DECISION **2024 NSUARB 97**
M10905

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF THE PUBLIC UTILITIES ACT

- and -

IN THE MATTER OF A REVIEW of **NOVA SCOTIA POWER INCORPORATED's** interconnections processes under s. 2C of the *Electricity Act*

BEFORE: Stephen T. McGrath, K.C., Chair
Roland A. Deveau, K.C., Vice Chair
Steven M. Murphy, MBA, P.Eng., Member

INTERVENORS:

NOVA SCOTIA POWER INCORPORATED
Blake Williams, Counsel

CONSUMER ADVOCATE
David J. Roberts, Counsel
Michael Murphy, Counsel

SMALL BUSINESS ADVOCATE
E.A. Nelson Blackburn, K.C.
Melissa MacAdam, Counsel

ABO WIND CANADA
Craig Gavelin

ALTERNATIVE RESOURCE ENERGY AUTHORITY
TOWNS OF ANTIGONISH, BERWICK AND MAHONE BAY
Don Regan
Aaron Long

CANADIAN RENEWABLE ENERGY ASSOCIATION
Jean Habel

CAPSTONE INFRASTRUCTURE CORPORATION
Geoff Osborne

EASTWARD ENERGY INC.
Michael Johnston
Kristen Wilcott

EAST PORT PROPERTIES LTD.
Adam Hayter

EFFICIENCYONE
James R. Gogan, Counsel

ELEMENTAL ENERGY
Daniel Eaton

ENERGY STORAGE CANADA
Robert Tremblay

HALIFAX REGIONAL MUNICIPALITY
Martin Ward, K.C.

INDUSTRIAL GROUP
Nancy G. Rubin, K.C.
Brianne Rudderham, Counsel

MARINE RENEWABLES CANADA
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NOVA SOLAR CAPITAL
Andrew Bagley

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NRSTOR
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POLYCORP
Peter Polley

PORT HAWKESBURY PAPER WIND LP
James A. MacDuff, Counsel
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POTENTIA RENEWABLES INC.
Andrew Hope

RIMOT.IO INC.
Trevor Hennigar

ROSWALL DEVELOPMENT INC.
Daniel Roscoe

SOLAR NOVA SCOTIA
David Brushett

SWEB DEVELOPMENT LP
Rory Cantwell

BOARD COUNSEL: William L. Mahody, K.C.

BOARD COUNSEL CONSULTANTS: **SYNAPSE ENERGY ECONOMICS, INC.**
Robert Fagan

FINAL SUBMISSIONS: March 13, 2024

DECISION DATE: **June 11, 2024**

DECISION: **The Board accepts Synapse's recommendations for changes to NS Power's interconnections processes and directs NS Power to take steps to implement them and other matters discussed in this decision.**

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1.0 INTRODUCTION

[1] The Government of Nova Scotia directed the Nova Scotia Utility and Review Board to review Nova Scotia Power Incorporated's interconnections processes to ensure the best value for ratepayers and consistency and predictability for generators. The Board engaged the services of Synapse Energy Economics, Inc. to undertake a review and provide the Board with a report.

[2] Following a stakeholder process guided by formally developed Terms of Reference, Synapse filed its review report with the Board on September 27, 2023. The report set out several recommendations for changes to NS Power's interconnections processes. The Board issued a Hearing Order (later amended), which provided NS Power with an opportunity to respond to Synapse's Report and recommendations, and provided formal Intervenors with an opportunity to seek additional information and file evidence and submissions with the Board before any final decision or order was issued as a result of the review.

[3] The Board notes that on April 5, 2024, the Government of Nova Scotia passed the *Energy Reform (2024) Act*, S.N.S. 2024, c. 2, which, when proclaimed in force, will create the *More Access to Energy Act*. This statute will establish a new body corporate, the Nova Scotia Independent Energy System Operator.

[4] This new System Operator will become responsible for carrying out transmission interconnection studies and implementing transmission connected generation interconnection procedures, essentially taking over this responsibility from NS Power. However, NS Power will continue to carry out and implement non-transmission service level interconnection studies and procedures. As such, the interconnections

process considered in this proceeding will eventually be divided between two different entities, one of whom does not currently exist.

[5] The timeframe for the establishment of the new System Operator is uncertain, but it will take some time for the new entity to be established and for responsibilities to be transitioned from NS Power to the new System Operator. In the meantime, NS Power must make its best efforts to continue to carry out all functions that will be transferred to the new System Operator in the normal course, to ensure minimum disruption to its system operations, system planning and energy resource procurement prior to and during the transition, including interconnection studies and procedures and related activities.

[6] This decision sets out the Board's findings and directions relating to Synapse's recommendations and other matters raised with the Board by Intervenors. NS Power must provide updates to the Board to implement these recommendations.

2.0 BACKGROUND

[7] On April 22, 2022, Bill No. 145 received Royal Assent to amend the *Nova Scotia Electricity Act,* S.N.S. 2004, c. 25 (*Act*). As it relates to the current matter, the *Act* was amended to include the following sections:

> **2C** **(1)** The Board shall conduct a review of Nova Scotia Power Incorporated's interconnections process to ensure the best value for ratepayers and consistency and predictability for generators.
>
> **(2)** The Board shall undertake the review pursuant to subsection (1) as soon as is reasonably possible and shall make the results of the review public.

[8] The Board engaged Synapse Energy Economics, Inc. (Synapse) to assist with the required interconnection review process. Synapse initially prepared a draft Terms

of Reference (TOR) for the review. On December 16, 2022, the Board initiated matter M10905, and issued the draft TOR to interested parties for comments by January 5, 2023. The Board also notified interested parties that if they wished to participate in the review process, they were to file formal written notice with the Board by January 5, 2023.

[9] The Board received formal notices of intervention from the following parties: the Consumer Advocate (CA), the Small Business Advocate (SBA), ABO Wind Canada, the Alternative Resource Energy Authority (AREA) for the Towns of Antigonish, Berwick and Mahone Bay, the Canadian Renewable Energy Association (CanREA), Capstone Infrastructure Corporation (Capstone), Eastward Energy Inc. (Eastward), East Port Properties Ltd. (EPPL), EfficiencyOne (EOne), Elemental Energy (Elemental), Energy Storage Canada, the Halifax Regional Municipality (HRM), the Industrial Group, Marine Renewables Canada, Natural Forces, Nova Solar Capital, the Nova Scotia Department of Natural Resources and Renewables (NRR), NRStor, Polycorp, Port Hawkesbury Paper Wind LP (PHP Wind), Potentia Renewables Inc. (PRI)., Rimot.io Inc. (Rimot), Roswall Development Inc. (Roswall), Solar Nova Scotia (Solar NS), and SWEB Development LP (SWEB). Comments on the draft TOR were received from NRR, Polycorp, CanREA, NS Power, the SBA, PHP Wind, Energy Storage Canada, and NRStor. Most of the comments received were incorporated into a final version of the TOR, which was issued on February 10, 2023.

[10] Based on the finalized TOR, Synapse prepared an initial report related to its review of NS Power's interconnection processes. The initial report was sent to Intervenors on April 13, 2023, complete with a revised procedural timeline for the matter. An initial stakeholder session was held on May 17, 2023, to discuss the initial report and

solicit intervenor feedback. Synapse then prepared a Revised Interim Technical Report, which was issued on July 5, 2023. A second stakeholder session was held on July 19, 2023, to review and discuss the interim report. The Board then issued a letter on July 21, 2023, extending the timeline for the remaining steps in this matter. The extension provided Synapse with sufficient time to consider additional relevant filings and to provide NS Power and participants with additional time to develop their comments related to the draft report and stakeholder session.

[11] Synapse filed its Final Report with the Board on September 27, 2023. The following day, the Board issued a Hearing Order, which established a timeline for a Reply from NS Power related to the Synapse report, Information Requests (IRs) to Synapse and NS Power and related responses, Submissions by Intervenors, and Reply Submissions by Synapse and NS Power. The Board subsequently amended the Hearing Order to accommodate requests from some Intervenors to file evidence in this proceeding.

[12] NS Power filed its Reply and recommendations related to the Synapse report on October 25, 2023. IRs were then issued to Synapse by NRR and SNS on November 8, 2023. IRs were also issued on November 8, 2023 to NS Power by NRR, SNS, the SBA, Nova Solar Capital and Energy Storage Canada. IR responses from both Synapse and NS Power were filed with the Board on November 29, 2023. On December 13, 2023, evidence was filed by Travis Lusney, Director of Power Systems for Power Advisory (on behalf of NRR), Patrick Bateman, Principal Consultant and Strategic Advisor, PDBateman & Associates Inc. (on behalf of Solar NS, and separately on behalf of Energy Storage Canada), Andrew Bagley (on behalf of Nova Solar Capital), Robert

Apold (on behalf of Natural Forces), and John Athas and Saeid Dindarloo, both of Daymark Energy (on behalf of the SBA). Both Energy Storage Canada and Natural Forces issued IRs to Mr. Lusney on January 3, 2024, to which Mr. Lusney responded on January 24, 2024.

[13] The Nova Scotia Power System Operator (NSPSO) is tasked with operating NS Power's transmission system, including making decisions related to economic dispatch and system interconnections. The NSPSO does not have a distinct legal identity but operates within NS Power's corporate structure under Standards of Conduct that have been developed to ensure non-discriminatory behaviour regarding external participants. In this decision, the Board refers to the NSPSO and NS Power interchangeably.

[14] On February 6, 2024, NSPSO filed its Rebuttal Evidence with the Board. The rebuttal replied to the various issues raised in intervenor evidence. Similarly, on February 7, 2024, Robert Fagan of Synapse filed his Rebuttal Evidence with the Board. In his rebuttal, Mr. Fagan stated that it would be helpful if Mr. Lusney could provide additional information about certain issues raised in his evidence. The Board determined that it would be appropriate for responses to Mr. Fagan's questions to be filed on the record before closing submissions. As a result, the Board issued an Amended Hearing Order on February 16, 2024, to allow for this in the hearing process. Mr. Lusney subsequently filed his responses to Mr. Fagan's questions on February 21, 2024.

[15] Nine Intervenors filed closing submissions. Generally, the closing submissions reiterated points made by stakeholders throughout the current proceeding and were mostly in support of, or aligned with, the recommendations in the Synapse Final Report. Both NS Power and Synapse filed their Reply Submissions on March 13, 2024.

