

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 2017**

BEFORE: Roberta J. Clarke, Q.C., Panel Chair
Murray E. Doehler, CPA, CA, P.Eng., Member
Richard J. Melanson, LL.B., Member

APPLICANT: **NOVA SCOTIA POWER INCORPORATED**
Brian Curry, LL.B.
Matthew Gorman, LL.B.

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

SMALL BUSINESS ADVOCATE
E.A. Nelson Blackburn, Q.C.
Melissa MacAdam, LL.B.

INDUSTRIAL GROUP
Nancy Rubin, Q.C.

PORT HAWKESBURY PAPER LP
James MacDuff, LL.B.

PROVINCE OF NOVA SCOTIA
Department of Energy
Department of Environment
Stephen McGrath, LL.B.

BOARD COUNSEL: S. Bruce Outhouse, Q.C.
Stacey O'Neill, LL.B.

HEARING DATE: February 28, 2017

FINAL SUBMISSIONS: March 3, 2017

DECISION DATE: April 4, 2017

DECISION: Terms of Consensus approved. Directives summarized at Paragraphs [146] to [152]

TABLE OF CONTENTS

I	INTRODUCTION	4
II	2016 ACE PLAN STATUS	7
III	2017 ACE PLAN	8
	1. Content of the 2017 ACE Plan	9
	2. Items for Which Board Approval is Sought.....	13
	Findings.....	13
	3. Items Which NSPI Intends to Submit for Later Approval	14
	4. Carryover Projects.....	14
	5. Items Less Than \$250,000.....	15
	6. Point Aconi Generating Station	15
	7. Routine Capital Expenditures/Program	15
IV	TERMS OF CONSENSUS.....	16
	Findings.....	18
V	OTHER MATTERS	20
	1. Reliability/Performance Standards	20
	Findings.....	22
	2. Capital Investments in Information Technology.....	24
	Findings.....	27
	3. Prudence of Port Hawkesbury Biomass Plant Projects	28
	Findings.....	29
	4. Vegetation Management/Right-of-Way Widening	30
	Findings.....	30
	5. Topics from the Stakeholder Engagement Process	31
	a) Revenue Requirement.....	31
	Findings.....	31
	b) Economic Analysis Model.....	31
	Findings.....	31
	6. Directives for Future ACE Plan Filings	32
	a) Items for Subsequent Submittal.....	32
	Findings.....	32
	b) Tracking Interruptions to Interruptible customers.....	33
	Findings.....	33
VI	SUMMARY.....	34

Schedule "A" Status of the 2016 ACE Plan Projects

Schedule "B" 2017 ACE Plan Approved Projects

Schedule "C" 2017 ACE Plan Projects NSPI Intends to Submit Later

Attachment 1 – Terms of Consensus

I INTRODUCTION

[1] Nova Scotia Power Inc. (“NSPI”, “Company”, and “Utility”) filed an application (“Application”) with the Nova Scotia Utility and Review Board (“Board”) for approval of its 2017 Annual Capital Expenditure Plan (“ACE Plan”). The Application was filed electronically on November 15, 2016.

[2] Similar to recent ACE Plan submissions, the Application included responses to previous Board directives, and reports on discussions with stakeholders.

[3] In its covering letter, NSPI requested that the Board:

1. Establish a process for the review of its 2017 ACE Plan.
2. Approve the Confidentiality Undertaking, and confidential treatment of certain information filed in support of the 2017 ACE Plan, as described in the application, and in accordance with Board Rule 12.
3. Approve 71 capital items with 2017 budget spending of \$54.8 million, and total project spending of \$72.6 million.
4. Approve capital routine programs with 2017 budget spending of \$80.2 million.

[4] As required in the November 15, 2016, Hearing Order, a Notice of Public Hearing was published in the Halifax Chronicle Herald on November 18, 23, and 26, 2016, and in the Cape Breton Post on November 19, 2016. Notices of Intervention were filed by the Small Business Advocate (“SBA”), the Consumer Advocate (“CA”), the Industrial Group, the Province of Nova Scotia (the Nova Scotia Department of Energy and Nova Scotia Environment) (“Province”), and Port Hawkesbury Paper LP (“PHP”).

[5] The Board reviewed and approved NSPI’s Confidentiality Undertaking for this Application on November 15, 2016, subject to a minor revision which was made on November 16, 2016.

[6] Following a review of NSPI’s request for confidential treatment of certain materials filed in the Application (as set out in the Confidentiality Matrix), the Board, on November 18, 2016, requested a more detailed explanation for confidential treatment of

certain information related to CI 49057 and CI 49814. NSPI responded on November 22, 2016, and on the same day the Board approved NSPI's request for confidential treatment, as filed in the Application.

[7] The Board issued a Preliminary Issues List on November 30, 2016, to which the SBA provided comments on December 2, 2016. The Final Issues List, issued by the Board on December 6, 2016, identifies the following specific topics that would be discussed as a part of NSPI's 2017 ACE Plan hearing, in addition to the usual review of projects for which approval is sought:

1. Reliability / Performance Standards;
2. Capital Investments in Information Technology ("IT");
3. Prudence of Port Hawkesbury Biomass Plant Projects;
4. Vegetation Management / Right-of-Way Widening;
5. Topics from the Stakeholder Engagement Process:
 - a) Economic Analysis Model
 - b) Revenue Requirement Model

[8] Information Requests ("IRs") to NSPI were issued on December 9, 2016, by Board staff, the SBA, and the CA. The Industrial Group, the Province of Nova Scotia, and PHP did not file IRs. NSPI provided responses to the IRs on January 5, 2017, and requested Board approval for the confidential treatment of certain information filed in support of the 2017 ACE Plan IR responses.

[9] In its letter of January 13, 2017, the Board approved NSPI's request for the confidential treatment of information filed in support of the 2017 ACE Plan IR responses, except for the response to SBA IR-38, Attachment 1. After receiving a clarification from NSPI, on January 19, 2017, the Board accepted that Attachment 1 should be considered a fully confidential document.

[10] On January 24, 2017, evidence was filed by Paul Chernick, of Resource Insight Inc., on behalf of the CA. No IRs were issued to Intervenors. NSPI submitted its Reply Evidence on February 16, 2017. The Board received no letters of comment, and no requests to speak.

[11] NSPI filed Terms of Consensus (“Consensus document”) with the Board on February 23, 2017, signed by the CA, the SBA, and NSPI.

[12] NSPI, the CA, and the SBA filed opening statements on February 24, 2017.

[13] The public hearing took place at the offices of the Board in Halifax on February 28, 2017. As no requests to speak were received, an evening session was not held.

[14] NSPI was represented at the hearing by Brian Curry, LL.B., and Matthew Gorman, LL.B. The witness panel for NSPI comprised of Jamie MacDonald, Senior Director of Power Production; Mike Sampson, Director of Generation Asset Management; Paul Casey, Vice-President, Transmission and Distribution; Tony Folkins, Director of Information Technology; Tim Wood, Director of Regulatory Affairs; and Craig Flemming, Senior Manager, Fuels Planning and Performance.

[15] John Merrick, Q.C., appeared at the Hearing on behalf of the CA, and Melissa MacAdam, LL.B., appeared on behalf of the SBA. Nancy Rubin, Q.C., appeared on behalf of the Industrial Group, and James MacDuff, LL.B., appeared on behalf of PHP. S. Bruce Outhouse, Q.C., and Stacey O’Neill, LL.B., acted as Board Counsel.

[16] NSPI provided responses to Undertakings U-1 to U-3 on March 3, 2017. The parties chose not to file closing submissions.

II 2016 ACE PLAN STATUS

[17] In its 2016 ACE Plan Decision, dated June 8, 2016 [2016 NSUARB 95], the Board approved certain capital expenditures and issued a number of directives to NSPI. The Board also approved a Terms of Consensus document filed by NSPI on April 1, 2016, signed by the CA, the SBA, the Industrial Group, and NSPI.

[18] In its 2017 ACE Plan submission, NSPI provided a list of deferred and cancelled 2016 ACE Plan capital items. NSPI cancelled or deferred 51 projects that were originally included in the 2016 ACE Plan, with a forecasted spending of \$21 million in 2016. Fourteen of these projects were cancelled, while 37 were deferred to future years.

[19] NSPI provided a list, and a short justification, for the deferral or cancellation of each of these projects. Out of the 51 projects, only one project had been approved by the Board as part of the 2016 ACE Plan proceeding, 20 were to be filed separately as individual capital items, and the remaining 30 were projects under \$250,000.

[20] As part of the 2016 ACE Plan approval process, the Board approved 69 individual capital projects with the total 2016 budgeted amount of \$57,223,473, and \$79,596,464 for routine capital expenditures. According to the submission, none of these projects were cancelled, and only one was deferred to 2018.

[21] Prepared by the Board, and attached as Schedule "A" to this Decision, for information purposes only, is a status report as of March 3, 2017, of all 2016 ACE Plan capital items that NSPI had intended to submit after the 2016 ACE Plan submission, and therefore not approved as a part of the 2016 ACE Plan hearing process.

[22] Pursuant to 2016 ACE Plan Directive 2, NSPI filed the 2017 Transmission Right-of-Way Widening as a separate project (CI 49992), and not as a routine. As directed, NSPI also submitted an annual progress report on its transmission and

distribution rights-of-way widening programs. This report is included in Section 8.1.7 of the 2017 ACE Plan submission, "Impact of Reliability Projects".

