DECISION **2020 NSUARB 63**
M09519

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 capital work order **CI #C0010778** for its Smart Grid Nova Scotia Project

BEFORE:	Peter W. Gurnham, Q.C., Chair Roland A. Deveau, Q.C., Vice Chair Stephen T. McGrath, LL.B., Member
APPLICANT:	**NOVA SCOTIA POWER INCORPORATED** Brian Curry, Counsel
INTERESTED PARTIES:	**CONSUMER ADVOCATE** William Mahody, Q.C. Emily Mason, Counsel **SMALL BUSINESS ADVOCATE** E.A. Nelson Blackburn, Q.C. Melissa MacAdam, Counsel **EFFICIENCYONE** James R. Gogan, Counsel
BOARD COUNSEL:	S. Bruce Outhouse, Q.C.
FINAL SUBMISSIONS:	March 13, 2020
DECISION DATE:	**May 7, 2020**
DECISION:	**The Board approves the application subject to the Compliance Filing.**

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1.0 INTRODUCTION

[1] Nova Scotia Power Incorporated has applied for approval of a capital project entitled the Smart Grid Nova Scotia Project in the amount of $7,053,622. The purpose of the four-year pilot project is to better understand how a centralized Energy System Platform (ESP) software can be used to monitor and manage Distributed Energy Resources (DERs) to achieve customer benefits such as maintaining reliability and grid stability, and reducing costs.

[2] The DERs to be used in the project include a variety of newer technologies such as solar photovoltaic generation from a community solar garden and from commercial roof-top installations, distributed in-home or in-business battery storage, and in-home or in-business electric vehicle smart charging. The ESP will allow for the visibility, control and dispatch of the DERs. The overall cost of the pilot project is approximately $19 million. However, this cost will be offset by nearly $12 million in external funding, resulting in nearly two-thirds of the project costs not being borne by NS Power customers.

[3] Under the Innovation Justification Criteria applied by the Board, such innovation capital investments may be justified if they are reasonably expected to allow for testing to provide valuable data and learnings, or aid in the development of business cases, prior to full-scale deployment. The Board is satisfied that the application is generally consistent with the Innovation Justification Criteria. The project pursues well-recognized emerging types of DERs and their integration into the grid, at a significantly reduced cost to ratepayers through partnership support. Accordingly, the Board approves the project subject to NS Power filing a Compliance Filing providing more details on how it will evaluate the success of the project.

2.0 CAPITAL EXPENDITURE JUSTIFICATION CRITERIA – INNOVATION

[4] On December 5, 2019, NS Power (Company or Utility) submitted its application to the Nova Scotia Utility and Review Board for approval of capital project CI C0010778 - Smart Grid Nova Scotia Project (project or pilot). The Board established a paper hearing process inviting stakeholder participation. Information Requests (IRs) were received from Board staff and Board Counsel's consultant Synapse Energy Economics (Synapse), the Consumer Advocate (CA), the Small Business Advocate (SBA), and EfficiencyOne. Responses were provided by NS Power on January 30, 2020. On February 19, 2020, Intervenor evidence was filed by Synapse, and by Resource Insight, Inc. on behalf of the CA. A written submission was also filed by the SBA.

[5] Prior to commencing its analysis of the application, the Board considers it helpful to outline the basis for reviewing such capital projects, which is carried out under the Capital Planning and Capital Expenditure Justification Criteria (CEJC). More specifically, projects developed to pursue emerging issues are evaluated under the Innovation Justification Criteria of the CEJC. The Innovation Justification Criteria provides, in part, as follows:

> **17.2 Innovation**
>
> ...
>
> ***Justification Criteria***
>
> Innovation capital projects are justified on the basis that there is a reasonable expectation that they will provide customer value in some or all of the areas of reducing upward pressure on revenue requirement, reliability and grid stability, government policy compliance, and customer experience, through the deployment of proven technologies in innovative ways. In addition, innovation capital investments may be justified on the basis that they are reasonably expected to allow for testing before deploying at scale, provide valuable data and learnings, or aid in the development of business cases where applicable.
>
> ***Sub-Justification Criteria***
>
> Innovation capital projects may be justified under one or more of the following sub-criteria:

- reduce upward pressure on revenue requirement
- reliability and grid stability
- environmental and other compliance
- customer experience improvements [Emphasis added]

[6] In its application, NS Power asserted that the proposed pilot project is justified under the second branch of the test in the Innovation Justification Criteria. The project is the first capital project submitted under the Innovation Justification Criteria in the CEJC.

[7] A project falling under the Innovation Justification Criteria differs from the typical capital work order approval for projects usually undertaken by a utility. In most cases, under the latter type of applications, the approval is sought based on a business case to meet a normal operational requirement of the utility. Projects that are innovative in nature would generally fall outside what would normally be experienced in the everyday operations.

[8] However, for projects falling under the Innovation Justification Criteria, the Board still requires that rigor be applied to the supporting material filed with the application. In this case, the Board was not satisfied with the initial application filed in support of the capital work order. The Board expected greater detail to support the application. Given that applications under the Innovation Justification Criteria are somewhat novel, the Board provides the following guidance for future applications.

[9] In the present case, the initial application filed with the Board lacked supporting material, particularly with respect to the benefits of the project. As canvassed in greater detail later in this Decision, Synapse stated that the initial proposal did not provide a complete pilot study design because it failed to:

- clearly describe the knowledge gaps that the proposed research is intended to address

- consider whether an alternative, less expensive pilot study design could achieve the same objectives
- describe how the proposed methodology is the best way to achieve the goals
- adequately show how the innovation justification criteria are met

[Exhibit N-10, p. 3]

[10] Further, Synapse suggested it was not clear whether the pilot will provide the information needed to decide whether to proceed with a full roll-out of the ESP. It noted it was not clear that NS Power presented a case that properly conveyed a plan that would compare the costs and benefits with and without the ESP, adding that NS Power was still considering the metrics to track during the pilot and various elements of the project were still under development.

[11] The Board shares Synapse's concerns with the quality of the initial application. Much of the initial filing was very general in nature, sparse in terms of details about the proposed project, and relied more on experience in other jurisdictions (much of it in the form of generic studies or reports) rather than an analysis of what was planned on the ground in Nova Scotia and with NS Power's other partners. It may be tempting in some cases to adopt projects undertaken in other jurisdictions or utilities in their testing of emerging technologies, including distributed energy resources and their integration into an energy grid. However, useful resources and time may be wasted if specific measurable outcomes and success factors are not clearly identified for the Nova Scotia context. In terms of projects to be considered under the Innovation Justification Criteria, the Board expects that NS Power will outline in sufficient detail the scope and design of the project, and what specific data, learnings, and measures of success will be adopted to evaluate the project. Further, the Board cautions NS Power that it will not be sufficient to generally extrapolate certain isolated results of a pilot project to justify its subsequent

full-scale deployment. Any standard capital expenditure application for full deployment will need to be detailed in every respect as to design, sourcing, implementation and benefit for customers, at the lowest cost.

