
Nova Scotia Utility and Review Board

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

M11764

2024 10-Year System Outlook Report

**NS Power
Rebuttal Evidence**

October 21, 2024

NON-CONFIDENTIAL

**2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential**

TABLE OF CONTENTS

1			
2			
3	1.0	INTRODUCTION	3
4	2.0	SMALL BUSINESS ADVOCATE EVIDENCE	3
5	2.1	Delays in Resource Development.....	4
6	2.2	Load Growth.....	4
7	2.3	Peaking Plant Regulations.....	5
8	2.4	Reserve Margin Deficiency Beginning in 2031	6
9	3.0	CONSUMER ADVOCATE EVIDENCE	7
10	3.1	Progress on the Evergreen IRP	7
11	3.2	Reliability Tie Risks	11
12	3.3	Geothermal System Resources	14
13	4.0	CONCLUSION.....	16

**2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential**

1.0 INTRODUCTION

On June 27, 2024, Nova Scotia Power Incorporated (NS Power, Company) submitted its 10-Year System Outlook Report (Report) to the Nova Scotia Utility and Review Board (NSUARB, Board). By Hearing Order on July 26, 2024, the NSUARB established a written hearing proceeding inviting stakeholders to intervene. Notices of Intervention were received from the Consumer Advocate (CA), Small Business Advocate (SBA), Industrial Group (IG), EfficiencyOne (E1), Eastwards Energy (EE), Port Hawkesbury Paper (PHP), and SWEB Development (SWEB). Information Requests (IR) were received from the NSUARB, CA, SBA, and SWEB on August 27 and 28, 2024. NS Power's responses to IRs were submitted on September 19, 2024. Submissions from the SBA and CA were received on October 4, 2024. In accordance with the NSUARB's Hearing Order, this filing is the Company's Rebuttal Submission in response to the submissions of the SBA and CA, which are addressed in turn below.

2.0 SMALL BUSINESS ADVOCATE EVIDENCE

In its submission, the SBA provided the following general conclusion regarding the Report:

In general, NSPI's System Outlook is consistent with NSPI's planning processes, as documented in the Evergreen IRP and the Path to 2030 report. The System Outlook presents a reasonable forecast of loads and resources to meet system needs in the near-term, considering known policies and constraints. There are few areas in which the resource outlook presented in the System Outlook differed from the prior planning documents. For example, the Rate Base Procurement was expected to yield 373 MW of wind capacity in the Path to 2030 report but is now only expected to deliver 306 MW of new capacity. NSPI provided a full summary of the differences in the resource forecasts. The discrepancies are relatively minor, and do not necessarily impact the ability of NSPI to meet its obligations to serve load.¹

¹ Small Business Advocate submission, Re: M11764 - Nova Scotia Power Inc. (NSPI) 2024 10-Year System Outlook Report, October 4, 2024, page 1.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 Nevertheless, the SBA summarized four issues “for additional consideration by NSPI and the
2 Board”, noting that “these risks do not require immediate changes to the System Outlook”. They
3 are as follows.

4
5 **2.1 Delays in Resource Development**

6
7 With respect to delays in resource development, the SBA provided the following:

8
9 ...NSPI summarized the differences between the resource plan in the System
10 Outlook as compared to prior planning documents. In general, many of the
11 discrepancies relate to delays in project in-service or programs in which less
12 generating capacity is being developed than previously anticipated. If these delays
13 or shortfalls become worse over time, it could eventually impact resource
14 adequacy.²
15

16 As noted in NS Power’s response to SBA IR-2, “[s]ome timelines have been adjusted as projects
17 have progressed, but all remain on track for 2030. NS Power will continue to work with the
18 provincial and federal governments, rights-holders, stakeholders and partners to strive to achieve
19 the 2030 clean energy targets in an equitable way that best manages costs for customers and
20 provides safe and reliable electricity.”³ Updates to timelines will continue to be reported via the
21 Report on an annual basis.