3.0 DISCUSSION AND ANALYSIS

3.1 Synapse Report and Recommendations

[16] As noted by Synapse in its final report:

> New generation resource interconnection, especially of renewable energy sources, and battery energy storage interconnection play crucial roles in helping Nova Scotia to meet its recently expanded greenhouse gas emission targets. Nova Scotia Power's transformation from a utility using primarily fossil fuels (coal and gas) for a large majority of electricity production to using (by 2030) 80% renewable sources (both imports and internal generation) directly shapes a requirement to analyze and study the ability to interconnect new renewable resources, across the transmission grid and across the distribution grid. NSPI's generation interconnection procedures (GIPs) or protocols, generally originating from NSPI's adoption of an open access transmission tariff (OATT) roughly twenty years ago, require updating to allow for efficient – i.e., faster - study processes to reduce delays and allow economic resource development to proceed under the non-discrimination provisions of the OATT. An analogous set of protocols exist and require updating - for interconnection to the distribution system - as lower cost small scale renewable resources seek to interconnect.
>
> [Exhibit N-1, p. ES-1]

[17] To address these issues, Synapse undertook a broad review of NS Power's transmission and distribution systems interconnections processes. This review included an examination of:

- battery energy storage provisions in the protocols;
- grid impact study structures, timelines and fees;
- the size thresholds and associated ability for NS Power to "fast track" the study of Class 2 small resources interconnecting to the distribution grid;
- the overlap of distributed resource interconnection with the outcome of NS Power's Commercial Net Metering Program case;
- how the hosting capacity information provided by NS Power supports interconnection of new small resources, and how the provision of such information should evolve;
- how to allocate costs of network upgrades that generally benefit multiple parties, including ratepayers, but are initiated from a single resource interconnection request; and
- the overall efficiency of NS Power's interconnection queuing process, which allows developers to request and NS Power to examine the reliability needs for new resource interconnection, generally using renewable energy sources and battery energy storage systems.

[18] In addition, Synapse reviewed NS Power's planned changes to its transmission and distribution systems interconnections procedures. These planned

changes include introduction of new thresholds to allow faster tracking of resource interconnection requests for larger than Class 1 threshold resources that utilize inverters for connection to the power system (both solar PV, and batteries use inverters), at 500 kW and 1 MW instead of 100 kW. NS Power has also introduced a new 10 MW threshold to characterize small transmission connected resources and allow for faster studies and likely reduced study fees. The Company has further indicated it is amenable to directly incorporating battery energy storage provisions into the procedures to appropriately study the impact that controllable battery systems can have on the grid. NS Power also plans to update an August 2023 release of its first distribution system hosting capacity tabulation.

[19] Synapse's Final Report describes the results of its review of NS Power's interconnection processes and presents recommended updates to the interconnection protocols and associated documentation. The Report generally supports NS Power's planned changes to its interconnection procedures, but outlines recommendations for improvement in three specific ways:

> 1) a sustained increase in NSPI's ability to conduct interconnection studies, rather than temporary increases in such resources,
>
> 2) a move towards a distribution network upgrade cost allocation approach that recognizes other beneficiaries to distribution network upgrades beyond just the first mover interconnection customer (IC), and
>
> 3) a recommendation to advance to a dynamic hosting capacity information dissemination approach that aims for "coordination" with distributed energy resource providers to provide the maximum benefit to ratepayers from technologies that have the ability to directly support NSPI's reliability needs.
>
> [Exhibit N-1, p. ES-2]

The Report also recommends regular reporting by NS Power to allow the Board and stakeholders to monitor the Company's progress in better enabling faster interconnection study and eventual deployment of studied resources onto the grid.

[20] Specifically, the Report presents four transmission system and 10 distribution system recommendations for the NSPSO to implement. These include:

Transmission System Interconnection Recommendations

1) Modify NS Power's Standard Generation Interconnection Procedures (SGIP) to address study fee structures and service standard timelines for "small" resource category.
2) Incorporate battery energy storage system resources into the SGIP.
3) Add interconnection study capability resources to improve study timelines and develop a pre-application report process to replace the feasibility study step.
4) Conduct further review of FERC Order 2023, continue with modifications to the SGIP as necessary in 2024 and beyond, and provide annual reporting on the effects of increasing study capability.

Distribution System Interconnection Recommendations

1) File NS Power's Distribution Generation Interconnection Procedures (DGIP) modifications with the Board.
2) Modifications to the DGIP structure, fees, and timelines.
3) Pre-application reporting for non-commercial net metering program (CNMP) customers.
4) Modifications to the DGIP related to battery energy storage resources.
5) Modifications to the DGIP related to hosting capacity.
6) Update the NS Power hosting capacity table by March of 2024.
7) Develop a Cost Allocation Straw Proposal for Distribution Network Upgrades.
8) Improve Distribution System Impact Study (DSIS) study capability resources.
9) Modify the Distribution Interconnection Requirements technical document.
10) Support Development of Additional Distribution Network Upgrade Cost Refund Regulation.

[21] The Board's review of NS Power's interconnections processes was informed by the release of FERC Order 2023 in the United States in July 2023. This order followed a lengthy process leading to the development of a new rule by FERC for interconnection procedures. The Final Rule reformed the standard generator interconnection procedures and agreements to address, among other things, interconnection queue backlogs, to provide more certainty on costs and to promote new technologies. The goal of the exercise was to ensure that Interconnection Customers can

interconnect to the transmission system in a reliable, efficient, transparent, and timely manner. FERC Order 2023 revised FERC's *pro forma* Large Generator and Small Generator Interconnection Procedures and agreements. Many issues canvassed by FERC were identified by participants as having similar application in the current review of NS Power's interconnection processes.

[22] During Synapse's engagement process and before Synapse released its report, NSPSO stated:

> NSPSO will review and analyze FERC Order 2023 in detail and will work to apply any adjustments to its processes where and when applicable…NSPSO is aware of the recently published FERC Order 2023 which speaks to both a Study Delay Penalty as well as an Interconnection Application Withdrawal penalty; providing penalties for both the system operator and Interconnection Customer appears to be balanced position on this issue. NSPSO recommends further consideration of these provisions in the event NERC makes application for approval of these provisions with the NSUARB, or otherwise directed by the NSUARB. ([NSPSO] August 10 comments, pages 13-14)
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> [Exhibit N-1, p. 24]

[23] Synapse recognized that the FERC exercise was wide-ranging, but concluded that three key reforms are relevant to NS Power's interconnection procedures:

- Implement a first-ready, first-served cluster study process.
- Increase the speed of interconnection queue processing.
- Incorporate Technological Advancements into the Interconnection Process.

[24] In its October 2023 Reply to the Final Report, the NSPSO stated that, for the most part, it is amenable to adopting Synapse's recommendations, subject to a more detailed review and scoping of associated requirements over time. Further, the NSPSO provided its initial assessment of the expected high-level impacts of the Report's recommendations in terms of complexity, timeline to implement, and rough order of magnitude cost estimates. The NSPSO estimated that implementation of all the recommendations and related items could cost between $4-$5 million for upfront capital

implementation, with recurring estimated annual operating costs of between $1-$2 million. The NSPSO also suggested that the timelines proposed in Synapse's Report may be too ambitious to implement all the recommendations. Nevertheless, the NSPSO expressed confidence that several amendments and improvements can be implemented in the short term. Those currently underway include adding interconnection study capability resources and modifications to the DGIP. This is intended to assist in expediting the initial processing of applications and move them through the process stages.

[25] The NSPSO also drew attention to several issues which it believes require further attention. One such issue relates to penalties associated with FERC Order 2023, while another deals with the inference of bias in NS Power's interconnection processes. These issues are addressed in sections that follow later in this decision. A third issue raised by the NSPSO deals with transmission SGIP amendments associated with behind the meter (BTM) generation. The NSPSO noted that it is becoming increasingly important to assess and mitigate the potential impacts of BTM generation on system reliability. However, the NSPSO noted that the Synapse Report does not appear to include a recommendation related to this issue. As such, the NSPSO recommended that the criteria found in section 7.2 (vii) of the SGIP, which allow an Interconnection Customer to proceed to the System Impact Study (SIS) stage, should be amended to include BTM generation, bringing the SGIP into alignment with the DGIP.

[26] Intervenor evidence presented some additional concepts and processes that could be used in NS Power's interconnection processes. These include items such as the "Connect and Manage" approach and the "Enabler" concept. These issues are addressed in subsequent sections of this decision. This notwithstanding, in its Rebuttal

Evidence, the NSPSO stated that it is amenable to consideration of stakeholder recommendations that do not have considerable drawbacks, do not harm the reliability of the electricity system, and do not result in unfair cost burdens to other customer classes. The NSPSO also stated that expanding its resources is the best near-term solution for the timely study and approval of interconnection requests. The NSPSO has bolstered its resources and may add more to meet growing demand as a result of Provincial procurement initiatives. The issue of the NSPSO's resource capacity to administer the interconnection processes is canvassed in further detail later in this decision.

[27] In its Reply Submission, NS Power stated that it had reviewed all stakeholder closing submissions and concluded that most issues raised, and recommendations made, were already addressed in the NSPSO's Rebuttal Evidence of February 6, 2024. However, NS Power specifically addressed several issues raised in stakeholder closing submissions, including the impacts of Bill 404, curtailment of resources, the distributed energy resource (DER) roadmap, and inertial requirements. Each of these issues is addressed in subsequent sections of this decision. NS Power also cautioned that the potential adoption of various stakeholder recommendations could benefit independent power producers but also harm other customer classes.

[28] In its Reply Submission, Synapse stated that the stakeholder closing submissions generally reiterated points made by stakeholders throughout the current proceeding and are mostly in support of, or aligned with, the recommendations in the Synapse Final Report. However, stakeholders emphasized a need for specific timelines for NSPSO filing requirements. Synapse expressed support for explicit timelines from the

Board for the NSPSO to follow for all planned modifications to the SGIP, DGIP, and supporting documents.

3.1.1 Findings

[29] The Synapse Final Report describes a set of specific recommendations for NS Power or the NSPSO to implement, including four transmission system and ten distribution system recommendations. Intervenors, NS Power and the NSPSO generally support these recommendations. The Board also supports these recommendations and directs that they be implemented by NS Power. The specifics related to this direction are described in Section 3.15 of this decision.

3.2 Interconnections Resource Capacity

[30] A major recommendation in Synapse's Final Report was for NS Power to add resources to manage its interconnection processes and improve study timelines. Synapse made the following specific recommendations about resources for both the transmission and distribution system interconnections:

> **Transmission System Interconnection**
>
> …
>
> **3. Add interconnection study capability resources to improve study timelines and develop a pre-application report process to replace feasibility study step.** Nova Scotia's policy goals to dramatically increase the level of renewable energy requires a significant step up in interconnection study activity. FERC Order 2023 has at its core a goal of improving generation interconnection procedures, fully complementary to Nova Scotia's aims. The elimination of the "reasonable efforts" standard in the FERC Order will generally require transmission providers to either i) be more efficient with interconnection study processes, or ii) increase technical and resource capabilities to complete studies in a more timely manner than has been seen. Both of these steps will likely be needed to meet the aim of the FERC Order, and to meet Nova Scotia's policies. We recommend the following:
>
> - Explicitly and proactively plan for the development of internal or external resources (or a combination) to effectively increase both near-term and longer-term interconnection study resource capability, to improve the overall efficiency (i.e., reduce the overall time to completion) of interconnection processes and enable alignment of NSPI's SGIPs to meet Nova Scotia's renewable energy increase requirements and effectively comply with the elimination of the

"Reasonable Efforts" standard as seen in FERC Order 2023. Align such efforts with study needs associated with distribution requirements.

- Provide a detailed plan to NSUARB to accomplish the increase in interconnection study capability, accounting for the need for steadily increasing renewable resource procurement as contained in the NSPI IRP and the 2023 10 Year System Outlook. The plan should have clear indications of the costs and the mechanisms anticipated to ensure such capability increases.

