



IESO Staff Recommendation to Panel on Exemption Application (General)

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Terms and acronyms used in this Form that are italicized have the meanings ascribed thereto in Chapter 11 of the *market rules*.

PART 1 – GENERAL INFORMATION

Market Participant Name: **Hydro One Networks Inc.**

Location/Site: **Windsor Area**

Exemption Application ID: **1361**

Market Participant ID: **102007**

Description of Exemption Requested: **Hydro One Inc. (“Hydro One”) requests exemption from sections 7.1 and 7.2 in Ontario Resource and Transmission Assessment Criteria (ORTAC) for the load connecting to South Middle Road (SMR) Transformer Station (TS)**

Date Exemption Application Received: **April 7th, 2022**

Date all relevant application information supplied by exemption applicant: **April 7th, 2022**

Management Approvals Obtained: Yes No

Are there any outstanding disputes, compliance actions, or pending market rule amendments involving the subject matter of this exemption application? Yes No

Are there any outstanding disputes, compliance actions, or pending market rule amendments involving the exemption applicant? Yes No

Section of the Exemption Application and Assessment Procedure under which the exemption application is made:

- **Section 1.4 “Application for Exemption – General”**

Market Rule(s) or related Market Manual(s) from which exemption is requested: **Sections 7.1 and 7.2 in ORTAC**

Third Party Submissions Received: Yes No

Supplemental Assessment Information Attached: Yes No

Related Historical Exemption Application(s) or Related Exemption Application(s) in Process:

Yes No

Note: If YES, list history of exemption applications:

Exemption application # 1359 is a Related Exemption Application

Role of exemption applicant in the market as it relates to this exemption application: **Connection Applicant, Transmitter and Distributor**

PART 2 – RECOMMENDATION

Recommendation: The IESO recommends that the exemption be granted on the following basis:

- 1- The exemption from the load security criteria (section 7.1 in ORTAC) and the load restoration criteria (section 7.2 in ORTAC) allows up to 412 MW of load awaiting grid supply to be connected to SMR TS before the required system upgrades in (2) below, come in-service.
- 2- The exemption is granted until system upgrades in the form of the two 230 kV transmission circuits from Chatham Switching Station (SS) to Lakeshore TS, and two 230 kV transmission circuits from Lambton TS to Chatham SS come in-service. These facilities are scheduled to be in-service by Q4, 2025 and Q4, 2028, respectively. Until this time, Hydro One has ensured that its affected customers understand they will be connected at a lower level of reliability than normally prescribed by ORTAC as a result of this exemption.

Criteria Used in Assessment of General Exemption Applications (Section 1.4.2 of Exemption Application and Assessment Procedure):

(If X appears in a box, the criterion is applicable to this *exemption application* and is evaluated in Part 3 - Details of Assessment; if X does not appear in a box, the criterion is not applicable to this *exemption application*.)

Whether the *exemption* that is the subject-matter of the *exemption application* would, if granted, materially:

- impact the ability of the *IESO* to direct the operations and maintain the *reliability* of the *IESO-controlled grid*;
See below
- impact the ability of the *IESO* to ensure non-discriminatory access to the *IESO-controlled grid*;
See below
- affect the ability of the *IESO* to operate the *IESO-administered markets* in an efficient, competitive, and reliable manner;
See below
- increase costs of *market participants*; or
See below
- increase costs of the *IESO*;
See below

Whether the *exemption* that is the subject-matter of the *exemption application* would, if granted, give the *exemption applicant* an undue preference in the *IESO-administered markets*;

See below

Whether the cost or delay to the *exemption applicant* of complying with the obligation or standard to which the *exemption application* relates is reasonable, having regard to the nature of the obligation or standard, the nature of the *exemption application* and the anticipated impact of non-compliance by the *exemption applicant* in terms of the elements referred to above;

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See below

The adequacy of the *exemption* plan submitted by the *exemption applicant*;

See below

Where the *exemption applicant* is the *IESO*, the identification of the benefit to *market participants* of compliance with the obligation or standard relative to the financial and other resources required to achieve compliance within such deadlines as may be applicable;

Where the *exemption applicant* is the *IESO*, the manner in which it proposes to operate in the *IESO-administered markets* or direct the operations and maintain the *reliability* of the *IESO-controlled grid* during the period in which the *exemption* would be in effect;

Whether the *facility* or equipment that is the subject-matter of the *exemption application*:

- was in service or was returned to service on the date on which the obligation or standard to which the *exemption* application relates came into force;
- was ordered by the *exemption applicant* on or prior to the date on which the obligation or standard to which the *exemption application* relates came into force; or
- was in the process of construction on or prior to the date on which the obligation or standard to which the *exemption application* relates came into force; and

The capability of the owner of the *facility* to operate the *facility* consistent with the terms of the proposed *exemption*.