[23] In accordance with the Directive 3, NSPI, on November 18, 2016, requested Board approval for two 2016 ACE Plan capital items related to the Port Hawkesbury Biomass Plant (CI 47613 and CI 47614). In its letter of December 23, 2016, the Board advised NSPI these two 2016 capital items would be considered during the 2017 ACE plan proceeding.

[24] NSPI complied with Directives 4 and 5 of the 2016 ACE Plan Decision, and continued its consultations with stakeholders on a number of issues. On August 19, 2016, it submitted its 2016 ACE Plan Stakeholder Engagement Report ("Report"). In the Report, NSPI provided a detailed summary of its consultations with the 2016 ACE Plan stakeholders, as well as copies of the revised Capital Expenditure Justification Criteria ("CEJC") documents for Board information and approval.

[25] Following a review of the Report (M07628), in its letter of October 18, 2016, the Board approved the revised CEJC Summary document and accepted the Detailed CEJC document.

III 2017 ACE PLAN

[26] The *Public Utilities Act*, R.S.N.S. 1989, c. 380, as amended ("*Act*"), gives the Board broad regulatory oversight over public utilities and their capital expenditures.

Sections 35 and 35A (1) of the *Act* read as follows:

Approval of improvement over \$250,000

35 No public utility shall proceed with any new construction, improvements or betterments in or extensions or additions to its property used or useful in furnishing, rendering or supplying any service which requires the expenditure of more than

two hundred and fifty thousand dollars without first securing the approval thereof by the Board.

35A (1) Notwithstanding Section 35, a public utility may submit to the Board for approval an annual capital expenditure program.

[27] NSPI's ACE Plans provide the Board, stakeholders and customers with a detailed overview of all capital projects and expenditures NSPI plans for a given calendar year. The Summary CEJC document, which requires Board approval, provides necessary principles and guidelines to NSPI for managing all phases of the capital approval process.

[28] The ACE Plan hearing for 2017 represents the seventh year in which the ACE Plan has been presented in a public forum with participation by stakeholders. NSPI's 2017 ACE Plan submission and public review process is consistent with the approval process implemented by the Board for the review of NSPI's 2011 ACE Plan.

1. Content of the 2017 ACE Plan

[29] NSPI's 2017 ACE Plan submission includes:

- An overview of its capital expenditure program;
- Descriptions of capital projects for which NSPI is seeking approval;
- A list of capital routines for which NSPI is seeking approval;
- A list of capital projects planned for subsequent approval;
- Lists of capital items for which approval is not required; and
- Responses to stakeholder engagement commitments and UARB ACE Plan Decision directives from prior proceedings.

[30] The proposed 2017 ACE Plan spending amounts to \$398 million. A summary of the proposed spending by category follows:

Category	Cost	
	2017 Spending	Total Spending
Individual capital items whose approval is requested through the 2017 ACE Plan process	\$ 54,769,654	\$ 72,601,321
Routines (approval requested)	\$ 80,167,979	
APPROVAL REQUESTED	\$134,937,633	\$152,769,300
CAPITAL ITEMS FORECAST FOR SUBSEQUENT APPROVAL	\$109,498,205	\$356,038,931
Carryover capital items (previously approved)	\$120,601,374	\$149,727,771
Capital items less than \$250,000	\$ 21,531,537	\$ 22,222,628
Capital expenditures associated with Point Aconi Generating Station	\$11,431,206	\$ 14,087,359
APPROVAL NOT REQUIRED	\$153,564,117	\$186,037,758
2017 ACE Plan	\$397,999,955	\$694,845,989

[31] The Board observes that the 2017 ACE Plan budget is much higher than the actual 2016 capital spending. In its Application, NSPI explained that this was primarily due to the initiation of large strategic capital projects.

[32] The Board notes that the proposed increase in capital spending is due to the strategic investment in General Property, mainly in IT projects. These expenditures include:

- Enterprise Resource Planning (“ERP”)
- Advanced Metering Infrastructure (“AMI”)
- Cyber security enhancements
- T&D Work and Asset Management System
- Customer Information System Replacement

[33] Mr. Chernick identified 30 IT projects NSPI included in its 2017 ACE Plan submission, with a total proposed spending of \$285 million. NSPI plans to spend \$104 million of that amount in 2017.

[34] The Board notes that, as part of this Application, NSPI is requesting Board approval for 2017 capital expenditures in the amount of \$134.9 million. This figure includes capital spending of \$54.8 million for new 2017 ACE Plan individual capital projects, and \$80.2 million for routine capital projects.

[35] The budgeted amount of \$109.5 million covers the estimated cost for capital items that were not ready for submission to the Board at the time of filing. NSPI anticipates that these capital items will be filed for approval throughout 2017. There are 83 such projects and, if approved, the total forecasted spending on these items would amount to \$356 million.

[36] The Application includes \$120.6 million for carryover spending in 2017, \$21.5 million for individual capital items less than \$250,000, and capital expenditures associated with Point Aconi of \$11.4 million, which do not require Board approval.

[37] In its Application, NSPI provided an overview of the proposed 2017 capital expenditures segregated by the investment type. The following table compares these 2017 ACE Plan estimates with the budget estimates for 2017 that were provided in the 2016 ACE Plan Application:

[Remainder of page intentionally left blank.]

Investment Type	2017 Spending	
	2017 ACE Plan Estimate	2016 ACE Plan Estimate
Sustaining Capital	\$225.5 million	\$200.0 million
Customer Growth	\$ 27.7 million	\$ 29.7 million
Regulatory / Compliance	\$ 38.7 million	\$ 23.0 million
Enterprise Resource Planning	\$ 54.4 million	N/A
LED Streetlight Replacement	\$ 2.5 million	\$ 4.9 million
Maritime Link Transmission	\$ 24.7 million	\$ 18.5 million
Metro Transmission Upgrades	\$ 5.8 million	\$ 28.9 million
Automated Metering Infrastructure	\$ 18.4 million	\$ 38.0 million
Hydro Infrastructure Investment	\$ 0.3 million	\$ 3.0 million
Total Annual Budget	\$398.0 million	\$346.0 million

[38] The Board notes a significant shift in the proposed spending, largely from the Metro Transmission Upgrades and the Automated Metering Infrastructure projects, towards the General Property, specifically IT projects, such as the ERP project.

[39] The Board in its 2016 ACE Plan Decision, stated:

[49] In its Application, NSPI notes that investments in sustaining its assets, customer driven investments, and investments required by regulatory or environmental standards, are forecasted to be “reasonably stable”. However, NSPI also notes that strategic capital investments may create larger capital expenditures in future years.

[40] The 2017 ACE Plan not only includes investment in large strategic capital projects, but also significant increases in the forecasted spending on Sustaining Capital and Regulatory / Compliance projects.

[41] In its responses to UARB IR-5 and IR-8, NSPI provided explanations for an apparent shift in NSPI’s capital spending profile. The Board understands the overall increase in the size of the 2017 budget is mainly driven by additional IT investment, and

that the scope of this investment was not fully known at the time of the 2016 ACE Plan filing. This issue is further discussed elsewhere in this Decision.

2. Items for Which Board Approval is Sought

[42] As part of the 2017 ACE Plan approval process, NSPI requested Board approval for the amount of \$152,769,300. This amount includes \$72,601,321 for 71 individual capital items. NSPI plans to spend \$54,769,654 on these projects in 2017, and an additional \$17,831,667 in 2018, and beyond. NSPI also requested approval of the amount of \$80,167,979 for routine capital expenditures in 2017.

[43] NSPI requested Board approval for one project with a total cost estimate over \$5 million (CI 49992 - 2017 Transmission Right-of-Way Widening), 18 projects with a total cost estimate between \$1 million and \$5 million, and 52 projects between \$250,000 and \$1 million.

[44] During the proceeding, the Intervenors did not oppose any of the projects NSPI submitted for Board approval, apart from the 2017 ACE Plan capital expenditures associated with the Port Hawkesbury Biomass ("PHB") Plant. Prudency of NSPI's PHB Plant spending is discussed elsewhere in this Decision.

Findings

[45] The Board approves the projects and capital expenditures set out in Schedule "B". Should any of them be either cancelled or deferred, NSPI is required to resubmit them for Board approval.

[46] Routine capital expenditures are discussed separately in this decision.

3. Items Which NSPI Intends to Submit for Later Approval

[47] In its Application, NSPI identified projects that were not ready for submission to the Board, and anticipated they would be filed for approval throughout 2017.

[48] The Board has prepared Schedule "C", which lists the projects NSPI intends to submit later. The 2017 budget for these projects is \$109,498,205, while the total forecasted spending would amount to \$356,038,931. The Board makes no findings with respect to projects listed in Schedule "C".

[49] During the proceeding, the CA and the SBA expressed their concerns with the overall level of IT investment, which represents a significant share of the expenditures included in Schedule "C". The Board notes that this issue is addressed in the Consensus document.

[50] The Board observes there are a number of projects that NSPI intends to submit later with an estimated total cost of \$5 million or more. The Board notes that, based on the nature and cost of these projects, all, or some, of them may be subject to a hearing process.

4. Carryover Projects

[51] Carryover projects are those which have already received Board approval in previous capital expenditure filings, but have not yet been completed. Board approval is not required for these items as part of the 2017 ACE Plan, although the expenditures will be made during this and following years.

