 |
| C0020834 | 2020/2021 Inaccessible PCB Transformer Replacements | \$662,351 | \$2,950,294 |
| C0020835 | 2020 Padmount Replacement Program | \$857,335 | \$1,612,389 |
| C0021182 | 93V-313-Meteghan Rebuild | \$244,104 | \$1,075,625 |

| General Property | | | |
|------------------------------|----------------------------|---------------------|---------------------|
| C0021109 | New RTU Deployment Project | \$635,766 | \$8,028,097 |
| TOTAL APPROVED AMOUNT | | \$39,009,682 | \$83,065,001 |