Effective Load Carrying Capability (ELCC) Study Scope Memo

February 6, 2025

In its Decision letter of May 23, 2024, regarding NS Power's 2023 Evergreen IRP Update (Matter M11307), the Board highlighted certain Synapse recommendations and stated:

> As noted by Synapse in its August 2023 comments, the battery energy storage ELCC profile is a critical input value to the modeling. This needs to be carefully re-examined in conjunction with an updated portfolio ELCC analysis, which considers the interactive effect of all four clean resources (i.e., wind, solar PV, battery energy storage, and demand response or peak load mitigation during winter peak periods). The Board sees value in further study to evaluate the incremental diversity benefit available from increased interaction among renewable resources.

NS Power affirmed its support for updating the Effective Load Carrying Capability (ELCC) study on June 27, 2024 in the 10 Year System Outlook (M11764), where it states on page 48:

> NS Power supports updating the capacity study prior to the next IRP analysis, with the focus of the update being an examination of the interactive effect of the identified clean resources (wind, solar, battery energy storage, and demand response).

Subsequently the Board asked for an update on NS Power's progress on this recommendation in NSUARB IR-02 (M11764). NS Power's response stated:

> NS Power has not started a new capacity value study, but as stated in the 2024 10-Year System Outlook report on page 48, NS Power supports updating the most recent capacity value study prior to the next IRP analysis, with the focus of the update being an examination of the interactive effect of the identified clean resources (wind, solar, battery energy storage, and demand response). As a starting point for this work, NS Power will develop a draft scope of work and project schedule to be circulated to IRP stakeholders for comment by the end of the year. This will allow stakeholders the ability to comment on the statement of work at the initial stages of development.

In accordance with this commitment, NS Power proposes the following topics as the focus of the next ELCC study for IRP stakeholder's consideration:

1. Examination of the interactive effect of the identified clean resources (wind, solar, battery energy storage, and demand response) to update the existing diversity benefits, so that the full suite of identified clean resources may be considered. To date, NS Power has studied the diversity benefits from two resource combinations: wind & batteries and solar & batteries.

2. Updated examination of the ELCC values for demand response programs using program details and measured results from NS Power's (CPP and TVP) and E1's current demand response programs.

3. Assessment of the seasonal ELCC contributions for solar, wind, hydro, and storage generation resources during the Summer period (June to September).

The rationale for selecting these topics for the new ELCC study is as follows:

- Topic one: Stakeholders requested and the Board acknowledged the value in an update to the existing diversity factors; this continues an iterative approach to enhancing and refining the ELCC values used in Nova Scotia.

- Topic two: The current ELCC values used for demand response are based on assumptions that do not represent the current DR programs being implemented in Nova Scotia. The current DR programming being delivered by NS Power and E1 did not exist at the time of the last ELCC study. As a result, generic DR programs were modeled and represented a proxy for future DR programs. There are now Nova Scotia-specific programs and measured results which can be used to develop more appropriate ELCC values for the existing programs.

  Additionally, the inclusion of this topic aligns with NS Power's commitment to stakeholders that it would review system planning related values as part of the 2024/25 Areas of Focus for the TVP Work Plan:

  > **Area of Focus 6.0 – Review of System Planning Related Values**
  > (6.1) review of system planning related values as applicable to TVP (and the technologies that deliver the load shifting such as batteries) including avoided costs and Effective Load Carrying Capability (ELCC)

- Topic three: The Summer Reliability Assessments (SRA) completed by the Northeast Power Coordinating Council (NPCC), of which NS Power is a member, and the North American Electric Reliability Corporation (NERC), would benefit from having these values. Having Summer specific values will improve the accuracy of NS Power's contribution to NPCC's SRA.

While NS Power is a Winter peaking utility, the NPCC region, which includes the Maritimes, Quebec, Ontario, New England and New York, is a Summer peaking region.

NS Power welcomes feedback from stakeholders on its proposed scope of work for the next ELCC study and requests written feedback by February 21, 2025.