See below

PART 3 – DETAILS OF ASSESSMENT

SUMMARY

Sections 7.1 and 7.2 of the ORTAC specify the following criteria for load security and restoration, respectively:

Section 7.1:

- With one element out of service, **not more than 150 MW of load may be interrupted** by configuration and by planned load curtailment or load rejection, excluding voluntary demand management. Planned load curtailment or load rejection, excluding voluntary demand management is permissible only to account for local generation outages
- With two elements out of service, planned load curtailment or load rejection exceeding 150 MW is permissible only to account for local generation outages. **Not more than 600 MW of load may be interrupted** by configuration and by planned load curtailment or load rejection, excluding voluntary demand management.

Section 7.2:

- All loads must be restored within approximately a target of 8 hours. When the amount of load interrupted is greater than 150 MW, the amount of load in excess of 150 MW must be restored within approximately a target of 4 hours. When the amount of load interrupted is greater than 250 MW, **the amount of load in excess of 250 MW must be restored within a target of 30 minutes.**

The System Impact Assessment (SIA) report CAA 2019-666 assessing the connection applications for the SMR load identified that the amount of load that would need to be interrupted and the amount of load that cannot be restored exceed the ORTAC criteria. There are two requirements from the SIA that require exemptions, as follows:

Requirement # 2 in the SIA required Hydro One to obtain an exemption from satisfying section 7.1 load security criteria (e.g., load loss greater than 150 MW) in ORTAC for the new loads supplied by SMR TS because, under the following system conditions:

- Following the loss of any of the 230 kV circuits L28C, L29C or J5D up to 412 MW of load is needed to be interrupted by rejection if the largest local generation unit, Brighton Beach G1 is on outage.;
- During either L28C or L29C outages, 125 MW of load is planned to be interrupted by curtailment with all local generation in-service;
- Following the loss of Brighton Beach Customer Generation Station (CGS), which can be the result of a fault within Brighton Beach CGS, or of the action of a remedial action scheme (RAS) following single loss of J3E, single loss of J4E, single loss of Z1E, single loss of Z7E, or the simultaneous loss of H25J and H26J contingencies, up to 412 MW of load would be required to be interrupted by rejection.

Requirement # 3 in the SIA required Hydro One to obtain an exemption from satisfying section 7.2 load restoration criteria in ORTAC for the new loads supplied by SMR TS because, under the following system conditions, load interrupted in excess of 250 MW cannot be restored within a target of 30 minutes:

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- Following the loss of Brighton Beach CGS, which can be the result of a fault within the Brighton Beach facility, or of the action of a RAS following single loss of J3E, single loss of J4E, single loss of Z1E, single loss of Z7E, or the simultaneous loss of H25J and H26J contingencies;
- Following the single loss of L28C, single loss of L29C, single loss of J5D, simultaneous loss of L29C and L24L, simultaneous loss of W44LC and S47C, simultaneous loss of W44LC and W45LS, simultaneous loss of C42H and C64H, or simultaneous loss of C43H and C65H contingencies.

Details pertaining to section 7.1 load security criteria in ORTAC

Forced outages to L28C or L29C have historically occurred with a rate of 2.2 times per year, as indicated by Hydro One. As the forced outages must coincide with peak load conditions and Brighton Beach CGS out-of-service to cause the violations of ORTAC load security criteria, the load security violations because of these outages are expected to occur with a rate significantly lower than 2.2 times per year.

Forced outages to J5D, Z1E and Z7E have historically occurred with a rate of 2.3 times per year, as indicated by Hydro One. The forced outages must coincide with peak load conditions and maximum import level from Michigan (i.e. 1550 MW) to cause the violations of ORTAC load security criteria. However, the Midcontinent Independent System Operator's 2022 planning resource auction indicated that there are limited resources available to provide imports from Michigan to Ontario during the period of the exemption. Thus, the load security violations because of these outages are not expected to occur during the period of the exemption.

Planned outages for either L28C or L29C will be restricted under peak load conditions to reduce the need for load curtailment or rejection.

Details pertaining to section 7.2 load restoration criteria in ORTAC:

Hydro One supporting document for the exemption indicates that it cannot restore load in excess of 250 MW at SMR TS (e.g. 162 MW of the total SMR TS load) in 30 minutes in all situations.

Historically, forced outages that are longer than one minute and that require a manual restoration effort have a combined occurrence rate of 1 time per year for L28C and L29C as indicated by Hydro One. As the forced outages must coincide with peak load conditions to cause the violations of ORTAC load restoration criteria, load restoration violations because of these outages are expected to occur with a rate lower than 1 time per year.

