Rule 024 and Micro-Generation Application Process Questionnaire

Date:

Submission by:

Preamble:

Utility Network & Partners Inc. ("UTILITYnet") operates the Solar Club™, a program offered through UTILITYnet's network of Energy Marketers, of which I am a Member. In the context of the questions below, please note that "utilities" requires further clarification into "retailers" and "Wires Service Providers (WSP)". UTILITYnet's responses address concerns from the perspective of a retailer.

The Solar Club operates on the premise of a seasonal rate structure. In the context of the average residential micro-generator, Solar Club Members access the HI Rate at 30.0 cents/kWh for the summer months (May-September inclusive) when they are net exporters. Members will then switch to the LO Rate (currently set at 8.77 cents/kWh) for the winter months (October-April inclusive) when they are net importers. The seasonal rate switching structure assumes a customer has installed the largest permissible micro-generation system. Customers, like myself, base their decisions to install maximum permissible systems on solar-specific retail plans such as the Solar Club, and an improved return on investment.

Furthermore, the Solar Club operates the Hummingbird Virtual Solar Community (VSC), representing an aggregate of the Solar Club's 10,000+ Members, over 100 MW of distributed load, and nearly 200,000 installed solar modules. The Hummingbird VSC also represents a third of Alberta's total micro-generation market. UTILITYnet estimates that Albertans collectively invest over $1 million per day in solar, and that micro-generators have already invested $750 million in solar across Alberta. This is a significant investment in a market premised on the existing *Micro-Generation Regulation*.

The changes implied by the AUC's questions below will negatively impact the micro-generation landscape in Alberta. Customers are investing an average of $20,000 to $40,000 to install rooftop solar PV systems. Additional hurdles in sizing solar PV systems alongside post-approval compliance requirements will lengthen payback periods, adversely affect ROI, and create unnecessary stakeholder burdens.

A central tenet is reiterated throughout the responses below: micro-generators should be granted the right to unlimited self-supply and export. This guiding principle reduces regulatory burden, aligns with consumer investment motivations, and protects existing business models like the Solar Club. I believe micro-generators should be limited only by rooftop area, not annual consumption. The responses below are consistent with this approach.

Questions:

Question 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?

Response 1:

> I agree there should be a standardized methodology for WSP's calculation of the estimated annual consumption. A micro-generator's application should consider the variances from year to year in solar generation, especially as it concerns farm sites whose energy consumption is highly dependent on prevailing weather conditions.
>
> The *Micro-Generation Regulation*, as it currently stands, defines a "micro-generation generating unit" as being "intended to meet all or a portion of the customer's ***total annual energy consumption*** at the customer's site." This definition lacks clarity and creates confusion regarding "total annual energy consumption."
>
> That said, unlimited self-supply and export eliminate the need for this requirement. Micro-generators are inherently cost-averse, and will maximize their solar PV systems to reduce future requirements for upsizing. Future expansions of solar PV systems create planning and labour challenges that are often difficult to address in an initial installation. Micro-generators who expand their systems are also subject to additional administrative and labour costs.
>
> In the absence of unlimited self-supply and export, micro-generators should be allowed to consider the greater of either an average of the past five years or the previous twelve months.

Q1(a): Please identify and justify the best historical timespan for accurately assessing a customer's historical energy usage (for existing sites).

R1(a):

> Unlimited self-supply and export eliminate the need for this requirement. Barring an allowance for unlimited self-supply and export, micro-generators should be allowed to use either an average of the past five years or the previous twelve months, whichever is greater.

Q1(b): Please identify and justify the best way for accurately projecting a customer's future energy usage (for new sites).

R1(b):

> In the absence of Historical Usage File (HUF) data, wires owners should follow a standardized calculation accounting for general electrical usage, large appliances, and heavy electrical load devices (such as electric vehicles, EV chargers, heat pumps, etc.). EnerGuide labels could be used to render such calculations more accurate.

Alternatively, a home energy assessment could provide customers with a clearer understanding of energy retrofits (such as solar PV systems) that might further reduce annual consumption.

Q1(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.).

R1(c):

An allowance for unlimited self-supply and export would negate the need for a minimum level of proof that a customer intends to increase their electricity consumption, whether shortly after installing a micro-generation system or further into the future. In the absence of said allowance, proof of purchase should be sufficient. The minimum level of proof should only apply to energy-intensive devices such as electric vehicles, heat pumps, EV chargers, and large electric appliances such as dryers and stoves/ovens.

Moreover, according to Solar Alberta[1], a heat pump cannot be included in the initial calculations when connected to a natural gas furnace. The additional requirement for a full year of data before a heat pump can be included in the solar sizing process is a further barrier to the adoption of more energy-efficient technologies.

