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Submitted via email: engage@auc.ab.ca

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

Attention: Laura Frank

Dear Ms. Frank:

Re: AUC Consultation - AUC Rule 024: *Rules Respecting Micro-Generation* (Rule 024) and Micro-Generation Application Processes

On May 29, 2025, the Alberta Utilities Commission (AUC or Commission) issued Bulletin 2025-05[1] wherein it initiated a consultation regarding Rule 024, associated AUC forms, and the micro-generation (MG) notice submission guideline, and invited interested parties to provide responses to the accompanying questionnaire.[2] FortisAlberta Inc. (FortisAlberta or the Company) appreciates the opportunity to engage on this topic and provides the following responses.

The Company notes that this engagement initiative has attracted the interest of many stakeholders representing a variety of interests. FortisAlberta submits that further and ongoing engagement could benefit from the formation of technical working groups, led by Commission staff, to facilitate discussion.

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 an explanation.

Response:

At a high level, FortisAlberta supports the implementation of a standardized methodology and minimum information requirements for calculating estimated annual consumption at new or existing MG sites. Such an approach could enhance efficiency of interconnection processes, assist distribution system planning and improve overall understanding among customers and consultants regarding technical requirements. The Company provides additional details in the subparts below.

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

Response:

FortisAlberta currently assesses historical energy usage for existing sites using the preceding 12 months of energy consumption. In the Company's view, this approach aligns with section 1(1)(h)(ii) of the

[1] Bulletin 2025-05
[2] Rule 024 and micro-generation application processes questionnaire

Electric Utilities Act Micro-Generation Regulation (MG Regulation), which defines a MG generating unit as:

> *"a generating unit of a customer or an energy storage resource of a customer that stores or discharges electric energy produced by the customer's generating unit that*
>
> *(ii) is intended to meet all or a portion of the customer's total **annual** energy consumption at the customer's site or aggregated sites,"* [emphasis added]

The use of a 12-month period is generally effective at capturing seasonal variation in energy consumption. In accordance with Decision 28319-D01-2023,[3] FortisAlberta also considers alternative time periods in certain circumstances, such as when a site has a history of significant fluctuation in annual energy consumption.

It may be beneficial to all parties for the AUC to convene a working group to establish a standardized historical assessment period. Doing so would support a consistent understanding for all stakeholders of the information requirements for MG interconnection applications and may mitigate disagreements in nameplate rating determinations.

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

Response:

For MG interconnections that qualify as small MG, FortisAlberta relies on the projected annual consumption provided by the MG proponent. These projections are generally based on the Natural Resources Canada HOT2000 software suite,[4] which is an energy simulation modelling tool. If the annual consumption projections provided by the proponent differ from the Company's expectations for similar developments, FortisAlberta requires that the proponent provide additional information to support the projected consumption, such as the proof of purchase and registration of an electric vehicle (EV).

For MG interconnections that qualify as large MG, estimates of annual consumption are typically determined using the professional judgement of the FortisAlberta engineer working on the interconnection project. Based on the Company's experience, this approach generally yields reliable consumption estimates.

To promote consistency across applications, FortisAlberta recommends that the AUC consider requiring MG proponents to use a standardized tool for estimating projected annual consumption at new build sites. FortisAlberta would welcome the opportunity to participate in a technical session to determine what tool should be implemented as the standard.

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.)

[3] Decision 28319-D01-2023 – ATCO Electric Ltd. Notice of Dispute for Micro-generation, October 27, 2023.
[4] NRCan provides reporting software to produce 'HOT2000' reporting standards: Tools for industry professionals - Natural Resources Canada.

Response:

FortisAlberta accepts proof of purchase of items such as EVs, EV chargers, or hot tubs, for example, in support of customer load increases. The Company notes that in some scenarios, regardless of the level of additional information supporting increased load, it can be challenging to definitively confirm that a proposed increase in MG capacity corresponds to a sustained and a permanent increase in load at the MG site at the time the expansion is requested.

As an alternative method of managing an increase in electricity consumption, MG customers seeking to increase their MG capacity could be asked to demonstrate another 12-month period of increased load to justify the case for additional MG capacity.

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 a rooftop solar photovoltaic system.

Response:

In FortisAlberta's experience, there are multiple factors that can complicate the accurate calculation of solar generation output. These include, but are not limited to, weather and irradiance variabilities (cloud coverage, fog, snow, storms, etc.), site specific conditions (shading, orientation of the solar panels, dust and snow coverage, etc.), and system design factors (module types, MG unit configurations, inverter degradation overtime, etc.).

Currently, FortisAlberta uses a piece of software called PowerClerk to support its calculations of MG unit output for small MG. PowerClerk uses proprietary daylight and weather forecast, and other equipment specific variables (such as losses), to calculate an estimate of total annual production from an MG unit. Additional details can be added by MG proponents, such as tilt and azimuth (panel orientation), but those details are not required. Given the number of variables, the yearly energy output of the MG unit is typically estimated in collaboration with the MG customer or their consultant.