[52] In 2017, NSPI expects to spend \$120,601,374 on capital items that have been already approved by the Board, and an additional \$29,126,397 in following years.

5. Items Less Than \$250,000

[53] In accordance with s. 35 of the *Act*, Board approval is not required for capital expenditures of less than \$250,000. The proposed spending on such projects in 2017 is \$21,531,537.

[54] During the Hearing, the CA raised a concern with the increase in the number and total cost of capital projects estimated at \$250,000 or less. The Board notes this issue is addressed in the Consensus document.

6. Point Aconi Generating Station

[55] Pursuant to s. 36 of the *Act*, the Board has no jurisdiction to consider expenditures related to the Point Aconi Generating Station. Details of these costs provided in the 2017 ACE Plan are for information purposes only.

[56] The proposed 2017 capital spending on the Point Aconi Generating Station includes \$7,544,189 for new individual projects, \$489,873 for Routines, and \$3,397,144 on carryover spending, for a total of \$11,431,206.

7. Routine Capital Expenditures/Program

[57] Routine capital expenditures include:

...recurring annual expenditures for replacement of equipment (like-for-like replacement), additions to existing equipment base resulting from system growth, and addition of customers to the system.

[Exhibit N-1, p. 66]

[58] The four major categories of Routines are Generation, Transmission, Distribution, and General Plant. Each category is broken down further into Sub-Routines and individual projects within the Sub-Routines.

[59] NSPI requested Board approval for its routine capital program in the amount of \$80,167,979, exclusive of Point Aconi Routine spending of \$489,873.

[60] The Board notes that the proposed 2017 Routine capital expenditures budget excludes the 69kV transmission right-of-way widening project, as ordered by the Board in its 2016 ACE Plan Decision. This project is included as a separate project in the 2017 ACE Plan (CI#49992), and is discussed later in this decision.

[61] The Board notes that the proposed Routines budget in 2017 is similar to NSPI's forecasted level of spending in 2016.

[62] Subject to the Board's finding in Paragraph [122] concerning the PHB Plant, the Board approves NSPI's 2017 Routine capital expenditures in the amount of \$80,167,979.

IV TERMS OF CONSENSUS

[63] The Consensus document was signed by all parties except PHP, the Province, and the Industrial Group. PHP advised the Board, after NSPI filed the Consensus document, that, as it was not an active participant in the proceeding, it did not consider it appropriate or necessary to participate in the Terms of Consensus. Counsel for the Industrial Group stated at the hearing that, while it had not actively participated in the process, it took no position on the Consensus document and did not oppose it.

[64] The Consensus document, which is Attachment 1 to this Decision, is a resolution of all issues between the signatories related to the 2017 ACE Plan.

[65] NSPI has agreed, within 30 days of the Board issuing its decision, to start a stakeholder consultation process on several matters. These matters are identified as Items 1 to 3 in Appendix A to the Consensus document. The parties have agreed that a separate session with stakeholders regarding Information Technology investments and strategy will be held within 90 days of the issuance of the Board's decision.

[66] As for the expenditures relating to the Port Hawkesbury Biomass plant, a separate session with stakeholders is to take place on or before April 14, 2017, to discuss these projects in this ACE Plan.

[67] Mr. Casey, in NSPI's opening statement, stated as follows:

I would also like to express thanks to our stakeholders for their valued and constructive input into the ACE Plan process. The 2017 ACE Plan has benefitted greatly from the continued collaboration and consultation with our stakeholders. This is evident by the fact that Nova Scotia Power was able to arrive at a Terms of Consensus with the Consumer Advocate and the Small Business Advocate, which was filed with the Board February 23, 2017. The Terms of Consensus serves to resolve all outstanding issues raised by stakeholders and defers some issues to subsequent discussions. We look forward to continuing this collaboration in future ACE Plans.

[Exhibit N-11 pp.1-2]

[68] Mr. Merrick, in his opening comments, noted:

The Board will note that many of the outstanding issues have been addressed by an agreement to refer the items to a consultative process. Subject to the Board's direction this consultative process will begin shortly after the final order in this matter. Based on past experience, the Consumer Advocate is confident that the suggested consultative process will yield improvements for implementation commencing in 2018.

The Consumer Advocate commends the Terms of Consensus for adoption by the Board.

[Exhibit N-12]

[69] Ms. MacAdam, in the SBA's opening statement, confirmed the SBA's support of the Consensus document, and noted the agreement to:

...engage in further stakeholder consultation concerning those issues, which will address the SBA's concerns. It is important that discussions are undertaken about future expenditures so that the SBA and other stakeholders can ensure that proposed projects are reasonable, prudent and justified.

...

...Stakeholder involvement in reviewing the ACE plan, submitting Information Requests and filing evidence are essential to ensure that ratepayers are protected. As part of the stakeholder process, settlement discussions are an important way to confirm that NSPI is taking all necessary steps to act prudently and in the best interests of ratepayers, without unnecessary litigation.

[Exhibit N-13]

Findings

[70] The Consensus document provides that a number of matters which were raised by the CA, through the evidence of Mr. Chernick, are referred to a stakeholder consultation process. It states:

3. For the issues the Parties have agreed to review through a subsequent consultation process, NS Power will provide a report to the UARB in writing (with copy to the remaining Parties) on the outcome of such consultation by no later than August 4, 2017, or as otherwise directed by the UARB.

[Exhibit N-9, p. 1]

[71] This includes Items 1-4 inclusive from Appendix A in the Consensus document.

[72] For the Port Hawkesbury Biomass plant, Item 5 in Appendix A provides that if agreement is not reached after the discussions "...NS Power maintains the right to bring any and all of the 2017 PHB Projects to the UARB and stakeholders maintain all of their rights in relation to such applications."

[73] In the hearing on the 2016 ACE Plan, the Board canvassed the trend of deferring matters to stakeholder consultation with the NSPI panel (see paragraphs 124 to 136, [2016 NSUARB 95]). In this hearing, the Board again raised this with the panel:

MS. CLARKE: ...And the Board has expressed some concern about the fact that matters then get deferred to stakeholder discussions as opposed to being aired in a public forum.

Should the Board continue to have that concern? Is it a concern?

MR. CASEY: We certainly believe that the current process including all of the stakeholder engagement is very positive, that there is a great degree of transparency. We submit the application. There's very wholesome discussions that go on and then the results are made very public as well. So I would say we would – we believe that the current process does work, is transparent, is certainly in the best interests of customers.

[Transcript, p. 105]

[74] The Board, in many previous decisions, has set out the principles that apply in consideration of settlement agreements/consensus documents (see, for example, [2008 NSUARB 140]).

[75] The Consensus document represents a resolution of the issues identified in the Final Issues list and by the parties. It is a negotiated agreement between all the parties represented at the hearing, although not executed by the Industrial Group and PHP for the reasons noted above.

[76] The Board has accepted such agreements where it has been satisfied that the agreement is properly supported and in the public interest.

[77] In this Application, the Board notes that the matters deferred to stakeholder consultation are generally complex and broad topics which lend themselves to detailed discussion and dialogue that may not be possible in the course of a hearing.

[78] The Board is satisfied that transparency of its proceedings is not compromised by such a process.

[79] In its previous ACE Plan decisions, the Board encouraged the parties to continue the consultative process they suggested. It is now undeniable that discussions between stakeholders have greatly improved the quality of NSPI's ACE Plan filings and allowed for their more efficient review. Therefore, the Board agrees with the parties' decision to continue collaboration in finding mutually acceptable solutions.

[80] The Board has considered the evidence and the Consensus document. The Board accepts the recommendations of the signatories and approves the Consensus document as filed. The Board has, however, made observations about certain elements of the Consensus document elsewhere in this Decision.

[81] NSPI has committed to reporting on the matters on which discussion is to occur by no later than August 4, 2017, and the Board directs it to do so. The Board encourages NSPI to report at an earlier time where agreement has been reached on any of the issues so that any necessary or appropriate action can be taken expeditiously.

V OTHER MATTERS

1. Reliability/Performance Standards

[82] In past ACE Plan applications, reliability of the electricity system has been the subject of considerable discussion.

[83] In the 2013 ACE Plan decision, the Board directed NSPI to “monitor the impact of deferral or reliability projects in the original 2013 ACE Plan closely and to provide a report on the results in the next ACE Plan.”

[84] The Terms of Consensus approved in the 2015 ACE Plan decision outlined additional information NSPI was to provide in response to the above directive, including providing information regarding its plans for replacement of aging transmission and distribution equipment, and providing updates on its storm performance and related capital investment strategies to improve storm performance.

[85] Section 8.1.7 of the 2017 ACE Plan provides reliability statistics, information on the causes of outages, plans for replacement of aging transmission and distribution equipment and storm performance statistics.

[86] Following the filing of the 2017 ACE Plan on November 28, 2016, the Board issued a decision [2016 NSUARB 193] establishing performance standards for NSPI in respect of reliability, the response to adverse weather conditions and customer service (“Performance Standards Decision”). The establishment of such performance standards

was enabled by s.31 of the *Electricity Plan Implementation (2015) Act*, enacted on December 18, 2015, which amended s. 52 of the *Act*.

[87] The Performance Standards Decision established certain reliability performance metrics, including the System Average Interruption Frequency Index (“SAIFI”) and System Average Interruption Duration Index (“SAIDI”) performance metrics, with severe outage events excluded.