22
23 **2.2 Load Growth**

24
25 With respect to load growth, the SBA provided the following:

26
27 The System Outlook uses an updated load forecast, revised since the last Evergreen
28 IRP update. The SBA notes that the new long-term load forecast has increased in
29 the near term. Many regions in North America are experiencing rapid load growth,
30 and NSPI should continue to assess the impact of load trends on supply planning to
31 ensure that any needed modifications are incorporated in a timely manner to allow

² Small Business Advocate submission, Re: M11764 - Nova Scotia Power Inc. (NSPI) 2024 10-Year System Outlook Report, October 4, 2024, pages 1 and 2.

³ SBA IR-2, 2024 10 Year System Outlook Report (M11764), September 19, 2024.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 least-cost planning and robust stakeholder engagement in the decision-making
2 process.⁴
3

4 NS Power provides its Load Forecast on an annual basis in April of each year, and that Load
5 Forecast is used in the development of that year's 10-Year System Outlook report. The Load
6 Forecast report is typically subject to a written hearing proceeding established by the NSUARB,
7 and the Board may also establish the same for the 10-Year System Outlook report, allowing for
8 fulsome stakeholder engagement.
9

10 **2.3 Peaking Plant Regulations**

11

12 With respect to peaking plant regulations, the SBA provided the following:
13

14 One of the significant policy risks impacting NSPI's longterm resource plan is the
15 Environment and Climate Change Canada (ECCC) Clean Electricity Regulations
16 (CER), specifically the rules regarding the use of greenhouse gas emitting resources.
17 In the System Outlook, NSPI noted that, based on stakeholder feedback, the ECCC
18 has proposed changes to the CER which may allow additional flexibility to continue
19 to use emitting generators in a peaking capacity, providing more time for a full
20 transition to non-emitting generation. In response to Information Requests, NSPI has
21 stated that given the proposed changes, NSPI "is not considering an alternative plan
22 without the inclusion of emitting generation at this time." This approach represents
23 a risk if the final regulations are not as permissive as NSPI is currently expecting, or
24 if additional regulations are enacted in the future.⁵
25

26 As noted in NS Power's response to SBA IR-4 (b):
27

28 "...Environment and Climate Change Canada (ECCC) has acknowledged the
29 requirement for emitting resources operating in a peaking capacity as part of the
30 CER. In response to stakeholder feedback on the CER, ECCC released an update
31 that refers to the concern raised by stakeholders on the need for flexibility to support
32 grid reliability and to meet demand."⁶

⁴ Small Business Advocate submission, Re: M11764 - Nova Scotia Power Inc. (NSPI) 2024 10-Year System Outlook Report, October 4, 2024, page 2.

⁵ Small Business Advocate submission, Re: M11764 - Nova Scotia Power Inc. (NSPI) 2024 10-Year System Outlook Report, October 4, 2024, page 2.

⁶ SBA IR-4(b), 2024 10 Year System Outlook Report (M11764), September 19, 2024.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 Given the content in the update published by ECCC on February 16, 2024, including changes being
2 considered by ECCC to give provinces, utilities and other electricity regulators and providers more
3 flexibility, and given that ECCC has not subsequently indicated a desire to move back to a more
4 restrictive framework, NS Power views the risk that final regulations will not allow for the use of
5 emitting resources in a peaking capacity to be low.

6
7 **2.4 Reserve Margin Deficiency Beginning in 2031**
8

9 With respect to reserve margin deficiency beginning in 2031, the SBA provided the following:
10

11 The Load and Resources Outlook included in the System Outlook shows that the
12 expected planning reserve margin (PRM) dips below the 20 percent target for the
13 final three years of the outlook horizon. While NSPI has identified a few measures
14 it can take to mitigate any impacts, NSPI has not made any modifications to its
15 resource plan at this time. However, this is an important risk and NSPI should keep
16 the Board and stakeholders updated on resource adequacy as conditions change.
17 Additionally, given that the resources developed under non-NSPI programs (such
18 as the Renewable to Retail program) are included as capacity contributing to
19 resource adequacy requirements, a shortfall in the development of those resources
20 may lead to uncertainty regarding the responsible party to identify replacement
21 capacity.⁷
22