- Develop a pre-application reporting mechanism to replace the feasibility study, akin to the pre-application report in the CNMP and as recommended for the DGIPs in general. This would also serve as the mechanism aligning with the "heat map" requirement in FERC Order 2023. This would replace the current feasibility study step in the SGIP. Alternatively, after detailed review of the FERC Order 2023, suggest modifications to the SGIP to effectively meet this requirement.

- Follow the FERC Order 2023 reform pathway for cluster studies, consistently aligning interconnection evaluation and study processes to accommodate a pre-application step for individual projects, a cluster study process for system impact studies, followed by facility study planning as necessary.

…

Distribution System Interconnection

…

8. Improve DSIS study capability resources. In alignment and consistent with the recommendations in the transmission section, deploy new staff resources to proactively improve study timing for all required DSISs and report annually on effectiveness of improvements.

[Exhibit N-1, pp. 49-53]

[31] Synapse said:

As noted, NSPI has stated that it will review its resources to ensure study capability given the current need based on the queue and given the potential for continuing policy-based increases in renewables that will lead to an increasing number of interconnection requests. We suggest NSPI use, and NSUARB monitor through annual compliance filings, a set of proactive mechanisms to increase its capabilities to conduct interconnection studies at an accelerated pace that assumes interconnection applications for renewable resources at a level seen in NSPI's recent IRP finding for the "No Atlantic Loop" scenarios. The pace of wind interconnections required even under the competing "Atlantic Loop" scenarios is similar to the other scenarios, thus the interconnection study need is present regardless. [omitted footnote]

In order to meet these needs, and in order to potentially meet the new standard (penalties for delays) associated with the FERC reforms, NSPI should further address in its SGIP modifications filing other changes that may be required to meet both the province's need for expanded interconnection study capability, and NSPI/NSPSO's need to reform its OATT, where required, in accordance with the major tenets of the FERC Order 2023. Given the robustness of the IRP's findings for significant wind resource needs over (roughly) the next decade, it would be prudent for NSPI to plan for more than just infrequent procurement events (such as the Rate Base Procurement) and instead institute a steadier state of expanded study capability.

[Exhibit N-1, pp. 26-27]

[32] The NSPSO addressed Synapse's recommendation to increase the System Operator's interconnection study capability resources to improve study timelines. Synapse made this recommendation in the context of improving efficiency in the interconnection process, ensuring alignment with Nova Scotia's increasing renewable energy requirements, and ultimately meeting the 2030 environmental and climate goals. In response to an information request from NRR, the NSPSO described its increased resources to manage the interconnection study process:

> …eight new resources were added in 2022 and 2023. In 2024, the NSPSO plans to add two additional resources. If a large volume of interconnection studies arises, for example, due to a large procurement for renewable energy, then consultants and/or additional Transmission Function employees may be assigned to assist. The NSPSO typically uses consultants to conduct Facility Studies in high volume scenarios.
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> [Exhibit N-6, NRR IR-3 (a-b), p. 2]

[33] In its Rebuttal Evidence, the NSPSO stated that the "administration of the Interconnection Processes and timely study and approval of project interconnections will benefit most in the near term from an increase in the NSPSO's resources so that it can handle the large influx of the Province's procured renewable energy projects". In its reply comments to the Synapse Report, the System Operator added that focussing on interconnection processes amendments "may not be the best near-term strategy to facilitate the review of renewable energy interconnection requests and reaching 2030 environmental mandates." Indeed, in the matrix attached to its reply to the Synapse Report, the System Operator identified the resource-related recommendations 3.1 – 3.3 as being implemented on a long-term basis.

[34] Nevertheless, the NSPSO assured the participants and the Board that renewable energy projects required to meet the 2030 timeline were being actively studied, processed, and proceeding through the queue. It said that it is proceeding in alignment

with NS Power's "The Path to 2030" plan, which in turn is aligned with the Province's 2030 Clean Power Plan. The System Operator stated that NS Power and the Province are working cooperatively to meet the 2030 goals, noting that, under the Clean Power Plan, the Province is responsible for the renewable energy projects and load management to meet 2030 RES targets, while NS Power is responsible for building the required firm generation, transmission and supporting infrastructure to retire its coal plants and integrate the procured renewable energy sources. NS Power stated that increasing NSPSO's resources and NS Power's ongoing coordination with the Province are key components in the effort to achieve the 2030 environmental targets.

3.2.1 Findings

[35] The Board directs NS Power to file a detailed plan with the Board describing how it intends to increase its resource capacity to manage the expected growth in interconnection applications on both the transmission and distribution systems. This plan must quantify the expected capital costs and annual operating costs associated with these increased resources. This review and plan should also examine the implementation and costs of adding more resources to accelerate the System Operator's review of FERC Order 2023. This resource capacity plan is to be filed with the Board by October 31, 2024.

3.3 FERC Order 2023

[36] As noted earlier in this decision, the release of FERC Order 2023 helped inform this review of NS Power's interconnection processes. One of the major themes of FERC Order 2023 is the elimination of the "reasonable efforts" standard. Synapse recommended:

> … Nova Scotia's policy goals to dramatically increase the level of renewable energy requires a significant step up in interconnection study activity. FERC Order

> 2023 has at its core a goal of improving generation interconnection procedures, fully complementary to Nova Scotia's aims. The elimination of the "reasonable efforts" standard in the FERC Order will generally require transmission providers to either i) be more efficient with interconnection study processes, or ii) increase technical and resource capabilities to complete studies in a more timely manner than has been seen. Both of these steps will likely be needed to meet the aim of the FERC Order, and to meet Nova Scotia's policies. We recommend the following:
>
> • Explicitly and proactively plan for the development of internal or external resources (or a combination) to effectively increase both near-term and longer-term interconnection study resource capability, to improve the overall efficiency (i.e., reduce the overall time to completion) of interconnection processes and enable alignment of NSPI's SGIPs to meet Nova Scotia's renewable energy increase requirements and effectively comply with the elimination of the "Reasonable Efforts" standard as seen in FERC Order 2023. [Emphasis added]
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> [Exhibit N-1, pp. 50-51]

[37] The NSPSO identified a major item falling out of FERC Order 2023, which would require careful study. Specifically, it understood the elimination of the "reasonable efforts" standard would require the implementation of a penalty structure that would apply reciprocally to both the System Operator and Interconnection Customer. It stated that any study timeline incentives or penalties would have to accommodate modifications permitted in the DGIP and SGIP and respect the implications of the queue position. The NSPSO undertook to review the provisions provided in FERC Order 2023 and "consider adoption of these provisions in the event NERC makes application for approval of these provisions with the NSUARB, or if otherwise directed by the NSUARB". The System Operator also noted the following implications of introducing a penalty structure:

> As noted in the August 10, 2023 submission, FERC Order 2023 establishes penalties for both the Transmission Provider and Interconnection Customers. The NSPSO believes that the inclusion of penalties for both parties ostensibly provides balance and reasonability. Notwithstanding, the NSPSO cautions that adoption of a penalty structure may result in an administratively burdensome process, require an enhanced penalty tracking system which would incur associated implementation and operational costs, and may not provide equivalent benefit to the Interconnection Process timelines. Finally, the NSPSO cautions that corresponding timelines establishing thresholds for penalty applicability should be reasonable, taking into careful consideration developing system and market factors; the volume and complexity of Interconnection Requests are expected to continue to increase over time, for the many reasons discussed over the course of this proceeding.
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> [Exhibit N-2, pp. 4-5]

[38] Synapse also recommended that NS Power complete a full review of FERC Order 2023:

> **4. Conduct further review of Order 2023, continue with modifications to the SGIP as necessary in 2024 and beyond, and provide annual reporting on the effects of increasing study capability**. … [Emphasis in original]
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> [Exhibit N-1, p. 51]

[39] The NSPSO cautioned that the late 2024 timeline suggested by Synapse to review and implement the remaining items from the nearly 1,800-page FERC Order 2023 was too ambitious.

[40] The SBA and PHP Wind commented on the introduction of a penalty structure in the interconnections process. The SBA questioned what impact this would have on the timeline for completion of Class 1 and Class 2 project interconnection studies within the current time estimates outlined in the DGIP. PHP Wind noted that the move from the "reasonable efforts" standard to an incentive framework would introduce a "level of accountability" that is important, where transmission providers are penalized if studies are not completed within the required window.

3.3.1 Findings

[41] An important matter arising from FERC Order 2023 contemplates the implementation of a penalty structure that would apply reciprocally to both the System Operator and Interconnection Customers. NS Power cautioned that the implications of such a change could be significant and should be carefully reviewed. However, the NSPSO undertook to review and consider adopting these provisions in the event North American Electric Reliability Corporation (NERC) applies to the Board for approval of these provisions, or if otherwise directed by the Board. NERC is responsible for the reliability, resilience, and security of North America's bulk power system. The NSPSO

added that these provisions may result in an administratively burdensome process and result in related implementation and operational costs. Despite these concerns, the Board understands that the intent of introducing a penalty structure under FERC Order 2023 is to improve the interconnection process, including the efficient management of the queue and the advancement of projects that are ready to connect to the grid. Unless this issue is reviewed, any benefits could be delayed. Consideration of a penalty structure should receive priority from the NSPSO. Accordingly, the Board directs that the NSPSO hasten its review of the penalty structure and its potential implementation. NS Power must report its progress on this issue to the Board no later than October 31, 2024, as part of its update on FERC Order 2023.

[42] The success of the NSPSO's interconnection processes, including the conduct of timely studies, depends on the availability of the internal and external resources required by the NSPSO. This is crucial to NS Power meeting the Province's 2030 environmental and climate goals. The NSPSO's resource capacity was canvassed in the preceding section of this decision. However, as noted by the NSPSO, the review and implementation of matters arising from FERC Order 2023 will also call on the NSPSO's resources, so much so that the System Operator said that the latter review will be deferred so that the NSPSO can focus on the more immediate priority of managing the interconnection process and the timely study and approval of the "large influx" of project interconnections. While the NSPSO questioned the added benefit of fully implementing FERC Order 2023 without a thorough review, the Board is concerned that a delayed review will postpone important changes, which in effect represent best practices, to the interconnection process and agreements. Based on the NSPSO's

projected long-term horizon for a full review and implementation of FERC Order 2023, any resulting changes would likely be too late to materially impact the improvement of the interconnection process to impact the achievement of the 2030 environmental goals.

[43] The Board concludes that a review of FERC Order 2023 should proceed without delay. NSPSO is directed to undertake (or continue undertaking) a detailed review of FERC Order 2023. NSPSO must update the Board on the status of this review by October 31, 2024, including the feasibility of implementing the findings of this review and the timeline for doing so.

3.4 Bias

[44] The final terms of reference for Synapse's review of NS Power's interconnection processes included:

> • Overall adherence of the interconnection processes and requirements to the spirit and letter of the OATT, for provision of non-discriminatory access to the transmission and distribution grid.
>
> • The extent to which NS Power's protocols or implementation practicalities result in a bias towards NS Power or Emera self-interest, and against third-party generator interests.
>
> [Final Terms of Reference, February 10, 2023, p. 2]

[45] In their comments to Synapse leading to preparation of its report, some Intervenors expressed concern with the potential for bias in the interconnection queuing process and study issues between NS Power and non-NS Power Interconnection Customers.

