Feedback Received and IESO Response

Bulk Study Updates (Northern Ontario) – September 24, 2024

The IESO hosted a public webinar on September 24, 2024, to provide an update for the South and Central Bulk Study and Northern Ontario Bulk Study and introduce the Eastern Ontario Bulk Study. Following the webinar, the IESO invited stakeholders to provide feedback on the topics discussed during the webinar.

The IESO received written feedback submissions on the Northern Ontario Bulk Study from:

- Energy Storage Canada
- Ontario Waterpower Association
- Ontario Power Generation Inc.
- TC Energy

Each presentation and recording of the webinar, and responses to feedback are available on the following engagement pages South & Central Bulk Study, Eastern Ontario Bulk Study, and Northern Ontario Bulk Study.

Note on Feedback Summary and IESO Response

The IESO appreciates the feedback received from stakeholders. The tables set out below respond to the feedback received and are organized by bulk study and then topic.

C) Northern Ontario Bulk Study

Feedback / Common Themes	IESO Response
Energy Storage Canada inquired about receiving additional information, specifically: • Hourly interface flows for FN and FS for the past years, • Hourly interface limits for FN and FS for the past 3 years, • Hourly interface flows for FN and FS for 2030, 2040, and 2050, • Hourly generation output for past 3 years for all northern generation, and • Hourly zonal demand projections for 2030, 2040, and 2050.	The IESO strives to make information available when updating each bulk study to enable meaningful feedback during the process and decisions to be made. At this stage, the following information is available: • historical generation output can be found on the IESO's Data Directory webpage • demand projections are published as part of the IESO's Annual Planning Outlook Previous interface limits are only published 34 days in advance due to the nature of this data and can be found on the IESO's website. Given that future interface flows depend on variables, such as resource procurement, electrification, economic development and transmission enhancements, this data is not available for public review. Lastly, as part of this bulk study the IESO will be publishing maximum seasonal capacity needs for future years along with future limit improvements for potential transmission options.
Ontario Power Generation shared that building new transmission and reinforcing existing transmission facilities can mitigate constraints on the existing transmission system and enable new waterpower growth.	Thank you for sharing, the IESO also acknowledges the importance of addressing existing transmission system constraints to continue to support economic growth and enabling resources in Northern Ontario.

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General support for the Wires option #3 with further considerations and benefits: • TC Energy shared the reinforcement could allow Ontario Pumped Storage project to provide incremental reliability value to Northern and Southern Ontario. • Ontario Waterpower Association and Ontario Power Generation Inc. shared reinforcing 500KV between Hanmer TS and Essa TS with additional reinforcements between Hanmer TS to Porcupine TS (P502X) and Porcupine TS to Pinard TS (D501P) will enable up to 1,200 MW of new capacity in Moose River Basin. This can serve the dual goal of meeting the growing demands of Northern Ontario and a more reliable connection with Southern Ontario.	Thank you for providing this feedback regarding further opportunities that could be unlocked with the Wires Option #3. The IESO will consider this feedback as planning progresses.

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Energy Storage Canada shared that non-wire options do not appear to be considered to meet short to medium term needs. They play an important role in meeting growing demand, specifically: • Non-Wires Alternatives can be a long-term alternative to traditional wires solutions, and they can be a transitionary investment to ensure the power system can meet reliability and service requirements.	Thank you for this feedback. This bulk study will focus on supporting economic growth and enabling non-emitting resources in Northern Ontario by ensuring the North-South interface has adequate capacity and addressing bottlenecks. During the September engagement webinar, the IESO shared the electricity needs for Northern Ontario and the preliminary options that are being screened-in to meet the needs, including interconnections, non-wires such as generation and storage, and wire options. Due to the size of the need, and historical data confirming multiple consecutive days of low wind and low solar, generation is being considered with storage as an option. The preliminary options screening identified challenges with storage paired with generation including: • The IESO's guidance document for the Long-Term 2 procurement indicated technical challenges with connecting over 1,200 MW of renewable inverter-based generation in Northern Ontario. • Storage needs careful planning, as recharging after energy discharge can add load to the system. The challenges shared in the webinar are not a complete analysis of the NWAs, but rather an indication of challenges that the IESO foresees with variable generation paired with storage. A detailed options analysis for NWAs and their ability to reduce or meet the needs in the near-, medium- and long-term is currently underway and the results will be shared in the upcoming engagement.

Energy Storage Canada shared that there are a few flaws with the initial non-wire alternative analysis, specifically:

- More information is required on the data sources used for expected production from non-emitting resources, given the rapid change in the sector.
- More external expertise is required to better inform planning decisions.
- The ability of non-wire alternatives is dependent on the procurement design objectives aligning with system needs. The current procurement design focuses on provincial needs, not bulk or regional needs.