[88] SAIFI represents the average number of times that a system customer experiences a power outage during a specific time period (typically one year). SAIDI measures the average duration of a power outage that a system customer experiences over a specific time period (typically one year).

[89] Both SAIDI and SAIFI metrics are included in the 2017 ACE Plan. The results excluding and including severe outage events are shown separately.

[90] The Performance Standards Decision also established standards with respect to NSPI’s response to adverse weather conditions. While most of these metrics relate to customer notifications and responses, there is one metric related to the percentage of customers restored within 48 hours of a severe weather event.

[91] NSPI must provide an annual report to the Board with respect to performance standards within 90 days of calendar year end.

[92] In response to UARB IR-6, NSPI confirmed the Board’s Performance Standards Decision did not impact the 2017 ACE Plan capital expenditures in transmission and distribution. NSPI also stated, in its response to UARB IR-11(a), that “IT investments related to transmission and distribution and customer service will help support performance standards, but there are no specific investments in the 2017 ACE

Plan designed to respond to performance standards”. However, NSPI added that “in the event that investments related to the Performance Standards approved by the Board are required to be advanced into 2017, the Company will identify them in the corresponding capital work orders”.

[93] When asked whether, in light of the Performance Standards Decision, the information contained in section 8.1.7 of the 2017 ACE Plan was available to stakeholders elsewhere, and whether this reporting was necessary, Mr. Casey stated:

The view that I would have I definitely agree that the implementation of performance standards has sharpened our focus on the -- on particular areas. There are reliability measures in there that are of concern.

There is some reporting in here that talks about what the CA category of defective equipment or equipment failures outages as well which is more directly related to investments that we make.

But I don't personally believe that that section is still applicable. I think that was in reference to a decision back in 2013. I think we have progressed and that our transparency and reporting around performance standards provides that information very specifically for the areas that we're looking for.

[Transcript, p.102]

[94] He went on to say:

The performance standards are definitely the outcomes of it which I think is what's critically important for customers is reliability and performance. There are some more specific details that are provided in there like vegetation outages.

The concern I always have with it is that it's a very narrow view. We correlate the performance of our power system with the storms that we have, with the -- and I think performance standards does a better job of doing that, of segregating that, taking out extreme events and major events, looking at every day performance versus storm performance and providing metrics for that.

So I think the performance standards is a more comprehensive view than what's provided in that report.

[Transcript, p.103]

Findings

[95] Given the timing of the filing of the 2017 ACE Plan, in relation to the Performance Standards Decision, it is not surprising no specific capital expenditures

proposed in the 2017 ACE Plan are specifically related to performance standards established by the Board.

[96] Capital cost drivers have been of interest to stakeholders and the Board during the course of many ACE Plan proceedings. In the Board's view, the impact of mandated performance standards should be monitored. The Board, therefore, directs that in future ACE Plans, NSPI should identify and list any proposed capital investments related to performance standards established by the Board.

[97] The Board is always mindful of the need for an efficient regulatory process, and wishes to avoid redundancies. It appears to the Board the reporting requirements, with respect to reliability and severe weather events, set out in the Performance Standards Decision, may create some duplications. Mr. Casey's comments relating to the continuing applicability of reliability reporting in the content of the ACE Plan have merit.

[98] However, to what extent, if any, certain aspects of the information set out in Section 8.1.7 of the 2017 ACE Plan will be reproduced in the report required by the Performance Standards Decision remains to be seen.

[99] It is not clear such items as, for example, plans for replacement of aging transmission and distribution equipment, and storm performance information, beyond the 48-hour restoration metric, will be fully explored in the context of performance standard metrics reporting.

[100] As there is some uncertainty, and a part of the information provided in Section 8.1.7 is derived from an agreement between stakeholders, as part of the 2015 ACE Plan process, the Board will not direct any changes to the current ACE Plan reporting

related to reliability as this time. The Board will monitor the ongoing relevancy of this part of the ACE Plan.

[101] The first report arising from the Performance Standards Decision is due March 31, 2018. Once that report has been filed and analyzed, the matter should be revisited in the context of a future ACE Plan.

2. Capital Investments in Information Technology

[102] In the Consensus document, NSPI has agreed to hold separate stakeholder sessions on the IT investments and overall strategy. The expected IT spend over the coming years is roughly equivalent to building a gas powered generation facility with the capacity of a power plant, such as Point Aconi or Point Tupper.

[103] As with any project, the keys to successful execution are well defined objectives, project management, knowledgeable staff and a supplier who fully understands the deliverables and the culture of the company. For something as complex as IT, the need for all of these elements is more pronounced. This concern was raised by Mr. Chernick who stated:

... it is not clear how well NS Power is coordinating related projects, raising concerns about lost opportunities, unnecessary overlap, and potentially stranded assets.

[Exhibit N-6, p. 15]

[104] NSPI is developing, as a deliverable in 2017, an improved technology governance model. As defined by Mr. Folkins:

... So within our new governance model there will be what we'll call an architecture review board.

So where there are requirements, business requirements or customer driven requirements how we solution those will be consistent because it'll have -- there'll be an approved set of architectural standards that we have to follow and when we do move away or move on to new standards then this review board will make sure that when we do change it'll be within the risk tolerance level that we...will invest in.

[Transcript, p. 78]

[105] New IT projects will change the way certain activities are performed and the supporting processes. To ensure all elements are properly considered and implemented there is a need for strong project management. As stated by Mr. Folkins:

... So we would have a defined set of project management standards in place today and we would -- we've outlined actually a number of those practices inside the ERP capital work order. And that's what all of our projects are set up for and managed to.

...

... so our project managers would be trained project managers on our large projects, that's for sure. And the technical people that we would have working on our equipment would all be trained in those fields.

[Transcript, pp. 80-81]

[106] Mr. Chernick noted that "... a very large share of the expenditures are for external consultants" [Exhibit N-6, p. 15]. In response, NSPI stated it will staff the needs for project implementation from internal and external resources:

- Roles which will be required over multiple projects or are necessary as part of the knowledge transfer to operate and support the new systems are resourced internally
- Roles which require a subject matter expert only for one project, and are not available internally, are being resourced externally

[Exhibit N-7, pp. 14-15]

[107] There are standard IT projects, such as replacing software that is no longer supported, and upgrades to legacy systems. At present, NSPI has a contract for IT services with a third party. As described by Mr. Folkins, they:

... have taken on a role of I'll call it the transactional part of IT. So it would have been running our data centre for us, running our help desk for us, running desk side support

And there's not a major fluctuation in the need there. ...

[Transcript, p. 72]

[108] At present, the internal IT resources are thin, as most of the "transactional" work is done by a third party. The Company does not have the full set of skills needed to implement the new IT projects and has to hire knowledgeable staff. Of the 97 needed,

about 50 have now been hired. These are full time positions that will be needed for quite some time. NSPI is striving to:

... make every effort to ensure that we understand the scope and the timeline, making sure that our people are in the room when decisions are being made.

It's critically important that they do know our business in order for those systems to work with our business. So we're very, very sensitive of that as well.

[Transcript, pp. 82-83]

[109] If NSPI decided to add new equipment, it would be subject to a cost benefit analysis. Recently, according to Mr. Folkins, for IT projects, such an analysis has been limited:

... most of our IT investments to date have been same for same in replacing kind of end of life and as such haven't been focused on any economic or cost-saving benefit.

[Transcript, p. 76]

[110] In fact, one of the three "same for same" projects, the AMI Database License PE, is support for four other new projects (AMI, ERP, T&D Work and Asset Management, and the Customer Information System). Such interdependence heightens the need for proper governance and co-ordination across all departments and all processes. A danger can be 'scope creep' as a legacy upgrade can lead to a less rigorous analysis of need, or any true cost benefit.

[111] NSPI justifies hardware purchases on the basis that replacements are needed every three to four years; however, it uses a depreciation rate of 20%. Software is depreciated at 10% (a 10 year life), but may not have utility that far into the future. As stated by Mr. Folkins:

I would agree with you that there is I'll call it more turnover in the software industry that's for sure these days. We still expect that these main ITSs that we're buying to have that life that we're talking about.

[Transcript, p. 87]

[112] NSPI has a dedicated cyber security manager whose role is to be "...both actively involved in threat and risk management as well as the IT security operations."

[Transcript, p. 84] As well, Mr. Folkins said the suppliers are asked:

... what's their cyber control framework that they would follow because there are a couple of them accepted in the industry today and we would ask for them for proof of that and kind of where they rank on their controls.

[Transcript, p. 86]

Findings

[113] In the upcoming discussions with stakeholders, the Board considers it is essential that NSPI demonstrate solid project justification and a thorough analysis of the effect on, and mitigation of, and interdependence of, all affected processes and personnel. The qualifications of key players, both internal and external, must match the project implementation requirements.

[114] As part of the justification, in the Board's view, a full cost/benefit analysis must be presented, along with a follow-up report upon completion. This follow-up report needs to capture the measurable benefits from the completion of the project and lessons learned.

[115] The Board finds the development of a new IT governance model after embarkation upon some major IT projects, especially when the Company is also adding expertise, to be unusual. NSPI is directed to develop the new IT governance model as soon as possible and to file it with the Board when it is completed, and in any case, no later than with the next ACE Plan filing.

[116] The Board notes that the ERP project and AMI are the subject of separate Board proceedings.

