Cogeneration Canada Ltd. is an Alberta-based designer, and manufacturer of micro-cogeneration (mCHP) units rated up to 100 kW for residential, municipal and commercial applications. After investing significant resources in research, testing, and pilot installations, we are in the process of deploying our first seven production units and scaling rapidly thereafter. Our technology simultaneously produces heat and power at net efficiencies exceeding 90%, uses domestically produced natural gas, and delivers reliable, dispatchable generation that stabilizes the grid while providing frequency support. It also offers homeowners and businesses valuable standby capability and another independent heating source.

As participants in the AUC's consultation on Rule 024 and the micro-generation application processes, our position is that the unique dual-energy nature of mCHP must be explicitly accommodated despite representing a small percentage of microgeneration installations. We therefore support:

1. **Unrestricted self-supply and export** for mCHP units on 100 A (and optional 200 A) services, to avoid forcing customers to run units suboptimally or turn on less efficient boilers or furnaces simply to stay within export limits.
2. A **standardized, province-wide methodology** for larger services that integrates both electrical and thermal demand data—leveraging unified templates to streamline applications and focus utility review on systems with true grid impact.
3. **No routine post-approval monitoring**, relying instead on robust upfront interconnection agreements and service-size limits, with review only triggered by material capacity changes.

By aligning Rule 024 to recognize the heat-driven dispatchability and grid-stabilizing value of mCHP, the AUC can ensure Alberta remains a leader in distributed generation while preserving the simplicity and fairness that underpins its micro-generation framework.

Questionnaire: Rule 024 and Micro-Generation Application Processes
Submissions due June 26, 2025 to engage@auc.ab.ca

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.

Cogeneration Canada Ltd. Response:

- **Unrestricted Self-Supply & Export for ≤100 A (Optional 200 A)**
    - For micro-CHP units ≤50 kW on a 100 A (or optional 200 A) service, permit full self-supply and export up to the service capacity without requiring detailed annual projections. CHP is dispatchable heat-driven generation—forcing curtailment to avoid "over-export" simply shifts load back to less efficient boilers or furnaces and undermines its role as a grid-stabilizing asset.
- **Standardized Dual-Load Methodology for Larger or Commercial Sites (>100 A/200 A)**
    - Require a single, province-wide template capturing both:
        1. **Historical Electricity Consumption:** 12 months of meter data.
        2. **Historical Thermal Demand:** 1–3 years of boiler/furnace fuel or heating-degree-day data.
        3. **Projected New Loads:** Manufacturer specs or engineering load calculations for EV chargers, heat pumps, process loads.
    - A unified submission form reduces confusion for installers operating across multiple utility territories and focuses review resources where grid risk is higher.

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

Cogeneration Canada Ltd. Response:

For larger CHP units on services >200A

- **Electricity:** 12-month rolling meter data to capture seasonal variability.
- **Heat:** 1–3-year average of boiler/furnace fuel consumption (or heating-degree-day proxy) to smooth out anomalous winters or demonstrate process heat growth.
- **Justification:** CHP sizing is driven primarily by peak thermal needs. Averaging over multiple years balances administrative simplicity with accuracy, ensuring neither over- nor under-sized systems.

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

Cogeneration Canada Ltd. Response:

- **Thermal Projection (Primary):** Energy demand calculations stamped by a professional engineer or mechanical consultant.
- **Electrical Projection:** Sum of anticipated lighting, plug loads, EV charging, and controls—supported by equipment datasheets and registration/purchase orders.
- **Justification:** CHP output follows the thermal dispatch profile. Using engineering-grade load calculations ensures projections reflect actual site design, rather than generic averages.

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.).

Cogeneration Canada Ltd. Response:

- **Acceptable Evidence:**
    - Engineer-stamped load calculation reports.
    - Signed purchase orders, paid invoices, or permit applications for new high-load equipment (EV chargers, heat pumps, industrial process loads).
- **Justification:** These documents are commercially reasonable, verifiable, and directly tied to the customer's intent. Requiring registration or insurance (e.g., for vehicles) is excessive and unrelated to technical sizing needs.

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 systems.