The IESO acknowledges the importance of non-emitting resources to meet the growing electricity demand. The main objective of the Northern Ontario Bulk plan is to identify major bottlenecks and opportunities to enable sitting generation and economic development in Northern Ontario.

For the study, the IESO utilizes wind and solar profiles provided for multiple locations across Northern Ontario developed by external consultants. These profiles reflect not yet built resources with newer vintage wind and solar facilities. As part of this study the IESO has identified the need to reliably supply Northern Ontario. As part of the ongoing evaluation of non-wire analysis, the IESO applies these geographically diverse and up to date profiles to determine the lowest cost non-wire option that would meet the needs and compares it to the transmission option. These results will be communicated at a future webinar and in our final report.

Regarding procurement design, to address a capacity gap that emerges in the mid-2020s, the IESO has developed the Resource Adequacy Framework. Resource Adequacy Framework sets out a long-term competitive strategy to acquire resources while balancing ratepayer and supplier risks and recognizing the unique characteristics and contributions of different resource types. Provincial needs are addressed through this framework, and any non-wire options that are identified through bulk or regional plans will be implemented using competitive mechanisms that are determined following plan publication.

Lastly, the IESO welcomes the opportunity to work with Energy Storage Canada as part of the public engagement process. As the work progresses, the IESO will continue to host opportunities to share more details, including additional webinars, and opportunities for

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	feedback. As part of the engagement process the IESO would welcome additional information around the capabilities of non-emitting resources. Additional information can be submitted through the public facing feedback forms, or confidentially to engagement@ieso.ca.
Additional targeted engagement is recommended: • Ontario Waterpower Association and Ontario Power Generation Inc. encouraged the IESO to conduct targeted outreach with local Indigenous communities to ensure their input is reflected in further studies that enable new capacity in Moose River Basin. • Energy Storage Canada recommends the IESO create a Technical Working Group or advisory committee consisting of energy storage developers and industry associations to better understand the capabilities of non-emitting resources.	Thank you for sharing feedback regarding engaging key sector participants and Indigenous communities. The IESO is committed to helping to ensure that interested parties are kept informed and are provided with opportunities for purposeful engagement to contribute to electricity planning initiatives such as this one. We are continuously striving to enhance our engagement practices to increase opportunities for input. The IESO regularly communicates with communities, regional stakeholders and interested parties through various vehicles including emails, IESO weekly Bulletin, public webinars, and targeted outreach meetings to help these groups stay up to date on the IESO's work and opportunities for engagement participation. We encourage any interested parties to visit the IESO website to subscribe to receive updates.

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Potential opportunities to be further considered when developing the Bulk Study include: • TC Energy shared that the Ontario Pumped Storage Project could provide important system synergies and help meet growing demand in Northern Ontario and Southern Ontario, including in Alliston. • Ontario Waterpower Association shared that transmission planning and expansion should be considered a "no regrets" investment to enable new generation and serve growing load, new projects are expected to come on-line in differing timelines, and reserve transmission capacity for longer lead time resources that provide greater system value. • Ontario Waterpower Association shared that untapped waterpower potential could help drive studies to prioritize need areas. • Energy Storage Canada shared that the bulk study should enable projects identified through the Long Lead Time RFP. • Energy Storage Canada shared that the study should consider both current and long-term system needs, accounting for how the power grid will evolve over time. Solutions should be developed in phases, starting with medium-term options like new non-emitting generation, and progressing to long-term infrastructure like adaptable transmission lines.	Thank you for providing this feedback. Through the Annual Planning Outlook (APO) the IESO identifies system needs of the next 20 years and provides insights into what will be required to prepare for a reliable, cost-effective and sustainable electricity future in Ontario. The APO outlines a set of planned actions to address Ontario's reliability needs, including bulk and resource needs. The Northern Ontario Bulk Study objectives were identified through IESO planning and refined through the Ministry of Energy and Electrification's Powering Ontario's Growth (POG) plan through several "no-regret actions" were identified to meet growing energy demands through 2050. Given current system needs, the study will review the capability of the bulk system to support economic growth and enable non-emitting resources, such as waterpower potential, in Northern Ontario by ensuring the North-South interface has adequate capacity and addressing bottlenecks. Any additional studies would need to be driven by government policy direction or identified through the APO. A detailed options analysis, for wire and non-wire alternatives, and their ability to reduce or meet the needs in the near-, medium- and long-term is currently underway and the results will be shared in the upcoming engagement.

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General Comments/Questions • Ontario Waterpower Association recommended that the IESO provide a competitive advantage in upcoming procurements for new waterpower generation in the north.	The IESO appreciates this feedback. The approach for providing a competitive advantage is a matter for government policy and direction set by the Ontario Ministry of Energy and Electrification. Any feedback regarding the LT2 procurement should be shared as part of the LT2 engagement process. For more information on the upcoming opportunities, please visit the IESO's LT2 engagement webpage.