
Ontario Regulation 429/04 Amendments Related to the Treatment of **Corporate Power Purchase Agreements**

Posted by Ministry of Energy

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Proposal summary

The Ministry of Energy is seeking feedback on amendments to O. Reg. 429/04 that would allow qualifying Class A market participants to offset their facility's demand during each hour of a base period for financial settlement purposes through power purchase agreements with non-emitting generators not connected to the facility behind its meter.

These proposed amendments are informed by feedback received from stakeholders during the consultation held in 2023 and aim to support the growth of new clean generation in the province.

Following the release of the Powering Ontario's Growth plan in 2023, the Independent Electricity System Operator (IESO), at the direction of the province, is procuring new clean electricity resources to meet the province's growing energy needs. In 2023, the IESO launched its electricity capacity resource procurement and expects to launch an electricity energy resource procurement in 2024.

The proposed amendments aim to support the growth of new clean generation in the province by allowing Industrial Conservation Initiative (ICI) market participants to offset their facility's demand in the top five peak hours of a base period for settlement purposes through power purchase agreements (PPAs) with non-emitting generation facilities that are not connected behind the facility's meter. The proposal would be similar to "virtual" net metering arrangements for Market participants, in that the contracted generation would be treated as if it is supplied to the Market participant behind-the-meter for the purpose of determining Global Adjustment (GA) charges.

The types of technologies that would be eligible under the proposal are wind, solar, hydroelectric and biofuel. The Ministry recognizes the interest in pairing these technologies with energy storage and the inclusion of nuclear small modular reactors (SMRs), however due to the complexity to implement these additional technologies they will be considered at a future date. The proposal is intended to encourage the growth of non-emitting energy generation in the province and follows other recent initiatives taken by the government to support the procurement of clean energy resources to meet the province's growing energy needs.

The Ministry is particularly interested in stakeholder feedback as it pertains to the mechanics of financial settlement (including peak demand factor calculations) under the proposed amendments. The Ministry is also interested in stakeholder feedback on the implementation of a proposed requirement that new generation facilities obtain a local municipal support resolution stating support for the new generation facility on their municipal lands in order to be eligible under the proposed amendments, and a potential restriction on locating new generation facilities on prime agricultural lands. The anticipated effective date for the proposed amendments is May 1, 2025.

The proposed regulatory amendments may be subject to change after considering feedback from the Environmental Registry and Regulatory Registry posting and stakeholder consultations.

Comments from UofT:

UofT's comments on O. Reg. 429/04 amendment are crafted from distinct perspectives that of a generator and that of a consumer. When an **Industrial Conservation Initiative (ICI)** participant generates renewable energy within their Facility A and intends to use that electricity at Facility B (located in a different geographic location within the province), several considerations come into play:

- **Virtual Net Metering (VNM):**

- Virtual net metering allows the electricity generated at one location (Facility A) to offset the consumption at another location (Facility B).
- The net metering arrangement is “virtual” because the physical electricity doesn’t directly flow from one facility to another; instead, it’s accounted for on the grid.
- Facility B receives credits for the electricity generated by Facility A, effectively reducing its electricity bill.

- **Eligibility and Regulatory Framework:**

- O. Reg. 429/04 determine whether virtual net metering is allowed and under what conditions.
- The Market participant must meet specific criteria to participate in VNM, including being a Class A market participant and having eligible renewable generation at Facility A.

- **Peak Demand Factor (PDF) Calculation**

- The PDF adjustment from generated renewables in the 5 peak hours could be credited in the PDF calculation as shown in the formula below.

$$CPPA\ PDF_{credit} = \frac{\sum_{Hour\ 1}^5 Generation\ at\ hour\ n\ (MWh)}{\sum_{Hour\ 1}^5 System\ wide\ consumption\ during\ 5\ peak\ hours\ (MWh)}$$

- The PDF credit would then be applied by the LDC of the consumer in the next billing cycle.

