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June 25, 2025

Alberta Utilities Commission
Eau Claire Tower
1400, 600 Third Avenue SW
Calgary, AB T2P 0G5

Dear Laura Frank:

Re: EPCOR Distribution & Transmission Inc. (EDTI)
Bulletin 2025-05, AUC Consultation on Rule 024 and Micro-generation Application Process Questionnaire

1. Please find attached, EDTI's submission in response to Bulletin 2025-05.

2. Please contact me at (780) 412-3799 if you have any questions with respect to this filing.

Sincerely,

[Electronically Submitted]

Teresa Crotty-Wong
Director, Regulatory Affairs & Business Planning
EPCOR Distribution & Transmission Inc.

Rule 024 and micro-generation application process questionnaire

Questions:

1. Should there be a standardized methodology or minimum information requirements for utilities' calculation of the estimated annual consumption at a customer's existing or new site and the calculation of the micro-generation unit's output? Please provide and explanation.

No, a "one-size-fits-all" approach is not appropriate. Each Distribution Facility Owner (DFO) operates within a unique context, shaped by regional, territorial, and customer-specific factors. These differences should be recognized.

For example, load profiles in rural and urban areas vary and methodologies that are effective in rural areas may not be suitable for urban environments where higher population densities present different challenges and operational dynamics. Therefore, while the Micro-Generation Regulation (Regulation) should establish clear requirements and expectations, it should also provide each DFO with the flexibility to develop and implement guidelines that align with their specific circumstances. This approach ensures that the Regulation is both equitable and practical across diverse settings.

a. Please identify and justify the best historical timespan for accurately assessing a customer's historical energy usage (for existing sites).

For existing sites, the optimal historical timespan for assessing a customer's energy consumption is 3 years. By using multiple years, EDTI observes from its customers that consumption can change based on sale of home, life changes and technology additions to residential homes (i.e., hot tubs, air conditioning, heat pumps, and electric vehicles). EDTI currently utilizes up to three years of monthly site consumption data, where available. If 3 years of data is not available, a minimum of 12 consecutive months of historical consumption data is required to perform an accurate assessment. In cases where this minimum threshold is not met, alternative documentation, such as a completed HOT2000 energy model or engineer-stamped consumption estimates, must be provided to support the energy usage evaluation.

EDTI recommends using the peak of 12 consecutive months (from 3 years data) rather than the average consumption spanning multiple years because the average does not accurately reflect all of the customer's total annual energy consumption.

Consumption can vary month to month and an average calculator over more than 12 months would reduce the customer's potential production.

b. Please identify and justify the best way for accurately projecting a customer's future energy usage (for new sites).

The most reliable approach for estimating a customer's future energy consumption at new sites involves a combination of detailed energy modeling and professional validation. Specifically, the methodology should include:

- Energy consumption calculations in accordance with CSA Standard C22.1-24 (Canadian Electrical Code).
- Historical consumption data from comparable sites with similar characteristics (e.g., size, usage type, occupancy).
- Use of recognized energy modeling software, such as HOT2000, to simulate expected energy performance.

EDTI's process is that all projections are reviewed and verified by the customer's qualified consultant or contractor with relevant experience in energy modeling and building systems to ensure accuracy and regulatory compliance.

c. Please specify and justify the minimum level of proof that utilities should accept if a customer explains that they intend to increase their electricity consumption shortly after installing a micro-generation system (such as electric vehicle proof of purchase, etc.)

EDTI not does accept proof of purchase nor does it recommend accepting any projected or intent-based claims of increased electricity consumption as a basis for adjusting estimated usage following the installation of a micro-generation system. DFOs do not have the resources, tools nor authority to monitor or verify whether the anticipated increase in consumption actually occurs. Accepting unverified claims, such as proof of purchase for electric vehicles or other appliances, could lead to inaccurate consumption estimates and potential misuse of the micro-generation framework. Basing calculations on speculative or unverifiable information undermines the accuracy and fairness of utility assessments and may create inconsistencies across customer accounts.

Instead, utilities should rely on actual historical consumption data and verifiable site-specific information when estimating future usage. Any adjustments to consumption estimates should be made only after measurable changes in usage patterns are observed and documented.

d. Please explain how a new micro-generation unit's yearly energy output should be calculated, including accommodation for any partial shading or coverage of rooftop solar photovoltaic system.