PowerClerk has the capability to perform these calculations for large MG but the Company has not subscribed to this feature at this time. Currently, FortisAlberta performs a simplified calculation that uses an assumed number of daylight hours in a year and multiplies it by the kW rating with a certain assumed efficiency rating.

The Company notes that site specific conditions, especially shading, can undergo significant change over time. FortisAlberta submits that a calculation that minimizes reliance on variables that can change over time may improve the simplicity of determining MG energy output. This may sacrifice a degree of accuracy but would promote consistent calculations and would be a cost-efficient method (i.e. it would avoid extensive modelling or complex calculations).

2. There are currently no specified mechanisms for monitoring the compliance of micro-generation systems with the MG 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 MG Regulation? Please provide an explanation.

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.)

Response:

As context for the following response, FortisAlberta understands the intent of the MG Regulation to be the enablement of MG customers to offset their own energy consumption. While the MG Regulation does not explicitly prohibit energy export, its primary objective is not to facilitate export. Currently, the costs of MG interconnection are socialized into utility rates unless deemed extraordinary. In this context, MG customers have an incentive to size their MG generating units as large as possible, not only to offset their own load but also to maximize credits obtained from exporting energy to the grid.

FortisAlberta works to connect MG customers with MG units sized to accord with the requirements in the MG Regulation. However, the Company does not audit whether an MG unit's generation exceeds consumption, as doing so would be unduly onerous given the Company's current resources and the large number of MGs connected to FortisAlberta's system. That said, the Company recognizes that the MG Regulation creates an incentive for MG proponents to oversize their systems. If the intent remains to offset on-site load rather than support routine export, implementing a compliance monitoring mechanism may be appropriate.

FortisAlberta recommends that the AUC consider exercising oversight of MG unit sizing and monitoring whether MG customers are regularly generating beyond their consumption. For example, the AUC could implement a rule requiring MG customers, retailers, and the Alberta Electric System Operator to submit an annual report to the Commission detailing MG customer energy consumption. In the alternative, should responsibility for post-approval monitoring be assigned to FortisAlberta, the Company will require additional resources and investment, the recovery of which would need to be approved for Y Factor treatment as such activities were not contemplated in development of the third Performance Based Regulation (PBR3) term plan.

If the Commission determines that it is a priority to manage or prevent the oversizing of MG units, the MG Regulation could be amended to make customers who interconnect MG projects accountable for the costs associated with their MG interconnections, without the need for the costs to be deemed extraordinary. The MG Regulation could also be amended to allow utility rate design to reflect MG customers' use of the distribution system and the costs of providing interval vs cumulative data for both energy consumption and energy export to create a price signal for MG customers and disincentive oversizing. Further detail is provided in response to Question 6.

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.

Response:

FortisAlberta's interconnection standards already require MG inverters to have the capability to curtail output and virtually de-rate the MG unit. However, the systems needed to utilize this capability have not yet been fully deployed by the Company. Full implementation of this system is dependent on the completion of FortisAlberta's next generation Advanced Metering Infrastructure (AMI) system and the future deployment of a Distributed Energy Resource Management System (DERMS), both of which are required to monitor and control customer inverters to ensure compliance with de-rating requirements. While the technology to enable this level of control is advancing, the Company notes that the funding for

these systems and the associated increase in personnel required to operate them are not adequately contemplated under the PBR3 framework, which will result in slower adoption of these technologies.

Alternatively, de-rating can be confirmed through a downward adjustment to the MG unit's nameplate capacity, resulting in a physical de-rate. FortisAlberta is of the view that, for a physical de-rate to be considered reliable, it must be both verifiable and unalterable such that the inverter's nameplate cannot be modified nor its output increased without mandatory notification to the interconnecting utility. Manufacturer certification may serve this purpose, provided that the AUC explicitly defines the specific information required from manufacturers regarding the particular equipment's nameplate rating. It is important to note that implementing such a verification process would require additional resources, the recovery of which would need to be approved for Y Factor treatment as such activities were not contemplated in development of the PBR3 term plan.

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

Response:

FortisAlberta submits that micro-generators could be permitted to de-rate their inverters, provided that: (i) AMI and DERMS deployment is completed to effect and confirm virtual de-rating, or (ii) physical de-rating aligns with a clear AUC-prescribed methodology for de-rating in kVA and is supported by verifiable and unalterable evidence.

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.

Response:

FortisAlberta submits that the inclusion of an initial sizing determination phase within the micro-generation application process could be useful. The Company proposes that this initial determination could be designated as a "Maximum Permissible Size Check," separate and distinct from other comprehensive technical reviews.

In FortisAlberta's experience, customers often struggle to differentiate between requirements stemming directly from the MG Regulation, related to maximum permissible size, and those arising from the electric utility's specific technical interconnection standards. Implementing a dedicated "Maximum Permissible Size Check" phase could clarify and alleviate this confusion by focusing on whether the proposed micro-generation system's size, based on customer load, complies with the MG Regulation. It is important to note, however, that the implementation of this new process may necessitate additional FortisAlberta resources the recovery of which would need to be approved for Y Factor treatment as such activities were not contemplated in development of the PBR3 term plan.