[12] In the present case, various concerns of the Intervenors were addressed by NS Power when it filed its IR responses and Reply Evidence. However, the timing of the receipt of this information means that the Intervenors, Board staff and Board Counsel's consultants were unable to review and engage in a meaningful manner about this project with NS Power. In the view of the consultants, these shortcomings clearly jeopardized approval of this application. The engagement of NS Power's customer representatives and the Board is as important for innovative projects as it is for normal capital work orders. As noted later in this Decision, the ongoing work by NS Power on this project will likely result in delays in the implementation of some elements of the proposal and may lead to incomplete data or learnings at its completion.

[13] The Board trusts future applications under the Innovation Justification Criteria will be more comprehensive and better informed by the above guidelines.

3.0 PROJECT SCOPE AND DESIGN

[14] In its application, NS Power stated that the project will involve the implementation of an array of DERs onto the grid, as follows:

- Distributed Solar:
  - Community Solar Generation – The construction and operation of 2MW community solar garden.
  - Roof-top Solar and Battery – The installation of roof-top solar generation and battery storage at four commercial customer sites.
- Distributed Battery Storage:
  - The deployment of up to 200 in-home or in-business batteries.

- EV Smart Charging:
  - The installation of up to 200 in-home or in-business EV smart chargers.
  - The installation of up to four vehicle-to-grid (bi-directional) EV smart chargers and the purchase of up to four compatible EVs.

[Exhibit N-1, p. 24]

[15] A key component of the project is the ESP, which is a centralized software platform being developed by Siemens Canada by building upon currently available Siemens technology. The Siemens ESP will be tested for its effectiveness in controlling and dispatching DERs and managing their effect on reliability and grid stability, as well as reducing upward pressure on revenue requirement. The ESP proposes to be a customer-to-operation platform that allows different types of DERs in various locations to be controlled for overall customer and grid benefit.

[16] NS Power acknowledges that the project is a pilot and not a full deployment of an ESP solution. Its results are intended to inform further consideration of potential future full-scale deployment, which would be subject to full justification based on proven customer benefit.

[17] NS Power also submits that, in addition to the data and learnings from the proposed project, ratepayers will benefit from the reduced cost the Company has achieved for the project due to the funding and operational partnerships it has arranged. The project will receive government funding through the Innovation, Science and Economic Development (ISED) Canada Strategic Innovation Fund (SIF), Natural Resources Canada (NRCan), and the Province of Nova Scotia. Collectively, these contributions will fund approximately 63% of the project total of $19 million, resulting in a reduced capital project cost request of $7.1 million. In addition to the cooperative efforts

with Siemens Canada, the sources of government funding are summarized in Figure 10 of the application:

Figure 10 – Partner Contributions

Contributor	Contribution ($ millions)
Natural Resources Canada, Smart Grid Fund	$4.8
Innovation, Science and Economic Development Canada, Strategic Innovation Fund	$5.8
Additional Government of Canada Funding (to be announced)	$1.1
Province of Nova Scotia	$0.2
TOTAL Contributions	**$11.9**

Figures in the table are rounded to the nearest hundred thousand.

[Exhibit N-1, p. 33]

[18] The above partner contributions will help fund such activities as:

- the deployment of DERs for grid integration with the ESP and assessment of its ability to manage them;
- assisting utilities in improving their understanding of the opportunities, risks and costs of emerging energy technologies;
- EV smart charging including bi-directional vehicle-to-grid functionality; and
- the deployment and testing of the central control functionality to further enable the integration of renewable generation and clean technologies.

[19] Moreover, NS Power outlined that the project is part of a larger collaboration with NB Power and Siemens Canada known as the Smart Grid Atlantic Initiative, which will invest over $90 million to pursue smart grid development within Nova Scotia and New Brunswick and provide value to customers through the combined learning opportunities.

The partners for the Nova Scotia project include Siemens Canada, the Town of Amherst, participating customers, and the Nova Scotia Community College. The larger Atlantic initiative includes another project in the community of Shediac, New Brunswick, executed by NB Power, that will involve testing of distributed energy resources with a focus on combined residential DERs. NS Power stated there will be shared learnings throughout the execution of the project as the data collected by both utilities will have consistent parameters and terminology. NB Power is also planning two other community smart grid projects which will provide additional shared insights for the partnership, including a First Nations microgrid.

[20] A number of concerns were raised by Synapse, Resource Insight and the SBA about the scope and design of the project.

[21] NS Power submitted that the project's design and scope are substantially complete for the purpose of Board review and approval. However, it asserted that the "refinement of design and scope after project application submission is normal practice, and allows for timely submission of capital project applications". NS Power asserted that the remaining refinement of scope and design does not detract from the proposed value of the project or the Board's ability to review the project as submitted. It elaborated on this view as follows:

> ... Projects are submitted to the NSUARB once their scope and design are reasonably understood and established through preliminary engineering. As a part of NS Power's due diligence to ensure projects are maximizing their value for customers, they are subsequently subject to ongoing refinement of scope and design as work progresses. The Smart Grid Nova Scotia project aligns with this approach: its scope and design are substantially complete, subject to further refinement, and has been sufficiently determined for the purpose of providing a complete capital application for the Board to provide its review and approval. Continuous refinement of scope and design are a benefit, as they assist in achieving project goals cost-effectively. Further refinement of scope and design is not sufficient to withhold NSUARB review and approval.
>
> [Exhibit N-12, p. 19]

[22] As an example, NS Power referred to its application in its Intelligent Feeder Project (IFP) CI 49787, which was approved as a three-year pilot project that was intended to provide insight into energy storage at a feeder and residential level. The project included a large substation battery, circuit measurement and isolation devices, grid operating software, and 10 behind the meter residential Tesla Powerwall installations. It stated that the IFP was submitted to the Board and approved with certain elements of scope and design still subject to final refining. The Board notes that the IFP project was of a much smaller scale than the present Smart Grid Project in terms of complexity, cost, customer engagement, and asset allocation. The two projects are distinguishable.

[23] The Board does have some reservations about the scope and design of the project. The Board considers as tenuous NS Power's assertion that continuous refinement of scope and design in capital expenditure approvals is normal. In the Board's view, it is not, and should not be, normal practice. Indeed, it has cautioned utilities in the past for relying on preliminary engineering or assessment, which later turned out to be woefully deficient in terms of supporting the justification or scope of a project.