EDTI recommends that utilities limit their review of micro-generation systems to verifying that customer electricity consumption does not exceed their calculated production. DFOs should not assess or validate the customer's production estimates. DFOs are not subject matter experts in the design or performance modeling of customer-owned generation systems, such as solar photovoltaic (PV) installations. EDTI believes its core responsibility lies in the design, engineering, and operation of the electrical distribution network, from substations to end-users. As such, evaluating the technical accuracy of customer-side generation calculations falls outside their scope of expertise and regulatory responsibility.

In EDTI, the annual energy output of a new micro-generation unit, such as a rooftop solar photovoltaic (PV) system, is calculated based on site-specific production calculation provided by the customer and their qualified contractor or consultant. These calculations must adhere to applicable Micro-Generation Regulations, Codes, Standards, and recognized industry practices.

The customer, in collaboration with a qualified professional, is responsible for calculating the expected annual energy production accounting for all relevant site-specific factors such as:

- partial shading;
- roof orientation and tilt;
- system efficiency;
- local solar irradiance; and
- obstructions or seasonal variations.

The customer would then provide this information to the DFO for review against the parameters of the Micro-generation Regulation to ensure that there is no overproduction.

2. There are currently no specified mechanisms for monitoring the compliance of micro-generation systems with the Micro-Generation Regulation (i.e., the micro-generation system generates all or a part of, but not more than, the customer's yearly electricity consumption) after the system is approved. How important is post-approval compliance monitoring to ensure micro-generators are remaining aligned with the Micro-Generation Regulation? Please provide an explanation.

EDTI does not consider post-approval compliance monitoring to be necessary, provided that the Micro-Generation Regulation is clearly defined and effectively addresses both technological capabilities and customer requirements.

EDTI has internal controls in place to monitor risk. A cross-functional team within EDTI meets annually to monitor and review micro-gen consumption customer behavior at a site level, including any that is related to over-generation. EDTI's review found that in 2024 annual net generation was approximately 29% on average of total annual consumption (at a site level); showcasing that EDTI's upfront controls during the application process are an effective means of managing micro-generation compliance. Based on the 2024 annual control report, approximately 9% of small micro-gen sites and 2% of large micro-gen sites (represented by one site) are consistently over-generating beyond their annual consumption.

As a further control, EDTI and the City of Edmonton's Electrical Inspection group introduced a process improvement in 2023 to have the Interconnection Agreement present prior to final inspection for connection to the grid. This process improvement has led to alignment of compliance checks and helps ensure that the Safety Codes Officer is aware that the facility sizing meets DFO requirements from the start.

If widespread overproduction were to occur, EDTI anticipates potential negative impacts on other customers and increased demand on the distribution system, which could necessitate costly infrastructure upgrades to maintain system reliability. However, to date, EDTI has observed an increase in low-production residential micro-generation sites, which are currently assessed to have minimal impact on the distribution network, in part due to the effective controls upfront noted above.

a. Please identify and justify the best way to structure mechanisms for post-approval compliance monitoring, particularly regarding which party (or parties) should assume primary responsibility (such as the AUC, the AESO, utilities, etc.).

Consistent with cost causation principles, the responsibility for ongoing compliance should rest with the customer. Customers should ensure that their micro-generation systems continue to meet regulatory requirements.

At present, EDTI has not observed widespread non-compliance issues. However, for micro-generators who consistently or significantly over-produce, it may be appropriate in the future to explore a penalty framework administered by the AUC.

3. What type of inverter de-rating, and associated evidence of this de-rating, would ensure that a micro-generation facility will not later increase its system capacity beyond the micro-generation system size approved by the utility? Please provide an explanation.

EDTI recommends that the Micro-Generation Regulation remain technologically agnostic, focusing on high-level outcomes rather than prescriptive technical specifications. Attempting to regulate inverter de-rating as a mechanism to ensure compliance with approved system capacity presents several challenges:

- Utilities do not have jurisdiction over customer equipment installations, which fall under the authority of municipal code authority. As such, utilities cannot control or verify inverter settings post-installation.

- Inverter de-rating at the time of installation does not guarantee that the system will remain de-rated over time. Settings can be intentionally modified or inadvertently changed during equipment replacement or system upgrades.

- Inverter sizing and de-rating are often part of broader system design strategies. For example, over-rating may be used to accommodate future system expansion (e.g., additional PV panels or electric vehicle integration), which is a legitimate and forward-looking design choice.