[46] Synapse noted that the open access transmission tariff (OATT) contains an attachment entitled "Standards of Conduct", which describes how the OATT must allow for non-discriminatory provision of transmission service, and the OATT codifies such practice. In summary, under the Standards NS Power's transmission function employees are not allowed to give preferential treatment in any tariff areas, including the execution

of the interconnection application process and transmission studies. Synapse noted that two general rules in the Standards of Conduct are relevant to the potential for "bias in treatment":

> 1. Transmission Function employees must function independently of Nova Scotia Power's Marketing and Sales employees, and from any employees of its Affiliates.
>
> 2. Transmission Function employees must treat all transmission customers, affiliated and non-affiliated, on a non-discriminatory basis, and must not operate its transmission system to preferentially benefit an Affiliate.

[47] Synapse noted that NS Power also publicly posts on its OASIS "OATT Standards of Conduct Compliance Information" describing shared facilities, shared employees, employee transfers, potential merger partners, emergency deviations, prohibited disclosures, voluntary consent, exercises of discretion, and tariff discounts.

[48] In its final report, Synapse concluded:

> A review of the results of the transmission queuing process to date cannot determine affirmatively that no "bias" in treatment may have been exercised by NSPI/NSPSO. However, the Advanced Stage request queue does show that study outcomes have resulted in continuing movement, through the interconnection request queue process, for both NSPI and non-NSPI requestors. Commenters noted a concern with bias in treatment, but no specific indication was offered by any stakeholder, and NSPI's statement above asserts that bias is not present.
>
> To our understanding, stakeholders are asking for additional discovery of NSPI/NSPSO or bilateral inquiry of non-NSPI interconnection customers to inform the detailed timelines associated with interconnection requests, to determine or establish potential bias in treatment. It is not clear how a more complete understanding of the specific sequence of information flows between interconnection customers and NSPSO, that may help to (or even clearly) establish the causes or drivers of delay, and those responsible, would inform whether, or not, bias was present. There is no clear evidence in the Advanced Stage queue status and date information, or in the comments, that bias is driving any of the timelines experienced by any of the interconnecting parties' requests.
>
> In our opinion effort is needed to ensure increased study capability on the part of NSPI/NSPSO, to improve study timing – especially as the need for studies is likely to ramp up. Exploring in more detail potential violations of the Standards of Conduct comes with an opportunity cost that in our opinion may not confer net benefits for ratepayers.
>
> [Exhibit N-1, p. 23]

3.4.1 Findings

[49] No intervenor directly challenged Synapse's conclusion that there is no clear evidence that bias exists in the NSPSO's conduct of the interconnection process and the related studies. However, in their closing submissions, Natural Forces and Nova Solar Capital both appeared to suggest that NS Power projects may have received preferential treatment in the interconnections process.

[50] Synapse concluded that there is no clear evidence in the Advanced Stage queue status and date information that bias is driving any of the timelines for interconnecting requests. Synapse noted that there has been continuing movement in the Advanced Stage request queue, through the interconnection request queue process, for both NS Power and non-NS Power applicants. The Board accepts Synapse's finding that bias in the process has not been demonstrated. Moving forward, should any Interconnection Customer believe that a NS Power project has received preferential treatment in the interconnection process, that party should refer the matter to the Board along with the full particulars of their allegations. In that event, the Board will launch a full investigation, including a discovery process to ascertain all the facts that may be relevant to the matter.

[51] The Board also notes that, when established, the NS Independent Energy System Operator (NSIESO) will become responsible for providing non-discriminatory access to the transmission system for all participants.

3.5 Provincial Procurement Processes

[52] In his evidence, Mr. Lusney explored the need for interconnection process renewal. He noted that interconnection processes in many jurisdictions are under stress

due to changing supply mix, demand growth and shifting policy objectives. He said changes to interconnection procedures and processes are being examined to identify options to ensure the electricity system can meet the challenges of reducing emissions while maintaining the traditional performance objectives of providing electrical service that is safe, reliable and cost-effective.

[53] Likewise, as discussed already, Synapse strongly suggested that NS Power proactively increase its interconnection study resources to meet governmental objectives to increase renewables.

[54] While Synapse recognized that NS Power committed to pursuing additional resources for key areas of the interconnection processes, it also considered that NS Power did not make specific suggestions around ensuring that all studies are completed within the “reasonable efforts” window allowed under its interconnection procedures supporting its OATT. Indeed, Synapse reported that it is NS Power’s position that average interconnection timelines are currently appropriate and manageable. To support the reasonableness of its current timelines, NS Power contrasts the 18 months it says is the average duration for the completion of four transmission generation interconnection agreements, and an average 9.7 months for completed distribution agreements, with average interconnection timelines of three years for PJM, a major regional transmission organization in the United States.

[55] Additionally, Synapse noted that FERC Order 2023 eliminates the “reasonable efforts” standards and replaces it with a penalty-based system for late studies. Synapse said that if NS Power updates its reciprocal OATT status, which it

assumes will occur, NS Power must take this tariff change into account and be prepared to complete studies without delays or suffer non-ratepayer-recoverable penalties.

[56] Mr. Lusney considered that the Synapse report provides a good starting point for changes to the interconnection process in Nova Scotia but does not go far enough in some areas. In his view, there is a need for deeper coordination between the interconnection processes, procurement and program processes, and government policy objectives for emissions reduction by 2030. Mr. Lusney noted that 2030 policy targets require new resource development which could be anticipated, through things such as NS Power's integrated resource planning processes, to identify the expected timelines for connection assessments. He said that the engagement of interconnection resources should be optimized around procurement and program processes.

[57] Mr. Lusney suggested that procurement processes could be enhanced by making feasibility or siting guidance analysis available in advance to proponents allowing them to target interconnection locations with easier access and lower connection costs, potentially avoiding siting and sizing projects in areas that would trigger significant network upgrades. Similarly, he said renewable energy zones could be developed that would be predetermined areas established through planning processes allowing new renewable generation to be focused in areas where it was most cost effective, socially acceptable, and beneficial to the system.

[58] Mr. Lusney urged that cluster studies be incorporated into procurement processes. He said this would allow transmission planners to identify enhancements and expansions that could be jointly used by a group of generation projects resulting in cost savings and reduced interconnection study times and complexity.

[59] Mr. Lusney also urged that unsuccessful projects be assessed to identify misuse concerns and interests that could be considered to facilitate more successful projects in future procurement processes.

[60] In its Rebuttal Evidence, Synapse considered that many of the points made by Mr. Lusney about interconnection and procurement processes were either considered as part of the FERC Order 2023 or directly recommended by Synapse in its Final Report. Synapse expected that these issues would be addressed by NS Power after a careful review of FERC Order 2023 as recommended by Synapse.

[61] In its Rebuttal Evidence, NS Power noted that it has actively engaged with the Province's Renewable Energy Project Procurement Administrator in advance of each procurement process to date and anticipates ongoing collaboration with the Province's energy procurement plans and timelines through a Working Group involving NRR and NS Power.

[62] NS Power also noted that pre-feasibility guidance is part of the process it uses for interconnections and that its current processes permit clustering projects for group study. NS Power said it has already agreed to begin developing a solution to share points on the grid where hosting capacity is available, which could be used to determine where capacity exists for potential renewable energy zones.

3.5.1 Findings

[63] Most of the concepts discussed by Mr. Lusney in his evidence about the integration of interconnection and procurement processes should be further explored in addressing Synapse's recommendations, including further consideration of FERC Order 2023. In proceeding with these, NS Power should bear in mind the fundamental points

made by Mr. Lusney. In particular: (1) ensuring that resources are available both generally and at times when interconnection study requirements are expected to be heavier because of provincial procurement processes; (2) all reasonable opportunities are secured to provide Interconnection Customers with pre-feasibility information allowing proponents to target the most effective areas for interconnection, and possibly to facilitate the development of renewable energy zones; and (3) interconnection studies are clustered as much as possible to optimize costs, study timelines and complexity. The Board expects these themes to be addressed in NS Power's future reports as noted in Section 3.15 of this decision.

3.6 Connect and Manage Approach

[64] Considering the efforts in other jurisdictions to identify options to ensure the electricity system can meet the challenges of reducing emissions while maintaining the traditional performance objectives of providing electrical service that is safe, reliable and cost-effective, Mr. Lusney recommended a "connect and manage" approach to interconnection processes. He juxtaposed this to the current approach in Nova Scotia as follows:

> 52. Under the current connection process, and even under the recommendations from Synapse Report, the Nova Scotia connection process can generally be described as an Invest and Connection approach. Under Invest and Connect approach the transmission system provider must determine what investments are required in the transmission system to allow a new project to connect with limited risk for future curtailment or reliability impacts. This is primarily done under the Network Resource Integration Service (NRIS).
>
> [Exhibit N-10, p. 16]

[65] Mr. Lusney noted that the current approach is susceptible to overbuilding transmission facilities based on perceived future risks which could potentially be managed without network upgrades. Mr. Lusney also submitted the current approach could unfairly punish first movers by making them responsible for system upgrades that could

potentially be used by other customers. He said this could be a barrier to new entry and development.

[66] In contrast, Mr. Lusney said the connect and manage approach offers a shorter timeline for connection by:

- avoiding a broader network upgrade analysis;
- reducing the risk of overbuilding transmission infrastructure;
- leveraging system economics to determine system expansion instead of assuming capability to achieve full energy delivery of a new resource;
- potentially lowering overall systems costs; and
- reducing resource requirements to manage interconnection requests.

[67] Mr. Lusney also identified some potential drawbacks with the connect and manage approach. He said the approach could stress power system operations because system operators would need to manage through constraints. He also noted that congestion reduces revenue potential for supply resources which could adversely impact investor confidence. Finally, he noted that resource development could occur on a timeline that causes system constraints to develop rapidly but solutions to address these constraints could require long lead time investments.

[68] Mr. Lusney suggested options for managing some of these drawbacks. To maintain investor confidence, he suggested that congestion risk should be managed through renewable energy power purchase agreements. He suggested that suppliers should bear a limited amount of congestion risk, such as a percentage limit of annual production, to motivate them to attempt to site new resources in areas with less congestion risk. He said the avoidance of future congestion payments could provide an economic basis to justify system expansions and operability investments in the future.

[69] Mr. Lusney also suggested that the connect and manage approach could support the development of renewable generation and the potential development of excess renewable energy that could be repurposed by other resources in the electricity system to meet resource adequacy, reliability and operability needs, or for uses such as energy storage or to support green hydrogen processes.

[70] In its Rebuttal Evidence, NS Power argued that the existing Energy Resource Interconnection Service (ERIS) already incorporates elements of the connect and manage approach. It submitted that going beyond what is already offered by ERIS towards a full connect and manage approach would be a disincentive for participation in ERIS service.

[71] NS Power said that, if adopted on a large scale, the connect and manage approach would add complexity to the management of resource dispatch and drive the need for after the fact network upgrades to avoid issues with grid reliability, interconnection customer operational viability, and out of merit generation. It argued that the risk mitigation strategies Mr. Lusney suggested were inadequate.

[72] NS Power also submitted that the current interconnection processes were adequate to achieve the objectives of having 80% of energy sales from renewables and the phase-out of coal by 2030. It urged that the connect and manage approach not be explored in Nova Scotia beyond what is already available under the ERIS service.