3. Prudence of Port Hawkesbury Biomass Plant Projects

[117] In its decision on the 2016 ACE Plan [2016 NSUARB 95], the Board directed that two capital projects relating to the PHB Plant (CI 47613 and 47614) be set aside for individual review as a result of amendments to the *Renewable Electricity Regulations* (“*RE Regs.*”) which had been made on April 8, 2016, after the close of the hearing. These projects were submitted to the Board for approval on November 18, 2016, and the Board, by letter dated December 23, 2016, advised NSPI that they would be considered during the hearing of this Application.

[118] Mr. Chernick stated in his evidence that he did not believe that NSPI had submitted sufficient information to allow a review of those projects, and others, for the biomass plant in the 2017 ACE Plan. He identified several questions which would need to be answered to explain why it should continue to be operated.

[119] At page 22 of its Reply Evidence, NSPI stated that the amendment to the *RE Regs.* requires it to “...maintain the [plant] available as a base load cogeneration facility and...operate the plant on an economic dispatch basis or as required for system reliability”. NSPI went on to say that the two projects from the 2016 ACE Plan and those in this Application are required to fulfill these maintenance obligations, and contribute to system reliability. It further noted, at page 23, that the biomass plant is:

...the only NS Power owned renewable resource whose output can be increased to meet Renewable Energy Standards (RES) obligations in case of a low wind/hydro output year. If the Facility was discontinued, NS Power customers would lose an important provider of dispatchable RES eligible energy.

[Exhibit N-7, p.23]

[120] NSPI anticipates that using the biomass plant will be required once renewable targets increase, and further noted its contractual obligations to PHP regarding the operation of the plant.

[121] The Consensus document provides in Appendix A:

NS Power provided additional information with respect to the specific capital projects for PHB facility and clarification regarding the legislative framework under which NS Power is required to maintain the PHB facility as a co-generation plant.

Based on NS Power's Reply Evidence dated February 16, 2017 at p. 23 lines 4-9, the Parties do not oppose the approval of the 2016 ACE Plan capital projects CI 47613 PHB Boiler Refurbishment 2016 and CI 47614 PHB Fuel System Refurbishment 2016.

The 2017 ACE Plan capital expenditures associated with the PHB facility ("2017 PHB Projects") will be subject to a separate stakeholder discussion specifically with respect to providing additional information to stakeholders regarding each of the 2017 PHB Projects with such session to be held on or before April 14, 2017. In the event NS Power and stakeholders are not able to reach agreement after such discussion, NS Power maintains the right to bring any and all of the 2017 PHB Projects to the UARB and stakeholders maintain all of their rights in relation to such applications. [Emphasis added]

[Exhibit N-9, Appendix A, pp.2-3]

Findings

[122] No party objected to the approval of CI 46713 and 46714, the 2016 ACE Plan projects. The Board notes that these two projects were approved by Board Member Steven Murphy on March 3, 2017. Mr. Sampson confirmed, in response to Board questions, that if the parties are unable to reach agreement with respect to the 2017 biomass plant projects after the planned stakeholder session, NSPI would bring the projects back to the Board for consideration.

[123] In accordance with the Consensus document, the Board will withhold approval of the PHB Plant projects in the 2017 ACE Plan, (including routines) at this time. NSPI is directed to advise the Board whether the stakeholders have reached agreement as contemplated by the Consensus document on these projects no later than August 4, 2017; if there is agreement, the Board will review them in the normal course. Should there be no agreement, and NSPI wishes to bring any or all of the 2017 projects to the Board, it shall do so, on the understanding that the Board will then determine if they should be reviewed in a separate process.

4. Vegetation Management/Right-of-Way Widening

[124] The necessity of work related to the widening of some of the transmission and distribution rights-of-way was first brought to the Board's attention during the matter related to NSPI's state of preparedness for Post-Tropical Storm Arthur. At that time, NSPI presented a plan to complete the work over eight years at an estimated cost of \$36 million, or \$4.5 million per annum, plus administrative overhead. NSPI was directed to include these annual amounts in its future ACE Plans for approval.

[125] NSPI has included an amount of \$5.4 million related to this work in its 2017 ACE Plan. This is broken down as the \$4.5 million originally estimated plus an additional \$900,000 in administrative overhead ("AO"). The \$4.5 million base amount included in the 2017 ACE Plan is identical to the original annual forecast by NSPI.

[126] NSPI has used the same cost per kilometer estimates and easement cost estimates, in relation to right-of-way widening and vegetation management, in both the 2016 and 2017 ACE Plans.

Findings

[127] NSPI's original cost estimates appear reasonable based on its costs incurred to date. Therefore, the Board accepts the continued use of the original estimates in the 2017 ACE Plan. However, the Board directs NSPI to update these cost estimates in the 2018 ACE Plan (and future years) based on actual historical costs incurred on this project.

5. Topics from the Stakeholder Engagement Process

a) Revenue Requirement

[128] Mr. Chernick had raised concerns about the calculation of the revenue requirement, in particular the treatment of AO and Allowance for Funds Used During Construction (“AFUDC”), and depreciation. This was resolved in the Consensus document by deferring it to additional discussion with stakeholders for implementation in the 2018 ACE Plan.

Findings

[129] The Board accepts the approach set out in the Consensus document.

b) Economic Analysis Model

[130] Mr. Chernick expressed concern about the capacity factor and the replacement energy cost comparison used in the economic analysis spreadsheets. Both of these matters were extensively addressed in NSPI’s reply evidence. The Consensus document accepts NSPI’s clarification of capacity factors, with additional information to be provided in future ACE Plans. The present calculations are acceptable for the replacement energy cost comparisons used in this ACE Plan; however, there will be further discussion in the upcoming stakeholder consultations.

Findings

[131] The Board accepts the position on capacity factors and replacement energy costs as outlined in the Consensus document.

6. Directives for Future ACE Plan Filings

a) Items for Subsequent Submittal

[132] During the course of the hearing, the Board sought input from NSPI in relation to potential modifications to future ACE Plan filings.

[133] One area of concern related to six projects identified in the response to Board IR-13. These projects had been identified in the 2016 ACE Plan as items for subsequent approval. They had not been submitted for approval at the time of the 2017 ACE Plan filing, but were not listed as part of the Deferred or Cancelled projects, because NSPI intended to file the capital work orders associated with these projects with the Board prior to the end of 2016. In fact, three of these projects were not ready for submittal in 2016.

[134] In order to keep track of all projects listed in a prior ACE Plan, the Board asked the NSPI panel if, in subsequent ACE Plans, NSPI could provide a list of capital projects from a prior ACE Plan, which NSPI intended to file after the filing of the current ACE Plan, but before the end of the calendar year. NSPI agreed it could provide this information.

Findings

[135] The Board finds that listing the projects which appear as items for subsequent submittal in a prior year's ACE Plan filing, which have not been submitted for approval at the time of an ACE Plan filing, but which NSPI plans to submit by the end of the calendar year, would be useful for tracking purposes, and directs NSPI to provide such a list in future ACE Plans.

b) Tracking Interruptions to Interruptible customers

[136] The 2013 ACE Plan decision directed NSPI to track interruptions to interruptible customers and report the results in future ACE Plans. At the time, there was a concern about the frequency of interruptions to these customers. Section 8.1.8 of the 2017 ACE Plan provides the information required by this directive. The report shows there have been no significant interruptions in recent years.

[137] It appears amendments to the interruption provisions of the applicable tariffs, with the installation of telemetry technology following a pilot project, has allowed NSPI to control participating customer's load, facilitating compliance with NERC reserve requirements. The number and duration of interruptions for these customers has been reduced.

[138] In response to a question from the Board, as to whether the information published in section 8.1.8 was beneficial, or otherwise publicly available, Mr. Casey said:

To the best of our knowledge that information is not provided publicly anywhere else. As to whether or not it's applicable to this certainly the technology changes that we've made are in place. So I think that originally there was a pilot project around the [LIIR] technology, the telemetry project and those -- that is now in place.

So I don't think we would expect to see a step change or certainly not a reversion back to more frequent outages. However I don't believe that information's provided anywhere else.

[Transcript, p.104]

Findings

[139] Given the concern with the frequency of interruptions appears to have been alleviated at this stage, the Board finds the report required by Directive 15 of the 2013 ACE Plan decision is no longer necessary. The Board will no longer require this report in future ACE Plans. Should circumstances change, this issue can be revisited.

VI SUMMARY

[140] NSPI filed its 2017 ACE Plan Application seeking approval of capital spending of \$152.8 million. This amount includes \$72.6 million for individual capital items, of which \$54.8 million will be spent in 2017, and the remainder in 2018 and beyond. NSPI also requested approval of \$80.2 million for routine capital expenditures in 2017.

[141] Prior to the public hearing held on February 28, 2017, NSPI and the Intervenor, with the exception of PHP, the Province, and the Industrial Group, filed a Consensus document with the Board which outlined an agreement resolving the issues. The Consensus document provided that no signatory party objected to any of the projects NSPI submitted for approval in the 2017 ACE Plan. It also provided that stakeholders will engage in a consultative process regarding revenue requirement analysis; the economic analysis model; projects under \$250,000; information technology for capital investments; and Port Hawkesbury Biomass Plant capital expenditures.

[142] The Board has prepared Schedule "A" which shows the status of the 2016 ACE Plan projects which NSPI intended to submit later. Schedule "C" lists the projects for 2017 which NSPI intends to submit for later approval. Both Schedules are for information purposes only.