Q1(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.

R1(d):

Calculations that include tilt, azimuth, size, geographic location, potential shading, and equipment specifications are reasonable expectations for solar installers as part of customer quotations. This information, in addition to a site plan and any technical layouts, should also be provided to customers as part of the hand-off package at the time of system commissioning.

An allowance for self-supply and export would negate the requirement for a micro-generation generating unit's yearly energy output. Nevertheless, every customer should receive a copy of the calculations for the size of the system installed.

Question 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 example.

[1] https://solaralberta.ca/2023/07/13/heat-pumps-solar-system-specifics/#:~:text=Heat%20pumps%20can%20be%20included,receipt).

Response 2:

A requirement for post-approval compliance monitoring places unnecessary burdens on the customer. Moreover, post-approval non-compliance carries significant financial and technical consequences for customers. Will I be required to have my inverters de-rated or remove solar PV modules? Such post-approval checks would also introduce administrative complexity that could compromise the Solar Club's ability to offer seasonal rate switching.

For clarity, the correct subsection of the *Micro-Generation Regulation* stipulates that a "micro-generation generating unit" … "is intended to meet all or a portion of the customer's total annual energy consumption…"

To reiterate, customers should be allowed unlimited self-supply and export under the *Micro-Generation Regulation*. Said allowance would eliminate the need for post-approval compliance or monitoring.

Q2(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.).

R2(a):

To reiterate the response above, post-approval compliance monitoring imposes unnecessary burdens on all parties, but most specifically, customers like me. The goal should be to encourage more customers to become micro-generators, and the industry will not achieve this goal by enforcing more stringent requirements.

From a customer's perspective, the process of becoming a micro-generator can feel onerous, especially when an investment involving tens of thousands of dollars, federal loans, interconnection agreements, quotes and proposals, large invoices, and inspections can already feel overwhelming. Additional requirements for post-approval compliance monitoring will only serve to deter customers from engaging in the micro-generation process.

Question 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 3:

Micro-generators are currently subject to a permit approval process that addresses concerns over system size and grid capacity. Customers who want to increase their solar PV system's capacity are subject to the same approval process, regardless of whether inverter de-rating was used to limit total output capacity. Approved interconnection agreements by the wires owners ensure that systems are sized appropriately and meet the intention of the *Micro-Generation Regulation*.

Introducing additional post-approval compliance monitoring would add undue burden on customers and utilities (retailers and wires owners) and would undermine the goals of the Alberta *Micro-Generation Regulation*, which is to become more energy efficient through renewable generation and reduced energy consumption.

Configuring an inverter's maximum power output is already limited to the original equipment manufacturer or the solar installer with special access privileges. I don't have the necessary system access to be able to modify these properties. The configured inverter rating at the time of installation would be the determining factor in the calculation of total system capacity. Therefore, sufficient mechanisms are already in place to restrict micro-generators from increasing their system size beyond what was initially approved.

Expending resources to place additional limitations and controls on inverter configuration and rating would be inefficient. The current permit approval process should be sufficient to ensure microgenerators are not generating over and above their approved capacity.

Q3(a): Should micro-generators be permitted to de-rate their inverters, subject to the previously described limitation? Please provide an explanation.

R3(a):

As previously stated, micro-generators are subject to a permit approval process that addresses concerns about appropriate system sizing under the current *Micro-Generation Regulation*. Alberta's net billing structure also disincentivizes micro-generators from de-rating their inverters, especially given the permit approval process at the outset.

Question 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 4:

The goal of the *Micro-Generation Regulation* and the AUC should be to encourage the number of micro-generation applications received and encourage the further adoption of micro-generation across the province. This can be achieved by working to streamline applications and reducing the complexity and stages of the application process, which is already lengthy and cumbersome. Adding an additional pre-screening processing step will only result in fewer systems being installed and discourage more potential micro-generation from coming online. As stated in the question, an initial sizing determination phase reduces the number of applications; in other words, it discourages customers from becoming micro-generators.

The better approach would be requiring installers to become members of Solar Alberta and hold them accountable to the **Solar Business Code of Conduct**[2] to ensure that a standardized approach to system size calculations is used industry-wide. Furthermore, Solar Alberta should be empowered to enforce said code of conduct with penalties for solar installers who do not comply.

Question 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.

Response 5:

A working group would ensure that the AUC's guidance evolves in tandem with national and/or international standards, minimizing misalignment. It would also provide a forum for proactively flagging emerging technical shifts, helping the AUC stay ahead of industry trends rather than reacting to them after confusion arises.

Moreover, micro-generators would benefit from clearer, up-to-date expectations, potentially reducing application errors, rejections, and delays. Having a forum for utilities, regulators, and industry to jointly discuss standards may help preempt disputes and lead to more pragmatic policy adjustments.

