Solartility Group Inc.

Response to AUC Rule 024 Consultation

26 June 2025

Executive Summary

Solartility supports the Alberta Utilities Commission's initiative to modernise Rule 024. Our single, overarching recommendation is that all micro-generation (MG) customers—small *and* large—be settled on an **interval (hourly) basis using Bidirectional Interval Meters (BDIMs)**. Hourly net-billing aligns export credits with the true pool price, immediately eliminates the "perverse incentive" underpinning seasonal solar fixed-price plans, and future-proofs the distribution system for energy-transition growth.

Key points:

- **Regulatory precedent:** The AUC's *Distribution-System Inquiry Final Report* (Decision 24116-D01-2021) unequivocally recommended BDIMs for small MGs as the most cost-causative settlement method.
- **Technical readiness:** EPCOR and ENMAX have already successfully deployed BDIMs for residential MG customers. Over-the-air meter firmware updates are feasible to enable BDIM functionality without physical meter exchanges, so incremental capital cost is effectively **$0**.
- **Customer entitlement:** AUC Proceeding 27161 (2022) confirmed that any small MG customer may request an interval meter and the DFO must provide it upon recovery of agreed costs—establishing the legal right and operational pathway.
- **System benefit:** Hourly settlement removes the 20 ¢-plus/kWh premium embedded in seasonal fixed-rate export credits, which would have averted at least $11M in cross-subsidies in 2024.

Background on Bidirectional Interval Metering (BDIM)

Reference	Key finding relevant to BDIMs
Micro-Generation Regulation (Alta. Reg. 27/2008) s. 3(2)(b) & s. 7(5)	Permits energy settlement "at the rate determined for electricity supplied **as measured by an interval meter**," establishing legal foundation for hourly credits when such meters are installed.
AUC Distribution-System Inquiry Final Report – *Decision 24116-D01-2021* (paras 295-302)	Concluded that extending *BDIMs to all small MGs is "the simplest way to align export pricing with cost causation and eliminate cross-subsidies."*

Reference	Key finding relevant to BDIMs
AUC Proceeding 27161-D01-2022	Held that "any eligible micro-generator is entitled to request an interval meter and the DFO must supply it where costs are mutually agreed," making BDIM access a province-wide right.
AUC DER Inquiry – *Decision 22275-D01-2020*	Identified BDIM data as a cornerstone for future distribution-level markets and non-wire alternatives.

These precedents demonstrate that BDIMs are both legally permitted and broadly supported by industry for small MGs in Alberta. Requiring universal BDIM settlement under Rule 024 therefore builds on existing regulatory and infrastructure footing, rather than inventing a new obligation.

BDIMs are the Digital Bedrock for Virtual Power Plants (VPPs) and Time-of-Use (TOU) Rates

Beyond correcting cost-shifts, BDIMs unlock both Virtual Power Plants (VPPs) and Time-of-Use (TOU) retail tariffs — two pillars of Alberta's Distribution-System Modernisation agenda.

We answer the consultation's six questions below, showing how BDIM deployment either resolves or reshapes each issue.

Q1 – Standardised Sizing Methodology

Position: Size micro-generation against the site's interconnection capacity (service and busbar rating) consistent with the Canadian Electrical Code (CEC Rule 8-106) rather than annual consumption, *provided the site will be settled on BDIM hourly pricing*. Once export credits equal the real-time pool price, there is no financial incentive to oversize purely for rate-plan arbitrage.

Rationale:

- The existing CEC busbar limits, plus Distribution Facility Owner (DFO) transformer-loading studies, already protect feeder thermal capacity and voltage quality.
- The AUC Distribution System Inquiry *(Decision 24116-D01-202)* identified cost-shift —*not* capacity— as the driver of concern over large arrays; BDIM hourly settlement removes that cost-shift.
- A consumption table risks constraining Net-Zero and electrification projects that legitimately raise site load over time.

Implementation:

1. Approve the interconnection-capacity test as the default for any site installing a BDIM or converting to hourly settlement.
2. Retain the proposed consumption-based screen **only for legacy MG sites** that choose to remain on monthly net-billing until a BDIM back-stop date.

Q2 – Post-Approval Monitoring & Interval-Based Compensation

Once BDIM hourly settlement is in place, **the meter itself becomes the monitoring system**: every kWh imported and exported is timestamped and valued at the prevailing pool price. This real-time alignment of compensation with supply-demand conditions makes additional post-approval policing redundant.

Why interval settlement is the most efficient oversight mechanism

Benefit	Detail
Cost-reflective pricing	Export credits equal the AESO's hourly pool price (or another indexed product). Customers are paid the *true marginal value* of their energy, eliminating rate-plan arbitrage opportunities and sending correct economic signals for storage and load-shifting.
Automatic right-sizing feedback	Oversizing no longer produces windfall gains; pay-back periods flatten when pool price is low (as frequently occurs at mid-day). Customers therefore size arrays to on-site consumption or invest in batteries—self-regulating without DFO intervention.
Feeder visibility for DFOs	Interval channels (15-min or 5-min) allow DFOs to detect reverse-power flows, voltage excursions, and phase imbalance in near real time, enabling the potential for proactive Volt/Var or curtailment commands via IEEE 2030.5.
Enabler for demand response & VPPs	With BDIMs in place DER aggregators can align with real time market demand, dispatch batteries or curtail loads, turning passive rooftop PV into an actively managed resource that can provide reserves or capacity to the AESO market.

Conclusion: Interval-based compensation is itself a continuous monitoring tool, ensuring efficiency, fairness, and operational visibility without adding layers of manual compliance audits.