3.1 Findings

[24] In its application, NS Power asserted that the pilot project is justified under the second branch of the Innovation Justification Criteria:

> The Project falls into the latter category: the scope of this Project is designed to test the value of innovation solutions before deploying at scale, provide data or learnings on the innovation solution, and aid in the development of a business case for the innovation solution. The Project is reasonably expected to achieve these benefits specifically pertaining to sustaining reliability and grid stability, as well as reducing upward pressure on revenue requirement.
>
> The Project will test the effectiveness of the ESP central control capabilities in managing solar, batteries, and EV smart chargers for potential benefits related to reliability and grid stability. In particular, the potential for the provision of grid services such as peak shaving, load management and power quality support. NS Power believes the level of monitoring and control planned for testing during the Project will aid in better understanding grid

> stability and reliability issues, and assist in corresponding system reliability planning as DER trends continue to evolve.
>
> The Project will also test assumptions regarding the reduction of upward pressure on revenue requirement, including how ESP controlled DERs can provide benefits regarding avoided capacity, avoided fuel costs, additional revenue through green rate structures, and carbon reduction. For example, ESP controlled DERs may contribute to avoided capacity by controlling the time of day that EVs charge, helping to avoid additional peak demand. ESP controlled DERs may also contribute to avoided fuel costs by dispatching distributed batteries at peak times, helping reduce the requirement to purchase higher cost energy. There is potential for the ESP control of DERs to achieve cost savings for customers, but they remain untested. Assumptions related to the foregoing will be evaluated under the Project in order to aid the development of a potential future business case.
>
> In the event that benefits related to reliability and grid stability, as well as reducing upward pressure on revenue requirement, are determined to be achievable through ESP controlled DERs, and ESP controlled DERs paired with service programs and incentives, these benefits will extend to all customers and not just those participating in DER programs.
>
> [Exhibit N-1, pp. 27-28]

[25] Synapse, the Board Counsel's consultant, had concerns with the scope and design of the proposed project, together with the metrics which will be used to measure the success of the project. The CA and SBA also had concerns about the metrics to be applied to measure the results of the project.

[26] Synapse, in particular, outlined several concerns with the objectives of the project and the evaluation of the results upon completion of the pilot. The concerns about metrics included the failure by NS Power to identify specific knowledge gaps that require research, the lack of baseline data, the lack of metrics to be measured or evaluated, and the failure by NS Power to develop time-of-day rates to use in the project in order to assess their effectiveness.

[27] The issue of metrics was addressed in increasing detail by NS Power in the later stages of this proceeding. In its responses to NSUARB IR-25 to IR-29 it described some of the metrics it would seek to obtain during the course of the project. In response to NSUARB IR-25, NS Power indicated that metrics for the project will be developed as part of “use case” test plans and will assess ESP performance in the connection,

communication with, and control of DERs. It added that, once developed and finalized in greater detail, the Company would be pleased to provide the full set of metrics to the Board.

[28] Later, in its Reply Evidence (Attachment 1), NS Power provided more detail about these "use cases" and the project's metrics, explaining:

> ... NS Power provides Attachment 1 which outlines in greater detail the design of the Project including how Project assets are planned to be grouped, measured and controlled to test various value streams and gather various metrics. As stated in Attachment 1, refinement of design and scope will continue as the Project progresses with customer engagement, location evaluation, and identification of DER specifications; activities which are dependent on NSUARB approval of the Project. For the purposes of the NSUARB's review and approval of the Project at this time, the question is whether the metrics are reasonable and reasonably expected to provide the data and learnings necessary to evaluate the Project's objectives.
>
> [Exhibit N-12, p. 29]

[29] The Board notes that NS Power did outline in Attachment 1 some of the technical issues it seeks to address and the type of information it will gather. However, it did not explain how this data or the learnings will translate into determining the success factors or the economic benefits that could support full-scale deployment. In the end, how will NS Power, Intervenors and the Board know that the project has achieved sufficient value to justify full deployment?

[30] While the Board recognizes that measuring the benefits of pilot projects under the Innovation Justification Criteria may be more difficult than capital expenditure projects undertaken as part of a utility's normal operations, it could be argued that the evaluation of an innovative initiative is even more critical. Since many projects under the Innovation Justification Criteria are likely destined for full-scale deployment, it is essential that NS Power, Intervenors and the Board understand the implications of that undertaking. Thus, it is important that NS Power be able to define the data it is seeking

to collect, the learnings it wants to obtain, and specifically how success will be measured. Without these specifics and a clear baseline comparison against the pilot results, the anticipated benefits of moving towards full-scale deployment are nothing more than mere speculation.

[31] In the Board's view, NS Power's responses to NSUARB IR-25 to 29 do not provide sufficient specifics to determine how success will be determined. In its Reply Evidence, NS Power elaborated on those IR responses and provided some additional insight:

> Finally, NS Power will be gathering baseline data under the Project to compare to outcomes with ESP monitoring and management. Load profile and power quality information are currently being collected at potential commercial customer sites for the roof-top solar installations; available load information will be collected from the metering history of other customer sites as they are identified through the recruitment process. Further, once DERs are installed at customer sites, measurements will be taken before the application of utility control of the DERs dependent on the use cases being tested and the capabilities of each DER. Comparison measurements will also be conducted in parallel during the Project with one control DER and one ESP DER at the same time under the same conditions.
>
> [Exhibit N-12, p. 31]

[32] Any pilot project like the present application should contain sufficient baseline data which can be later used to compare the results of the pilot to the status quo. In the Board's opinion, such information would be invaluable to building a business case in support of full-scale deployment. However, it is not clear to the Board whether the baseline data in this project will be sufficiently complete in duration or robustness to provide a meaningful comparison against the pilot project results. This should be more clearly explained in a Compliance Filing.

[33] Moreover, concerns remain for the Board about economic benefits to be identified from the project and the metrics to be used in determining those economic benefits with a view to full-scale deployment. This should also be clearly stated in a

Compliance Filing so that the results which could justify full-scale deployment of an ESP and DERs are plainly understood.

[34] Additionally, NS Power has not proposed approval of rate designs as part of this pilot project application. The Company stated that the development of programs and rate structures are underway and are expected to be completed in the first half of 2020, with submission to the Board before year-end. Considering that we are now into Q2 of 2020, it would be beneficial to receive insight into the rate structures that are being developed for this project.