23 As noted in NS Power’s response to SBA IR-1(b), “NS Power will monitor Load Forecast updates
24 and system capacity requirements and refine system resource needs beyond 2030 in future 10-Year
25 System Outlook reports and Integrated Resource Plans, as needed.”⁸ In this way, the Company
26 may develop and report on any applicable associated mitigating strategies as any potential issues
27 arise in the period beyond 2030.

⁷ Small Business Advocate submission, Re: M11764 - Nova Scotia Power Inc. (NSPI) 2024 10-Year System Outlook Report, October 4, 2024, pages 2 and 3.

⁸ SBA IR-1(b), 2024 10 Year System Outlook Report (M11764), September 19, 2024

**2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential**

3.0 CONSUMER ADVOCATE EVIDENCE

In its submission, the CA raised three issues “to bring... to the Board’s attention”.⁹ They are as follows.

3.1 Progress on the Evergreen IRP

With respect to progress on the 2023 Evergreen IRP Action Plan, the CA points out that “two aspects of the Evergreen IRP do not appear to progress at a pace consistent with meeting the 2030 targets”:¹⁰ 1) hybrid peak scenario study and 2) regional joint dispatch study.

With respect to hybrid peak, the CA provided the following:

...although the 2024 Outlook System base scenario does not include the “hybrid peak” concept, it is clear that in every relevant proceeding, Nova Scotia Power (and Eastward Energy for that matter) assumes that this scenario is the preferred approach. The Consumer Advocate would therefore request that the Board provide some direction to the NS Power on the criticality of developing a detailed understanding of the “hybrid peak” scenario, developing implementation plans for the scenario, or (if implausible) an alternative, and proceeding with timely implementation.¹¹

The CA goes on to ask the Board to consider providing “direction to NS Power on the development of the “hybrid peak” scenario, as well as regarding its engagement on regional joint dispatch”.¹²

NS Power’s response to CA IR-2 provided, in part, the following regarding the study of hybrid peak scenarios:

⁹ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 1.

¹⁰ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 1.

¹¹ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 2.

¹² Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 4.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 (b) As part of its 2020 IRP Action Plan, NS Power completed and published
2 *The Economics of Electrification in Nova Scotia*. This report identified the
3 potential for a Hybrid Peak scenario in Nova Scotia and developed an
4 estimate of potential peak and energy savings associated with its
5 implementation in the province. The load reductions from this scenario
6 were modeled, along with other load scenarios, in the 2023 Evergreen IRP
7 and demonstrated the potential for cost savings. No estimate of program
8 cost was included in the Evergreen IRP study as cost estimates would
9 depend on the specifics of program design and funding.

10 The identified potential benefits of this program led to its inclusion in the
11 August 2023 Evergreen IRP Action Plan. The Province of Nova Scotia
12 incorporated the Hybrid Peak program into its Clean Power Plan, released
13 in October 2023. NS Power's aligned *Path to 2030* report, included in the
14 2024 ACE Plan proceeding, also included the Hybrid Peak program and
15 noted alignment between NS Power and the Provincial Government that the
16 province was accountable for the development of a Hybrid Peak program,
17 with NS Power participating in a broader sector study.