Most importantly, a working group would support a more nuanced and grounded regulatory process by embedding real-world technical insight into guidance documents.

Q5(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.

R5(a):

Changes to technical standards and requirements occurs on an irregular basis, therefore it's reasonable to assume that a longer cadence between meetings of a working group would be acceptable. A quarterly cadence could be used as a starting point, and meeting cadences can be updated based on the number of agenda items being tabled that require input from participating members.

Q5(b): If no, please suggest a different way that the AUC can keep abreast of changing technical standards.

[2] https://solaralberta.ca/consumer-protection/alberta-solar-business-code-of-conduct/#:~:text=The%20Alberta%20Solar%20Business%20Code%20of%20Conduct%20establishes%20strong%20mechanisms,solar%20installation%20sales%20and%20contracts.

R5(b):

> If facilitating a periodic working group with necessary stakeholders proves not feasible, there are a number of common best practices that could be employed to keep abreast of changing technical standards in the industry. Such practices include subscribing to or joining relevant standards bodies to receive notifications on updates, drafts, and changes, along with participation in industry working groups. These would ensure the AUC is alerted to insight into upcoming changes, along with monitoring regulatory industry news on an ongoing basis (Google Alerts, industry newsletters, regulatory databases, etc.).

Question 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 6:

> The Government of Alberta's *Micro-Generation Regulation*, has been instrumental in promoting a greener grid and stimulating significant investments made by Alberta homeowners, businesses, and our farming community to add solar to their rooftops. This is truly a grassroots economic development success story, with hundreds of people employed in the solar industry. Over $750 million has been funded by Alberta homeowners to add solar energy to power their homes, and the surplus green energy is exported to the grid. Other provinces undoubtedly envy Alberta's rooftop solar business model and our province's *Micro-Generation Regulation*.
>
> I strongly believe that Alberta should maintain the pillars of the *Micro-Generation Regulation*, which have enabled it to be the best province for micro-generators in Canada.
>
> 1. **The One-to-One Ratio:** Alberta micro-generators are paid and credited at the same rate for energy exports and imports, respectively.
> 2. **Solar Specific Retail Plans:** Continue to enable Alberta micro-generators to switch from a higher electricity rate to a lower one when it is financially advantageous.
>
> Furthermore, long lead times for micro-generation application processing in rural areas negatively impact the willingness of customers to become micro-generators. The Government of Alberta has engaged in a process to reduce red tape across multiple industries. The questions the AUC is asking, if applied without consultation, would result in additional red tape, further delaying the process. If the AUC's goal is to address stakeholder concerns about application processing, many of the issues highlighted in questions posed by the AUC will have the opposite effect.

Closing

The success of Alberta's micro-generation framework is undeniable. Through regulatory foresight and the flexibility afforded by the current *Micro-Generation Regulation*, thousands of Albertans have been empowered to invest in rooftop solar, contribute clean energy to the grid, and participate

meaningfully in Alberta's energy transition. The Solar Club™, enabled by seasonal rate-switching and one-to-one billing mechanisms, is a prime example of the innovation this environment has nurtured, delivering value to both customers and the grid.

As emphasized throughout the responses, I believe that any changes to the *Micro-Generation Regulation* must introduce and/or preserve two fundamental concepts:

1. **The Right to Unlimited Self-Supply and Export:** This principle is essential to protect customer investments, allow for future site flexibility, and minimize unnecessary administrative burdens. Unlimited self-supply and export further encourages the transition to a more electrified society without incurring additional transmission costs.
2. **The Availability of Solar-Specific Retail Plans:** Seasonal rate structures, such as the Solar Club's HI and LO Rates, are built around customer generation patterns and are critical to ensuring a viable return on investment. Disrupting these structures would undermine the economic case for rooftop solar in Alberta.

I caution that proposals such as post-approval compliance monitoring, inverter de-rating, and overly prescriptive sizing requirements risk introducing administrative red tape that could slow adoption, frustrate consumers, and erode confidence in the regulatory framework. Instead, I support efforts to improve standardization at the application stage and promote solar industry accountability through installer education, adherence to a common code of conduct, and clear utility guidelines.

I, alongside UTILITYnet and the Solar Club, urge the AUC to reaffirm its support for a regulatory environment that continues to foster innovation, customer choice, and grassroots energy development. Alberta's leadership in distributed solar is a model that other provinces admire. Let's continue to build on that momentum, not undermine it.

Thank you for the opportunity to contribute to this important discussion for maintaining an open dialogue with industry and stakeholders. I look forward to continued collaboration to ensure that Alberta remains the best place in Canada to be a micro-generator.