[73] For its part, Synapse considered Mr. Lusney's request to consider a connect and manage approach in Nova Scotia to be a reasonable one. In its Reply Submissions, Synapse said it did not agree with NS Power that the connect and manage approach should not be explored beyond what is already available under the ERIS service. Synapse

recommended that NS Power be directed to further explore curtailment issues, and the possible streamlining of interconnection studies for ERIS service, in consideration of the best aspects that the connect and manage approach may hold for Nova Scotia ratepayers.

3.6.1 Findings

[74] The Board agrees that it is appropriate to contemplate implementing elements of the connect and manage approach in Nova Scotia beyond those currently embedded within the existing ERIS. As recommended by NRR in its Closing Submissions, the Board directs that this be considered further after NS Power's review of FERC Order 2023. The Board expects this issue to be specifically addressed in NS Power's future reports on progress implementing Synapse's recommendations.

3.7 Enabler Concept

[75] Mr. Lusney also suggested that an "enabler concept" be considered to balance optimal system expansion and under-utilized system expansion. Under this concept, the development of transmission facilities would include both immediate and near-term system needs. He submitted that the benefits of the enabler concept included its ability to attract or promote competition among projects within cluster areas and the avoidance of continually upgrading infrastructure as projects are added (particularly in respect of distribution system expansion).

[76] Mr. Lusney submitted that under the enabler concept, the cost for system upgrades would be shared between the Interconnection Customer (for their portion of the upgrade) and NS Power (for the part of the upgrade contemplating future use). He said the NS Power funded portion would be allowed in the rate base and recovered from future

customer connection requests. To guard against a significant amount of unutilized or under-utilized assets in rate base, Mr. Lusney suggested that enabler funding should be premised on the existence of minimum funding levels for the upgrade from the initial Interconnection Customer and potential caps on the amount of investment allowed in rate base for enabler concept upgrades.

[77] In its Rebuttal Evidence, Synapse noted that if NS Power was able to determine, with some degree of certainty, what its near-term system needs were, the concept of planning for transmission or distribution upgrades to support such investment was not unreasonable. Synapse also recommended that NS Power file a cost allocation approach for distribution system investment that considers some portion of the costs being funded through the rate basing of investments that had multiple beneficiaries, including generic ratepayer load, beyond the directly connecting resource provider. Synapse noted that cluster studies for transmission interconnection requests could help analyze transmission needs for near-term resources but cautioned that installation is not guaranteed just because a project is included as part of the cluster study.

[78] Synapse also pointed out there was some inconsistency between the connect and manage approach (which tends to limit investment in upgrades) and the enabler concept (which tends to expand investment in upgrades). In further evidence on this point, Mr. Lusney said the connect and manage approach and the enabler concept were not intended to be a combined solution but were presented as two different options to help address the timelines and challenges of implementing emissions reduction policy objectives. Mr. Lusney said that pursuing both methods would require a more detailed understanding of the tension between these two concepts. Mr. Lusney recommended that

one method be adopted at this time which best serves to enhance the interconnection process to support broader government policy objectives.

[79] In its Closing Submissions, NRR submitted that the connect and manage approach holds the greatest promise for Nova Scotia, but urged that at this point, all options presented in the proceeding continue to be explored.

[80] In its Rebuttal Evidence, NS Power expressed concern that the enabler concept would encourage the development of infrastructure with no immediate use, but for a future use that may not materialize. It submitted this concept contradicted a least-cost investment approach and established utility accounting principles about the used-and-usefulness of capital assets. NS Power said:

> The NSPSO's and the Interconnection Processes' primary purpose is to facilitate the connection of new generation while maintaining grid stability and reliability for all customers. It is not the NSPSO's and the Interconnection Processes' responsibility to otherwise foster an energy market on a prospective basis through a "build-it-and-they-will-come" approach, which would effectively amount to cross-subsidization by the customer classes. The NSPSO also notes that the Enabler Concept, with its emphasis on over-building, appears to be at odds with the proposed Connect & Manage approach of minimizing Network Upgrades.
>
> [Exhibit N-18, pp. 23-24]

3.7.1 Findings

[81] As noted previously, the Board has directed NS Power to consider incorporating elements of the connect and manage approach beyond what is currently embedded in its ERIS service. That said, when network upgrades are required and if, as Synapse suggests, NS Power can determine near-term system needs with some degree of certainty, the concept of planning for transmission or distribution to support such investment is not unreasonable. Should opportunities of this nature be available, they should be considered, but the Board agrees with NS Power's submissions that investment in assets that are not likely to be used and useful in the near term should be avoided.

Doing otherwise would simply put ratepayers at risk for paying for assets that provide no benefit.

3.8 Curtailment

[82] During this review, several participants raised concerns about variable renewable generation curtailment and the ambiguity in certain articles of the *pro forma* agreements that facilitate the interconnection process. SWEB noted in its Closing Submissions that the lack of clarity in the Standard Generator Interconnection and Operating Agreement (GIA) does not allow Independent Power Producers (IPPs) to appropriately estimate the amount of curtailment their projects may experience throughout the life of the project. This has an impact on their bid pricing.

[83] Under the current GIA, article 9.7.2 states:

> If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System.

[84] Providing the Interconnection Customer with the reasons for the curtailment and expected duration is required of the Transmission Provider.

[85] At year-end 2022, there were about 13 non-NS Power-owned renewable projects, with a combined nameplate capacity of approximately 358.5 MW, connected to the transmission grid. Only transmission-connected wind farms are under curtailment control of the NSPSO. There were also about 78 non-NS Power-owned renewable projects, with a combined nameplate capacity of approximately 207 MW, connected to the distribution network. The System Operator does not currently have curtailment control of those distribution-connected facilities.

[86] In its response to IR-1 from Energy Storage Canada, NS Power stated that circumstances which could lead to generation facility curtailment are reliability-based and include transmission limit violation, forced transmission outage, light load conditions, and tie-line regulating issues. Since curtailment of wind generation facilities under the terms of the GIA is performed for reliability reasons, those facilities are not compensated for curtailment.

[87] NS Power noted that the predominant reason for wind curtailment is light load conditions. In that situation, the initial step is to reduce dispatchable thermal generation to minimum levels, or possibly removal from service, followed by curtailments made on an equitable, non-discriminatory basis, but only for as long as necessary.

[88] In its Closing Submissions, Natural Forces questioned what specific procedure underlies the equitable and non-discriminatory basis for determining which wind power generators are to be curtailed and for how long.

[89] In responding to Natural Forces IR-1, Power Advisory stated that “Future curtailment can be influenced by many factors including government policy, demand growth, supply mix evolution, future project siting, transmission expansion and system operation changes”. As noted by Natural Forces, those factors are largely outside of the control of IPPs. Furthermore, ambiguity limits transparency and certainty, reduces consistency and predictability, and thereby increases risks and costs for the IPP.

[90] In its Reply Submission, Synapse commented on resource curtailment, as well as ERIS or NRIS interconnection service. Synapse stated that it is important for stakeholders and NS Power to obtain a better understanding of potential future curtailment patterns that could be required as the resource mix in Nova Scotia changes

over time. As noted by a stakeholder, curtailment patterns could impact whether a resource provider opts for ERIS or NRIS interconnection service. Such consideration could affect transmission system planning and could influence the nature of contractual provisions for energy procurement by NS Power (as the load server).

[91] Synapse recommended that the NSPSO be directed to further explore curtailment issues, as well as possible streamlining of ERIS interconnection studies. The objective would be to identify approaches which could provide the most benefit for Nova Scotia ratepayers.

[92] Natural Forces also suggested GIA amendments to help with managing curtailment risk in the future. Specific suggestions included:

- More clearly defining “Good Utility Practice” and “Emergency Conditions” with a greater level of detail in the SGIP, including disaggregating the actual causes for when curtailment may occur.
- Providing generators with clearer and more specific causes when “Good Utility Practice” and/or “Emergency Conditions” are the basis for curtailment directives.
- Systematically tracking, recording, and publishing the specific causes, magnitude, and durations of curtailment events.
- Defining in the SGIP, the procedure underlying the "equitable, non-discriminatory basis" for curtailment, which would provide generators with greater consistency and predictability.

[93] Natural Forces also noted that the addition of section 4E to the *Electricity Act*, regarding curtailment, will have implications for the interconnection process for transmission-connected generation.

[94] When proclaimed into force, the *Energy Reform (2024) Act* will amend the *Electricity Act* to add the following:

> **4E (1)** In this Section,
>
> (a) "curtailment" means, based on instruction sent to a generation facility from the system operator, the decrease or cessation of the generation facility's generation output;
>
> (b) "system operator" means the IESO or Nova Scotia Power Incorporated.
>
> **(2)** This Section applies to a generation facility that has received, on or after March 1, 2024, a power-purchase agreement under a procurement initiated under Section 4B.
>
> **(3)** A generation facility may not be compensated for any curtailment until such curtailment exceeds five per cent of its total energy bid as defined within the generation facility's power-purchase agreement.
>
> **(4)** Where a generation facility's curtailment exceeds five per cent of its total energy bid, the generation facility shall be compensated for the curtailment by the purchaser of the generation facility's generation output at the rate set out in the power-purchase agreement unless
>
> (a) the generation facility was not generating electricity at the time the system operator instructed the facility to decrease or stop its generation output; or
>
> (b) the instruction to decrease or stop the generation facility's generation output was sent due to an unforeseeable emergency or force majeure event.
>
> **(5)** The system operator shall determine and define what constitutes an emergency or force majeure event for the purpose of clause (4)(b) and, where requested by a generation facility, shall provide that reasoning to the generation facility.
>
> **(6)** A dispute respecting a curtailment may be appealed to the Board.

[95] When section 4E of the *Electricity Act* comes into force, compensation for curtailment will be governed by the legislation (for generation facilities with power purchase agreements made on or after March 1, 2024, for procurements under s. 4B.

3.8.1 Findings

[96] The Board notes the concerns raised by Interconnection Customers during this review process and understands their desire for greater clarity associated with curtailments. As indicated above, some of the concerns are being addressed by the recent *Electricity Act* amendments and therefore require no further directives by the

Board. However, as inferred by Synapse, there is merit in further exploring curtailment issues and possible streamlining of ERIS interconnection studies. NS Power is so directed and an update is to be filed by October 31, 2024.

[97] In addition, the Board accepts the recommendation that "Systematically tracking, recording, and publishing the specific causes, magnitude, and durations of curtailment events" should be undertaken, but with caution to avoid any inadvertent disclosure of confidential information. However, the Board is not persuaded that providing distinct definitions of "Good Utility Practice" or "Emergency Conditions" can be made without unduly restricting legitimate situations that may be encountered. Furthermore, the Board considers this to be consistent with the pending amendment to add s. 4E(5) to the *Electricity Act*, which states "The system operator shall determine and define what constitutes an emergency…".

[98] The Board also notes that should any counterparty believe that the System Operator is curtailing inappropriately, a complaint may be made to the Board.