Q3 – Inverter De-rating & Oversizing with Locked Settings

Simplified Approach under Interconnection-Capacity Sizing

If the Commission adopts an interconnection-capacity limit (see Q1), for example, inverter nameplate must not exceed the service-entrance or busbar ampacity, then post-approval software derating and subsequent monitoring are no longer necessary.

Key points

- Compliance at approval: The inverter's hardware nameplate is checked once against the interconnection-capacity table. No additional lock settings or certificates are required.
- Operational simplicity: DFOs avoid audits and enforcement actions; installers avoid lock-configuration steps — reducing administrative overhead and costs for all parties.

Recommendation: Remove all inverter-derating provisions from Rule 024 once interconnection-capacity sizing and BDIM settlement are mandatory.

Q4 – "Medicine Hat" Pre-Sizing Step

The Commission proposes a front-end sizing check similar to CMH. We support this provided the mechanics are spelled out unambiguously so installers, customers and DFOs share the same expectations.

Proposed Implementation Detail

Stage	Responsibility	Mandatory timeline	What must be provided / done
1. Site query	Applicant (homeowner or installer)	n/a (self-serve)	Enter service address / POD into the DFO's online "Hosting-Capacity Map".
2. Instant lookup	DFO web tool (auto)	< **60 s**	Return (a) service-entrance rating, (b) upstream transformer kVA available, (c) feeder hosting-capacity headroom, and (d) **"Maximum nameplate kW"** the applicant may connect *without* an engineering study.
3. Auto-approval for small services	DFO	< 2 **business days**	If proposed inverter nameplate ≤ returned maximum **and** service ≤ 200 A single-phase, DFO must issue a **conditional approval letter** valid for 90 days. No manual study fee.
4. Engineering review trigger	DFO	15 business days (Rule 007 s. 3.4)	If inverter kW exceeds lookup limit **or** service > 200 A / three-phase / constrained feeder flag = "Yellow/Red", application enters the normal micro-gen study track.
5. Final energisation check	Electrical contractor	At inspection	Contractor must certify installed inverter size ≤ conditional limit.

Benefits

- **Speed** – >70 % of residential applications can reach conditional approval in <48 hours.
- **Transparency** – Applicants see the exact technical headroom rather than guessing consumption-based caps.
- **Administrative relief** – DFOs reserve engineering resources for edge-case feeders and large commercial systems.

Q5 – Technical Working Group on Inverter Standards

The Commission has asked whether a standing working group should be struck to keep inverter requirements current. We strongly support this and propose the following:

Proposed Mandate

Develop, maintain, and publish a **"Micro-Generation Inverter, Control & VPP Protocol Standard"** that:

1. Specifies **hardware & firmware** requirements for grid-connected DERs up to 1 MW.
2. **Adopts IEEE 2030.5 (Smart Energy Profile 2.0)** as the mandatory distribution-to-DER-Aggregator communications standard, ensuring secure, two-way interoperability between **DFOs and VPP operators**. This lets DFOs retain real-time visibility and dispatch authority for feeder-level demand response, Volt/Var, and other ancillary services while allowing aggregators to pool MG resources into market-ready products.

3. Defines minimum cyber-security standards (TLS 1.3, PKI) and SunSpec Modbus mappings for real-time active/reactive power control.
4. Establishes a certification process and an Approved Equipment List (AEL) referenced by Rule 024 and DFO interconnection guides.

Q6 – Other Priority Issues

1. **Seasonal Solar Fixed-Rate Export Credits**
   Problem: Decision 24116 documented that paying exports at seasonal retail rates "creates perverse incentives and shifts costs." Solar Club alone credited **$14.6 million** in export payments during 2024 (https://solarclub.ca/solar-club-news/solar-club-members-celebrate-a-record-14-9-million-in-earnings/). Using (i) **76 %** of annual PV generation falling in the 30 ¢/kWh "HI-rate" window (Mar–Oct), (ii) the 2024 average pool price of **6.28 ¢/kWh**, and (iii) rate premiums of **23.72 ¢** (HI) and **2.72 ¢** (LO), the tariff-funded share is **≈ $10.9 million** — the effective cross-subsidy paid by non-MG consumers.

   Import-side windfall: The fixed 30¢ HI rate also applies to any energy *imported* during those months. Because the retailer's supply cost still effectively tracks the hourly pool (≈ 6 ¢), the gross margin per imported kWh can exceed **20 ¢** — providing ample headroom to fund high-commission sales networks that aggressively market the plan. Customers with significant night-time loads (e.g., EV charging) can therefore face grossly inflated bills, turning the apparent benefit into a financial detriment while the retailer captures the spread.

   Proposed Solution: Mandate BDIM hourly settlement for ***all*** MG sites.

2. **Projected cross-subsidy if 30% MG growth continues**
   Assuming the seasonal solar rate model persists unchanged and MG site count grows 30% year-over-year, the non-MG subsidy escalates as follows (values in 2024 dollars, millions):

Year	Subsidy (M $)	Basis
2024	10.9	Actual (Solar Club credits only)
2025	14.17	2024 × 1.30
2026	18.42	2025 × 1.30
2027	23.95	2026 × 1.30
2028	31.13	2027 × 1.30
2029	40.47	2028 × 1.30

   This non-MG subsidy scheme will nearly **quadruple** to over **$40 million** within five years.

Conclusion

Mandating bidirectional interval metering for all micro-generation is the simplest, fairest, and most future-proof way to address every major concern raised in this consultation—from system sizing to cost-shifting. The hardware exists, the regulatory precedents are in place, and the benefits accrue to every ratepayer in Alberta.

Solartility appreciates the opportunity to contribute and is willing to participate in working-group activities to expedite the transition.

With Regards,

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