

Northeast Ontario Electricity Planning Responses to Feedback Received

The IESO hosted a public [webinar](#) on September 13, 2022 to provide an overview of and seek input on the options analysis and draft recommendations to meet emerging needs in Northeast Ontario and provide a foundation for future growth. The presentation material and recorded webinar are available on the [engagement webpage](#).

This document summarizes the feedback received under the following key themes:

1. [Non-wires alternatives](#)
2. [Wires recommendations](#)
3. [Implementation of recommendations](#)
4. [Access to additional information](#)
5. [Engagement](#)

The IESO appreciates all of the input, which was considered in developing and finalizing the recommendations and Northeast Bulk Plan. Feedback was received from the following parties and posted on the engagement webpage:

- [EverGreen Energy](#)
- [Grid Reliability Consulting](#)
- [Ontario Rivers Alliance](#)
- [Peter Drury](#)
- [PNE Canada](#)
- [Township of Chapleau](#)

| Feedback | IESO Response |
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| Theme 1: Non-wires alternatives | |
| <p>Independent power systems such as biomass and water power can be customized to serve each community and mining operation including those on diesel for heat and electricity. Biomass units will reduce demand on landfills throughout the north from trees and support decarbonization. Transmission will be very expensive and these systems will greatly help to reduce cost.</p> | <p>Both biomass and water power were considered as non-wires alternatives (NWA) to meet the identified needs. The IESO is also continuing to explore options for renewing contracts for existing biomass facilities in the North. In line with a Directive received from the Minister of Energy on January 28, 2022, the IESO negotiated and signed a new contract for Calstock Generation Station (GS) in March 2022, and was recently directed on October 7, 2022 to enter into a procurement contract by way of an extension of the existing contract with Chapleau GS.</p> <p>With respect to water power, long lead-time for hydroelectric development would be required and additional transmission infrastructure is needed to bring any new generation to the desired location.</p> |
| <p>Hydrogen technology is advancing quickly, and within the next 5 to 10 years will be used as a fossil fuels replacement and reduce and perhaps eliminate the need for new electricity generation, so that must be taken into consideration.</p> | <p>Hydrogen technology was not considered as a viable alternative to address this specific needs in the Northeast as the commercial application of hydrogen fuel cell is yet to be developed.</p> <p>The Ministry of Energy has asked the IESO to investigate and propose program options to integrate low-carbon hydrogen technologies into Ontario’s electricity grid for the purposes of balancing and strengthening the reliability of the electricity system and contributing to broader decarbonization. This work has been underway since August 2022 in which the IESO has met with interested parties with existing or potential upcoming hydrogen projects in Ontario. In addition, public engagement continues to seek feedback on potential roles for low-carbon hydrogen technologies, opportunities, barriers and risks for hydrogen projects, and hydrogen-</p> |

| Feedback | IESO Response |
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| | related technology costs and development timelines. |
| Theme 2: Wires solutions | |
| Strong support for wires solutions to increase reliability, enable future growth and generation. | The IESO appreciates this feedback in support of the recommended transmission solutions. |
| <p>A robust 500 kV network should be built now to provide transmission capacity for new renewable generation resources, meet reliability needs and future load growth. Reinforcements should include:</p> <ol style="list-style-type: none"> 1. 500 kV solutions between Porcupine and Wawa to secure the supply to the East-West Tie 2. 500 kV from Hanmer to Porcupine to secure supply to the Timmins area 3. 500 kV from Porcupine and Pinard. <p>A new 500 kV line between Sudbury and Timmins is needed to properly secure Timmins area load and provide the basis for a strong and direct transmission corridor to connect with the East-West Tie.</p> | <p>The proposed plan provides the foundations that are required to supply the forecasted load growth. At the same time, it reserves the ability to expand the reinforcements in the future based on input from other relevant planning activities in the North. Depending on the timing and location of future projects, additional transmission reinforcements and/or new generation can be considered to address additional needs by building on the proposed foundational reinforcements. A separate study will look at enabling further hydro generation in Lower Mattagami as well as other 500 kV reinforcements options.</p> |
| <p>Clarification requested on how the new 230 kV line between Timmins and Wawa will be able to supply the substantial Timmins load during periods of low output from the northern hydroelectric facilities when the 500 kV line between Sudbury and Timmins is unavailable and existing transmission facilities between Mississagi and Wawa are apparently fully committed to supplying the East-West Tie.</p> | <p>Studies confirmed that the proposed reinforcements are able to reliably supply to forecasted demand growth (including substantial growth around the City of Timmins). According to IESO's Transmission Security Outlook Methodology, this analysis covered the condition of low output from the northern hydroelectric facilities. The contingency analysis undertaken to develop the Northeast Bulk Plan was in accordance with regulatory requirements as set out by the North American Electric Reliability Corporation (NERC) and the Northeast Power Coordinating Council (NPCC). Contingencies studied were completed in accordance with the following:</p> |