The forced outages that are longer than one minute and that require a manual restoration effort have a combined rate of 1.3 times per year for J5D, Z1E and Z7E as indicated by Hydro One. The forced outages must coincide with peak load conditions and maximum import level from Michigan (i.e. 1550 MW) to cause the violations of ORTAC load restoration criteria. However, the Midcontinent Independent System Operator's 2022 planning resource auction indicated that there are limited resources available to provide imports from Michigan to Ontario during the period of the exemption. Thus load restoration violations because of these outages are not expected to occur during the period of the exemption.

Planned outages for L28C, L29C C42H, C43H, C64H or C65H will be restricted under peak load conditions to reduce the risk of load curtailment and rejection. Further, higher thermal ratings for L28C and L29C will be used to mitigate the need for load curtailment and rejection at SMR TS.

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Additional Details on Customer Impacts:

Hydro One will leverage all available measures to limit the risk of load interruption and support operating flexibility. This includes design and implementation of a new RAS to automatically interrupt load following a contingency as opposed to requiring IESO Operators to pre-emptively initiate manual load curtailment. (Note: There will be periods of time during the construction of new transmission assets in 2022 when the new RAS will be unavailable, which will require careful coordination of local outages and new load supply.)

Hydro One's supporting document for the exemption indicates that they will allow for the use of higher equipment ratings than the current ones for L28C and L29C, and coordinate or avoid planned outages impacting the supply of SMR TS load. Allowance of these measures will decrease the impact that SMR TS load will have on operating flexibility

While the historical percentages of equipment failures noted above suggest that the chances of load interruption will be minimal under expected operation conditions, there might be an increased risk of load interruption during outages to facilitate transmission reinforcements in the area.

The IESO will leverage existing operating policy actions to limit impact on customers. Operating policy actions include requiring supply from local generation and managing intertie flows to avoid pre-contingency customer outages or restore load post-contingency where possible. Load restoration may require returning transmission equipment to service or starting local generation.

IESO's assessment on impact on the ability of the IESO to direct the operations and maintain the reliability of the IESO-controlled grid:

The connection of the proposed new load and deployment of new remedial action schemes increase the complexity of operations planning (e.g., outage assessments) and real-time operations at the IESO. However, IESO staff assessed the impact on the ability of the IESO to direct operations and maintain the reliability of the broader Ontario power system as being acceptable for this load connection. Future exemption requests of this type may exceed our ability to properly direct real-time operations and maintain the reliability of the IESO controlled grid – and therefore may not be supported by IESO staff.

Impact the ability of the IESO to ensure non-discriminatory access to the IESO-controlled grid:

The exemption may impact the ability of the IESO to ensure non-discriminatory access to the IESO controlled grid in situations where the IESO must cut loads via manual rotational load shedding schemes. Under section 2.7.8. of Market Manual 7.4, the IESO is obligated to, among other things, shed loads equitably across the IESO-controlled grid in certain emergency circumstances. This exemption, if granted, would provide the IESO with discretion to shed load supplied by SMR TS in preference to other loads, without regard to all of the equitable considerations set out section 2.7.8. of Market Manual 7.4, as SMR TS load is allowed to connect before the load security criteria in ORTAC are met.

Affect the ability of the IESO to operate the IESO-administered markets in an efficient, competitive, and reliable manner; increase costs of market participants; or increase costs of the IESO

The measures proposed by Hydro One will limit the impact on the ability of the IESO to operate the IESO-administered markets in an efficient, competitive, and reliable manner and minimize increasing costs of market participants; or increasing costs of the IESO. While the connection of the new load

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and deployment of new remedial actions schemes increase the complexity of operating the grid, IESO staff assessed the impact on the ability of the IESO to operate the IESO-administered markets in an efficient, competitive, and reliable manner; increase costs of market participants; or increase costs of the IESO as not material for this exemption. Future exemption requests of this type may exceed our ability to operate the IESO-administered markets in an efficient, competitive, and reliable manner; increase costs of market participants; or increase costs of the IESO – and may not be supported by IESO staff.

Whether the exemption that is the subject-matter of the exemption application would, if granted, give the exemption applicant an undue preference in the IESO-administered markets;

Hydro One indicated that SMR TS load will not submit bids in IESO-administered energy markets during the term of the exemption (e.g., remain non-dispatchable loads). Thus, granting this exemption will not give Hydro One and its customers undue preference in the IESO-administered markets.