5. The AUC has heard from stakeholders that inverters standards for micro-generation systems 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 to

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

Response:

FortisAlberta submits that the technical specifications necessary to ensure the safe and reliable interconnection of distributed energy resources (DERs), inclusive of MG, are unique to each DFO, the nature of that DFO's system, and the existing characteristics of that system. In short, each DFO must be permitted to manage their own technical standards necessary to maintain the safety and reliability of its system, drawing on the internal technical engineering expertise to establish, implement, and monitor the efficacy of such specifications.

The development and review of technical standards for grid interconnection falls squarely within the responsibilities of DFOs, with collaboration with transmission facility owners (TFOs), pursuant to Section 105 of the *Electric Utilities Act*. An existing DFO/TFO-led forum, which AUC staff frequently attending, already serves as a technical working group. This forum meets on a monthly basis to address technical topics concerning DERs. This established forum is highly effective for fostering practical harmonization, leveraging expertise from broader industry forums (e.g., EPRI and IEEE), and ensuring efficient technical standard development among utilities.

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

Response:

As noted, DFOs already manage communication and collaboration on technical requirements via an existing forum. However, FortisAlberta would support an AUC-established working group focused on discussing and sharing knowledge on technical requirements. The Company submits that this type of working group could meet annually.

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

Response:

FortisAlberta submits that a pragmatic and effective way for the AUC to remain informed of changing technical standards is to continue participating as an observer in the existing, regularly held industry meetings. The AUC could also opt to attend additional industry conference opportunities, such as EPRI and IEEE.

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.

Response:

Given the significant increase in MG connections, it is FortisAlberta's view that a modernized regulatory framework is required – one that better addresses the realities of current and evolving system use, the technical complexity of operating a bi-directional grid, and issues related to cost allocation, equity, and cost causation. The Company submits that while the MG Regulation has been successful in enabling the

adoption of MG in the province, this success is directly attributable to the Company's investment in the costs associated with connecting an MG unit to the electric distribution system. FortisAlberta submits that it is an appropriate time to review the current framework, with consideration given to creating cost accountability for MG customers. In particular, and as discussed further below, principles of cost causation should be applied to MG customers so that they contribute to fund the costs they are driving on the system for interconnection and for the increasingly complex technical solutions that are necessary to continue to accommodate bidirectional flow. In addition to supporting the orderly and efficient development of Alberta's interconnected electric system, requiring MG customers to bear the costs that MG causes would help address concerns about the incentives that exist today to oversize MG units. Implementing cost accountability for MG customers would create an effective and transparent price signal for those customers.

FortisAlberta submits that MG and distributed generation (DG) customers should both be treated similar to existing load customers of the distribution system that pay for ongoing electric distribution costs through FortisAlberta's rates, as all DER sites use the system regardless of whether they are only exporting or are both exporting and importing as a load customer. All distributed energy resources (DER) customers (i.e., both MG and DG) should be subject to the principle of cost causation and required to pay for costs that result from their projects, post-connection. The Company recommends that consideration be given to the creation of capacity-based rate structures or, in the alternative, a service-based fee to ensure that DER customers receive the appropriate price signals and pay for their portion of ongoing distribution system costs.

Should the MG Regulation be maintained in its current form, FortisAlberta recommends the following updates to the MG Regulation and associated forms and guidelines:

- Extraordinary costs and costs of connecting should be clearly defined in the MG Regulation;
- While the Form B mechanism for extraordinary costs has not been utilized to date, the requirement to seek concurrence from the Commission for extraordinary costs in every instance will create administrative burden in the future as DFOs see increased connection costs resulting from larger MGs connecting to their electric distribution systems. As such, the MG Regulation should be amended to only require an application to the Commission for extraordinary costs when there is a dispute between the DFO and the MG proponent regarding the costs to be paid by the MG proponent;
- All references to technical standards and requirements should be removed from Form A and be determined by the applicable DFO;
- The MG Regulation provisions regarding aggregation should be clarified to provide guidance on whether aggregation contemplates both consumption and generation or if aggregation is limited to consumption only; and
- The term "adjacent" in the MG Regulation should be defined.

The Company also believes that the AUC should review the interconnection responsibilities and legal obligations of MG proponents, particularly in cases where MG is being connected by an REA. A stronger legal framework is needed to ensure that the interconnecting party, whether a customer or an REA member, is formally obligated to engage the distribution utility regarding technical and safety requirements, including technology type (e.g., synchronous versus inverter-based generation).

Please contact me at (403) 514-4941 or Regulatory Affairs via regdept@fortisalberta.com if you have any questions with respect to this submission.

Sincerely,

/Elizabeth von Engelbrechten/
Elizabeth von Engelbrechten
Senior Manager, Legal Counsel
Regulatory Affairs