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| | <ul style="list-style-type: none"> • Planning Events P0-P7 listed in the TPL-001-4 standards. • For bulk power system (BPS) elements: Category I and II Contingency Events listed in the NPCC Directory #1. <p>A full list of contingencies (including the 500 kV line between the City of Greater Sudbury and City of Timmins) was assessed. It was found that for the outage of P502X, the load at Timmins will be reliably supplied at the East West Tie West transfer level of 450 MW, determined by the 2021 Annual Planning Outlook (APO).</p> <p>For the subsequent contingency, the most conservative being including the loss of the Wawa to Timmins line in addition to the outage of circuit P502X, the load in the City of Timmins area would need to be shed as part of the Northeast Load and Generation Rejection Scheme.</p> <p>A separate study will look at enabling further hydroelectric generation in Lower Mattagami and reinforcing the 500 kV Pinard to Porcupine to Hanmer corridor, which will further enhance the security of load at Timmins for the loss of any two lines at Porcupine.</p> |
| <p>Clarification requested on whether the IESO will maintain its current schedule for completing planned reinforcements with the possibility of a near-term economic downturn and an associated reduction in growth.</p> | <p>The IESO developed this plan not only to reliably supply expected load growth forecast, but also to generally improve the reliability of the load supply in the Northeast and support the power transfer required to supply the forecasted load in the Northwest. The IESO will monitor the factors that may impact the demand growth and will continue working with stakeholders and communities throughout the implementation of this plan.</p> |

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| <p>The development of new, sustainable generation in the north and reliability of supply is currently prohibited because of the lack of transmission capacity on the 500 kV transmission lines between Fraserdale (Pinard) and Sudbury.</p> <p>Subsequent studies should examine a new 500 kV solution between Porcupine and Pinard to reliably meet the existing and new loads, provide access to new low carbon generating resources, and provide robustness.</p> | <p>A separate study whose scope will look at enabling further hydro generation in Lower Mattagami and reinforcing the 500 kV Pinard to Porcupine to Hanmer corridor is an option to be included.</p> |
| <p>Clarification requested on rationale for building a brand new 500 kV line between Hanmer TS and Mississagi TS instead of a second line between Porcupine TS and Wawa TS that would make it easier to obtain the necessary outages to convert X74P to operation at 500 kV, should this be required.</p> | <p>A 500 kV line between Hanmer and Mississagi along with two 230 kV lines between Mississagi and Third Line will supply load growth in the Sault Ste. The 500 kV Hanmer to Mississagi line was found to be necessary for voltage stability following the loss of circuit P502X. The cost of changing the 230 kV conductor to 500 kV on circuit X74P versus building a new 500 kV line between Hanmer and Mississagi was comparable based on the estimates received from the transmitter that owns these existing facilities. A second Porcupine to Wawa line was not found to be required for meeting the High Growth scenario studied by the IESO. Should additional capacity be required, the line can be uprated to 500 kV and a second line may also be considered.</p> |
| <p>While there are existing Load Rejection Schemes to maintain reliability, it cannot be used as an alternative to additional transmission capacity.</p> | <p>The existing schemes were not considered an alternative to transmission reinforcements. One of important benefits of the proposed plan is to improve reliability for existing and future loads that are located around the Timmins area through reduced reliance on existing schemes.</p> |
| <p>Time to construct should not be a barrier to recommending robust transmission solutions.</p> | <p>As various factors and issues related to implementation would result in different lead times for each of the recommended transmission solutions, the IESO took “time to construct” into consideration when estimating the In-Service Dates (ISD) for each component</p> |

