

2024 10-Year System Outlook Report (NSUARB M11764)
NSPI Responses to SBA Information Requests

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Request IR-1:

Refer to the 10-Year System Outlook (the “Report”) Section 2.0 - Load Forecast, Page 7 of 67.

(a) Please provide a comparison between the 2024 Load Forecast with the forecast used in Evergreen IRP scenario CE1-E1-R2. Provide comparison for both energy and peak demand.

(b) Identify any needed changes in resource buildout to accommodate differences in the updated Load Forecast, as compared to the Evergreen IRP load forecast.

Response IR-1:

(a) Please refer to the following table:

Year	2024 Load Forecast Report		CE1-E1-R2		Difference	
	NSR (GWh)	System Peak (MW)	NSR (GWh)	System Peak (MW)	NSR Difference	System Peak Difference
2024F	11,490	2,365	11,236	2,213	254	152
2025F	11,409	2,408	11,259	2,250	150	158
2026F	11,306	2,428	11,289	2,287	17	141
2027F	11,347	2,437	11,306	2,321	41	116
2028F	11,416	2,466	11,350	2,355	66	111
2029F	11,448	2,493	11,342	2,390	106	103
2030F	11,514	2,547	11,345	2,423	169	124
2031F	11,523	2,583	11,381	2,466	142	117
2032F	11,585	2,623	11,477	2,518	108	105
2033F	11,605	2,670	11,552	2,573	53	97
2034F	11,695	2,727	11,710	2,642	-15	85

(b) In the 10-Year System Outlook report, no changes in resource build out were assumed from those previously identified in the Path to 2030 for the years 2024 to 2030, and those identified in scenario CE1-E1-R2, from the 2022 Evergreen IRP, for years 2031 to 2034.

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1 Without any new additions beyond those identified, NS Powers' planning reserve margin
2 (PRM) drops below the target 20 percent value in the final three Winter periods assessed
3 in the 10-Year System Outlook report (please refer to Figure 20). As this drop in PRM
4 occurs at the end of the assessment period, NS Power has chosen not to show any additional
5 resource build requirements at this time, due to the degree of uncertainty associated with
6 assessing periods at the end of the planning horizon. NS Power will monitor Load Forecast
7 updates and system capacity requirements and refine system resource needs beyond 2030
8 in future 10-Year System Outlook reports and Integrated Resource Plans, as needed.

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Request IR-2:

Refer to the Report Section 3.2.1 - Path to 2030 and Evergreen IRP, Figure 6, Page 17 of 67. There are multiple discrepancies between the timing and capacity volume of resource additions in this table and the expectations provided in NSPI's Path to 2030 Report¹. See, e.g., Figure 1 on p. 6 in NSPI's Path to 2030 Report including 373 MW of Rate Base Procurement capacity in 2025, compared with 306 MW of Rate Base Procurement capacity in 2026/27 noted in Figure 6 of the Report. Please reconcile the differences between the resource outlooks presented in the two documents and provide a narrative description of whether NSPI will be able to achieve the 2030 clean energy targets.

Response IR-2:

Please see the table below for a reconciliation between NS Power's Path to 2030 Report and Figure 6 of the 10-Year System Outlook report. It is important to note the Path to 2030 table identifies the year the project would be complete and the 2024 10 YSO identifies the first winter period (December to March) in which the unit will be available. Some timelines have been adjusted as projects have progressed, but all remain on track for 2030. NS Power will continue to work with the provincial and federal governments, rights-holders, stakeholders and partners to strive to achieve the 2030 clean energy targets in an equitable way that best manages costs for customers and provides safe and reliable electricity.

Project	Path to 2030		2024 10 YSO		Reconciliation
	Capacity (MW)	Year	Capacity (MW)	Winter	
Rate Base Procurement	373	2025	306	2026/2027	One (1) of five (5) projects awarded a PPA withdrew from the program and will not proceed under the Rate Base Procurement Program, reducing the capacity of the RBP wind projects from 373 MW to 306 MW. The remaining

¹ Filed under M11017

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Project	Path to 2030		2024 10 YSO		Reconciliation
	Capacity (MW)	Year	Capacity (MW)	Winter	
					projects have been delayed and are expected to be to be online and available for the Winter 2026/2027 period.
Green Choice Program	350	2028	416	2028/2029	It is assumed that the capacity and energy represented by the withdrawn RBP project was added to the Green Choice procurement round, increasing the maximum nameplate capacity of all generation facilities accepted into the Green Choice Program from 350 MW to 416 MW.
Port Hawkesbury Paper Wind	168	2025	168	2026/2027	The PHP Wind project has been delayed and is now expected to be online and available for the Winter 2026/2027 period.
Renewable to Retail Wind	150	2024	90	2025/2026	The updated forecast for the RTR wind shows 90MW online and available for the Winter 2025/2026 period, and an additional 58.5 MW available for the Winter 2026/2027 period. This represents a delay and 1.5 MW decrease from the original forecast in the Path to 2030 document.
			58.5	2026/2027	
Community Solar/Commercial Net Metering	100	2024-2029	25	2026/2027	The forecast was updated for the 10-Year System Outlook with the maximum capacity of the program (100 MW). As of the writing of the report, the first solar gardens under the Community Solar Program are expected to be online by spring 2026. The 25 MW per year represents the potential development of the program over time.
			25	2027/2028	
			25	2028/2029	
			25	2029/2030	
	150	2025-2026	100	2025/2026	