[143] The Board approves the projects and capital expenditures set out in Schedule "B". Should any of them be cancelled or deferred, NSPI is required to resubmit them for Board approval.

[144] The Board also approves the 2017 Routine capital expenditures.

[145] The Board approves the Consensus document as filed. NSPI should lead the consultative process, and Board staff and Counsel will participate as appropriate. NSPI is to provide a report to the Board no later than August 4, 2017, advising on the

status of stakeholder discussions, including matters where agreement has, and has not, been achieved.

[146] NSPI is directed to advise the Board in its report, due no later than August 4, 2017, whether there has been agreement on the PHB Plant projects in the ACE Plan. If no agreement has been reached, NSPI may bring any or all of the 2017 projects to the Board for review.

[147] The Board directs NSPI to identify and list any proposed capital investments related to performance standards established by the Board in future ACE Plan applications.

[148] NSPI is directed to develop the new IT governance model as soon as possible and to file it with the Board when it is completed, and in any case, no later than with the next ACE Plan filing.

[149] The Board also directs NSPI to continue to provide, in future ACE Plan applications, the information identified in earlier ACE Plans on reliability, including plans for replacement of aging transmission and distribution equipment, and updates on storm performance and related capital expenditures to improve storm performance. This information is to be provided in similar form to Section 8.1.7 of the 2017 ACE Plan.

[150] NSPI is directed to update cost estimates for right-of-way widening and vegetation management in the 2018 (and future) ACE Plans based on actual historical costs incurred.

[151] The Board directs NSPI to include in future ACE Plan applications a list of the projects which appear as items for subsequent submission in a prior year's ACE Plan

filing which have not been submitted for approval at the time of an ACE Plan filing, but which NSPI plans to submit by the end of the calendar year.

[152] The Board directs that NSPI is no longer required to provide in future ACE Plans the report of interruptions to interruptible customers as required by Directive 15 of the 2013 ACE Plan.

[153] An Order will issue accordingly.

DATED at Halifax, Nova Scotia, this 4th day of April, 2017.



Roberta J. Clarke



Murray E. Doehler



Richard J. Melanson

SCHEDULE "A"		
Status of the 2016 ACE Plan Projects		
Projects NSPI Intended to Submit Later (2016 Schedule "C")		
CI Number	Title	Status
Generation		
29807	HYD - Tuskett Falls Main Dam	Deferred to 2017
44595	HYD - Hollow Bridge Canal and Intake Refurbishment	APPROVED
46254	HYD - Mill Lake Surge Tank Refurbishment	Deferred to 2018
47167	HYD - Sandy Lake Surge Tank Refurbishment	APPROVED
47551	HYD - SHH Controls Upgrade	APPROVED
48020	HYD - RUT3 Generator Refurbishment	APPROVED
47163	HYD - Tuskett Controls Upgrade	APPROVED
44775	TUC#4 LM6000 Generator Stator Re-wedge	APPROVED
46191	Tuskett Fuel System Upgrade	APPROVED
44788	BGT1 Vibration Monitoring & Protection System Upgrade	Deferred to 2018
48157	TUC Auxiliary Boiler Purchase	Submitted
47870	LIN Cofferdam Outer Cell Refurbishment	Submission no longer required*
47871	LIN Stack Re-Coating	Deferred to 2018
47953	LIN Rail Car Positioner Upgrade	Deferred to 2017
47687	POT Boiler Chemical Recondition	Deferred to 2017
47893	TUC3 Generator Hydrogen Panel Upgrade	Deferred to 2017
Transmission		
48025	L7018 Upgrade to 345kV & Capacitor Bank Addition	Cancelled
41519	Harbour East 138 kV Transmission Line	Deferred to 2018
43678	Separate L8004/L7005 on Canso Crossing Double Circuit Tower (DCT)	Deferred to 2017
48022	Spider Lake Substation Addition	Submitted
48154	L5527 Reconductor	Cancelled
48024	90H - Sackville: Capacitor Bank Addition & L-6010/L6005 Breaker Upgrades	Cancelled

48023	103H - Lakeside: Capacitor Bank Additions & L-6003 Breaker Upgrades	Cancelled
43268	9W-B53 Tusket Replace Supporting Structure	Deferred to 2018
46811	2H Armdale Transformer Addition	APPROVED
48061	New Mobile Substation, 69-25/12-kV, 6MVA	APPROVED
Distribution		
47124	Automated Metering Infrastructure	Submitted
47760	85S-402 Re-Insulate	Deferred to 2017
47776	111S Prime Brook Feeder Exits & Feeders	APPROVED
47787	2H Armdale New Feeders	Deferred to 2017
44749	Tiverton Tower Refurbishment	Deferred to 2017
47753	24C-442GB Highway 16 Reconductor Phase 2	APPROVED
47784	103H-Lakeside Feeder Reconfiguration	Submission no longer required*
47792	Distribution Automation Remote Communications	Deferred to 2018
48152	20H-Spryfield Voltage Conversion Phase II	APPROVED
47403	Load Research Sample Update	APPROVED
47786	129H Kearney Lake New Feeder	Submission no longer required*
48195	Halifax 4kV Conversion Phase 3	APPROVED
General Plant		
44671	IT - Oracle Financials Upgrade	Submitted
46075	IT - Maximo Upgrade & GIS Integration	Deferred to 2017
48232	T&D Scheduling & Dispatch	Deferred to 2017**
48251	T&D Field Design	Deferred to 2017**
47477	IT - Security Enhancements	APPROVED
48236	Customer Experience Self-Serve Development Phase 1	Submitted
46671	NERC CIP Version 5 Implementation	APPROVED
48254	IT - Outage Communication Technology Capacity Improvement	APPROVED
41425	IT - Cognos Upgrade	APPROVED
46073	IT - Lotus Notes Applications Replacement	APPROVED

47751	Dynamic Transmission Limits	Deferred to 2017
48234	Customer Support System Enhancements	Submission no longer required*
48238	Customer Billing Experience Improvements	Submitted
48155	2016 SCADA Application Upgrade	APPROVED

*The revised cost estimate is now less than \$250,000.

**To be completed under CI 46075, IT - Work and Asset Management.

SCHEDULE "B"
2017 ACE Plan Approved Projects

CI Number	Title	2017 Budget	Project Total
Generation			
48535	HYD Scragg Lake Dam and Spillway Refurbishment	\$1,861,306	\$1,956,298
48631	HYD Gulch Spillway Refurbishment	\$549,231	\$617,034
49532	TRE6 Air Heater Refurbishment	\$1,428,236	\$1,428,236
49533	TRE6 Boiler Refurbishment	\$1,259,454	\$1,259,454
47687	POT Boiler Chemical Recondition	\$794,560	\$974,604
49419	POT Boiler Refurbishment 2017	\$969,292	\$969,292
49536	TRE5 Boiler Refurbishments 2017	\$717,589	\$717,589
41511	TRE6 Condenser Waterbox and Cooling Water Piping Refurbishment	\$700,809	\$700,809
49433	LIN1 SH5 Boiler Tube Replacement	\$493,396	\$493,396
49057	TRE6 Excitation System Replacement	\$474,066	\$904,011
49707	TUC2 High Voltage Bushing	\$440,082	\$440,082
49537	TRE6 Analytical Panel Upgrade	\$438,216	\$438,216
47893	TUC3 PE Generator Hydrogen Panel Replacement	\$421,182	\$423,798
49535	TRE6 Mills Refurbishment 2017	\$822,141	\$822,141
47597	TRE6 Bottom Ash Chain Replacement	\$793,792	\$793,792
49431	LIN Mill Refurbishment 2017	\$665,839	\$665,839
49675	TUC2 Cooling Water Piping Refurbishment	\$568,673	\$568,673
47953	LIN Railcar Positioner Upgrade	\$566,619	\$566,619
49897	POT Fire System Upgrades 2017	\$538,437	\$538,437
49430	LIN CW Pump Refurbishment 2017	\$516,270	\$516,270
49466	PTMT Dock and Inhaul Conveyor Replacement	\$467,607	\$467,607
49427	LIN Coal Plant Structural Refurbishment Phase 3	\$365,003	\$365,003
49434	LIN CW Screen Refurbishment 2017	\$347,062	\$347,062
49463	POT Coal Mill Overhauls 2017	\$328,410	\$328,410
49429	LIN Coal Pile Run Off Pond Expansion	\$311,793	\$311,793
49437	LIN Vacuum Pump Cooler Refurbishment	\$282,034	\$282,034