Whether the cost or delay to the exemption applicant of complying with the obligation or standard to which the exemption application relates is reasonable, having regard to the nature of the obligation or standard, the nature of the exemption application and the anticipated impact of non-compliance by the exemption applicant in terms of the elements referred to above:

Granting Hydro One this exemption avoids a delay of about 6 years to connect up to 412 MW of greenhouse load waiting to be connected to SMR TS. Therefore, pursuance of this exemption, in accordance with the exemption applicant's plan, is reasonable given the impact of non-compliance does not adversely impact the ability of the IESO to direct operations and maintain the *reliability* of the *IESO-controlled grid*. Furthermore, Hydro One has ensured its customers understand they will be connected at a lower level of load security and restoration than normally prescribed by ORTAC as a result of this exemption.

The adequacy of the exemption plan submitted by the exemption applicant

The IESO has determined the exemption applicant's exemption plan is adequate. Hydro One plans to require the exemption until system upgrades in the form of the two 230 kV transmission circuits from Chatham SS to Lakeshore SS and the two 230 kV transmission circuits from Lambton TS to Chatham SS come in-service by Q4, 2025 and Q4, 2028, respectively. The Lieutenant Governor in Council approved directives requiring the Ontario Energy Board to amend Hydro One's electricity transmission licence to require Hydro One to develop and seek approvals for the two 230 kV transmission circuits from Chatham SS to Lakeshore SS and the two transmission circuits from Lambton TS to Chatham SS (see Orders in Council 1499/2020 and 875/2022). Further, Hydro One indicated that the leave to construct application for the two 230 kV transmission circuits from Chatham SS to Lakeshore SS was submitted to Ontario Energy Board in Q1, 2022, and the Environmental Assessment for the two 230 kV transmission circuits from Lambton TS to Chatham SS was started in Q1, 2022. The ORTAC load security and restoration criteria for the new load are expected to be met after these system upgrades are in-service.

The capability of the owner of the facility to operate the facility consistent with the terms of the proposed exemption.

In consultation between the IESO and Hydro One, Hydro One has demonstrated full intention and the capability to operate SMR TS consistent with the terms of this exemption.

PART 4 – TERMS AND CONDITIONS

Effective Date of Exemption (or event causing <i>exemption</i> to become effective)	August 16 th , 2022
Date of Expiration of Exemption <ul style="list-style-type: none"> • If greater than 5 years, the Panel must be satisfied that the circumstances justify a later date. • Circumstances which will cause the <i>exemption</i> to immediately expire. 	December 31 st , 2028 System upgrades in the form of the two 230 kV transmission circuits from Chatham SS to Lakeshore SS, and the two 230 kV transmission circuits from Lambton TS to Chatham SS come in-service by Q4, 2025 and Q4, 2028, respectively.
Market Rule(s) or related Market Manual(s) from which the <i>Exemption</i> is granted.	Section 7.1 and section 7.2 in ORTAC
Restrictions on the manner of operation and/or additional obligations to be met during the term of the Exemption, if any.	<ul style="list-style-type: none"> • Planned outages to transmission elements connected to Chatham SS, Lakeshore TS, Keith TS and Lauzon TS will be coordinated or avoided to mitigate the need for load curtailment and rejection at SMR TS. • Transmission elements connected to Chatham SS, Lakeshore TS, Keith TS and Lauzon TS will be restored within the timeframe requested by the IESO, to mitigate the need for load curtailment and rejection at SMR TS • Thermal ratings higher than the existing ones will be used for L28C and L29C to mitigate the need for load curtailment and rejection at SMR TS • Pre-contingency load curtailment during outages and Post-contingency load rejection for SMR TS load will be used to maintain system reliability. • SMR TS load will not be allowed to submit bids to the energy markets.
Monitoring Information Required Information required to be provided by the <i>exemption applicant</i> for monitoring by the <i>IESO</i> .	Provide confidential project status update every six months to the IESO starting from the effective date of the exemption for the two 230 kV transmission circuits from Chatham SS to Lakeshore SS, and the two 230 kV transmission circuits from Lambton TS to Chatham SS projects
Payment of Costs	N/A

PART 4 – TERMS AND CONDITIONS

<ul style="list-style-type: none"> • Processing costs (when introduced) • Incremental <i>exemption</i> costs • <i>Settlement amounts</i> to be withheld or repaid. 	
<p>Reconsideration/Removal</p> <ul style="list-style-type: none"> • Date on which the <i>exemption</i> will be reconsidered (if applicable). • Circumstances under which the <i>exemption</i> will be reconsidered (if applicable) other than unforeseen future change in circumstances. 	December 31 st , 2028
<p>Transferability</p> <ul style="list-style-type: none"> • List the terms and conditions that need to be met to allow for a transfer of this <i>exemption</i> to be approved by <i>IESO</i> staff. 	This exemption is not transferrable.
Other:	N/A