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| | <p>of the transmission reinforcements in order to ensure the identified needs can be met in a timely manner.</p> |
| <p>A separation of circuits P21G & P22G over the section with shared common structures and installing a second conductor on each phase of the two lines between Wawa TS & Third Line TS is required to secure supply to the Sault Ste Marie area. The existing transmission facilities between Sudbury & Mississagi TS, whose main purpose would remain as the primary supply source would then be complemented by enhanced supply capability from Wawa TS.</p> | <p>The IESO examined the option of separating the P21G+P22G circuits, however the loss of these two circuits still needs to be respected in outage situations (i.e. N-1-1 condition), which reduces the benefit of eliminating this common tower contingency.</p> <p>Based on transmitter’s information, the segments where the P21G and P22G are not sharing the structures can only accommodate a single circuit, so separating the common towers (which are on double circuit structures) will not allow for two double circuits to be built along the entire span. Therefore, separating P21G and P22G lines onto their own towers in order to accommodate a second conductor on each phase of these two lines would not be a viable option.</p> <p>We also tested the mentioned option of a second 230 kV line between Wawa TS and Third Line TS, the technical performance would not be able to meet the requirement and it’s not as effective as the reinforcement between Mississagi TS and Third Line TS, especially under low water and conditions with high transfer of power to the west.</p> |
| <p>Transmission reinforcements should have the capability of supporting future transfers of up to 800MW across an enhanced East-West Tie.</p> <p>A new 230kV single-circuit line (to a 500kV standard) between Porcupine TS & Wawa TS partially satisfies this objective. However, it is not clear whether the existing single-circuit 230kV line between Third Line TS and Wawa TS, together with the double-circuit line between Mississagi TS and Wawa TS, would be able to supply the required 650MW to the East</p> | <p>Maintaining or enabling East-West Tie West (EWTW) to 800 MW was out-of-scope for this plan. According to the demand forecast and supply outlook for the Northwest zone outlined in the IESO’s 2021 APO, the EWTW flow is forecasted to reach approximately 450 MW in 2029. Therefore, the study identified the Mississagi Flow West (MISSW) transfer needs by assuming that the EWTW transfer requirement would be 450 MW.</p> |

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| <p>West Tie while also supplying the increasing load in the Wawa area following a contingency.</p> <p>Following any contingency involving the new Porcupine TS & Wawa TS line, it is unclear how a transfer of 800MW across the East-West Tie could be maintained.</p> <p>Installation of series capacitors on the Mississagi to Wawa circuits could provide sufficient increase in capacity, but a new line to achieve increased flow to Wawa TS and a second 230/500kV line between Porcupine TS and Wawa TS would be needed as tapped connections on to each of the circuits for the Aubrey Falls generating units may be prohibitive.</p> | <p>The purpose of this plan is to ensure the system is able to reliably supply load growth in the City of Sault St. Marie area and City of Timmins area while maintaining the existing EWTW limit of 450 MW. The proposed plan can preserve the opportunities for expansions should load materializes that would require higher EWTW transfer levels.</p> |
| <p>It is difficult to understand why Wawa TS cannot be extended to accommodate a second line from Porcupine TS as it would need to be expanded to accommodate 500/230kV auto-transformers when the new line is uprated to 500kV operation.</p> <p>If the plan includes the construction of two single-circuit lines between Porcupine TS and Wawa TS, the need to uprate the existing Hanmer to Mississagi line to 500kV operation is called into question.</p> | <p>Information from the transmitter of these existing facilities indicates that it would be very challenging to accommodate two 230 kV circuits or to build a 500 kV switch yard at the existing Wawa station site due to the current 230 kV switchyard, breaker configuration and several physical constraints surrounding the station.</p> <p>The study showed that the proposed plan recommendations would be sufficient to reliably and cost-effectively supply expected load growth in the Northeast while maintaining the EWTW capability. Furthermore, the IESO recommended the option to build the new circuit between Porcupine TS and Wawa TS to 500 kV standards but operate the circuit at 230 kV initially to allow more time to explore options for Wawa station expansion. Building the new circuit to 500 kV standards provides the opportunity to operate it at 500 kV and saves future upgrading work and lead time when it's needed.</p> |
| <p>It is difficult to understand how the uprated Hanmer to Mississagi line would ever be fully utilized. Following a contingency, most of its</p> | <p>A 500 kV line between Hanmer and Mississagi was found to be necessary for voltage stability following the loss of circuit P502X. It also helps</p> |