3.9 Environmental Assessment Approval Trigger for Queue Advancement

[99] In its evidence, Natural Forces recommended that enabling projects holding an environmental approval should advance in the interconnection study queue. Although Natural Forces stated that it supported the "first-ready, first-served" principle for interconnection queue management, it submitted that the progression milestones for interconnection queue management do not adequately capture all indicators of project readiness, and recommended the following:

> 1. New Progression Milestone to enable Interconnection Customers who hold an Environmental Approval to advance their initial Queue Position.
>
> [Exhibit N-13, p. 2]

[100] The intention of this recommendation was to avoid the potential that projects without an environmental approval might block projects that do have an environmental approval from moving ahead in the interconnection study queue. NS Power responded to that recommendation in its Rebuttal Evidence by providing its reasons why the recommendation should not be adopted:

> The concept of the Combined T/D Advanced Stage Interconnection Request Queue, with the pre-requisite milestones of section 7.2 (vii) designed to limit the flow-through of projects to only viable Interconnection Requests, was introduced at the urging of stakeholders and with the approval of the Board following concerns with the volume of projects in the interconnection queue which were not advancing to completion and were blocking the way for other Interconnection Customers. NF's recommendation to allow projects with Environmental Approval to progress to the Advanced Stage Queue and begin the System Impact Study (SIS) could fill the queue with projects which have met environmental approval but still have no contract for sale of energy and may end up without such a contract following the completion of a government procurement process.
>
> The Advanced Stage Queue is important to the SIS process. All projects are studied in the order in which they enter the queue. The SIS for each lower-queued project, in turn, assumes that the system upgrades identified for higher-queued projects are constructed and in service. If an Interconnection Request with Environmental Approval and no contract were permitted to enter the Advanced Stage Queue, they may unnecessarily back-up the queue in the event that they were not subsequently awarded a contract. The unsuccessful projects would eventually withdraw, and the previously completed System Impact Studies for lower-queued projects would be invalid, resulting in significant re-work, resource draw, and expense, and produce additional delay for all lower-queued projects. Nevertheless, the Advanced Stage Queue is at historically high levels of Interconnection Requests, many of which have been selected through the Province's Rate Base Procurement processes, as they have successfully met all the existing progression milestones under the GIP or DGIP.
>
> The attribute of a completed Environmental Assessment for an Interconnection Request is not by itself sufficient grounds to advance a project to the Advanced Stage Queue. Use of the existing milestones (with the addition of behind-the-meter generation as recommended by NSPSO), including the requirement for an off-taker for the energy from the project, is a better method for regulating the volume of Interconnection Requests advancing through the process.
>
> [Exhibit N-18, pp. 42-43]

[101] In its Closing Submission, Natural Forces highlighted NS Power's statement that a completed Environmental Assessment, by itself, is not sufficient grounds for a project to move ahead to the Advanced Stage Queue. It stated that projects which satisfied progression milestones but did not have an environmental approval may unnecessarily back-up the queue if it eventually withdrew, thereby invalidating the

previously completed System Impact Studies for lower-queued projects, and resulting in significant re-work, resource draw, expense, and additional delay for all lower queued projects.

[102] To increase the project readiness requirements, and to align with FERC Order 2023, Natural Forces amended its previous recommendation as:

> …we recommend that the Progression Milestones in Section 7.2 of the Standard Generator Interconnection Procedures (SGIP) be amended to the effect that for an Interconnection Customer (whether NS Power or an IPP) to become eligible for inclusion in the Interconnection System Impact Study stage, and thereby advance the Interconnection Request's initial Queue Position, that they must be in possession of an Environmental Approval (where applicable), in addition to meeting existing Progression Milestones.
>
> [Natural Forces Closing Submission, pp. 2-3]

3.9.1 Findings

[103] The Board recognizes the potential for a queue back-up situation raised by Natural Forces, as well as the explanation provided by NS Power in response to the recommendation. The subsequent amendment proposed by Natural Forces to include environmental approval (where applicable) as an additional milestone criterion appears to have merit, if it will avoid blocking or delaying advancement of projects who are at an increased readiness stage. However, the Board has concerns about what would constitute "environmental approval" and how this definition would account for other regulatory approvals and permitting by municipal, provincial and federal authorities.

[104] This proposal was not addressed by NS Power in its Reply Submission. The Board directs NS Power to examine environmental approval as an additional pre-requisite milestone in section 7.2 of the SGIP, or alternatively, to provide reasons why that should not be done. An update is to be provided by October 31, 2024.

3.10 Load Serving Entity Queue Advancement

[105] In its evidence, Natural Forces recommended the following:

> We recommend that criteria are established that govern when an Interconnection Customer (NS Power Incorporated or otherwise) may move ahead of a non-NS Power Incorporated Interconnection Customer during a provincial renewable procurement (such as requiring said Interconnection Customer to have an Environmental Approval, and/or to demonstrate its necessity for grid reliability and/or safety).
>
> [Exhibit N-13, p. 4]

[106] This recommendation appears to be based on Natural Forces' experience with its project identified as IR 673, whereby another project (IR 671) advanced ahead in the interconnection queue. NS Power addressed this situation and the Natural Forces recommendation in its Rebuttal Evidence:

> New criteria governing when an Interconnection Request (IR) may advance past an Interconnection Customer (IC) during a provincial renewable procurement would be unfair and contrary to the "first ready, first serve" approach embedded in the UARB-approved interconnection procedures. Further, allowing government procurement IRs to jump to the top of the Advanced Stage Queue would result in the need to re-study all IRs that had previously advanced, and would create unwarranted uncertainty, risk, and delay for those projects due to no fault of their own.
>
> …
>
> All Interconnection Customers, including NS Power in its capacity as an Interconnection Customer and non-NS Power Interconnection Customers, are managed per the NSUARB-approved interconnection procedures. The NSPSO does not give preferential treatment to any Interconnection Customer. In the example cited, IR 671 met its milestone requirements before IR 673, so it naturally advanced to the Advanced Stage Queue, securing a position ahead of IR 673. This is aligned with the unbiased administration of the queue.
>
> In light of the foregoing, and the guiding principle of unbiased treatment of interconnection process participants, this recommendation should not be adopted.
>
> [Exhibit N-18, pp. 44-45]

[107] In its Closing Submission of March 6, 2024, Natural Forces provided additional information regarding its project IR 673, which won a contract through a provincial renewable procurement, obtained an environmental approval, but does not have a completed System Impact Study. In addition, Natural Forces stated that project IR 671 does not have an environmental approval, so if environmental approval was included

in the progression milestones, project IR 673 would be ready to proceed with construction, given its advanced level of readiness. Natural Forces later filed an erratum on March 8, 2024, to say that “In fact, IR 671 received its Environmental Approval on December 13, 2023”.

[108] The recommendation proposed by Natural Forces in its Closing Submission changed focus from the earlier version. The revised recommendation states that Section 7.2 (vii) (d) of the SGIP needs to be reviewed since it is not clear to whom the Load Serving Entity must demonstrate that the project’s energy or capacity has been identified as required to meet demand, reliability or Renewable Energy Standard requirements:

> We recommend that the Progression Milestones in Section 7.2 (vii) (d) of the Standard Generator Interconnection Procedures (SGIP) be amended [to] clarify that NS Power must demonstrate that [the] project’s energy or capacity has been identified as required to meet demand, reliability or Renewable Energy Standard requirements to the UARB or another independent regulatory body.
>
> [Natural Forces Closing Submission, p. 4]

3.10.1 Findings

[109] The initial recommendation proposed by Natural Forces focused on establishing criteria to govern when an Interconnection Customer could move ahead of other Interconnection Customers during a provincial renewable procurement. Environmental approval was noted as a possible reason for queue advancement. This issue has already been addressed in section 3.9 above.

[110] The revised recommendation suggests that clarity is needed in section 7.2 (vii) (d) of the SGIP requiring a load serving entity to demonstrate to the Board that its project is needed to satisfy energy or capacity requirements. That proposal was not addressed by NS Power in its Reply Submission; however, the Board notes that capital projects are reviewed for justification when applications are submitted for approval under

s. 35 of the *Public Utilities Act*. As such, no further clarity is deemed necessary in section 7.2 (vii) (d) of the SGIP.

3.11 DER Integration Roadmap

[111] Mr. Bateman filed evidence on behalf of Solar NS and Energy Storage Canada. He recommended that NS Power conduct a consultative stakeholder process to consider the integration of distributed energy resources (DER) and develop a "DER Integration Roadmap". He noted that there is significant uncertainty for industry about what reforms will be made to the interconnection processes due to the present proceeding, as well as the timing of such changes. He stated that potential reforms and delays related to system impact studies have material financial implications for projects, including significant investment projected for 2024. Accordingly, in his evidence for Solar NS, Mr. Bateman recommended as follows:

> A) I recommend that the Board direct NS Power to develop a "DER Integration Roadmap" through a consultative stakeholder process. The Roadmap would define: the applications and services that DERs could provide to customers, utilities and the system operator; the value of these services, and how that value could be unlocked through utility requirements, market signals, or otherwise; and the process and timelines for how and when these services from DER will begin to play a role in the province (where applicable). The outcomes from the development of this Roadmap would also identify further needs to calibrate the interconnection process for DERs that play a more meaningful and dynamic role in the system. The development of this Roadmap should not interrupt near-term progress toward the Clean Power Plan targets, nor create policy or regulatory uncertainty for businesses.
>
> [Exhibit N-11, p. 4]

[112] Mr. Bateman made a similar recommendation in his evidence for Energy Storage Canada in relation to energy storage.

[113] In its Rebuttal Evidence, NS Power submitted that this type of initiative described by Mr. Bateman is outside the scope of this proceeding. The Utility stated that the type of issues identified by Mr. Bateman were better considered as part of the ongoing

work under the Smart Grid Nova Scotia Project. It noted that it would soon be filing a final report on this pilot project, including its findings about the potential value and benefits of DER integration into the Distributed Energy Resource Management System (DERMS).

[114] While Synapse agreed in its Rebuttal Evidence that a DER Roadmap could be a useful addition for NS Power's bulk system integrated resource planning process and distribution system planning, it agreed with the NSPSO that it could be dealt with in a separate process. Synapse said that for the purpose of the interconnection processes, the critical information involves the export capacity and/or the nameplate capacity of the distributed resource. It said it expected NS Power to address the related issue of "customer defined maximum facility output" in its impending DGIP amendments.

3.11.1 Findings

[115] The final report about the findings and learnings of the Smart Grid Nova Scotia Project was subsequently filed with the Board on March 15, 2024, as originally contemplated when that project received Board approval. The Board opened a new matter (M11621) and issued a Hearing Order setting out a timeline for the issuance of IRs and the filing of evidence by participants. The Board stated the purpose of the proceeding is to review the report and its findings, issue any further directions arising from that review, and to consider the operation of the Innovation Justification Criteria in this project and any lessons learned or required changes for its application to future innovation projects. The Board accepts NS Power's statement that the issues raised by Mr. Bateman are better suited to the review of the Smart Grid Nova Scotia Project. Rather than initiating a new separate process to develop a "DER Integration Roadmap", the Board expects this issue to be addressed in the Smart Grid Project matter.