Transmission			
49992	2017 Transmission Right of Way Widening	\$5,400,855	\$5,400,855
47954	L7012 Replacements and Upgrades	\$2,073,902	\$4,428,520
49838	2017/2018 Substation Polychlorinated Biphenyl (PCB) Equipment Removal Program	\$2,653,789	\$4,127,023
49948	2017/2018 Isolated Structure Replacements	\$1,209,834	\$3,822,487
49793	L7011 Replacements and Upgrades	\$1,304,384	\$3,343,484
49789	L6515 Replacements and Upgrades	\$1,097,771	\$2,340,989
49815	2017/2018 Steel Tower Refurbishment	\$929,792	\$2,003,317
49774	L5527 Replacements and Upgrades	\$722,891	\$1,537,852
49813	2017 Sacrificial Anode Installation Program	\$1,427,340	\$1,532,340
49814	2017/2018 Steel Tower Life Extension	\$427,938	\$1,462,100
49778	L5535 Replacements and Upgrades	\$1,261,920	\$1,261,920
49790	L5505 Replacements and Upgrades	\$575,817	\$1,223,571
49782	L5027B Replacements and Upgrades	\$1,093,542	\$1,093,542
49818	2017/2018 Transmission Switch & Breaker Replacement	\$496,339	\$1,074,472
49775	L5004 Replacements and Upgrades	\$995,712	\$995,712
49776	L7008 Replacements and Upgrades	\$876,277	\$876,277
43200	2017 Wood Pole Retreatment Program	\$841,821	\$841,821
47915	L5053 Replacements and Upgrades	\$692,706	\$692,706
47956	L7004 Replacements and Upgrades	\$672,131	\$672,131
49792	2017 Transmission Line Retirement Program	\$526,064	\$526,064
49821	Mersey River Hydro Spare Transformer	\$101,450	\$519,994
49878	2017 Substation Insulator Replacement Program	\$508,893	\$508,893
48057	Replace 69kV Cables Between 2S and 83S	\$459,931	\$459,931
49833	2017 Oil Containment Program	\$397,993	\$432,518
49798	2017/2018 Capacitor Bank Breaker Replacements	\$175,347	\$378,150
Distribution			
49919	2017 PCB Pole Top Transformer Replacement	\$2,257,603	\$2,446,051
49806	2017 Padmount Replacement Program	\$1,573,814	\$1,703,774
41350	16W-301 Hebron Rebuild Phase 2	\$445,140	\$904,732
49836	11S-302 11S-401 Rebuild Coxheath Phase 2	\$340,322	\$807,456

49841	23H-Rockingham Voltage Conversion-Phase 2	\$424,818	\$743,213
49799	532N Elm Street Conversion Phase 1	\$548,688	\$548,688
49918	54H-303 Underground Device Replacements Phase 1	\$469,604	\$469,604
47769	509V-301 Overcove Rd Replacements	\$402,493	\$402,493
49791	3N Oxford Conversion Phase 3	\$358,369	\$358,369
49867	55V-313-Berwick North Replacements	\$345,565	\$345,565
49591	3S Feeder Exit Cable Replacement	\$312,334	\$335,842
49891	509V Recloser and Voltage Regulator Replacement	\$319,649	\$319,649
50073	4S-332 Bernard Lind Drive Conversion	\$302,893	\$302,893
49866	512N-Toney River Replacements	\$285,219	\$285,219
General Plant			
49861	IT - PI System Upgrade	\$667,366	\$801,253
46572	2017 RTU Replacement Program	\$350,914	\$693,354
48774	HYD Milton Shop HVAC Upgrade	\$553,090	\$564,347
50071	T&D Inspection Application Upgrade Phase 1	\$263,602	\$411,191
49880	Meter Shop Test Console Replacement	\$208,631	\$410,457
49902	2017 Telecom Building Replacement - Wittenburg	\$294,000	\$294,000
TOTAL APPROVED AMOUNT		\$54,769,654	\$72,601,321

SCHEDULE "C"			
2017 ACE Plan Projects NSPI Intends to Submit Later			
CI Number	Title	2017 Budget	Project Total
Generation			
39472	HYD Mersey Hydro System Re-Development	\$300,000	\$84,000,000
29807	HYD - Tuskett Falls Main Dam	\$3,697,643	\$9,940,664
47654	HYD - Gulch Penstock & Surge Tank Replacement	\$3,526,825	\$3,629,655
48533	HYD - Lequille Headpond Water Retaining Structures Refurbishment	\$1,809,228	\$1,919,166
48052	HYD - Annapolis HVAC Upgrade	\$1,420,463	\$1,498,367
47648	HYD - Lequille Pipeline Replacement	\$1,329,928	\$1,384,448
47876	HYD - Lequille Overhaul	\$1,075,450	\$1,155,418
38931	HYD - Harmony Partial Decommissioning	\$586,469	\$1,106,122
49596	HYD - Hells Gate 2 Overhaul	\$962,316	\$970,827
47678	HYD - Prince Mine Dam Decommissioning	\$761,647	\$819,451
47682	HYD - Lequille Switchgear Replacement	\$651,251	\$698,659
48913	HYD - Tuskett Facility Refurbishment	\$656,308	\$657,956
49835	HYD - Dive Site Risk Mitigation	\$315,851	\$650,533
49598	HYD - Gisborne Switchgear Replacement	\$593,754	\$623,814
47166	HYD - McAskill Brook Decommissioning	\$459,736	\$562,684
48914	HYD - Malay Falls Facility Repair	\$444,589	\$446,237
48396	HYD - Bridge Remediation	\$338,935	\$404,616
47660	HYD - Dickie Brook Controls Upgrade	\$94,032	\$307,251
49039	HYD - Lequille Controls Upgrade	\$298,302	\$304,121
44776	CT - TUC#5 LM6000 Generator Stator Re-wedge	\$1,041,614	\$1,073,280
49273	CT - BGT2 Engine Refurbishment	\$908,102	\$1,019,832
49940	LM6000 TUC5 Control System Upgrade	\$1,018,769	\$1,018,769
49594	LM6000 TUC5 - Airhouse Upgrade	\$833,200	\$833,200
49926	LM6000 TUC4 - Airhouse Upgrade	\$815,633	\$815,633
49949	LM6000 TUC4 - Control System Replacement	\$710,815	\$710,815
47118	CT - Tuskett Hydraulic Starter	\$317,015	\$317,015
46499	Stator Rewind Kit Capital Spare	\$2,668,808	\$5,219,939

48893	TUC3 - IP Turbine Refurbishment	\$4,338,274	\$4,798,475
47531	TRE6 - Turbine Refurbishments	\$1,500,000	\$2,322,487
49438	LIN - A Gallery Floor Replacement	\$593,814	\$593,814
49499	PHB - Boiler Refurbishment 2017	\$484,730	\$484,730
49111	POT - Air Heater Refurbishment	\$462,168	\$471,204
49538	TRE6 - Generator Refurbishment	\$411,766	\$411,766
47553	TRE6 - Turbine Main Valves	\$392,887	\$392,887
49674	TUC2 - Boiler Selective Waterwall Tube Replacements	\$390,898	\$390,898
49060	POT - Condenser Dog Bone Expansion Joint Replacement	\$298,253	\$298,253
48868	AMO Fleet TWIP Upgrades	\$257,442	\$280,608
Transmission			
43678	Separate L8004/L7005 on Canso Crossing Double Circuit Tower (DCT)	\$13,892,444	\$16,183,691
45053	69kV Structure Replacements West	\$321,656	\$4,818,017
50342	Western Transmission System Voltage Support	\$300,000	\$4,000,000
49922	Western Switching Upgrades	\$353,906	\$353,906
49879	77V-T52 Replacement	\$746,631	\$775,082
50021	91H Tufts Cove Bus and Line Upgrades	\$417,178	\$417,178
49928	3S Gannon Road Bus Reconfiguration	\$364,777	\$364,777
49929	Tap Changer Replacements	\$262,526	\$262,526
Distribution			
50343	Advanced Metering Infrastructure	\$11,352,709	\$111,707,380
47124	Advanced Metering Infrastructure - Pilot Project	\$5,756,276	\$8,274,738
47776	111S Prime Brook Feeder Exits & Feeders	\$456,805	\$1,503,986
47787	2H Armdale New Feeders	\$1,253,299	\$1,285,679
47760	85S-402 Re-Insulate	\$499,495	\$1,259,666
44749	Tiverton Tower Refurbishment	\$689,416	\$1,058,200
50341	2017 Substation Recloser Replacements	\$577,388	\$577,388
49899	10H Halifax 4kV Conversion Year 4	\$254,608	\$254,608
General Plant			
46075	IT - Work and Asset Management	\$8,008,495	\$28,027,680
43202	Replace Mobile Radio System	\$2,975,666	\$6,537,700

49857	IT - Storage Infrastructure Upgrade	\$945,955	\$5,045,955
49860	IT - SharePoint Upgrade	\$1,971,915	\$4,021,915
49093	IT - Security Operations Center (SOC) and Security Information Event Monitoring (SIEM)	\$2,191,284	\$2,476,976
49787	Intelligent Feeder/Storage Project (SDTC)	\$1,276,653	\$2,399,368
49859	IT - Windows Server 2008 Upgrade	\$158,886	\$2,069,258
49855	IT - Window 10 Migration Project	\$1,804,339	\$2,013,034
50153	Customer Experience Self Serve Development Phase 2	\$1,827,720	\$1,827,720
49094	IT - Identity Access Management Infrastructure	\$1,500,000	\$1,711,147
49858	IT - Microsoft Exchange Upgrade	\$1,500,000	\$1,500,000
48773	IT - VOIP Expansion to NS Power Sites	\$1,400,000	\$1,499,731
49480	IT - Disaster Recovery	\$1,270,691	\$1,483,365
49601	IT - Data Loss Prevention	\$1,158,633	\$1,199,013
49600	IT - Network Architecture Redesign	\$1,033,597	\$1,183,826
49876	Real Time Economic Dispatch	\$816,638	\$1,161,618
50112	Customer Experience Consolidated Customer Web Portal	\$770,977	\$770,977
50113	Customer Experience - Streetlight Improvements	\$679,394	\$679,394
47751	Dynamic Transmission Limits	\$524,616	\$537,466
49603	IT - Patch Management	\$500,970	\$536,350
48238	Customer Experience Customer Billing Experience Improvements	\$124,280	\$490,878
48044	Bentley Nevada Upgrade and Integration to Fleet Monitoring	\$383,621	\$401,459
48155	2016 SCADA Application Upgrade	\$261,387	\$400,688
50295	Electric Vehicle Infrastructure Deployment	\$300,000	\$400,000
50132	Joint Regulation	\$236,175	\$387,704
49953	IT - CIS High Availability	\$354,578	\$354,578
50292	FAC - Kempt Road Depot Truck Bay	\$340,655	\$340,655
50115	Customer Support System Enhancement	\$310,647	\$332,847
48837	AMO Fleet Environmental Data Management	\$304,404	\$317,215
49856	IT - ITSM Replacement	\$300,000	\$300,000
TOTAL AMOUNT		\$109,498,205	\$356,038,931