18 In the first half of 2024, NS Power has met with the Department of Natural
19 Resources and Renewables on their approach to a Hybrid Peak study as part
20 of the Load Management initiative of the Clean Power Plan.
21
22

23
24 (c) Net Zero Atlantic has confirmed that they plan to initiate a study to examine
25 Hybrid Peak options in the fall of 2024 on behalf of the Department of
26 Natural Resources and Renewables. NS Power understands that the study
27 will include key stakeholders within the province including EfficiencyOne
28 and organizations representing fossil fuel heating sources used in Nova
29 Scotia. NS Power has agreed to complete resource planning modeling in
30 support of the study objectives. NS Power understands that the current
31 estimated timeline for completion of the study is Q2 2025.¹³
32

33 Accordingly, no direction from the NSUARB on this issue is required at this time, as the work is
34 proceeding in alignment with the provincial Clean Power Plan, led by the Province as outlined in
35 NS Power's *Path to 2030* report.
36

37 With respect to study of regional joint dispatch by a single system operator, the CA provided the
38 following:
39

¹³ CA IR-2, 2024 10 Year System Outlook Report (M11764), September 19, 2024.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 ...it would also appear that NS Power has decided not to pursue engagements with
2 other participants to undertake a study of regional joint dispatch by a single system
3 operator, as directed by the Board in its 2020-2021 FAM Audit decision. Instead of
4 engaging with other utilities on regional joint dispatch as directed by the Board,
5 Nova Scotia Power has focused its efforts on the creation of an independent system
6 operator for Nova Scotia. The Consumer Advocate is concerned about NS Power's
7 position on this issue. While we acknowledge that the creation of the NSIESO will
8 have an impact on the role NS Power may play, the utility will continue to have a
9 keen interest in the outcome of any discussions concerning regional joint dispatch,
10 as an owner of generation and transmission assets that are to be dispatched. In this
11 regard, we do not agree that the two imperatives of (1) engaging with other utilities
12 on regional joint dispatch and (2) supporting the formation of the Nova Scotia
13 Independent Energy System Operator are contradictory.¹⁴
14

15 On March 14, 2024, the NSUARB released its Order on the 2020-2021 FAM Audit including the
16 following related directive:

17
18 NS Power is directed to try to engage with other participants to undertake a study
19 of regional joint dispatch by a single system operator and report on its efforts every
20 six months, beginning August 31, 2024.¹⁵
21

22 NS Power provided its first update to the Board on August 30, 2024. In the update, the Company
23 provided the following:

24
25 Since the audit Decision was released in February the Nova Scotia provincial
26 government, in April, enacted Bill 404, more particularly the More Access to
27 Energy Act, that, amongst other things, specified for the creation of an independent
28 system operator for Nova Scotia (NSIESO). Since the legislation was introduced,
29 NS Power has focused its efforts on transitioning to the NSIESO structure, rather
30 than on engaging neighbouring jurisdictions on joint dispatch through a single
31 system operator. The two objectives are contradictory, and NS Power believes the
32 legislation takes precedence.
33

34 As a result, NS Power has not made efforts to engage participants to undertake a
35 study on regional joint dispatch optimization through a single system operator.
36 Should the NSUARB wish to continue efforts to pursue dispatch through a single

¹⁴ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 2.

¹⁵ NSUARB Order, IN THE MATTER OF a public hearing into NOVA SCOTIA POWER INCORPORATED'S Fuel Adjustment Mechanism (FAM) Audit for 2020/2021 by Bates White Economic Consulting, LLC (M10416), March 14, 2024.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 regional system operator, NS Power suggests a pause until the NSIESO is operating
2 successfully as an independent entity and then encourage that organization to
3 engage with neighbouring utilities.¹⁶
4

5 It is appropriate to address this recommendation in the original proceeding in which it was made.
6 NS Power provided an update to the Board on August 30, 2024 as directed and has provided
7 responses to related FAM Audit proceeding CA IRs on October 18, 2024 (M11533). NS Power
8 awaits any corresponding Board commentary regarding its letter of August 30, 2024 referenced
9 above, and therefore has nothing further to add at this time.
10