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Project	Path to 2030		2024 10 YSO		Reconciliation
	Capacity (MW)	Year	Capacity (MW)	Winter	
NS Power BESS Project			50	2026/2027	As indicated in the Nova Scotia Power Incorporated Battery Energy Storage System (BESS) Project Capital Cost Approval Application (M11539) two BESS sites are expected to be implemented in 2025 (100 MW available for Winter 2025/2026 period), and a third BESS site in 2026 (50 MW available for Winter 2026/2027 period).
Provincial Section 4D Energy Storage Projects	150	2026	150	2027/2028	At this time, no projects under Provincial Section 4D have come forward. NS Power estimates the earliest online date for any new projects to be available for the Winter 2027/2028 period.
Provincial Section 4B Energy Storage Projects	100	2027-2028	100	2029/2030	At this time, no projects under Provincial Section 4D have come forward. NS Power estimates the earliest online date for any new projects to be available for the Winter 2029/2030 period.
Fast Acting Gen - Stage 1	300	2027	300	2027/2028	There are no changes to estimated timeline for this project. The project is expected to be online for the Winter 2027/2028 period.
Fast Acting Gen - Stage 2	300	2029-2030	300	2029/2030	There are no changes to estimated timeline for this project. The project is expected to be online for the Winter 2029/2030 period.
Gas Conversion	150	2028	150	2028/2029	There are no changes to estimated timeline for this project. The project is expected to be online for the Winter 2028/2029 period.
HFO Operation - Lingan 1/3/4	459	2029	459	2029/2030	There are no changes to estimated timeline for this

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Project	Path to 2030		2024 10 YSO		Reconciliation
	Capacity (MW)	Year	Capacity (MW)	Winter	
					project. The project is expected to be online for the Winter 2029/2030 period.

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1 **Request IR-3:**

2
3 **Refer to the Report Section 3.2.5 - Rate Base Procurement, noting that the Report assumes**
4 **that the energy and capacity from a withdrawn RBP project¹ will be assigned to the Green**
5 **Choice Program instead.**

6
7 **(a) Is NSPI confident there will be sufficient interest in the Green Choice Program to**
8 **drive procurements for 416 MW?**

9
10 **(b) If there is insufficient contracting for resources under the Green Choice Program,**
11 **does NSPI have an alternative plan to meet renewable energy requirements?**

12
13 **Response IR-3:**

14
15 **Please refer to NSUARB IR-09.**

¹ See the Report page 21 of 67, Lines 4-14

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Request IR-4:

Refer to the Report Section 5.3 - Anticipated Policy Changes – Clean Electricity Regulations. On p. 42 of 67, NSPI notes that the ECCC has indicated there may be some flexibility to use emitting resources to help integrate renewables.

(a) Has NSPI analyzed the impact of the proposed rules/regulations on system operations and planning? If so, please provide all related documentation and analysis.

(b) Has NSPI developed alternative plans in case the 2035 net-zero regulations do not permit continued use of emitting resources? If so, please provide details.

(c) Does NSPI expect the revised regulations to allow emitting resources to generate at an average capacity factor of 40%, as currently anticipated for the Tufts Cove resources (see the Report Figure 8, 2034 generation values, Page 22 of 67)?

Response IR-4:

(a) Yes. As part of the Evergreen IRP, NS Power included assumptions to reflect the requirements of the Clean Electricity Regulations (CER), as they were understood at the time. This included an emissions performance standard included in the ECCC CER discussion paper of 50 g/GWh, which NS Power included as a performance standard for the entire resource fleet in the Evergreen IRP modeling assumptions. This assumption was included in all of the CE1 Evergreen IRP scenarios (net zero 2035), the results of which can be accessed on the Evergreen IRP website and have informed the long-term strategy.

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1 Item 5 of the Evergreen IRP Roadmap indicates that NS Power will track the ongoing
2 development of the CER and monitor for changes beyond what is modeled in the Evergreen
3 IRP.¹
4

5 (b) NS Power understands that Environment and Climate Change Canada (ECCC) has
6 acknowledged the requirement for emitting resources operating in a peaking capacity as
7 part of the CER. In response to stakeholder feedback on the CER, ECCC released an update
8 that refers to the concern raised by stakeholders on the need for flexibility to support grid
9 reliability and to meet demand.² Since the outcome of the Evergreen IRP demonstrates the
10 value of the future use of thermal generation in a peaking capacity, NS Power is not
11 considering an alternative plan without the inclusion of emitting generation at this time. As
12 referenced in the previous response, NS Power will monitor and assess for changes in the
13 final CER once it is published.
14

15 (c) Please refer to the response for part (b). NS Power anticipates the CER will acknowledge
16 the role of emitting generation to operate as peaking facilities, in alignment with the
17 forecasted usage of the Tufts Cove units. In addition, the CER comes into effect in 2035,
18 which shows a decrease in gas generation in 2035 relative to 2034 in Evergreen IRP
19 Scenario CE1-E1-R2.