[35] The Board notes that the CA and the SBA both generally support the innovative nature of the project, and its approval under the Innovation Justification Criteria. In its submission, the SBA concluded:

> The SBA submits that the proposed Pilot offers an opportunity to obtain information about the impact of DERs on the Grid and how those can be managed through an ESP, but the application still raises some concerns for the SBA.
>
> [Exhibit N-8, p. 7]

[36] In evidence filed on behalf of the CA, Resource Insight indicated:

> Generally, we believe that Smart Grid Nova Scotia will assist NS Power in advancing its capabilities to integrate distributed energy resources into its operations. ...
>
> [Exhibit N-9, p. 18]

[37] The Board is satisfied that the application is generally consistent with the intent of the Innovation Justification Criteria. NS Power relied on the second branch of the test in Section 17.2 of the CEJC, which provides that "innovation capital investments may be justified on the basis that they are reasonably expected to allow for testing before deploying at scale, provide valuable data and learnings, or aid in the development of business cases where applicable".

[38] The Board notes that the preamble to s. 17.2 of the Innovation Justification Criteria specifically identifies the increased adoption of distributed energy resources as one of the issues impacting the delivery and affordability of electricity to customers, changing the way in which electric utilities generate and deliver electricity. It adds that such "innovation projects assist with the determination of whether certain innovative capital investments will achieve customer value in the future."

[39] The Board understands that this pilot project will examine emerging types of DER technologies and their integration into the grid. These new technologies are recognized in the utility industry as potentially providing benefits to utilities and their customers, and a pilot project of this nature could assist in quantifying benefits, as well as identifying potential difficulties in maintaining grid stability and reliability. It is reasonable and appropriate that emerging technologies be tested in a pilot before being rolled out to the entire system.

[40] Finally, the Board has taken into account the fact that this project has been obtained by NS Power at a significantly reduced cost to ratepayers through government support and cooperation with various private and governmental partnerships. These financial contributions effectively mean that ratepayers will only pay approximately 1/3 of the total project cost.

[41] The Board accepts NS Power's submission that pursuing this project could reasonably be expected to show customer value in the form of reduced upward pressure on future revenue requirement, as well as maintaining reliability and grid stability.

[42] Taking all of the above into account, given the broad outline of the scope and design of the project provided to date, the importance of the proposed emerging DER

technologies and their integration into the grid through a centralized ESP, and the significant cost savings achieved by NS Power through various funding partnerships, the Board is prepared to allow the project to proceed at a cost of $7,053,622, conditional upon NS Power filing further details in a Compliance Filing on evaluating the success of the project.

4.0 ADDITIONAL PROJECT ISSUES

4.1 Revenue Requirement Rate Adjustment

[43] In its application, NS Power said it would evaluate benefits potentially associated with the use of the ESP to manage DERs, including a reduction in upward pressure on revenue requirement. NS Power also stated:

> [T]he scope of this Project is designed to test the value of innovation solutions before deploying at scale, provide data or learnings on the innovation solution, and aid in the development of a business case for the innovation solution. The Project is reasonably expected to achieve these benefits specifically pertaining to sustaining reliability and grid stability, as well as reducing upward pressure on revenue requirement.
>
> [N-1, p. 27]

[44] Synapse recommended that, in addition to intermittent reporting during the pilot on its status, costs, and savings, NS Power should, at the end of the pilot, adjust rates as necessary to account for a reduction in upward pressure on revenue requirement.

[45] In its Reply Evidence, NS Power noted that the pilot itself was not intended to produce savings but would provide information which may be used to develop future projects that would reduce upward pressure on revenue requirement. NS Power went on to note that capital projects that forecast economic benefits, in general, do not require specific rate adjustments. The Utility said these are captured in overall rate calculations as part of a general rate case.

4.1.1 Findings

[46] The Board understands that information from the pilot may be used by NS Power to develop future projects, including the deployment of an ESP at scale. Any benefits associated with NS Power's revenue requirement arising from either the pilot or future projects based on the information provided by the pilot will be addressed in subsequent proceedings that occur in the normal course.

4.2 The Role of EfficiencyOne

[47] The Small Business Advocate argued that there needs to be further collaboration between NS Power and EfficiencyOne and asked that NS Power be required, as part of the pilot, to disclose the demand response program that it and EfficiencyOne are currently working on.

[48] NS Power stated that the role described by the SBA, as being provided by EfficiencyOne, was not correct. NS Power did say it was in discussions with EfficiencyOne regarding its potential role in the project as it pertains to demand response initiatives related to the technology being tested. NS Power advised that it had shared the project scope and objectives with EfficiencyOne for discussion about a potential future role for EfficiencyOne and that both organizations would continue working on that.

[49] NS Power offered to include progress updates and outcomes regarding EfficiencyOne and its role in the project as part of the reporting to the Board.

4.2.1 Findings

[50] Interestingly, EfficiencyOne did not participate in this matter by filing any submissions.

[51] The Board reminds NS Power of the statutory role of EfficiencyOne in providing electricity efficiency and conservation activities as contained in Section 79A of the *Public Utilities Act*:

> **Interpretation**
>
> **79A** In this Section and Sections 79B to 79V,
>
> …
>
> (b) "electricity efficiency and conservation activities" means activities, programs or plans relating to
>
> (i) the efficient use of electricity,
>
> (ii) the conservation of electricity,
>
> (iii) the alteration of the consumption pattern of an end-user of electricity that has the effect of reducing demand during Nova Scotia Power Incorporated's periods of highest demand,
>
> (iv) the utilization or management by Nova Scotia Power Incorporated of its electrical system in a more cost-effective manner,
>
> (v) the delivery of a reduction in the amount of electrical energy or capacity that Nova Scotia Power Incorporated would otherwise be required to supply to its customers, or
>
> (vi) any other prescribed activities, plans or programs;

[52] It is the expectation of the Board that it is EfficiencyOne and not NS Power that will generally perform "electricity efficiency and conservation activities".

[53] NS Power, as suggested in Exhibit N-12, page 37, is directed to include in progress reports and outcomes, a description of EfficiencyOne's role in the project and the extent of the collaboration between EfficiencyOne and NS Power.

4.3 EV Smart Charging Participation

[54] The pilot includes the installation of up to 200 in-home or in-business EV smart charging stations. The charging of electric vehicles is generally grouped into one of three levels. Level 1 charging uses a 120-volt supply and requires only an extension

cord to run from the vehicle to a standard electrical outlet. Level 2 charging is a faster charging choice for EV owners, but uses a 240-volt supply and requires a special charging station with installation costs that can be as high as several thousand dollars. Level 3 charging is an even faster charging service, but these charging stations can cost tens of thousands of dollars or more.

