June 26, 2025

Alberta Utilities Commission
1400, 600 Third Avenue S.W.
Calgary, AB

Attention: Laura Frank

Dear Laura Frank:

Re: ENMAX Response to AUC Bulletin 2025-05: AUC Consultation on Rule 024 and Micro-Generation Application Processes

On May 29, 2025, the Alberta Utilities Commission ("AUC") issued Bulletin 2025-05: *AUC consultation on Rule 024 and micro-generation application processes*. The AUC established a written process to gather input and feedback based on six questions and requested stakeholder responses be submitted to engage@auc.ab.ca by June 26, 2025. The AUC stated that after considering stakeholder responses, the AUC will prepare a draft blackline version of Rule 024 and associated documentation and will post them on the Rule 024 AUC Engage page for written feedback.

The following submission represents the views of ENMAX Corporation ("ENMAX"). ENMAX Corporation is the parent company of both ENMAX Energy Corporation ("ENMAX Energy") and ENMAX Power Corporation ("ENMAX Power"). ENMAX Energy owns and operates generation assets across Alberta and acts as a retail service provider. ENMAX Power is a distribution and transmission facility owner in the City of Calgary and as such manages the microgeneration applications it receives. Accordingly, regulatory and policy matters arising from this consultation may have a direct impact on ENMAX, ENMAX Energy and ENMAX Power.

Guidance and standards from the AUC can be very helpful to address issues about the micro-generation framework facing customers, utilities, retailers and developers. When considering changes to Rule 024, it is important to focus on the purpose and content of the Micro-Generation Regulation, which ENMAX submits is primarily about self-supply with some opportunities to export to the grid, rather than maximizing micro-generator revenues. ENMAX supports clearer guidance on the micro-generation application process (including micro-generator sizing and technical requirements) and the development of monitoring and compliance guidelines.

ENMAX appreciates the AUC's consultation on this matter and looks forward to continuing to collaborate with the AUC on setting meaningful and applicable standards to support micro-generation.

Please contact the undersigned at adavison@enmax.com for further correspondence on this, or related matters.

Sincerely,

Andrew Davison

Andrew Davison
Manager, Regulatory
ENMAX Corporation

APPENDIX A: ENMAX Responses to AUC Questions From Bulletin 2025-05

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.

   Yes, a standardized methodology and/or minimum information requirements would be helpful to establish consistency, allow some automation in the application process and manage customer expectations. That said, ENMAX notes that while the regulation uses annual consumption to inform an applicant's sizing of their microgeneration, utilities are more impacted by the timing, magnitude and location of the generation being put onto the distribution system.

   Instead of ad-hoc submissions in this AUC consultation, ENMAX suggests a more effective approach is to set a working group of utilities, retailers and contractors to identify possible best-practices, including identifying available data sources, that may be used to set a standard across the province. As noted below, de-rating an inverter may be a useful option for all parties involved and should be discussed further.

   In principle, utilities continue to assess projects based on the criteria established in the Micro-Generation Regulation and work with customers through an iterative process. Any potential guidelines or standards relating to calculating the estimated annual consumption or output at existing or new micro-generation sites should not override the flexibility required by utilities when assessing micro-generation projects from a technical perspective to ensure projects are operating within acceptable parameters and not harming each respective distribution system.

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

      Historical energy usage from the last twelve (12) months is considered the best historical timespan for accurately assessing a customer's usage for existing sites and is available to customers from their retailers. In some cases, the previous twelve months may not be reflective of typical usage, so the previous three or five-year average could be used as an alternative.

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

      For new sites there is no standard method of projecting a customer's future energy usage. Possible techniques include a HOT2000 estimate[1]

[1] A HOT2000 estimate is sourced from NRCAN. The HOT2000 estimate should be done by a certified professional and be subject to utility review.

or through another benchmark usage. Benchmarking could include either i) an average of consumption across a utilities' territory, or ii) using the average consumption of nearby similar-type dwellings.

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.).

For new electrical devices, ENMAX requires pictures of newly installed equipment and receipts, name plate capacity, proof of registration and insurance for electric vehicles (EVs), and if available, any city permits for new installations.

ENMAX does not make allowances for planned purchases or installations. However, a customer that intends to increase their load in the future could install a larger-size inverter de-rated to the customer's current level of consumption to avoid incurring additional installation costs later.

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.

The Micro-Generation Regulation and AUC Rule 024 are silent on the sizing and power output of a micro-generation unit other than that annual energy output should closely match annual consumption, and ENMAX believes this is a key opportunity for the AUC to provide guidance in the micro-generation framework.

Any standards or guidance should set out reasonable bounds on the size of a micro-generator[2] and, if applicable, the "stacking ratio".[3] These are fundamental elements of a micro-generation application that must be assessed by the utility.

ENMAX suggests a more appropriate forum to develop such a framework is a focused working group with industry stakeholders.