Given these factors, it is not practical or effective to rely on inverter de-rating as a regulatory control mechanism.

To ensure that micro-generation systems remain within the approved capacity, EDTI does the following:

- Municipal Code Authority (Electrical Inspections) require the Interconnection Agreement and the Customer's Single Line Diagram to be present on-site during inspection.
- Any changes to a customer's system capacity must be reviewed by the municipal code authority and reflected in an updated Interconnection Agreement with the DFO.
- Require an Electrical inspection prior to grid connection, which includes any additions, removals, or upgrades to the solar PV system.

a. *Should micro-generators be permitted to de-rate their inverters, subject to the previously described limitations? Please provide an explanation.*

Yes. Micro-generators should be permitted to de-rate their inverters, subject to the limitations described in Question 3 above.

4. The City of Medicine Hat's micro-generation application process includes an initial step to determine a potential micro-generation system's maximum permissible size, which has been found to reduce the number of full applications received. Would it be useful for the micro-generation application process to include an initial sizing determination phase, where a utility first determines a customer's maximum permissible micro-generation system size before the customer makes a decision to proceed to a full application? Please provide an explanation.

No. Introducing a preliminary sizing phase would place a significant administrative burden on Distribution Facility Owners (DFOs), who would be required to perform system capacity assessments for each prospective customer, many of whom may not proceed with a full application. This would result in longer processing times and higher administrative costs for utilities, rather than streamlining the process.

5. The AUC has heard from stakeholders that inverter standards for micro-generation system often change, creating temporary misalignment with some AUC guidance documents and contributing to some confusion among micro-generation applicants. Would it be helpful for the

AUC facilities a working group of relevant parties that reviews technical standards (for inverters, etc.)? Please provide an explanation.

EDTI would participate in any working group if it is in the best interest of customers and provides clarity on the regulations. Ensuring the working group has a defined scope and includes relevant parties (e.g., DFOs) will be important to provide a productive forum to facilitate any changes or consultation on Rule 024. However, in the meantime, EDTI's experience is that the regulations and rules allow effective practices despite ongoing changes in technical standards. Regardless of any working group or consultation, EDTI strongly recommends that the technical standards and processes should remain the responsibility of each DFO which further allows for catered flexibility for customer types in each region.

a. *If yes, how often should the working group meet? (e.g. monthly, quarterly, bi-annually). Please provide example of technical requirements, other than inverters, that should be included in the discussions.*

Would depend on scope and attendees.

b. *If no, please suggest a different way that the AUC can keep abreast of changing technical standards.*

If no working group were established, the existing "Alberta DFO/TFO DER Forum" where participants regularly share updates, lessons learned, and best practices from specific projects also provides a valuable channel for tracking changes in inverter standards, interconnection practices, and other technical developments relevant to micro-generation.

6. *Please identify, and provide justification and details for, any other high priority micro-generation issues that should be addressed to ensure the effective and efficient functioning of the micro-generation landscape.*

Fees

Between 2016 and 2023, the volume of micro-generation applications received by EDTI has demonstrated consistent and significant year-over-year growth, with application

numbers approximately doubling annually. Only in 2024 did the applications plateau, but still around our 2023 peak number. This sustained increase has resulted in a substantial administrative burden associated with processing and managing these applications.

In light of this trend, EDTI recommends exploring the potential implementation of an application fee or structured fee model specific to micro-generation services with the objective to ensure that administrative costs are equitably allocated; specifically, that they are borne by those customers directly benefiting from the micro-generation program, rather than being distributed across the broader rate base as they are today.

Several fee structure models may be considered, including but not limited to:

- a flat-rate application fee;
- a tiered or escalating fee model based on system size, capacity, or complexity; and
- cost-recovery-based models aligned with actual administrative effort.

Each of these models presents distinct advantages and limitations in terms of fairness, administrative efficiency, and regulatory alignment. EDTI proposes that these options be further evaluated through stakeholder engagement and regulatory consultation to determine the most appropriate approach in the best interest of customers.

Funding Impacts on Application Volumes

EDTI has observed the correlation between the volume of applications and government funding for micro-generation adoption. These grants/programs, originating from federal, provincial, or municipal levels, significantly influence the volume and timing of applications submitted to EDTI.