[55] NS Power will use only Level 2 EV smart charging stations for the pilot. NS Power's funding partners are sharing the capital cost for the EV charging equipment, and NS Power is contributing 38% of the cost of these assets.

[56] Only private charging sites will be eligible. Program eligibility criteria is under development but NS Power said it will include criteria such as electric vehicle ownership, property ownership, physical space required to install equipment, size and available capacity of the electrical panel and customer willingness to allow control of equipment charging. NS Power said it will seek a broad sample of participants with variability in customer location, demographics, vehicle type and charger location (indoor and outdoor).

[57] The distribution of the charging stations will be based on customer response to recruitment efforts. NS Power will create a webpage that supplies program details and invites customers who are interested in taking part to complete an online survey. The Company will also develop a marketing strategy to help promote the project and will include channels such as the nspower.ca website, online search, and social media.

[58] The electricity rates paid by project participants who host these charging stations will be the rate paid by the customer at that location (e.g., domestic, small general, etc.). However, NS Power advised that it is likely that the pilot will be required

to provide customers an incentive based on meeting participation requirements, including providing NS Power with control of EV charging.

[59] In its evidence, Synapse expressed concern about the eligibility criteria for EV charging participants. Synapse said that existing electric vehicle owners will already have in-home Level 1 or Level 2 chargers. The Level 2 charging stations might include a Wi-Fi connection (i.e., a smart charger) or not. Synapse felt that only EV owners who currently used Level 1 charging would have enough incentive to join the pilot. Synapse said NS Power would likely have challenges in obtaining participants in the EV charger portion of the pilot program and that, without adequate participation, NS Power would not collect enough data to understand potential benefits and, therefore, the costs of the program would not be justified.

[60] Synapse felt that existing EV owners with Level 2 charging stations without a Wi-Fi connection would not be sufficiently motivated to bear upfront costs for a Level 2 smart charger given there would be no benefit to charging speed or monthly electricity costs. Synapse said that under NS Power's current design, existing EV owners who already had a Level 2 smart charger would have no incentive to take part in the pilot. Synapse was of the view that these customers would only be interested if NS Power developed a new rate to give them an opportunity to save electricity costs. Therefore, Synapse recommended using time-varying rates.

[61] Synapse also said that because participation in the pilot requires a customer to own an electric vehicle, low-income customers who do not already own an EV will not be able to afford to take part. Synapse commented that EVs can supply substantial value to the system and policies or programs that support EV adoption by low-income

customers may pay for themselves in the long run. Synapse recommended that NS Power should undertake a study to better understand barriers to the adoption of EVs by low-income Nova Scotians and to consider the best ways to address those barriers.

[62] In its Reply Evidence, NS Power acknowledged that many EV owners already own Level 2 chargers. The Company believes that these customers would have an incentive to participate in the pilot, and noted that, based on EV purchasing trends, there will also be a steady stream of new EV customers throughout the province without pre-existing Level 2 smart charger technology who will also be targeted for participation in the pilot.

[63] NS Power said that customers who own Level 2 chargers without smart charger functionality and connectivity capabilities will still have an incentive to take part in the pilot as they will be able to access this added functionality. In respect of those customers who already have a Level 2 charging station, NS Power said that the incentives that are likely to be developed for this part of the pilot will be useful in encouraging those customers to participate. The Board understands that these incentives will be further developed in the programs and rate structures being submitted to the Board for approval later this year.

[64] While NS Power noted that it proposed to use its own EV chargers for the timely development of the pilot in order to achieve its objectives, it will consider customers interested in participating in the pilot who already have a Level 2 smart charger. If customer-owned assets meet the pilot's criteria and demands, then NS Power said it will work towards ensuring their compatibility and integration into the ESP environment, if it is cost effective to do so.

[65] NS Power agreed with Synapse that broader opportunities may be associated with the testing of time-varying tariffs, but this has not been costed or designed as part of the pilot. NS Power may develop time-varying rates in the future to encourage EV owners to allow the system to access this value and compensate them for doing so.

[66] NS Power expects that the incentives that will likely be provided to EV charging customers under the pilot will provide an understanding of customer willingness to alter EV charging behaviour in favour of grid signals, but without financially impacting customers before the smart charging signals and controls have been tested. However, NS Power said that it would continue to examine opportunities to leverage its investment in the pilot, including the introduction of time-varying tariffs.

[67] In respect of the proposed study to better understand barriers to the adoption of EVs by low-income Nova Scotians, NS Power noted that the purpose of the pilot is to study the value to the grid that ESP monitoring and management of EVs may provide. NS Power notes that the barriers to the adoption of EVs are primarily related to their price and range anxiety, over which NS Power has little or no influence. NS Power submitted that a study about barriers is not needed.

4.3.1 Findings

[68] Although the eligibility criteria are still under development, the Board notes that NS Power intends to actively recruit participation in the EV smart charger part of the pilot though its website and social media. The Board understands that NS Power will likely be offering incentives to encourage participation and is open to considering the use of existing customer-owned equipment if it meets project requirements and can be cost-effectively included in the pilot.

[69] The Board expects NS Power to encourage participation in the EV charging study in a cost-effective manner to ensure that the study provides useful information, but at this time declines to order that a time-varying rate be included as part of the pilot. The Board also notes that NS Power intends to continue to examine opportunities to leverage its investment in the pilot, including the introduction of time-varying tariffs. That topic can be considered further when NS Power finalizes its programs and rates for the pilot and submits them to the Board for approval later this year.

4.4 Supercluster Initiative

[70] In its response to SBA IR-4, NS Power noted that its choice of Siemens Canada as a software provider was not through a competitive process. Siemens Canada approached NS Power about the opportunity to develop and pilot the ESP technology as part of an application that Siemens was making to the Government of Canada's Innovation Supercluster Initiative. NS Power noted that the application was not successful; however, the federal government is funding the project under three other programs, one of which would not be available to NS Power without Siemens' involvement in the pilot.

[71] In its evidence, Synapse commented that NS Power did not supply the reasons that the project was rejected for funding under the Supercluster Initiative. Synapse recommended that NS Power explain why the application was rejected before the pilot is approved, in case the rejection was due to a deficiency or problem with the concept that still underlies the current proposal and could create a risk in the future.

[72] In its Reply Evidence, NS Power advised that no Smart Grid projects were selected for the Supercluster Initiative because there were other funding sources

available for Smart Grid projects, and it was the federal government's intention to spread investments to as many sectors as possible. NS Power said that the Smart Grid Atlantic partnership was encouraged by Supercluster Initiative program representatives to present the project to the Government of Canada's Strategic Innovation Fund and to Natural Resources Canada to pursue other funding programs in order to see the project through.