3.12 Battery Energy Storage Systems

[116] Synapse also made recommendations about incorporating battery energy storage systems (BESS) into the interconnection protocols and technical requirements:

> **4.2. Transmission System Interconnection**
>
> 2. **Incorporate battery energy storage system resources into SGIP.** Incorporate new specific provisions for battery energy storage system resources (stand-alone and/or paired with solar or wind) for transmission system interconnection protocols. We recommend the following:
>
> - Modify the SGIP to include separate battery resource type of interconnection, to distinguish from generation resource interconnection.
>
> - Modify the SGIP to include use of IC operational intention to shape the study metrics used by NSPI to model the impact of the battery resource on the grid. This is also one of the outcomes of the FERC 2023 reforms and will help to prevent unnecessary or excessive interconnection or network upgrade costs associated with battery resource connection.
>
> - Modify the technical Transmission System Interconnection Requirements document to directly include battery energy storage distinctions and requirements.
>
> **4.3. Distribution System Interconnection**
>
> 1. **File DGIP modifications with the Board**. NSPI clarifies that DGIP amendments are not typically submitted to the NSUARB. For this review, we recommend filing with the Board due to the overlap with CNMP modifications, commonalities with changes made to the SGIP (e.g., battery energy storage provisions and resources for impact studies) and continued interest in and expectations for small renewable development province wide.
>
> …
>
> 4. **Modifications to the DGIP – battery energy storage resources**. We recommend the following:
>
> - Modify the DGIP to explicitly define and include battery energy storage resources as separate from generation resources.
>
> - Incorporate new specific provisions for battery energy storage system resources (standalone and paired with solar) for distribution system interconnection protocols and ensure that technical interconnection documents for both Class 1 and Class 2 level facilities include the necessary modifications to incorporate these resources. [Emphasis in original]
>
> [Exhibit N-1, pp. 51-52]

[117] Nova Scotia's Clean Power Plan has identified BESS resources as part of the solution to meeting 2030 targets. The Plan notes that NRR is presently reviewing

applications for 300MW of innovative early battery deployment projects, expecting 300-400MW of batteries by 2030.

[118] In its reply to the Synapse report, the NSPSO accepted Synapse's recommendations, confirming that the implementation would involve low complexity and implementation would be in the short-term.

[119] Some of the Intervenors noted that the current "interconnection process is a barrier, constraint or impediment for energy storage project development". In its submissions, Energy Storage Canada noted that as of February 26, 2024, there are no IPP-led energy storage projects in the Combined T/D Advanced Stage Interconnection Request Queue. In his evidence on behalf of Energy Storage Canada, Mr. Bateman stated:

> In addition to issues raised by non-Battery Energy Storage Systems (BESS) Interconnection Customers in M10905, the current interconnection process contains several shortcomings unique to BESS that impede the scale and pace of BESS deployment such as: lack of clarity on how the existing interconnection process applies to BESS (e.g., procedures; fees; studies, requirements, etc.); and lack of defined rules and processes for the evaluation of operating schedules in system impact studies.
>
> [Exhibit N-15, p. 3]

[120] In addition to the above matters, Energy Storage Canada, through Mr. Bateman, submitted that energy storage be prescribed as non-wires alternative criteria for fast-tracking through the interconnection process and the queue. It also submitted that the new "separate type of resource" criteria for energy storage differentiate between BESS that is stand-alone, and various configurations of BESS that are sited at the same point of interconnection at new or existing wind power facilities.

[121] The NSPSO noted that proposals by Interconnection Customers may already propose BESS as non-wires alternatives and that there are proposed provisions in the interconnection procedures that allow for fast tracking of distribution connected

inverter-based generation resources. The NSPSO added that it is amenable to including various BESS configurations at new or existing wind facilities, but does not see the need or benefit of differentiating between stand-alone and hybrid BESS interconnection requests. It stated that much of this detail contemplated can be accommodated in the description of operational intent, which defines interconnection study characteristics, including maximum size of grid interconnection.

[122] While Synapse acknowledged that the consideration of a BESS resource as a non-wires alternative is an important issue, it said it is not clear at this time that giving fast-track status to an energy storage resource solely because it might serve as a non-wires alternative is reasonable. It noted that if it met other criteria, such as its overall size as an inverter-based resource at a certain voltage level connection, that may be sufficient to fast-track the request, as it would for any other type of resource.

3.12.1 Findings

[123] The NSPSO accepted Synapse's recommendations and indicated that they could be implemented in the short term. The Board expects that these issues will be addressed in the initial updates to the SGIP and DGIP anticipated shortly, as discussed earlier in this decision. To the extent that they cannot all be implemented at that time, the Board expects the NSPSO to outline its plan to implement these recommendations in its forthcoming updates.

[124] In terms of the other issues raised by Energy Storage Canada about a BESS being proposed as a non-wires alternative, eligible to be fast-tracked through the interconnection process and queue, or the integration of BESS proposals with new or

existing wind projects, the Board accepts the NSPSO's submission that the current interconnection procedures already contemplate those scenarios.

3.13 Confidential Information

[125] In his evidence, Mr. Bagley noted that NS Power requires parties wishing to interconnect DERs above certain threshold quantities to pay a fee to undertake grid studies to assess the grid's capability to transmit the output of the specified DER. The party requesting the interconnection (Connectee) submits a Distribution Generator Interconnection Request with a $750 fee to NS Power and then NS Power undertakes a preliminary study. Before it undertakes a study, NS Power also requires the Connectee to sign a confidentiality agreement. Mr. Bagley argued that some of the provisions of the confidentiality agreement are sufficiently onerous and can be potentially prejudicial to a Connectee's project and confer unreasonable power to force disclosure into the hands of NS Power. As such, Mr. Bagley recommended that the Board direct NS Power to create a new confidentiality agreement which secures confidentiality for NS Power in matters which are agreed to be reasonably confidential by the Board but places the minimum possible restriction on would-be Connectees of DERs. He also recommended that NS Power undertake a consultative stakeholder process where interested parties can provide feedback on the proposed new confidentiality agreement.

[126] In response to NRR IR-5, the NSPSO clarified that there is nothing in the interconnection processes documentation or provisions related to confidentiality that prevents Interconnection Customers from disclosing concerns related to their experience with the interconnection processes and the NSPSO. In addition, in its Rebuttal Evidence, NS Power stated that there are no confidentiality provisions or agreements with

Interconnection Customers that prevent them from using their own confidential information as they see fit. NS Power believes that Mr. Bagley's recommendation is based on a misunderstanding related to a one-time use of a non-disclosure agreement (NDA) that NS Power had used to protect commercially sensitive information of a separate third-party. Given the above, NS Power takes the position that there is no need to direct the NSPSO or NS Power to amend its Interconnection Customer confidentiality agreements.

[127] In his Closing Submission, Mr. Bagley stated that NS Power's GIP and DGIP documents place similar restrictions as the NDA on would-be Connectees of DER regarding disclosure to third parties of any information which NS Power discloses as part of the GIP and DGIP processes. He argued, therefore, that would-be Connectees would still be required to seek NS Power permission for disclosure of such information to third parties and the concerns highlighted in his evidence remain applicable. He also stated that NS Power's Rebuttal Evidence is irrelevant to his concerns. Mr. Bagley does not accept NS Power's rejection of the need for the Board to direct the Company to amend its confidentiality agreements.

3.13.1 Findings

[128] The Board finds that the circumstances identified in this matter involved a misunderstanding about the operation of the confidentiality provisions in dealing with this type of information with third parties. The Board considers these provisions to be generally understood by industry participants and no issue needs to be adjudicated upon in this matter.

3.14 Ministerial Directive about Inertia Response

[129] In its evidence, Natural Forces stated that recent updates to NS Power's TSIR are unworkable for wind power generators in Nova Scotia and recommended amending Article 7.6.7 of the TSIR:

> **4. Amendments to the current approach to inertia support, to place more emphasis on reliable integration from the system-level, and less from the individual facility-level.** [Emphasis in original]
>
> [Exhibit N-13, p. 2]

[130] The current version of that document, posted on NS Power's OASIS website and dated February 25, 2021, contains the following:

> 7.6.7. Inertia Response – WECS
>
> WECS Generating Facilities shall support short-duration frequency deviations by providing inertia response equivalent to a Synchronous Generator with an inertia factor (H) of at least 3.0 MW-s/MVA for a period of at least 10 seconds.

[131] Natural Forces stated that they are not aware of any wind turbine manufacturer that can satisfy this requirement, even with the provision of the optional electrical packages. They contend that doing so would require installing ancillary equipment, such as a synchronous condenser or a grid forming STATCOM with energy storage, on each individual generator, which will significantly impact design, capital and operating costs, and will allocate unmanageable risks to generators. Based on the experience of Natural Forces in other jurisdictions, transmission system operators install their own equipment to satisfy such technical requirements, or they contract third parties to provide this service.

[132] In its Rebuttal Evidence, NS Power stated that interconnection projects must meet the requirements of the TSIR and noted the NRR Ministerial Directive issued January 16, 2024. That directive requires NS Power to provide the equipment and systems necessary to supply the inertia response required to maintain the stability,

reliability, and power quality of the transmission system for interconnection by wind energy conversion systems (WECS). It specifically applies to WECS procured in accordance with Sections 4B (1) (a), (b), and (c) of the *Electricity Act*, which are projects awarded long-term power purchase agreements under various procurement procedures administered by the NRR.

[133] In its Closing Submissions, SWEB recommended that the Board direct NS Power to formally communicate to stakeholders how it plans to comply with the Ministerial Directive.

[134] Synapse, in its Reply Submission, recommended that NSPSO directly address the inertial requirement issue identified by SWEB and Natural Forces, and how the Ministerial Directive concerning system supply of inertial support will be incorporated into the details of any modifications to the TSIR document.

3.14.1 Findings

[135] The Board directs that where inertia response is identified as required in connection with the projects identified in the Ministerial Directive, NS Power is to evaluate available technologies to satisfy the technical requirements.

[136] In addition, as recommended by Synapse, NS Power is to incorporate the Ministerial Directive requirements into its TSIR document amendments by October 31, 2024.

3.15 Reporting Requirements

[137] In its October 25, 2023, Reply Comments to Synapse's recommendations, the NSPSO stated that there are a number of Synapse's recommendations about interconnection processes amendments and improvements that can be implemented in

the short-term, some of which are currently underway. However, the NSPSO also noted that the timelines proposed by Synapse may not be sufficient to implement all of the recommendations under consideration. In Attachment 1 to its Reply Comments, the NSPSO listed the Synapse recommendations, complete with a timeline to implement each recommendation. The timeline identified recommendations that could be completed in the short term (3 to 12 months) and the long term (greater than 12 months).

[138] As it relates to the recommendations the NSPSO said could be completed in the short term, the Board directs that the following recommendations be implemented by October 31, 2024:

1. Modify NS Power's SGIP to address study fee structures and service standard timelines for "small" resource category. This includes changes to the criteria found in section 7.2 (vii) of the SGIP, which allow an interconnection customer to proceed to the SIS stage, to include BTM generation, bringing the SGIP into alignment with the DGIP.
2. Incorporate battery energy storage system resources into the SGIP. Modifications will also be required to NS Power's *pro forma* interconnection agreements.
3. Complete the FERC Order 2023 modifications to the SGIP that were identified as being completed in 2024.
4. File NS Power's Distribution Generation Interconnection Procedures (DGIP) modifications with the Board.
5. Complete modifications to the DGIP structure, fees, and timelines.
6. Implement pre-application reporting for non-commercial net metering program (CNMP) customers.
7. Complete modifications to the DGIP related to battery energy storage resources. Modifications will also be required to NS Power's *pro forma* interconnection agreements.
8. Complete modifications to the DGIP related to hosting capacity.
9. Update the NS Power hosting capacity table, if not already complete. With that update, NS Power is to include a proposed schedule for stakeholder workshops on the updated hosting capacity information.
10. Develop a cost allocation straw proposal for distribution network upgrades.
11. Modify the distribution interconnection requirements technical document.
12. Support development of additional distribution network upgrade cost refund regulation.

