

Feedback Form

Northeastern Ontario Electricity Planning Webinar #2 – September 13, 2022

Feedback Provided by:

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Date: 4th October 2022

To promote transparency, feedback submitted will be posted on the [Northeast Bulk Planning engagement webpage](#) unless otherwise requested by the sender.

Following the September 13, 2022 engagement webinar, the Independent Electricity System Operator (IESO) is seeking feedback on the options considered to meet emerging needs and provide a foundation for future growth in Northeast Ontario and draft recommendations. The webinar presentation and recording can be accessed from the [engagement web page](#).

Please submit feedback to engagement@ieso.ca by October 4, 2022. If you wish to provide confidential feedback, please submit as a separate document, marked "Confidential". Otherwise, to promote transparency, feedback that is not marked "Confidential" will be posted on the engagement webpage.

Topic	Feedback
What feedback do you have regarding the draft recommendations?	
What other information should be considered in finalizing the recommended solutions and final report?	
How can the IESO continue to engage with the community as these recommendations are implemented, or to help prepare for future bulk and regional planning work?	

General Comments/Feedback

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.

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.

East-West Tie

The reinforcement of the East-West Tie was originally designed to achieve a westward transfer capability (when respecting a double-circuit contingency) of **650MW**, measured at Wawa TS.

At that time, however, it was recognized that double- circuit contingencies involving either the Mississagi to Wawa 230kV line, or the Mississagi to Third Line 230kV lines (which share common structures for 11 spans and are therefore classified as a double-circuit line for planning & operating purposes), would be much more restrictive and would limit westward transfers across the East-West Tie Interface to a maximum of approximately **500MW**.

Reinforcing the transmission facilities between Sudbury/Timmins and Wawa TS to increase their transfer capability and allow the full **650MW** transfer capability of the East West Tie to be realized is therefore recognized as being crucial. Constructing a new 230kV single-circuit line (to a 500kV standard) directly between Porcupine TS & Wawa TS would appear to partially satisfy this objective.

However, following a contingency involving this new Porcupine to Wawa line, 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 West Tie *while also* supplying the increasing load in the Wawa area.

Furthermore, when the **650MW** 'target' for the transfer capability of the reinforced East-West Tie was selected it was recognized that, should additional load materialize (such as the development of the Ring of Fire deposits), then the transfer capability of the East-West Tie could be further enhanced through the addition of series capacitors on each of the four circuits.

As part of this enhancement, it was expected that the sag temperature of the original East-West Tie circuits would be increased to 127°C to allow the maximum limited-time-rating [LTR] of each of those circuits to be utilized. This would then allow a maximum transfer capability for the *enhanced* East-West Tie of around **800MW** to be achieved.

I therefore believe that any plan for the reinforcement of the north-east system should have the capability of supporting future transfers of up to **800MW** across an *enhanced* East-West Tie.

Porcupine to Wawa Corridor

The eventual uprating of the proposed single-circuit line between Porcupine TS & Wawa TS to 500kV operation would provide a conservative thermal rating for this line of approximately 1500MW. This would then appear to be a very good match for a future transfer of around **800MW** across an *enhanced* East-West Tie since it would have sufficient spare capacity to supply not only the increased load in the Wawa area but also to provide a direct injection into the Great Lakes Power system via circuits W23K and K24G from Wawa TS.

However, following any contingency involving the new Porcupine TS & Wawa TS line, it is difficult to see how a transfer of **800MW** across the East West Tie could be maintained with only those facilities that have been proposed. Perhaps the installation of series capacitors on the Mississagi to Wawa circuits could provide a sufficient increase in their capacity, although the tapped connections on to each of the circuits for the Aubrey Falls generating units may prohibit this. If so, and a new line has to be constructed between Mississagi TS and Wawa TS to achieve the increased flow into Wawa TS, then constructing a second, companion

230/500kV line between Porcupine TS and Wawa TS, would seem to be a much better alternative.

The argument made in the presentation material that Wawa TS cannot be extended to accommodate a second line from Porcupine TS is difficult to understand since the station will presumably need to be expanded to accommodate the 500/230kV auto-transformers that will be required when the new line is uprated to 500kV operation.

And if the north-east reinforcement plan were to include the construction of two single-circuit lines between Porcupine TS and Wawa TS to ensure that a secure supply could be provided to the enhanced East-West Tie as well as to the local loads in the Wawa area, then this raises questions about the need to uprate the existing Hanmer to Mississagi line to 500kV operation.