4.4.1 Findings

[73] The Board accepts NS Power's explanation about the reason the pilot was not approved for funding under the Supercluster Initiative, and notes that about 63% of the funding for the pilot is being provided by the federal and provincial governments. The Board does not require any further explanation about the application under the Supercluster Initiative.

4.5 Expansion of Scope of Project

[74] In its evidence, Resource Insight suggested changes to the scope of the pilot. Resource Insight believed that the pilot would aid NS Power in advancing its capabilities to integrate distributed energy resources into its operations, but felt that NS Power could improve the project scope. Resource Insight recommended changes relating to renewable energy and storage, integration with AMI systems, EV smart charging objectives and metrics, and the vehicle-to-grid study.

[75] In respect of the management of grid-connected renewable energy and storage, Resource Insight observed that the ESP system is expected to have the capability to control larger resources than the small distributed resources included in the scope of the pilot. Resource Insight recommended that NS Power should consider

expanding the scope of work for the ESP system to include the capability to manage current and future grid-connected renewable energy resources.

[76] Resource Insight also questioned why NS Power did not choose to include AMI systems in the scope for energy management system integration given that this could result in savings. Resource Insight felt that real time information would be a critical data point for the pilot. Resource Insight suggested that NS Power collect five-minute data from behind the meter systems from AMI meters at customer sites for the duration of the study to have the data available for future research needs.

[77] Resource Insight said that NS Power's metrics for its EV smart charging program were meaningful but modest. It suggested developing other metrics aligned with its project goals. Resource Insight also recommended NS Power review certain existing studies to inform project design.

[78] Resource Insight said that vehicle-to-grid applications are less studied than managed charging using EV smart chargers and, therefore, NS Power would have less prior experience to build upon. Resource Insight noted that bi-directional charging may enhance or degrade battery life and suggested that NS Power build a budget contingency for impacts related to potential early battery retirement due to reduced life and safety considerations. Resource Insight also recommended that even though bi-directional charging under the pilot would occur at research laboratory locations, NS Power should try to gain experience with issues that may arise in residential and commercial usage. Finally, Resource Insight suggested that NS Power should consider evaluating one or more medium or heavy-duty vehicles to compare the performance of larger batteries to the smaller passenger vehicle batteries, noting that the few studies that have been

conducted have tended to focus on larger vehicles, likely because they have more potential to directly benefit the distribution feeder.

[79] In its Reply Evidence, NS Power said that as it continued to refine project planning and design for in-scope assets, the Company would consider the information provided by Resource Insight. NS Power said it will consider AMI information, if available and applicable to a project scope element. NS Power also stated that further refinement of its metrics, including those for EV smart charging, will be conducted over the course of the pilot and may result in an expansion if they are appropriately aligned with project objectives.

[80] NS Power said that battery life and managed charging interconnections are already included under the scope of the pilot, and there are no plans to include larger vehicles due to their limited availability, cost, and lack of vehicle-to-grid functionality. NS Power said that it could use information from the project in the future to explore implications related to larger vehicles.

4.5.1 Findings

[81] The Board understands that, except for the inclusion of larger vehicles in the pilot, NS Power will consider the information and suggestions provided by Resource Insight for the in-scope components of the pilot. The Board finds that no specific directive is needed in respect of Resource Insight's suggestions.

5.0 BEHIND THE METER ASSETS

[82] Both Synapse and Resource Insight raised the issue of NS Power's ownership of assets installed behind the meter. Those assets include: the batteries, rooftop solar, and EV smart charging devices, all of which, under the terms of the pilot,

would be owned by NS Power. Synapse commented that the outcomes of this pilot would set an unwanted precedent for utility ownership of behind the meter assets and could definitely impact development of the private market for distributed energy resources. It noted that consumer sited utility investments raise market power concerns.

[83] Resource Insight recommended against NS Power owning assets behind the meter unless there are very compelling reasons to do so.

[84] NS Power responded that this is an innovation project being pursued on a pilot basis under the Innovation Justification Criteria, which will inform whether there is value in full-scale future deployment of ESP. It stated:

> The Board is in no way constrained by the outcome or the approval of the project and the Board has broad jurisdiction to approve projects and matters on a case by case basis. … This is not a precedent setting exercise.
>
> [Exhibit N-12, p. 8]

[85] NS Power argued that its ownership of the pilot project's assets is intended to facilitate the timely execution of the project and represents less risk for customers participating.

[86] NS Power pointed to the Intelligent Feeder Project as a precedent approved by the Board for NS Power owned behind the meter assets under a pilot project.

[87] Interestingly, NS Power does say:

> … Future full-scale deployments of any DERMS solution leveraging behind-the-meter assets may include full customer ownership of those assets, or a combination of different ownership structures, including utility ownership, if justified. Future full-scale deployment by NS Power, if proposed, will be justified on overall customer benefit.
>
> [Exhibit N-12, p. 8]

5.1 Findings

[88] As it did with the Intelligent Feeder Project, the Board is prepared to permit ownership of assets behind the meter in this pilot with the clear understanding it does not

set a precedent for future ownership of assets behind the meter by NS Power. In the quote above NS Power does raise the issue of "including utility ownership, if justified".

[89] The Board will, in future, be very vigilant to ensure NS Power is not able to exercise its market power in a way that disadvantages other market participants and the Board makes it very clear to NS Power that a precedent is not being set in this case. To be clear, approval of ownership of assets behind the meter in this Decision is solely for the purpose of this pilot.

6.0 SELECTION OF SIEMENS AND COST EFFECTIVENESS

[90] Several parties commented on the fact that NS Power's partnership with Siemens Canada for the pilot did not arise from a competitive process. In his submissions, the SBA said it was concerning that NS Power did not appear to consider any other software provider, or that it had not evaluated the Siemens software system on cost or performance. The SBA submitted that a competitive evaluation was essential if NS Power decided to proceed to full-scale implementation if the pilot is successful.

[91] Resource Insight, in its evidence, said it understood that NS Power selected the Siemens ESP because Siemens had developed the proposal for federal funding of the project and was able to facilitate financial resources, and because the Siemens ESP software provided customer-level interfaces. Resource Insight questioned whether such interfaces could not be offered by competing systems and noted that NS Power has already made a significant investment in the Opus One software used in NS Power's Intelligent Feeder Project. Resource Insight expressed some concern that NS Power appeared to be proposing to switch from the Opus One GridOS to Siemens' ESP through 2023, and then potentially choosing another product after the pilot. Resource Insight

recommended that the Board closely evaluate whether easier access to federal funding is a sufficient basis to shift to a new, and as yet incomplete, software platform.