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| <p>pre-contingency flow would be picked up by the Algoma to Mississagi circuits.</p> <p>Continue to operate at 230kV and equip with a second conductor to effectively double thermal rating to around 1000MW. Its capability would then be more compatible with that of the two Algoma to Mississagi circuits and there would be no need to replace all of the insulators on the line. While the installation of the series capacitors would be an added cost, it would avoid the expense of installing 500/230kV auto-transformers at Mississagi TS.</p> | <p>offloading the 500 kV/230 kV autotransformers at Hanmer TS and avoiding the fourth auto at Hanmer TS to address thermal overloading issues.</p> |
| <p>Constructing a second 500kV line between Hanmer TS and Porcupine TS would provide a far superior solution to the Timmins area supply issue to supply the local load in the Wawa area plus the enhanced transfer across the East-West Tie AND the net Timmins area following the loss of circuit P502X</p> | <p>The study confirmed that the expected load in the City of Sault Ste. Marie and City of Timmins under a high growth scenario can be supplied simultaneously as well as maintaining EWTW to existing capability of 450 MW. No additional reinforcements were required on Mississagi to Wawa path to achieve these performance requirements.</p> |
| <p>Clarification requested on factors considered as to why the North South from the Wawa TS to Sault Ste Marie was not considered (e.g. load growth, age of the system, previous upgrades, impacts on future rates).</p> | <p>The IESO considered and tested the mentioned option of the reinforcement from Wawa TS to Sault Ste. Marie. Based on the technical assessment, it would not be able to fully meet the technical performance requirement especially under low water and high transfer west conditions. Also it was not as effective as the proposed reinforcement from Mississagi to Sault Ste. Marie.</p> |
| <p>Theme 3: Implementation of recommendations</p> | |
| <p>The new corridor from Timmins to Wawa should be situated near the Township of Chapleau to enable industry growth, sustainability and dependability. The Township of Chapleau and its First Nation area communities could capitalize on the potential benefits of the new infrastructure build.</p> <p>Installing underground transmission wherever plausible, rather than poles and towers should be considered. Underground transmission</p> | <p>According to a typical transmission development process, the IESO leads the development of this Northeast bulk plan. And then a transmitter will lead the implementation including the detailed design, routing evaluation and construction. The IESO will continue working with stakeholders and communities throughout the implementation of this plan such as through the</p> |

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| <p>compared to overhead would reduce transmission loss, be resilient to extreme weather, improve reliability of power supply, in the long-run less costly for maintenance/repair, and in urban areas improve the visual profile.</p> <p>Proper approvals, permits and consents with local municipalities and Indigenous communities is needed before any future projects are implemented.</p> | <p>transmitter’s development and detailed design work.</p> |
| <p>Theme 4: Access to additional information</p> | |
| <p>For a proposed expenditure of almost \$1.5 billion, the information provided in the presentation to justify the recommended sequence of transmission reinforcement in the north-east is disappointingly limited.</p> <p>It therefore makes it very difficult to provide constructive comments, especially since, without additional details and supporting evidence, some of the proposals appear rather strange and somewhat contradictory.</p> | <p>If there is any interest on specific technical aspects, the IESO can explore options to enable more opportunities for engagement such as a targeted discussions, technical conference, etc.</p> |
| <p>The conclusion that localized NWAs would only benefit particular load is questionable. Analysis should be expanded with updated information on the potential of wind and solar power generation technologies. Transparency in economic evaluations based on present indicators when assessing the true value of non-wire alternatives is needed.</p> | <p>The IESO explored various opportunities for alternative resource technologies in order to find the suitable resource types that could specifically help meet the identified bulk needs in the Northeast.</p> <p>Wind and solar power generation technologies were considered as options. A high-level assessment concluded that wind and solar are intermittent resources and the baseload requirement of a large capacity deems these renewable options as unfit given that production profiles do not the match load requirements. Also, it would create additional challenges to site the large amount of installed wind and solar generation that would be needed to reach the effective capacity.</p> <p>Analysis for NWAs and detailed economic evaluations will be included in the final report.</p> |

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| Theme 5: Engagement | |
| <p>Engagement process has been effective and appreciated and should continue in the same fashion throughout all electricity planning initiatives moving forward.</p> | <p>A reliable supply of electricity is essential to supporting economic vitality and growth. Engaging with communities, industry stakeholders and experts, businesses and other interested parties is an important part of maintaining a reliable electricity supply, now and in the future. An ongoing dialogue serves to build understanding of how regional planning happens and provides opportunities for local input, laying the foundation for successful implementation. The Northeast Regional Electricity Network will continue to be a platform to stay in touch on important local and regional developments and information sharing.</p> |