

Our File: 179164

September 26, 2023

Crystal Henwood
Regulatory Affairs Officer/Clerk
Nova Scotia Utility and Review Board
3rd Floor, 1601 Lower Water Street
Halifax, Nova Scotia B3J 3S3

Dear Ms. Henwood:

RE: M11307 - Nova Scotia Power Inc. 2023 Evergreen Integrated Resources Plan ("IRP") Updated Action Plan and Roadmap

Port Hawkesbury Paper LP ("PHP") has reviewed Nova Scotia Power Inc.'s ("NSPI") August 8, 2023 report entitled Powering a Green Nova Scotia, Together, 2023 Evergreen Integrated Resource Plan, Updated Action Plan and Roadmap, NSPI's responses to stakeholder comments on the final Evergreen IRP modelling results, Synapse's comments on NSPI's Updated Action Plan and Roadmap dated September 2023, and Bates White Economic Consulting's ("Bates White") comments on NSPI's Evergreen IRP Action Plan and Roadmap dated September 8, 2023. In accordance with the schedule for submissions in this matter, please accept the following comments on behalf of PHP.

In large part, PHP agrees with the comments of both Synapse and Bates White. PHP especially notes its support for rapid advancement of the reliability tie, which is a critical asset in all scenarios. PHP also notes the various issues with the underlying assumptions for the Atlantic Loop cases and specifically agrees with Bates White's comment on page 9 of its report that:

"NSPI should maintain a flexible approach to regional integration and consider the costs and risks of its regional options and should focus on near-term efforts that provide value regardless of the eventual viability of the Atlantic Loop."

At this time, PHP has specific comments on the following issues:

- (1) The necessity to fully understand, and attempt to mitigate to the greatest extent possible, the significant integration costs required to add the large additional amounts of renewable energy to the Nova Scotia electric system for which the IRP calls;
- (2) The need for timely, further study of a potential hybrid peak mitigation scenario with new fast-acting generation which appears to have potential significant value; and
- (3) The implications of the Federal Clean Energy Regulations.

1. Integration of New Renewable Energy

With respect to the first item in particular, PHP specifically notes Synapse's comment at page 4 of its report:

"Action Item 3d is development of a procurement strategy for solar and wind resources, and continuing study work to identify opportunities to reduce curtailment. Synapse emphatically supports these Action Plan elements, and further recommends prioritization by NSPI of a procurement plan and a need to ensure interconnection study resource availability for the sizable level of wind clearly needed on the system under any scenario, and the significant level of solar PV."

PHP fully reiterates Synapse's comments in this regard. PHP also notes that the information in NSPI's IRP refers to the recent ratebase procurement program and other renewable procurement programs, such as Green Choice and Renewable to Retail, but does not specifically include PHP's significant proposed wind project. Thus, the IRP itself may understate the amount of wind energy anticipated to be on the system as early as the fourth quarter of 2025. It is therefore critical that very early action is taken to fully understand how to best minimize renewable integration costs on the NSPI system, and to minimize curtailment of a valuable, renewable resource to the greatest extent possible.

As Synapse notes, it is imperative that NSPI be resourced accordingly to carry out the necessary technical and economic studies required for the anticipated amount of renewable energy integration in a timely manner that supports market participants.

In relation to the IRP's forecast of significant potential curtailment of wind energy across all scenarios, PHP also agrees with Synapse's comments that:

"Synapse supports NSPI's plans to continue to review curtailment issues and identify opportunities to reduce curtailment, as seen in Action Plan item 3d. Synapse recommends that NSPI explicitly make available more detailed information on the temporal patterns of import and export energy flows associated with all of the Scenarios in this modelling update."

As stated above, PHP believes that the issue of minimization of curtailment and maximization of the use of the significant renewable resources being added to the system should be prioritized. NSPI sharing of all available information related to this key issue would be of assistance.

NSPI's comments reference its ongoing wind integration studies (Roadmap Item 1) that are intended to be released in 2023 and its electrification strategy report also expected in 2023 (Updated Action Plan Item 2a). As these are critical ongoing studies, PHP believes it would be appropriate for the Board to set a firm date in 2023 by which these studies will be provided to the Board and IRP participants. It is important that these studies be completed and shared with IRP participants in a timely manner.

2. Hybrid Peak Mitigation, Battery Storage, and New Fast-Acting Generation

On the issue of ongoing study of the hybrid peak mitigation scenario, PHP notes NSPI's stated support at page 4 of its responses to stakeholder comments for a multi-stakeholder process to

further analyze this issue, which they note could be led by a third-party organization with experience in leading multi-sector energy studies. PHP generally supports such an approach.