[92] In its evidence, Synapse expressed concern that NS Power may end up captive to Siemens if the learnings from the pilot are not transferable to alternative ESPs or other platforms or technologies. Synapse recommended that NS Power clarify how it will determine if the pilot is successful, and how it will determine if it is to opt for the Siemens ESP as a permanent solution.

[93] In its Reply Evidence, NS Power said there were compelling reasons to partner with Siemens and use its ESP. NS Power stated that some of the federal funding for the pilot would not be available to NS Power without the involvement of Siemens. NS Power noted that by partnering with Siemens and participating in the overall Smart Grid Atlantic Initiative, it can deliver an approximate $19 million dollar capital project for the significantly reduced cost of approximately $7 million dollars. NS Power said that the Smart Grid Atlantic Initiative would provide additional learnings at no additional cost.

[94] NS Power submitted that a competitive procurement process for alternatives instead of partnering with Siemens would not derive the same measure of cost effectiveness and value that has been provided through this partnership. NS Power said it had researched other solutions and found that the Siemens ESP meets the technical requirements to achieve pilot goals. It also noted that the ESP's in-development status allows it to influence the deployment functionality.

[95] NS Power also stated that there was no evidence to suggest that the selection of Siemens' ESP under the pilot will render learnings non-transferable to other technologies in the future. NS Power said it expects the ESP to be compatible with

devices using industry standard communications protocols and other DER management system solutions. NS Power said that any full-scale deployment of such a solution would be able to compare alternatives with a measure of confidence that other systems would be compatible with existing DERs. NS Power stated that there was no commitment outside of the scope of the pilot to continue to use the Siemens ESP.

[96] NS Power also submitted that it is not switching from one platform to another. NS Power said that Opus One Grid OS and Siemens' ESP were chosen for different purposes and to meet different requirements. It expects that in the future, should there be continued value in the operation of these systems, they can be integrated to leverage each other's functionalities and strengths.

6.1 Findings

[97] The Board finds that NS Power's partnership with Siemens Canada for the pilot facilitates access to additional funding from the federal government and leverages Siemens involvement in the overall Smart Grid Atlantic Initiative. This provides additional value for the pilot not likely to have been available under a competitive process. At the same time, the Board accepts NS Power's assurances that the proposed use of the Siemens ESP technology does not limit the usefulness of information that will be derived from the pilot or tie NS Power to this particular solution going forward. The Board does not expect to receive any submissions from NS Power in the future that its choice of the Siemens ESP for the pilot has constrained its ability to later consider other options. As the SBA has noted, any full-scale implementation following the pilot will require a competitive evaluation.

7.0 CAPITAL COST COMPONENTS AND CONTROLS

7.1 Overall Costs and Caps

[98] Both Synapse and the SBA expressed a concern about potential cost overruns. Synapse noted that certain agreements between Siemens and NS Power are still under development, which increases the risk that the pilot will experience delays, or that the costs of the pilot may be higher than projected. The SBA noted there has been no specific discussion of any risk that costs might exceed NS Power's estimates and suggested that NS Power should have provided information on potential variations in final costs as well as the controls being put in place to minimize capital expenditures. NS Power, in its Reply Evidence, responded:

> Project budgets established at the time of submission to the Board represent the total anticipated costs and are not expected to vary materially. The Project follows this practice. If material cost or scope variances are encountered under the Project, the NSUARB approved CEJC provides for the requirement of Scope Change, Authorization to Overspend (ATO), and Final Cost (FIN) capital application submissions for Board review and approval. There is no need for additional direction outside of these well-established Board practices for capital projects.
>
> [Exhibit N-12, pp. 41-42]

7.1.1 Findings

[99] The Board is concerned that NS Power did not address these potential shortcomings in a manner other than to rely on possible Board approval of over-expenditures. The Board notes this is not a typical capital application where the design, implementation and cost estimates are reasonably disclosed in the application. In this instance there appear to be unknowns which may result in cost variances. This project essentially has the characteristics of a research project and the tangible cost savings to the grid or customers, if any, are uncertain. Indeed, NS Power stated the project is not designed to produce cost savings over the course of the project.

[100] Considering the uncertain outcomes, the Board directs that NS Power is to complete this project within the spending envelope of $7,053,662, inclusive of a contingency amount. Any application to overspend would have to be fully justified and subject to comments/submissions by interested parties.

7.2 Land Costs

[101] Resource Insight recommended that land costs should be deleted from the budget as it appears land will be provided by the Town of Amherst for the Community Solar Garden. NS Power advised that it had budgeted for land acquisition in the event no suitable land was available either from the Town of Amherst or on NS Power owned property. Subsequent to the submission of the application, the Town of Amherst entered into final arrangements to take ownership of the land and will be providing it for the Community Solar Garden facility, at no cost to NS Power. NS Power noted it is possible that some additional land may need to be purchased.

[102] NS Power argued it is appropriate to retain the budget for land purchases in the event additional land purchases are required. In the event there are not, NS Power indicated it would only incur actual costs related to project spending and not necessarily approved budget amounts. In other words, if the budget amounts related to land are not incurred, they will not be charged to the project.

7.2.1 Findings

[103] The Board accepts NS Power's explanation, and its undertaking, that it will not spend budget amounts for land if there is no need to acquire additional land.

7.3 Capitalization of the ESP

[104] Resource Insight, in its evidence, argued that the ESP software should not be qualified as a capital asset. It noted that, while the project timeline indicates that ESP will be utilized beginning in 2020, it is evident from the project application that ESP will be under development throughout the contract. It also noted that it will not be available to NS Power after the project is complete unless a further license is purchased. In its Reply Evidence, NS Power noted the licensing to use the ESP software, in its current and future state over the next five years, is being purchased as part of the capital item. The reference to the annual licensing fee is in respect of the expected future licensing agreement if NS Power were to retain licensing to use this software, after the pilot is completed. NS Power went on to state:

> … The terms of the ESP licensing agreement for this capital item will allow NS Power to have use of the software for a five-year period. Agreements to have licensing to use software for a specific amount of time is common and has been approved as part of the capital expenditures in NS Power's capital items in the past. The purchase of the five-year software license meets the criteria to be capitalized under GAAP and NS Power's Accounting Policy – 6000 Capitalization of Cost.
>
> Further, the fact that the ESP software design will be subject to further refinement does not change the fact that the ability to use the software in its current state is an asset. Continued refinement of software is not unusual as software vendors continue to upgrade and refine their products over time and issue corresponding new versions. As such, the costs are appropriately classified in the capital item submission and should be capitalized.
>
> [Exhibit N-12, p. 43]

7.3.1 Findings

[105] The Board agrees with NS Power that the purchase of the five-year ESP software license meets the criteria to be capitalized under Accounting Policy – 6000 Capitalization of Costs. As such, the Board approves the treatment applied for by NS Power.