[139] The Board further directs NS Power to file an initial report with the Board by October 31, 2024, to provide an update on the status of the above recommendations. The report is to confirm that the above recommendations have been completed and to describe the specific measures that NS Power implemented to address each recommendation. For any other Synapse recommendations not included in the list above, the report must provide an update on the status of those recommendations and identify specific planned timelines for completion. As it relates to other directives contained in this decision, the report is also to provide an update on the status of those directives and identify specific planned timelines for completion. A timeline for any update reports will be set later. This initial report must also update its progress on the following:

- completing the review of FERC Order 2023, including the impact of eliminating the "reasonable efforts" standard and replacing it with a penalty structure;
- the resource capacity plan (and costs);
- including BTM generation in s. 7.2(vii) of the SGIP to proceed to the SIS stage;
- potentially implementing elements of the connect and manage approach;
- incorporating the Ministerial Directive requirements on inertia response into the TSIR document and evaluating available technologies where required for projects identified in the Ministerial Directive;
- curtailment issues and streamlining of the ERIS interconnection studies; and
- environmental approval as an additional pre-requisite in s. 7.2 of the SGIP.

[140] Synapse has noted that NS Power is required to provide annual reports to the Board related to its Commercial Net Metering Program activity. Synapse recommended that similar reporting requirements should be required for all distributed generation and battery resource projects applying for interconnection to the distribution system. This will allow for regulatory monitoring of the success of small-scale generation

and storage project development. The Board agrees with Synapse that this reporting should occur and directs NS Power to file this information with its annual Commercial Net Metering Program report.

[141] In addition, Synapse identified that the creation of a lower capacity threshold for smaller transmission system or transmission system impactive resources, seems a promising modification to allow for faster and lower cost interconnecting of community scale solar PV resources. Therefore, Synapse also recommended that NS Power be required to report on how this change affects Interconnection Customers over the next few years as Community Solar interconnections increase. The Board agrees with Synapse and directs NS Power to file such a report annually, starting March 31, 2025.

3.16 Transition to Independent Energy System Operator

[142] As noted earlier in this decision, when the *More Access to Energy Act* is proclaimed, the statute will establish a new body corporate, the Nova Scotia Independent Energy System Operator. The new System Operator will become responsible for carrying out transmission interconnection studies and implementing transmission connected generation interconnection procedures, essentially taking over this responsibility from NS Power. However, NS Power will continue to carry out and implement non-transmission service level interconnection studies and procedures. As such, the interconnection processes considered in this proceeding will eventually be divided between two different entities, one of whom does not currently exist.

[143] In its Closing Submissions, NRR suggested that Synapse and NS Power, in their Rebuttal Submissions, offer some insights into the impact of the new statute and

that direction from the Board would be beneficial in dealing with some aspects of the transition:

> 6. …there remains benefit to be gained by reviewing the evidence compiled in this proceeding as it will inform the development of processes as responsibility is transitioned from NSPSO to the new independent system operator.
>
> 7. Because the transition plan is yet to be finalized, there may be some work NS Power can commence with respect to issues raised in this proceeding which will facilitate the transition.
>
> 8. NRR anticipates that Synapse and NS Power will offer thoughts on the impact of Bill 404 on what the Board should direct with respect to this proceeding, and in particular what NS Power is well-positioned to address before the transition commences. Comments on these issues in rebuttal submissions would be of assistance to the Board in determining appropriate disposition of this proceeding.
>
> …
>
> 33. NRR requests that the Board determine what recommendations may usefully be implemented in the near term, what recommendations NS Power may begin to pursue or implement which might be easily taken up by the new independent system operator during the transition, and which are best left for consideration by the new independent system operator when they are established.
>
> [NRR Closing Submission, March 6, 2024, pp. 3 & 9]

[144] NRR also submitted that the Board offer direction that stakeholders remain engaged with the transition of management of access to the power grid from the NSPSO to the new NSIESO, including the implementation of interconnection processes by the new NSIESO to ensure they are accessible and transparent to Interconnection Customers.

[145] In its Reply Submissions, Synapse responded as follows about the transition from the NSPSO to the new NSIESO:

> …We do not foresee any major functional change in the near term to the way in which a system operator considers interconnection requirements under the open access transmission tariff, or for distribution interconnection purposes. To the extent that additional or different responsibilities are placed upon the system operator function, there could be an impact on the way the organization undertakes interconnection studies. However, at this time the recommendations in the Synapse Final Report would apply to any entity undertaking the interconnection study processes codified in the SGIP, DGIP and supporting documents.
>
> [Synapse Reply Submissions, March 13, 2024, pp. 10-11]

[146] The NSPSO also responded to NRR's comments about the transition of responsibilities to the new NSIESO. It reiterated what it said in its Rebuttal Evidence that care should be taken to "balance the study and implementation of Interconnection Processes revisions with its continued work studying and approving the large influx of Interconnection Requests". It suggested that focusing on the implementation of interconnection processes amendments may not be the best near-term strategy to reviewing the many interconnection requests and reaching 2030 environmental targets:

> …Specific details regarding the division of responsibilities and establishing the NSEISO will be better understood in the coming months when work by responsible parties progresses.
>
> In the meantime, regardless of the final jurisdictional boundaries of the NSIESO and NS Power, interconnection processes will continue to be required and ultimately subject to the Board's (or Energy Board's) findings and directions in this proceeding. To that end, NS Power directs the NSUARB's attention to Attachment 1 of the NSPSO's October 25, 2023, comments on Synapse's Report for guidance, which outlines those recommendations that the NSPSO believed could be completed in the short term (i.e. 3 – 12 months) versus long term (i.e. > 1 year). …
>
> The study and implementation of Report recommendations, as well as the complex work ahead to establish the new NSEISO, will draw from the same resources in the near term at the NSPSO, and in the longer term at the NSEISO and NS Power. This may create challenges in the timely implementation of recommendations and processing of interconnection requests. As such, the Company agrees with NRR's statement that, "concerns about convenience or efficiency in implementing recommendations must not take precedence over the need to achieve fixed 2030 sustainability standards".
>
> [NS Power Reply Submissions, March 13, 2024, p. 4]

[147] The Board recognizes that the timeframe for the establishment of the new System Operator is uncertain. It will take some time for the new entity to be established and for responsibilities to be transitioned from NS Power to the new NSIESO. The Board observes that the statute establishes an "energy modernization transition team" that includes as one of its objects "to ensure an orderly transition in the creation and implementation of the IESO and the transfer of positions or roles, employees, bargaining units, assets, obligations and liabilities to the IESO necessary to fulfill its objects and

functions". The statute also requires NS Power to co-operate fully with the energy modernization transition team and during the transition to "make its best efforts to continue to carry out all such functions in the normal course so as to ensure minimum disruption to NSPI's system operations, system planning and energy resource procurement prior to and during the transition, including interconnection studies and procedures and related activities". The statute also expressly contemplates "a seamless and timely transition" for the transfer of positions and roles, assets, liabilities, rights and obligations to the new NSIESO.

[148] The Board is mindful that the System Operator's short-term and longer-term priorities have to be efficiently managed. Earlier in this decision, the Board made directions about NS Power's implementation of Synapse's recommendations, including recommendations it expects to be completed in the short term and other issues to be examined over the longer term, including how it expects the NSPSO to pursue its review of FERC Order 2023. In commenting about the transition to the NSIESO, Synapse did not foresee any major functional change in the near term to the way in which a system operator considers interconnection requirements under the OATT, or for distribution interconnection purposes, regardless of whether it is the NSPSO or the new NSIESO. The Board expects that the changes that Synapse recommended in the short term will be completed by the NSPSO, as appeared to be clearly acknowledged by the NSPSO.

[149] As it relates to the longer-term changes that may be required, it may be unclear at this time which system operator will ultimately implement the changes, but the Board considers the NSPSO must pursue its work on those issues.

[150] As to the transition itself, the statute contemplates that it is to be facilitated by the energy modernization transition team. The Board has no express direct role in the transition. However, the Board anticipates that the transition team will ensure a seamless and efficient transition to the new NSIESO and that NS Power will continue to make its best efforts to carry out all relevant functions in the interim.

[151] If the Board can offer any comment, it would encourage the transition team, the NSPSO and NSIESO to clearly delineate the scope of the roles and responsibilities being transitioned to the new NSIESO, including how work will continue on any of Synapse's outstanding recommendations and Board directives. To avoid any uncertainty after the transition occurs, there should also be a clear delineation between the transmission and distribution functions of Nova Scotia's electricity system, including the staffing and other resources attributed to each. After the transition, NS Power will remain responsible for the operation and administration of the distribution system, including its interconnection processes.

[152] Finally, NS Power mentioned several times in this proceeding that it is working cooperatively with the Province to ensure the environmental targets of 2030 are met. It is important that the transition team and the incoming NSIESO have full visibility about the "Path to 2030", including any impact on the Evergreen integrated resource planning process, procurement, and both the transmission and distribution interconnection processes. As noted by NRR in its Closing Submissions, it is also important that stakeholders be kept engaged on these issues.

4.0 CONCLUSION

[153] The Board accepts Synapse's recommendations and directs NS Power to take steps to implement them. In this decision, the Board also provides additional comments about the development of a resource capacity plan, the review of FERC Order 2023, the provision of pre-feasibility information to potential Interconnection Customers and the use of clustered studies, further consideration of elements of the connect and manage approach, curtailment practices, environmental related approvals for interconnection queue advancement, the development of a roadmap for implementing distributed energy resources, updates to interconnection procedures for batteries, and updates to interconnection requirements due to a Ministerial Directive.

[154] NS Power is also directed to provide an initial report to the Board by October 31, 2024, to confirm that a number of recommendations have been implemented and to provide a status report and further develop timelines for the completion of the remaining recommendations and other directives in this decision. A timeline for future implementation reports will be set. The establishment of the new Nova Scotia Independent Energy System Operator may affect the responsibility for implementing some of the recommendations and directions that will take more time to address. For the time being, the NSPSO must continue to work on those matters. Any transition related impacts or concerns should be highlighted in future implementation reports.

[155] NS Power is also directed to file interconnection update reports annually, starting March 31, 2025, with the Commercial Net Metering Program report.

[156] Further, NS Power is directed to file an annual report about how the creation of a lower capacity threshold for smaller transmission system or transmission system

impactive resources affects Interconnection Customers. NS Power must file this report starting March 31, 2025.

[157] An Order will issue accordingly.

DATED at Halifax, Nova Scotia, this 11th day of June, 2024.

Stephen T. McGrath

Roland A Deveau

Steven M. Murphy