¹ 2023 Evergreen Integrated Resource Plan - Updated Action Plan and Roadmap (M11307), December 8, 2023, page 18: [Nova Scotia Power Evergreen IRP \(nspower.ca\)](https://www.nspower.ca)

² <https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/clean-fuel/electricity/clean-electricity-regulations-public-update-16022024.pdf>

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Request IR-5:

Refer to the Report Section 7.7 - Hydrogen Load Impact Studies, beginning at page 58 of 67, where it states that:

NSPI is conducting Load Impact Studies and System Impact Studies for these projects based on the assumption that the operation of the hydrogen/ammonia plants will be scheduled by the customer based on scheduled generation output of their associated generation resources.¹

(a) What is the basis of this assumption?

(b) Have the potential customers provided information to NSPI regarding the potential generation supply and/or the operating profile of the facilities? If so, please provide this information.

(c) Has NSPI identified any incremental system needs (e.g. peaking resources, reserves, etc.) that would be required to meet the estimated 1,225 MW of peak load, even if the customers develop sufficient generation resources to meet the energy needs of the facilities?

(d) What is the current development status of these projects?

(e) Please provide any other analysis conducted by NSPI to evaluate how the addition of these facilities will impact system reliability or the ability of NSPI to meet policy requirements for renewable generation.

¹ M11764, the Report Page 59 of 67, Lines 1-3

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1 Response IR-5:

2
3 (a) This assumption is based on NS Power's engagement to date with multiple proponents at
4 the time of the filing of the 2024 10-Year System Outlook Report.

5
6 (b) Yes. Please see the response to part (a). Preliminary information regarding the operation
7 of the load and corresponding resources is considered commercially confidential
8 information at this time by the customers.

9
10 (c) NS Power works with all prospective load customers to study and assess the requirements
11 to meet customer load requests, including required generation resources, if any. This work
12 is underway, is commercially confidential, and cannot be shared at this time. The 2023
13 Evergreen IRP Updated Action Plan and Roadmap, Roadmap Item 11, indicated that NS
14 Power will continue to monitor the development of the hydrogen industry, including
15 hydrogen tariff development, and will assess the impacts as they relate to future modeling
16 assumptions.²

17
18 (d) For information on the development of prospective hydrogen developers in the province,
19 please refer to publicly available information on the prospective projects. Both EverWind
20 Fuels and Bear Head Energy have public websites with periodic updates on the status and
21 future plans for their proposed developments.³

22
23 (e) There is no publicly available information related to the assessment of the impacts on the
24 system as this work is currently underway and is commercially confidential at this time.
25 However, as part of the Evergreen IRP, NS Power did include a scenario that assessed a
26 generic domestic hydrogen load but different assumptions for resources and load were used
27 (example: no H2 producer self supplied resources were included). The outcomes of the IRP

² 2023 Evergreen Integrated Resource Planning – Updated Action Plan and Roadmap (M11307), December 8, 2023, page 19. [Nova Scotia Power Evergreen IRP \(nspower.ca\)](https://www.nspower.ca)

³ [EverWind Fuels](#); [Bear Head Energy](#)

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1 demonstrated an increase in resources required (earlier and increased wind and solar
2 resources, incremental new gas resources) and an increase in the cumulative emissions over
3 the modeling horizon.

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Request IR-6:

Refer to the Report Section 7.8 - EMT Studies to Support Wind Integration, page 59 of 67, where it states that “One of the findings is that Nova Scotia Power can incorporate inverter-based resources (IBRs), such as wind, limited only by the load to be served and the best economic dispatch to meet target metrics for renewables.”

(a) Does this conclusion impact NSPI’s conclusion on the need for the Reliability Tie or the timing of the need for the transmission project?

(b) Please identify any changes to IRP planning constraints resulting from these conclusions.

Response IR-6:

(a) No. The Reliability Tie will reduce the need for centralized high inertia synchronous condensers to support Rate of Change of Frequency (RoCoF). As described in the report, synchronous support will be required to maintain local minimum Short Circuit Mega Volt Ampere (SCMVA) to support existing customers and generation facilities. For example, large motor starts and plant processes. Please refer to Section 6.6.1 of the Large Scale Integration of Inverter Based Resources in Nova Scotia report.¹

(b) New IRP modeling assumptions are determined at the outset of any IRP process. As higher levels of IBR are experienced, depending on the location of the successful projects, there may be updates to stability constraints on some corridors or other constraint as required to maintain stable operating conditions for all dispatch conditions.

¹ [wind-integration-study-large-scale-integration-of-ibr-in-nova-scotia-public.pdf \(nspower.ca\)](https://www.nspower.ca/wind-integration-study-large-scale-integration-of-ibr-in-nova-scotia-public.pdf), pg. 38