11 Lastly, the CA points out a potential discrepancy regarding the positioning of energy storage
12 projects between *The Path to 2030* submission provided by NS Power as part of the 2024 ACE
13 Plan proceeding, and the Company's Battery Energy Storage System (BESS) Project submission.
14 *The Path to 2030* describes NS Power's BESS project as apart and separate from Electricity Act
15 mandated procurements of energy storage projects under Section 4D(2), whereas the CA notes that
16 the BESS project presents the BESS project and Section 4D projects "as one and the same".¹⁷
17 Accordingly, the CA notes that "It is unclear whether the merging of the ECEI and Section 4D
18 projects into a single 150 MW project application represents a reduction in the anticipated energy
19 storage projects through 2029, or whether more applications or Provincial prescriptions may be
20 forthcoming. The Board may therefore wish to obtain clarification from NS Power this issue."¹⁸
21 The CA goes on to ask the Board to consider requesting that "NS Power clarify whether the
22 merging of the ECEI and Section 4D battery storage projects into a single 150 MW project
23 application represents a reduction in anticipated energy storage projects through 2029".¹⁹
24 *The Path to 2030* provided the following:
25

¹⁶ NS Power Letter, Re: M10416 2020-2021 FAM Audit Update on Regional Joint Dispatch Optimization Through a Single System Operator, August 30, 2024.

¹⁷ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 2.

¹⁸ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 2.

¹⁹ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 4.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 In addition to NS Power’s 150 MW ECEI BESS project (described below), NS
2 Power anticipates that up to an additional 150 MW may be designated by the
3 Province under Section 4D in the near term (anticipated in Q2-2024 with an in-
4 service date in 2026). In addition, another 100 MW of energy storage capacity may
5 be procured by the Province under Section 4B with a procurement anticipated in
6 2025 and project in-service targets in 2027-2028.²⁰
7

8 The application for the BESS project provided the following:
9

10 In support of Nova Scotia’s climate goals, the province has enacted regulations
11 under section 4D of the Electricity Act, directing NS Power to install three 50 MW
12 four-hour duration (200MWh each) lithium-ion grid-scale batteries (the Battery
13 Energy Storage System (BESS) Project) at specified locations in the province (the
14 Regulations).²¹
15

16 NS Power clarifies that the Company’s 150 MW BESS project was directed by the Governor in
17 Council via regulations developed under the authority of Section 4D of the *Electricity Act*, and
18 that at the time of writing of the Company’s *The Path to 2030*, NS Power understood that the
19 Province intended to procure an additional 150 MW of battery storage under Section 4D. It is the
20 Province’s prerogative to move forward with further battery storage procurement under Section
21 4D. The Company notes that the Province is equally enabled to do so under Section 4B of the
22 *Electricity Act*. Figure 1 – 2030 Clean Power Plan Resources in *The Path to 2030* indicates 150
23 MW from NS Power’s BESS Project, 150 MW from Provincial Section 4D projects, and 100 MW
24 from Provincial Section 4B projects for a total of 400 MW of 4-hour battery storage capacity by
25 2030. Likewise, Figure 6: Additions and Retirements as in the 10-Year System Outlook Resource
26 Plan in the Report shows the same expected battery capacity additions. NS Power is not aware of
27 any updates to these anticipated battery capacity additions at this time.
28

29 **3.2 Reliability Tie Risks**
30

31 With respect to Reliability Tie risks, the CA provided the following:

²⁰ The Path to 2030, 2024 ACE Plan proceeding (M11458), December 22, 2023, page 20.

²¹ NS Power CI C0045132 Battery Energy Storage System (BESS) Project Application (M11539), January 25, 2024, page 4, lines 18 – 22.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 For the most part, the Consumer Advocate does not have many concerns regarding
2 NS Power’s efforts to plan for risks during the construction of the Reliability Tie.
3 That being said, we do wish to note the following:
4

- 5 • According to Nova Scotia Power, purchase orders for necessary high
6 voltage equipment were issued in the spring of 2024, and the delivery dates
7 have been confirmed within the plan scheduled and project end service date.
8 However, it is notable that Nova Scotia Power has not included delays in
9 any supplies or equipment on its risk register, and thus has no clear
10 contingency plan for any such delays that may occur.
11
- 12 • In addition, there have been four sustained unplanned outages for the
13 existing 345 kV line between NS Power and NB Power (L-8001), including
14 three due to icing that lasted between four and nine hours. Considering that
15 L-8001 and the Reliability Tie will travel paths that are likely to experience
16 similar weather conditions, there is a good possibility that the lines could be
17 similarly affected by icing, resulting in no net gain in reliability with respect
18 to icing events.
19