- **IESO Administration**

- It is recommended that the PDF credit calculation and verification be administered by IESO and communicated to the LDC of the consuming facility
- IESO would need to set up a mechanism and requirements for data collection from the generating facility for the generation during the 5 peak hours at the required granularity

- If IESO is administering the program, it would be the central body keeping track of each MW of generation included in a CPPA agreement to avoid double counting
- **Internal CPPA**
 - A streamlined CPPA agreement and process should be established and any barriers removed in the case that the generator and consumer fall under the same organization even if within two different LDC's
 - Avoid setting limits on the maximum capacity to be included in CPPA's for GA avoidance, at least for internal CPPA's
- **Billing and Credit Mechanism:**
 - Facility B receives credits (often in kilowatt-hours or monetary value) based on the electricity generated by Facility A.
 - These credits offset Facility B's electricity consumption during billing cycles.
 - The net result is reflected in Facility B's electricity bill.
- **Transparency in PDF credits calculation.** The LDC of the consuming facility should include the following details on the bill (or a separate dedicated bill) to show the PDF calculations and credits:
 - 5 peak hours
 - MWh generation at each of the 5 peak hours
 - MWh consumption at each of the 5 peak hours
 - Adjusted PDF calculation showing the credits
 - Avoided GA charges
- **Metering and Measurement accuracy:**
 - Separate meters are installed at Facility A (generation meter) and Facility B (consumption meter).
 - The grid operator tracks the net difference between the electricity generated and consumed.
 - Facility B's consumption is reduced by the amount of electricity generated by Facility A.
 - The types and granularity of accepted meters should be determined as well as the data collection, management, and transfer between the consumer, LDC's and IESO for PDF calculations and adjustments.
- **Distance and Grid Connection:**
 - The physical distance between Facility A and Facility B doesn't impact virtual net metering. They may however be impacted by the connection of grid expansion.

- As long as both facilities are connected to the same electricity grid, the arrangement can work effectively.
- **Contractual Agreements:**
 - Recommend that the Ministry of Energy (MOE) provide additional administrative guidelines on constructing a special contractual agreement between generators (facility A) and consumers (facility B). In the case of UofT, the generator and consumer fall under the same organization.
 - UofT and IESO/LDCs (e.g. IESO, THES, or Hydro One, if applicable) may need an agreement that outlines the terms, credit calculations and mechanisms, and responsibilities. It's essential to ensure that the arrangement aligns with relevant regulations, such as ON Reg.429/04 and Ontario's net metering rules.
- **Benefits:**
 - VNM promotes distributed renewable energy generation.
 - It allows Market participants to optimize their renewable assets across multiple locations.
 - Facility B benefits from cleaner energy without needing on-site renewable infrastructure.
- **Challenges:**
 - Regulatory compliance and administrative processes can be complex.
 - Technical considerations (such as grid stability and metering accuracy) must be addressed.

In summary, virtual net metering enables Market participants to leverage renewable energy generated at one facility to offset consumption at another, even if the facilities are geographically separated. Proper planning, legal agreements, and adherence to regulations are essential for successful implementation.

Other considerations:

a) Integration with Energy Storage:

- Suggest that the regulation explicitly address the integration of energy storage technologies (like batteries) with renewable generators.
- Encourage MOE to explore ways to incentivize combined solar-plus-storage projects, aligning with federal incentives like the Investment Tax Credit (ITC) for solar PV paired with battery storage.

Future outlooks:

- Recommend that the MOE provide clear directions on incorporating energy storage into renewable projects in future updates to the regulation.

- Emphasize the importance that battery storage is essential for easing participants' GA charges, reducing reliance on fossil fuels, and supporting clean energy transitions.

b) Environmental Considerations:

- Emphasize the environmental benefits of solar energy, including reduced air pollution and water usage compared to fossil fuels.
- Encourage the MOE to consider lifecycle assessments when evaluating solar projects. Marginal emissions factors (MEF) play a role in assessing not only direct emissions during electricity generation but also emissions from production, transportation, and disposal.
- **Incorporate MEFs into Environmental Regulations:**
 - MEFs capture the temporal variability of emissions. Unlike average emission factors, which provide a static view, MEFs consider the real-time impact of electricity consumption.
 - MEFs represent the additional greenhouse gas (GHG) emissions associated with consuming an extra unit of electricity from the grid at a specific moment. Policymakers can target interventions (such as promoting renewable energy or energy storage) during those periods.
 - The marginal emission factor reflects the emissions from the last dispatched power plant (often fossil-fueled) that meets the increased demand. For instance, solar PV systems have zero direct emissions during operation. However, if they reduce the need for fossil fuel-based generation during peak hours (when MEFs are high), their indirect impact is positive.
 - Collaborate with utilities and research institutions to improve data availability.
 - Reliable real-time data on grid emissions is essential for accurate MEF calculations.

c) Collaboration and Stakeholder Engagement:

- Suggest regular stakeholder consultations to gather feedback and address concerns.
- Promote collaboration between government agencies, industry experts, and local communities.