Attachment 1 – Terms of Consensus

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF Section 35A of *The Public Utilities Act*, R.S.N.S. 1989, c.380, as amended

- and -

IN THE MATTER OF an Application by Nova Scotia Power Incorporated for Approval of the 2017 Annual Capital Expenditure (“ACE”) Plan - M07745

TERMS OF CONSENSUS

WHEREAS:

- A. On November 14, 2016, Nova Scotia Power Inc. (“NS Power”) filed with the Nova Scotia Utility and Review Board (“UARB”) its 2017 Annual Capital Expenditure Plan under Matter No. M07745 (“2017 ACE Plan”).
- B. The Consumer Advocate (“CA”) and the Small Business Advocate (“SBA”) have agreed to an approach for resolution of issues as among them related to the proceeding before the UARB for the approval of the 2017 ACE Plan, as reflected in this Terms of Consensus (collectively, NS Power, CA and the SBA will be referred to as the “Parties”).

NOW THEREFORE, the Parties agree as follows:

- 1. The Parties have reached agreement on matters relating to the 2017 ACE Plan as represented by the terms set out in **Appendix “A”** attached hereto.
- 2. Based on the terms set out in **Appendix “A”**, and the record currently before the UARB, including NS Power’s responses to Information Requests from the CA, SBA and the UARB dated January 5, 2017, the evidence of the CA dated January 24, 2017, and NS Power’s Reply Evidence dated February 16, 2017, the Parties do not oppose any of the projects submitted for approval by NS Power in the 2017 ACE Plan.

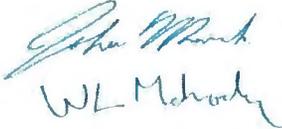
The Parties reserve the right to amend their position based on any new evidence submitted in the 2017 ACE Plan proceeding.

- 3. For the issues the Parties have agreed to review through a subsequent consultation process, NS Power will provide a report to the UARB in writing (with copy to the remaining Parties) on the outcome of such consultation by no later than **August 4, 2017** or as otherwise directed by the UARB.

4. This agreement may be executed by the Parties in counterparts, each of which when so executed and delivered shall be deemed to be an original and when taken together shall be deemed to be one and the same instrument. The electronic delivery, including, without limitation, by email or facsimile transmission, of any signed original of this agreement shall be the same as the delivery of an original.

All of which is hereby agreed to by the Parties effective as of the 23rd day of February, 2017.

CONSUMER ADVOCATE



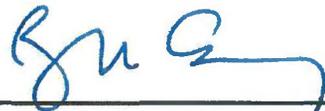
John Merrick
William L. Mahody

Per: John Merrick, Q.C.
William L. Mahody, Q.C.

SMALL BUSINESS ADVOCATE

Per:

NOVA SCOTIA POWER INC.



Brian Cuthy
SR. REGULATORY COUNSEL

4. This agreement may be executed by the Parties in counterparts, each of which when so executed and delivered shall be deemed to be an original and when taken together shall be deemed to be one and the same instrument. The electronic delivery, including, without limitation, by email or facsimile transmission, of any signed original of this agreement shall be the same as the delivery of an original.

All of which is hereby agreed to by the Parties effective as of the 23rd day of February, 2017.

CONSUMER ADVOCATE

SMALL BUSINESS ADVOCATE



Per:

Per:

NOVA SCOTIA POWER INC.

Per:

Intervenor Issue	NS Power Reply Evidence Reference	Agreed Settlement Position
<p>1. Revenue Requirement Analysis</p> <p>The CA raised concerns regarding the presentation of depreciation, AO, and AFUDC in the Revenue Requirement analysis provided in the 2017 ACE Plan, and recommended revisions to how these should be presented in the stakeholder version of the Revenue Requirement table.</p> <p><i>Ref.: 2017 ACE Plan CA Evidence, January 24, 2017, pages 7-8.</i></p>	Page 4 of 26	<p>NS Power agrees to amend the stakeholder version of the Revenue Requirement table in the ACE Plan to address the CA's concerns. Parties agree to defer discussion of the specific amendments to a subsequent stakeholder analysis between NS Power and interested stakeholders, for implementation into the 2018 ACE Plan.</p> <p>This stakeholder consultation process will begin within 30 days of the Board issuing its decision in this matter.</p>
<p>2. Economic Analysis Model (EAM)</p> <p>With respect to capacity factors, the CA recommended that NS Power should explain the differences in capacity factors used in the calculation of replacement energy costs and projected generation requirements in this proceeding to maintain consistency in future ACE proceedings.</p> <p>With respect to replacement energy costs, the CA recommended that NS Power should carefully review the reasonableness of replacement energy cost calculations for major hydro and non-hydro generation expenditures supported by economics.</p> <p><i>Ref.: 2017 ACE Plan CA Evidence, January 24, 2017, pages 9-13.</i></p>	Page 9 of 26	<p>NS Power provided clarification regarding the difference in capacity factors to the satisfaction of stakeholders, and agrees to provide clarification on the differences in unit capacity factors in future ACE Plans.</p> <p>NS Power confirmed that it closely considers the replacement energy costs for all capital expenditures supported by economics to the satisfaction of stakeholders. NS Power will consult with stakeholders on its replacement energy cost calculations for hydro and non-hydro generation, including discussions on locational costs, capacity factor and seasonal generation output. Parties agree no further amendments to the replacement energy cost calculation methodology are required at this time and to further discuss this issue as part of a subsequent stakeholder consultation process. This stakeholder consultation process will begin within 30 days of the Board issuing its decision in this matter.</p>

Intervenor Issue	NS Power Reply Evidence Reference	Agreed Settlement Position
<p>3. Projects under \$250,000</p> <p>The CA raised concern with the number of projects under \$250,000 noted in the 2017 ACE Plan, and recommended that the Board monitor the upward trend in capital expenditures from projects under \$250,000.</p> <p><i>Ref.: 2017 ACE Plan CA Evidence, January 24, 2017, pages 13-14.</i></p>	Page 13 of 26	<p>NS Power provided clarification regarding the number and selection of capital expenditures under \$250,000 in the 2017 ACE Plan. NS Power agrees to the CA's recommendation for the Board to monitor the trend on these expenditures. The Parties also agree to further discuss the selection process for projects under \$250,000 as part of a subsequent stakeholder consultation process.</p> <p>This stakeholder consultation process will begin within 30 days of the Board issuing its decision in this matter.</p>
<p>4. Information Technology Capital Investments</p> <p>The CA raised concern regarding three issues related to Information Technology (IT) capital expenditures noted in the 2017 ACE Plan: 1) large share of costs related to consultants, 2) overall project magnitude, and 3) master planning and risks associated with stranded assets.</p> <p>The CA recommended that NS Power should explain its strategy for integration of its multiple projects related to information technology.</p> <p><i>Ref.: 2017 ACE Plan CA Evidence, January 24, 2017, pages 15-19.</i></p>	Page 14 of 26	<p>NS Power provided clarification on its IT capital expenditures. NS Power agrees to hold a separate stakeholder session specifically with respect to providing additional information to stakeholders on the Company's future IT investments and overall IT strategy.</p> <p>NS Power will hold this stakeholder session within 90 days of the Board issuing its decision in this matter.</p>
<p>5. Port Hawkesbury Biomass Capital</p>	Page 21 of 26	NS Power provided additional information with respect to the specific capital

Intervenor Issue	NS Power Reply Evidence Reference	Agreed Settlement Position
<p>Expenditures</p> <p>The CA raised concern with capital expenditures regarding the Port Hawkesbury Biomass (PHB) generation station, and recommended the Board should not approve any capital spending for that plant.</p> <p><i>Ref.: 2017 ACE Plan CA Evidence, January 24, 2017, pages 19-21.</i></p>		<p>projects for PHB facility and clarification regarding the legislative framework under which NS Power is required to maintain the PHB facility as a co-generation plant.</p> <p>Based on NS Power's Reply Evidence dated February 16, 2017 at p. 23 lines 4-9, the Parties do not oppose the approval of the 2016 ACE Plan capital projects CI 47613 PHB Boiler Refurbishment 2016 and CI 47614 PHB Fuel System Refurbishment 2016.</p> <p>The 2017 ACE Plan capital expenditures associated with the PHB facility ("2017 PHB Projects") will be subject to a separate stakeholder discussion specifically with respect to providing additional information to stakeholders regarding each of the 2017 PHB Projects with such session to be held on or before April 14, 2017. In the event NS Power and stakeholders are not able to reach agreement after such discussion, NS Power maintains the right to bring any and all of the 2017 PHB Projects to the UARB and stakeholders maintain all of their rights in relation to such applications.</p>