PHP does have one issue of concern with respect to Synapse's comments. At page 8 of its report, Synapse states that while it generally recognizes the value in ensuring low-cost capacity through conversion of coal units as modeled in all scenarios, it is unclear in Synapse's view whether or not the level of new CT or reciprocating engine need seen in the results is robust, given Synapse's concerns over the capacity value attributed to new battery energy storage resources. Synapse then recommends ongoing study under the hybrid peak mitigation scenario, and under other No Atlantic loop scenarios, but also an updated IRP analysis of battery energy storage capacity prior to significant commitment to reach the 2029 or 2030 CT addition levels seen in the CE1-E1-R2 scenario.

While PHP understands Synapse's view with respect to the potential larger diversity benefit of battery energy storage, PHP is concerned with further study that could potentially delay firm in-province resources which will be required to maintain the reliability of the system, especially with the addition of significantly greater amounts of non-dispatchable renewables. PHP is of the view that any further study that the Board may order in this regard must be done in an expeditious enough manner so as not to in any way jeopardize the timeframe needed to build firm peaking or other resources necessary to maintain the reliability of the system and minimize interruptions to the greatest extent possible. This is critical as the Evergreen IRP Update calls for in the order of 300 MW of new fast-acting generation by 2027 (Action Plan Item 3c).

As noted above, Synapse's concern appears to be that they are not certain that the overall results calling for CT or reciprocating engines are robust given their concerns over the capacity value attributed to new battery energy storage resources. Although there could be some potential greater diversity and other benefits from battery energy storage resources, PHP is concerned that such additional study will not necessarily suggest the ability for significant enough long-duration battery storage capability to substantially limit the immediate need for new firm, fast-acting generation.

While battery storage does assist with the curtailment issues, wind integration and capacity, and additional battery storage is called for in the No Loop scenarios, NSPI lays out in some detail in its responses to stakeholder comments (see pages 6/7 and 23/24) why battery storage cannot be simply used to replace fast acting generation, due to its storage duration limitations, and the need to ensure the system has sufficient resources during peak periods.

PHP also notes that on average 80 MVA of synchronous condensers are added to support wind integration by 2030. However, as NSPI notes, other planning considerations may require additional synchronous condenser support, which will be evaluated by further study work (Updated Action Plan page 7), including generator site-specific system impact studies for new variable renewable generation. As the potential addition of more synchronous condensers could come at a substantial cost, and as synchronous condensers provide various system value, PHP believes a thoughtful and comprehensive look at this issue is warranted. NSPI Action Plan Item 3g states "complete generator site-specific system impact studies for new variable renewable generation to assess the need for synchronous condenser support". As significantly more renewables are required to be added to the system in all modeled scenarios, it may be problematic to simply view the need for synchronous condensers solely on a generator site-specific basis. PHP suggests that it may be appropriate to review this matter on a timely basis in a more system-wide holistic manner.

3. Federal Clean Energy Regulations

NSPI's roadmap item 5 indicates in part tracking the development of the Federal Clean Energy Regulations and monitoring for limitations on the use of gas and oil-fired generation beyond those already considered in the Evergreen IRP. In this regard, PHP notes that the recently released draft Federal Clean Electricity Regulations appear to potentially significantly impact the natural gas peaking capacity in Nova Scotia, which capacity PHP understands is critical for cost effective reliable electric supply. PHP understands that NSPI and other parties will be commenting on the draft regulations to the Federal government in order to ensure the necessary amendments are made so that the final version of the regulations are workable for Nova Scotia. PHP fully supports all such efforts.

Conclusion

Finally, PHP notes Bates White's comments on page 3 of its report that should all the resources that the IRP calls for to be in place by 2030 be pursued, "such an aggressive schedule and scope of resource additions will place a premium on the procurement process to manage cost and risk". It is clear that the significant amount of undertakings required between now and 2030 to get Nova Scotia off of coal and to achieve 80% renewables is daunting. In order to get there, it will be necessary for all parties (NSPI, market participants, and the Board) to share information openly and transparently and work collaboratively to achieve these goals. PHP believes it would be appropriate for the Board in commenting on the NSPI IRP Action Plan and Roadmap to highlight this requirement for ongoing transparency, collaboration, and cooperation.

PHP appreciates the opportunity to provide these comments.

Yours very truly,

A handwritten signature in black ink, appearing to read 'J MacDuff', with a stylized flourish at the end.

James MacDuff