20 Further action should be taken by NS Power to mitigate these risks, including the
21 development of operating guidelines that ensure its system can ride through a dual-
22 outage event during periods with icing of both the L-8001 and the Reliability Tie
23 transmission connections with New Brunswick.²²
24

25 The CA goes on to ask the Board to consider obtaining “assurances from NS Power that it has or
26 will soon develop operating guidelines that ensure its system can ride through a dual-outage event
27 during periods with icing of both the L-8001 and the Reliability Tie transmission connections with
28 New Brunswick”.²³
29

30 With respect to the potential for equipment supply delays, the response to CA IR-3 parts (b) and
31 (c) provided the following:

- 32 (b) Purchase orders for the high voltage equipment required for the necessary
33 upgrades to the 67N Onslow substation for the tie line project were issued
34 in the spring of 2024. This equipment includes: breakers, current
35 transformers and potential transformers, surge arrestors, and disconnects.
36

²² Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 3.

²³ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 4.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

(c) Confirmed delivery dates for the high voltage equipment listed in part (b) above are within the planned schedule and project in-service date.²⁴

To elaborate, risks associated with potential delays in any supplies or equipment have been mitigated by the following measures including: standing up a dedicated procurement team for the Reliability Tie, completing detailed reviews and reference checks on potential vendors, due diligence on service provider contracts, leveraging existing successful completed contracts with NS Power vendors, ordering materials well in advance and allowing for schedule float opportunities by adjusting construction sequencing and design accordingly, and employing a Material Management System to ensure schedules are aligned and delivery times are coordinated with each supplier.

With respect to actions taken to mitigate icing related risks, the design for the Reliability Tie is taking into consideration the icing potential that exists along its planned route. The design basis includes the following key studies and optimizations:

- In 2022, a **Comprehensive Climate Study** was conducted for the 95 km section of the Reliability Tie within Nova Scotia, providing important data on local climate conditions.
- In 2022, a **Return Period Technical Memorandum** was developed to enhance the line's design for greater reliability, recognizing its critical importance. The analysis accounted for ice loading and wind events, adhering to industry best practices to ensure optimal structural resilience and long-term performance.
- In 2023, a **Radial Ice Accretion Study** was completed, further refining the design, particularly in the Mt. Higgins area, where historical NS Power experience indicated higher ice accumulation than the rest of the line, to ensure tailored reinforcement to withstand severe ice conditions.

²⁴ CA IR-3, 2024 10 Year System Outlook Report (M11764), September 19, 2024

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 In addition to incorporating these weather studies in the design, NS Power intends to install
2 Dynamic Line Rating (DLR) devices on segments of the L8006 transmission intertie that would
3 provide real-time situational awareness of icing conditions.

4 NS Power also notes that operating guidelines in the case of a dual outage event already exist. NS
5 Power has guidelines for system operation when islanded from NB and the rest of the Eastern
6 Interconnection. Once the Reliability Tie is in-service, NS Power will remain interconnected to
7 the NB Power system during the loss of one of the two 345 kv lines. The existing operating
8 guidelines will be retained and updated for use during an event where both 345 kv lines become
9 unavailable.

10
11 **3.3 Geothermal System Resources**
12

13 With respect to geothermal system resources, the CA provided the following:
14

15 In CA RIR-1, NS Power gave a very general response to a series of specific
16 questions about Nova Scotia Power's views on enhanced geothermal system
17 resources. As acknowledged by Nova Scotia Power, Fervo Energy has recently
18 demonstrated a successful production scale enhanced geothermal system project in
19 Nevada. NS Power considers enhanced geothermal system resources to be an
20 emerging technology that it will "monitor" along with small modular nuclear
21 reactors, which have not been demonstrated at production scale.