7.4 Depreciation

[106] NS Power requested the following treatment for depreciation:

> Solar PV, battery, and EV Smart Charger depreciation rates of 4 percent, 10 percent, and 6.67 percent respectively on a pilot basis. NS Power does not currently have an asset class and associated depreciation rate applicable for solar PV, battery, and EV Smart Charger infrastructure. The proposed annual depreciation rates for these assets are required in order to recover their costs over the expected 25 year (solar PV), 10 year (battery), and 15 year (EV smart charger) lives of the assets. These depreciation rates will be updated, and approval sought from the NSUARB as part of any future depreciation study proceeding.
>
> [Exhibit N-12, p. 47]

7.4.1 Findings

[107] The Board is uncertain as to what will happen to all of these assets after the conclusion of the project in March of 2023.

[108] NS Power has stated that the assets are intended to remain in service following conclusion of the study and, therefore, asked for the above noted depreciation rates.

[109] The Board is prepared to accept use of the depreciation rates requested by NS Power, during the term of the project. In other words, until March 2023 or the conclusion of the pilot project, if it concludes on a different date. However, that is subject to the findings with respect to decommissioning in the next section of this Decision.

7.5 Decommissioning Costs

[110] Resource Insight, on behalf of the CA, noted that the proposed project does not include any recognition of the eventual decommissioning costs of the assets acquired in the project and suggested that may be inconsistent with NS Power's Accounting Policies. Resource Insight requested the Board direct NS Power to revise the project description to include its best estimate for the eventual decommissioning costs of the assets, after the project is concluded in March of 2023.

[111] NS Power, in its Reply Evidence, noted that it is NS Power's practice under Section 35 of the *PUA*, to either: include retirement costs for these assets as part of a new capital project application when these assets are being replaced in the future, or to have a separate retirement capital application for the removal of the assets. It noted that decommissioning timelines for these assets have not been determined and this will be revisited prior to project close with a decision on their continued operation at that time. NS Power noted that excluding decommissioning costs on any newly installed assets which may remain in service for many years is consistent with NS Power's practice and, therefore, the adjustment suggested by Resource Insight is not required.

7.5.1 Findings

[112] If the Board were comparing this project to the cost of alternatives, the decommissioning costs would be relevant. However, that is not the case here given the unique nature of this project and the significant third-party financial support.

[113] The Board is uncertain as to what is going to happen to all of these assets at the end of the project pilot term. That is particularly the case with assets that are behind the meter. The Board considers it appropriate to consider the disposition options when the project ends and, therefore, directs NS Power to make an application to the Board following conclusion of the project which would deal with termination, including decommissioning costs, if any. This would necessarily include assets that are no longer used and useful if the pilot project does not clearly justify full scale deployment and continued NS Power ownership.

[114] In order to ensure costs associated with this project can be identified as discrete and separate project costs, NS Power is directed to account for all of the costs

related to this project in a separate cost pool. These assets are not to be depreciated or accounted for in pools which include assets not related to the project. This way, in the decommissioning proceeding, the Board will be able to determine the current value of those assets and will not be faced with a situation where they have been pooled with similar assets.

8.0 NS POWER REPORTING

[115] An innovation pilot project of this nature includes grid functionality and integration of a variety of distributed energy resources, which collectively, have not been previously tested by NS Power. It also includes grid software, the Siemens ESP, which will continue to be under development during the pilot period. The impacts this project could have on the grid, whether beneficial or perhaps detrimental, must be carefully addressed in order to minimize disruptions and to accrue the greatest benefits available for ratepayers who are partially funding this pilot project. As such, it is important to ensure that the Board and Intervenors remain well-informed of progress, as well as issues encountered, throughout the duration of this project.

[116] In its Reply Evidence, NS Power responded to comments from Synapse and the SBA regarding project reporting. NS Power suggested that annual reporting similar to the model used for the Intelligent Feeder Project (M07981) would be an appropriate model for the Smart Grid Nova Scotia project. Under that model, the annual reports could include progress updates on asset deployment and construction, customer selection criteria and outcomes, data and learnings regarding the various economic assumptions, details on any additional or refined metrics, details regarding business case

development, general updates on broader data and learnings, EfficiencyOne's role and corresponding outcomes regarding demand response programs.

[117] The Board acknowledges that information such as that noted above should be provided in the project reports; however, additional information is also required. Details regarding the status and proposed implementation of programs and rate structures being developed for use under this pilot project are to be included in the reports. Also, the reports are to include financial details showing a breakdown of expenditures by category as presented in Figure 9 in the application. A further breakdown of expenditures related to each of the DER asset groups, and a breakdown of specific expenditure allocations against each of the funding partner contributions are to be provided in the reports.

[118] The SBA requested that NS Power should publicly share information regarding progress on the broader Smart Grid Atlantic Initiative. The Board directs that to the extent this can be done, either publicly or confidentially, such information is to be included in NS Power's project reports. In addition, copies of all reports that NS Power is required to file with the project partners and funding entities are to be included with NS Power's regular reports to the Board and Intervenors.

[119] Although NS Power suggested providing annual reports, considering the short duration of this pilot project and its multitude of issues, it is the Board's view that parties would be better informed if reports were filed on a semi-annual basis. The Board so directs, with reports due by July 31 and January 31, each year.

[120] In its Compliance Filing, NS Power is to identify the information and the timing of reporting that is required under its agreements with funding agencies. Also, an

amended version of the chart presented on page 1 of Attachment 1 in its Reply Evidence (Exhibit N-12) is to be filed to show the specific timeframe for collection of baseline data, and any potential adjustments resulting from the COVID-19 situation.

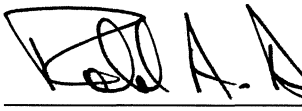
9.0 CONCLUSION

[121] The Board approves capital work order CI #C0010778 for the Smart Grid Nova Scotia project in the amount of $7,053,622, conditional on the filing of a Compliance Filing providing more details on how NS Power will evaluate the success of the project.

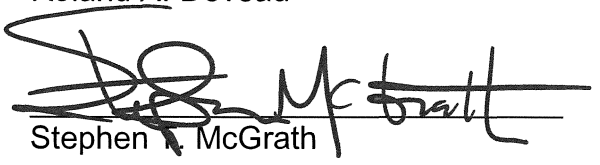
[122] An Order will issue accordingly.

DATED at Halifax, Nova Scotia, this 7th day of May, 2020.

Peter W. Gurnham



Roland A. Deveau



Stephen T. McGrath