Historically, the announcement of new or expanded funding programs has triggered sharp, often unpredictable surges in application volumes. These influxes are typically time-sensitive, driven by program deadlines or eligibility windows, and are difficult to forecast due to the limited advance notice and evolving implementation details provided by funding agencies. Such variability places considerable strain on DFO resources, particularly in the areas of application intake, technical review, and site commissioning. EDTI would like to explore a discussion on the technical review requirements for small-scale micro-generation systems (e.g., <3 kW) to evaluate opportunities for streamlining processes, reducing administrative burden, and improving overall efficiency.

Manual Commissioning Process

EDTI has observed a process constraint related to the current functionality of the AESO portal. While the portal supports batch uploads of site data via spreadsheet, each site still requires individual manual steps to complete the commissioning process. As the volume of micro-generation applications continues to grow, the need for manual intervention at this stage is becoming a limiting factor in processing efficiency and turnaround times.

EDTI recommends including the AESO in any established working groups to explore enhancements that could improve automation and streamline the commissioning workflow for the industry. Potential areas for improvement could include:

- Enabling full batch processing and submission for multi-site commissioning.
- Exploring integration options (e.g., APIs) to facilitate more seamless data exchange between DFO systems and the AESO portal.

These enhancements would support the future scalability of micro-generation applications and contribute to a more efficient and responsive interconnection process.

Form A Flexibility

EDTI recommends that the AUC consider revising the Form A template to introduce greater flexibility for DFOs. Specifically, EDTI proposes that certain fields within the form be made optional to better align with operational realities and evolving market conditions.

For example, the requirement to include the Retailer Name at the application stage should be reconsidered. In many cases—particularly for new residential developments initiated by homebuilders—the site is not yet energized, and no meter has been installed. As such, a retailer has not been selected at that point in the process.

Furthermore, imposing an obligation on DFOs to verify that the retailer listed in the application matches the retailer at the time of commissioning introduces an administrative burden without delivering tangible value. Customers retain the right to choose or change their retailer at any time, and mandating this information early in the process does not enhance service reliability or regulatory oversight.

EDTI recommends reviewing the form so DFOs have discretion in completing non-critical fields which will improve process efficiency while maintaining regulatory integrity.

Installation Types

The Micro-generation Regulation encompasses a broad scale of generators which have very different needs and aspects. An application process that differs with reference to the type of installation and the risk or impact that it imposes may result in a more streamlined process. Below are some examples of how applications could be categorized:

1. **Single Family Residential (<3kWac for 100A of Utility Service)**

   Because this installation presents minimal risk to the system, the application process for this category should be streamlined and the requirement to provide proof of consumption and technical details eliminated. The requirement that the applicant inform the DFO of its installation and the DFO's acknowledgment requirement should stay the same. For this category, it may also be helpful to limit the DFOs ability to challenge the application to escalations to the issuer of electrical permits.

2. **Single Family Residential (Up to 19kWac per 100A of Utility Service)**

   For this category of installation, the level of information in the application should remain similar to the current process. The DFO will provide an acknowledgement of application in 10 business days. If the DFO has concerns with the application, they may escalate to the permit issuer, before challenging the application with the AUC. In terms of technical information required, this type of application requires engineering analysis as there is a distribution system capacity risk due to the production power level.

3. **Non-Single Family Residential**

   The current process should be maintained. However, the time granted for review and engineering analysis due to the interconnection requirements (e.g., protection & coordination, communication, etc.) should be extended to address the complexity of analysis required. EDTI recommends a period of 20 business days for

applications up to 1.0MW, or 40 business days for applications greater than 1.0MW. Proof of consumption requirement would remain status quo.

Extraordinary Costs

In addition to the above, EDTI also recommends that the term "extraordinary costs" be defined in the Regulation. EDTI uses the following definition of "extraordinary costs":

> "Costs that are incurred solely in support of a customer's micro-generation system that do not result in present or future direct benefits to other ratepayers and would not otherwise be incurred by the DFO had the customer's micro-generating system not been installed."

Single Feeder Requirement

Further, EDTI recommends that the Regulation be amended to remove the single feeder requirement in the aggregation definition. Although it is important that the feeders be owned by one electric distribution company, there may be (mostly urban) situations where a customer on a single site is fed by two different feeders. Alternatively, there may be situations where the DFO reconfigures feeders to meet system needs, inadvertently depriving a customer of the opportunity to aggregate under the Micro-generation Regulation.