22 Respectfully, Nova Scotia Power appears to have misapprehended the limited
23 evidence that it has reviewed in "monitoring" this technology. It is entirely plausible
24 that enhanced geothermal system projects could be widely deployed by 2030. By
25 2035, geothermal could be as significant to the electric sector and shale gas is to the
26 natural gas sector today.

27
28 The Board should therefore encourage Nova Scotia Power to take greater initiatives
29 in the evaluation of enhanced geothermal systems.²⁵
30

²⁵ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 3.

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

1 The CA goes on to ask the Board to consider encouraging “NS Power to take greater initiative in
2 the evaluation of enhanced geothermal systems.”²⁶

3 In response to CA IR-1, NS Power noted its commitment to monitor development in emerging
4 technologies, including specifically geothermal amongst others, in the 2023 Evergreen IRP
5 Updated Action Plan and Roadmap under Roadmap Item 8. Roadmap Item 8 adds that
6 “[s]ignificant changes in cost or availability from IRP assumptions may trigger a specific analysis
7 as needed.”²⁷ The example provided by the CA may be indicative of a change in geothermal
8 technology availability; costing information was not provided by the CA. The geothermal research
9 that Company is aware of shows that its potential is orders of magnitude lower in Nova Scotia:
10 most areas of the province are unsuited to geothermal development due to the underlying
11 geography (bedrock) and the cost of drilling. Likewise, studies that have been commissioned by
12 Net Zero Atlantic on behalf of the Nova Scotia Department of Natural Resources and Renewables
13 (NRR) have thus far been inconclusive in proving the economic viability of geothermal, or have
14 identified further areas of study. NS Power acknowledges that this is an emerging and developing
15 technology, and continues to monitor geothermal advancements in accordance with Roadmap Item
16 8. In alignment with this, the Company commits to reaching out to the developer of the
17 demonstration project identified by the CA to assess any potential impacts to the IRP Roadmap.
18 Updates will be provided via the IRP Action Plan and Roadmap process. No further Board
19 direction is required at this time.

²⁶ Consumer Advocate submission, Re: M11764 - Nova Scotia Power Inc. - 10-Year System Outlook Report - 2024 Submissions, October 4, 2024, page 4.

²⁷https://www.nspower.ca/docs/default-source/irp/evergreen-irp-update-to-irp-action-plan-and-roadmap-2023.pdf?sfvrsn=2865f7c2_1

2024 10-Year System Outlook Report – Rebuttal Evidence
Non-Confidential

4.0 CONCLUSION

The SBA closes its submission with a general comment regarding the transition from the Nova Scotia Power System Operator (NSPSO) to the forthcoming Nova Scotia Independent Energy System Operator (NSIESO), which is as follows:

...the SBA notes that the expected establishment of the Nova Scotia Independent Energy System Operator (NSIESO) and the Nova Scotia Energy Board (NSEB) may result in significant changes to the roles and responsibilities for system planning and reliability. Future 10-year system outlook reports could be the responsibility of another entity besides NSPI. Given the uncertainties and key issues flagged above, it will be important to ensure clarity and transparency if there is any transition in system planning and forecasting obligations.²⁸

NS Power is committed to supporting the successful implementation of the NSIESO and transfer of corresponding system planning responsibilities in alignment with Bill 404. NS Power agrees that given the uncertainties, it will be important to ensure clarity and transparency if there is any transition in system planning and forecasting obligations. In the meantime, NS Power will continue to provide the 10-year System Outlook report absent any relevant direction from the NSUARB. For the 2024 Report, the Company believes it has addressed the issues raised by the SBA and CA, and respectfully requests the Board accept the Report as filed.

²⁸ Small Business Advocate submission, Re: M11764 - Nova Scotia Power Inc. (NSPI) 2024 10-Year System Outlook Report, October 4, 2024, page 3.