2. There are currently no specified mechanisms for monitoring the compliance of

[2] For example, the amount of micro-generator power that can be produced at any given time.
[3] Typically used for inverter-based technologies such as solar photo-voltaic, this ratio describes how much direct-current (DC) power can be produced (e.g., by photo-voltaic solar panels) compared to the amount of alternating-current (AC) power that the micro-generator can produce (e.g., from the inverter). In other words, it is the amount of DC power supplied from the micro-generator fuel source compared to how much AC power is produced by the micro-generator to supply the customer's load or export to the grid.

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.

Having a future element of post-approval compliance monitoring could provide some assurance that projects are continuing to operate as intended in the Micro-Generation Regulation (i.e., self-supply obligations), as well as within predictable operating parameters to ensure the safety and reliability of each respective distribution system. That said, more discussion is required on this to identify different options and the optimum solution.

The Micro-Generation Regulation already requires that utilities be informed of any changes to an existing micro-generators' nameplate capacity, and if it is deemed that the unit no longer qualifies under the regulation, a dispute may be sent to the AUC. Additionally, through the Distribution Tariff and the regulation, customers are required to notify utilities when they change their equipment as it could have safety impacts for the customer, utility personnel, nearby customers and the public. These requirements support the importance of building a micro-generator to the approved size and adhering to the approved energy and corresponding power output.

As a starting point, it would be worthwhile to discuss how these existing self-reporting mechanisms are working today and whether there is a need to expand this reporting to address further compliance monitoring in the future.

In general, there are a wide variety of options to address monitoring and compliance, including who is responsible for what, and the method of "enforcement". ENMAX suggests a more effective approach is to set up a working group of utilities, retailers and developers, to identify the best practices that could then be used to set a possible standard across the province.

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.).

   The Micro-Generation Regulation is silent on monitoring and compliance, so it would be up to the AUC to take the initiative in this matter to ensure that customers are fulfilling their obligations. Customers need to be informed if they exceed their approved output and the possible consequences for doing so.

   Having standardized definitions of "excess" contributions is important, whether those definitions are a certain percentage of the approved

capacity or sustained output over a period of time (that accounts for seasonality) that both utilities and retailers can use for guidance. Introducing some form of financial limitation and/or penalty system may be appropriate.

Monitoring and compliance are complex and require a well-planned out framework. ENMAX suggests a more appropriate forum to develop such a framework is a focused working group with industry stakeholders.

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.

    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.[4] De-rating allows customers to optimally configure their equipment for both their current and future needs while not exceeding their active power production. Further, allowing the installation of larger-than-needed microgenerators that are de-rated may be required as some inverter manufacturers have been shifting away from multiple sizing options and appear to be consolidating their range of offerings to reduce costs.

When de-rating is required, currently ENMAX requests that customers provide the manufacturers proof of derating, and the de-rating is tested and verified through the commissioning process for the micro-generator.

For certification of inverters, ENMAX Power requires all inverters to be compliant with the following standards:

- IEEE std 1547 – 2018: IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces

- IEEE Std 1547.1 – 2020: IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems

- UL1741 Supplement B: Advanced Inverter Testing addition to Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources. In 2025,

[4] ENMAX notes that micro-generation application requirements should clarify that active generation (methods that allow a customer to adjust their output to the grid in real-time) is distinct from derating.

ENMAX Power changed this requirement from UL1741 Supplement A to its newest version: UL1741 Supplement B. Update of the UL 1741 testing standard to Supplement B aligns with industry requirements for inverters to fully comply IEEE 1547.1 and CSA 22.3 No.9 which ensure the inverters can operate in a way that maintains reliability and enables customers to further connect DER.

- CAN/CSA 22.3 No.9 (2020): Interconnection of distributed resources and electricity supply systems

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.

   ENMAX supports providing clear guidance on how an initial size determination can be performed by a customer or developer, so that they can perform an assessment in advance of applying to the utility. Customers and developers are encouraged to assess available grid information, including heat maps, utility-provided sizing assessment tools and interconnection capacity information where available. Once an application is made to the utility, the utility will then determine the impact on the grid and any required changes to the micro generation application.

   Studies to assess the impacts to the grid are expensive and time consuming, and ENMAX does not support performing such studies unless a complete and viable micro-generation application is ready for review.

   However, if an initial sizing determination is required, ENMAX suggests that this step is done outside the application process (i.e. not part of the 14-day timeline) and should involve a fee for service.

5. The AUC has heard from stakeholders that inverter 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.

   Yes, it would be helpful for the AUC to facilitate an inverter standards working group that provides information to the AUC on the latest developments in

standards. Annually or semi-annually, these meetings could focus on microgeneration matters so that the AUC and stakeholders are aware of the key issues and technological changes from utilities.

To address potential misalignment with AUC guidance documents on inverter standards for microgeneration systems, ENMAX recommends that rather than including the standards in Rule 024, the AUC instead refers micro-generation applicant to the utilities' technical interconnection requirements. This approach would provide the agility needed to accommodate rapidly changing technologies.

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.

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

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.

The Micro-Generation is intertwined with several important topics such as the treatment of excess generation, seasonal solar retail offerings, and required changes to other AUC Rules (such as Rule 021) to accommodate expected developments to new settlement and metering.

As discussed in response 5, an on-going AUC-led working group with industry participants to discuss emerging issues related to micro-generation would be useful.