Cogeneration Canada Ltd. Response:

- **Electrical Output Calculation for CHP:**
    - Rated kW × expected annual run-hours (based on thermal AND electrical load profiles).
    - Adjust for start/stop losses, maintenance downtime, and heat-to-power ratio.
- **Thermal Output Reporting:**
    - Annual usable heat (GJ) delivered to building.

- **Disclosure of Omitted Factors:** If any site-specific factors (e.g., fuel quality variations, ambient conditions) are excluded, the submission must note omissions and their potential impact on performance.
- If the unit is sized appropriately to provide peak heat demands, the CHP should be allowed to run unrestricted during other times of the year provided efficiency stays above that of a combined cycle plant. Running at partial loads significantly reduces efficiency, but taking the unit offline completely removes the ability to provide process heating.

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.

Cogeneration Canada Ltd. Response:

- **Recommend No Routine Monitoring:**
    - Micro-CHP exports provide grid benefits—dispatchable power, inertia, and reduced peak central-station demand.
    - Ongoing audits add cost and complexity, undermining the Regulation's goal to "promote self-supply and simplify the process."
- **Reliance on Upfront Approval:** Robust interconnection agreements, service fuse limits, and clear upfront sizing controls sufficiently manage grid impact. Any major capacity change should trigger a new application.

Please identify and justify the best way to structure mechanisms for post-approval compliance monitoring, particularly regarding responsible parties.

Cogeneration Canada Ltd. Response:

- **No Additional Mechanism Needed:** Focus on clear, enforceable interconnection agreements and utility-enforced service-size limits.
- **Trigger-Based Reviews Only:** Should a site request increased capacity or report significant performance deviations, require a fresh interconnection review rather than blanket monitoring.

- **Responsible Party:** The utility managing the interconnection should oversee any triggered review, with AUC oversight limited to audit of policies—not individual sites.

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.

Cogeneration Canada Ltd. Response:

- **Treat De-rating as a Commissioning Tool:** Allow installers to de-rate gensets or inverters to match service limits. Require conductor, overcurrent protection and all upstream devices to be installed to the de-rated capacity to prevent easy unauthorized capacity increases.

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

Cogeneration Canada Ltd. Response:

- **Yes.** De-rating avoids unnecessary capital replacement in the case of mCHP when future loads increase (e.g., adding EV charging or heat pumps). It ensures optimal component sizing and grid compliance with minimal cost.

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.

Cogeneration Canada Ltd. Response:

- **Unnecessary with a Clear Methodology:** A public database or feeder map indicating maximum allowable CHP size (by service type) achieves the same transparency without an extra application step.
- **Alternative Solution:** A defined "commissioning timeline" in Rule 024 would allow utilities to allocate staffing resources and avoid backlogs, rather than adding procedural hoops.

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.

Cogeneration Canada Ltd. Response:

- **Yes—Bi-Annual Meetings:**
    - Participants: AUC, AESO, gas utilities, Cogeneration Canada, Solar Alberta, and equipment manufacturers.
    - Topics: Inverter/genset controls, anti-islanding tests, heat-recovery controls, service protection settings.
- **Benefits:** Ensures one province-wide standard, reduces confusion, and keeps guidance aligned with evolving technology.

If yes, how often should the working group meet? Provide examples of technical requirements (other than inverters) for discussion.

Cogeneration Canada Ltd. Response:

- **Frequency:** Semi-annual (twice per year).
- **Additional Topics:**
    - Heat exchanger performance testing protocols.
    - Standby operation, battery storage and automatic transfer switch requirements.

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.

Cogeneration Canada Ltd. Response:

- **Dispatchable Generation Credits:** Introduce enhanced export credits for on-demand CHP exports during peak periods to reward grid-stabilizing services.

- **Site Aggregation & Backup Operation:** Permit aggregation of multiple micro-CHP units under a single service and allow standby operation during outages without new applications.
- **Maintain Core Pillars:** Preserve:
    1. One-to-one export credit ratio.
    2. Year-end credit carry-over or payout to allow generation credits to offset natural-gas purchases required for CHP operation, recognizing the value of incremental gas demand and supporting Alberta's gas markets.
    3. Equitable rate classes for combined heat-and-power resources.

We appreciate the opportunity to contribute and look forward to working with the AUC to ensure Alberta's micro-generation framework fully supports high-efficiency, dispatchable cogeneration technologies.