Hanmer to Mississagi Line

With the Hanmer to Mississagi line operating at 500kV (and with its thermal rating increased to a conservative 1500MW, it would then represent the most critical contingency for flows into Mississagi TS, rather than the loss of the 230kV double-circuit line between Algoma TS and Mississagi TS, as at present.

Even with the new line between Porcupine TS and Wawa TS in-service, I would expect that, following a contingency involving the uprated Hanmer to Mississagi line, most of its pre-contingency flow would be picked up by the Algoma to Mississagi circuits. It is therefore difficult to understand how its significantly increased capacity will ever be fully utilized, unless, of course, a second 500kV line were to be built between Hanmer TS and Mississagi TS and the Algoma to Mississagi circuits were operated open.

If instead of uprating the Hanmer to Mississagi line to 500kV operation, it were to continue to operate at 230kV but was equipped with a second conductor on each phase (to provide twin conductor bundles), then its thermal rating would effectively be doubled, increasing it to around 1000MW. While it might require series capacitors to be installed to achieve this level of transfer on the 206km long line, its capability would then be more compatible with that of the two Algoma to Mississagi circuits.

And by continuing to operate the Hanmer to Mississagi line at 230kV, there would be no need to replace all of the insulators on the line, so the outages required would only be for the installation of the second conductor on each phase, which should be far less onerous to arrange. And, 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.

Hanmer to Porcupine 500kV line

If the primary reason for establishing a new 500kV connection between Hanmer TS and Mississagi TS (either by uprating the existing 230kV line or by building a new 500kV line, as

is now recommended) is to cater for the loss of the 500kV circuit P502X between Hanmer TS and Porcupine TS, and provide an alternative supply to the Timmins area load, then I'm not sure how effective this will be.

Presumably, following the loss of circuit P502X, the intent would be to supply the entire Timmins area load via the new 500kV line from Wawa TS, even during periods of low water conditions at the generating facilities on the Abitibi & Mattagami Rivers.

This would mean that the existing transmission facilities between Wawa TS and Mississagi TS/Third Line TS would have to be capable of supplying the local load in the Wawa area plus the enhanced transfer across the East-West Tie *AND* the net Timmins area load. I would expect this to require either a new 230kV double-circuit line, or preferably, a new 500kV line between Mississagi TS and Wawa TS. Should analysis confirm this, then constructing a second 500kV line between Hanmer TS and Porcupine TS would provide a far superior solution to the Timmins area supply issue.

Mississagi TS to Third Line TS

It is very disappointing that, after taking the time to comment, my proposals to separate the circuits over the short section where they share common structures, so as to eliminate the double-circuit contingency condition, and to install a second conductor on each phase of the two lines to effectively double their thermal capacity, appears to have been ignored.

The presentation simply shows a new 230kV double-circuit line being required between Mississagi TS and Third Line TS by 2029 with absolutely no rationale being provided as to why.

In conclusion

My criticism of the IESO's Plan can be summarised as follow:

It appears that the Plan is trying to address three main issues, and it does not appear to be satisfying any of them particularly well:

- Secure the supply to the Timmins area
- Secure the supply to the East-West Tie
- Secure the supply to the Sault Ste. Marie area

To *Secure the supply to the Timmins area* will require a new 500kV line between Hanmer TS & Porcupine TS.

To *Secure the supply to the East-West Tie* (particularly if its transfer capacity is increased to around 800MW through the installation of series capacitors) will require two new 500kV lines between Porcupine TS & Wawa TS.

This would make Wawa TS, rather than Mississagi TS, the main supply hub and would thereby avoid the need to complete the apparent 'missing link' in the IESO's Plan between Mississagi TS & Wawa TS.

To *Secure the supply to the Sault Ste Marie area*, will require the separation of circuits P21G & P22G over the section where they share common structures, so as to eliminate the double-circuit contingency condition, AND the construction of a second 230kV line between Wawa TS & Third Line TS, to take full advantage of Wawa TS's enhanced role as a major supply hub. The existing transmission facilities between Sudbury & Mississagi TS, whose main purpose would remain as the primary supply source to the Sault, would then be complemented by the enhanced supply capability that would become available from Wawa TS.

The challenge of this proposal, however, will be how to stage this development so that the resulting increases in supply capability can remain consistent with the growth in demand in both the Sault and in the North-west Region.

