December 2025
Ontario Energy Board – Registrar
P.O. Box 2319
27th Floor, 2300 Yonge Street
Toronto, ON M4P 1E4

Re: Submission to the OEB's DER Compensation Review (EB-2025-0268)
From: *Martin Benum, Retired Electricity Sector Professional*

To the Registrar,

Please accept the attached submission as my formal contribution to the Ontario Energy Board's review of Distributed Energy Resource (DER) export compensation (**EB-2025-0268**). My filing, titled **"Residential DER Export Compensation Reform for Ontario"**, proposes a stable, avoided-cost-based export valuation methodology for small (≤10 kW) residential DERs and outlines why predictable, cost-reflective compensation is foundational to enabling meaningful residential participation in Ontario's energy transition.

Introducing the Residential Rooftop Solar + Storage Program (RRTSP)

While this submission focuses exclusively on export valuation—as is appropriate for this proceeding—it forms just **one piece of a broader conceptual framework** I have been independently developing, called the **Residential Rooftop Solar + Storage Program (RRTSP)**.

RRTSP is a comprehensive idea that explores how Ontario might enable residential solar and storage adoption in a manner that is:

- consumer-friendly and financially predictable,
- supportive of LDC operational and planning needs,
- aligned with provincial electrification and resilience goals, and
- capable of mobilizing private capital without creating new public funding obligations.

Contextual Clarification and Personal Note

The RRTSP proposal is **not** a program application, nor is it before the Board for approval. It also falls outside the formal scope of EB-2025-0268. Rather, it represents an independent personal project I have been pursuing in retirement because I believe Ontario has an opportunity to create a practical, fair, and low-cost pathway for residential DERs—one that complements, rather than competes with, the province's major supply-side and infrastructure investments.

I also wish to be transparent in acknowledging that I am advancing this concept **as an individual**. Although I have extensive experience in Ontario's electricity sector, I recognize that elements of a province-wide DER pathway extend well beyond my own expertise. I am very

much “out of my league” in several aspects of the initiative, but I believe strongly enough in the underlying potential that I feel compelled to continue developing and promoting it.

For this reason, I am genuinely seeking **input, critique, and support from anyone who may see value in the concept**. My aim is simply to draw attention to an idea that I believe could help Ontario navigate its emerging energy challenges. If this submission resonates with even a few stakeholders—regulators, policymakers, LDCs, DER experts, academics, or consumer advocates—that alone would represent meaningful progress toward turning the idea into something that could one day be realized.

How This Filing Fits into the Larger Concept

The export valuation framework submitted here is **the foundational building block** of any practical residential DER pathway. Without predictable, multi-year export compensation:

- residential storage does not pencil out,
- financing models cannot form,
- aggregation and flexibility services cannot scale, and
- LDCs cannot reliably incorporate DERs into distribution planning.

This is why the export-valuation component is the first and most critical step, and why I have chosen to bring forward this piece independently within the scope of EB-2025-0268.

Closing Remarks

I appreciate the Board’s leadership in opening this review and for providing the public the opportunity to contribute. Export valuation reform—simple, transparent, predictable, and grounded in avoided costs—has the potential to unlock meaningful private investment in grid-supporting resources at minimal cost to the system.

Thank you for considering my submission. I would be pleased to answer any questions or engage further should the Board find value in any part of this work.

Sincerely,
Martin Benum
Retired Electricity Sector Professional
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Residential DER Export Compensation Reform for Ontario

Submission to the Ontario Energy Board – DER Compensation Review (EB-2025-0268)
From: Martin Benum, Retired Electricity Sector Professional
Date: December 2025

Executive Summary

Ontario is entering a decade of accelerating electrification, rising distribution constraints, and increasing affordability pressures. Residential Distributed Energy Resources (DERs)—particularly rooftop solar paired with battery storage—can contribute meaningful system benefits, including local peak reduction, deferred capital investment, improved voltage performance, and enhanced resilience.

Yet under Ontario's current net metering and net billing frameworks, exported energy is not valued in a stable, predictable, or cost-reflective way. As a result, residential DER adoption remains low despite strong consumer interest and favourable long-term economics in other jurisdictions.

This submission recommends that the Ontario Energy Board establish a **transparent, avoided-cost-aligned export valuation methodology for small residential DERs (≤10 kW)**, implemented through a **simple, administratively practical structure** that is compatible with existing RPP review cycles and current billing systems. A transitional RPP-based export credit provides a workable starting point while Ontario gathers real-world performance data to refine a future avoided-cost model.

The recommended design is:

• **technology-neutral**,
• **fair to non-participants**,
• **administratively low-cost**,
• **easy to implement using existing TOU and billing systems**, and
• **foundational for future residential DER pathways**, including aggregation and storage-enabled grid support.

By modernizing export valuation, Ontario can unlock low-cost, consumer-driven system support without new subsidies, without increasing system risk, and without imposing complex requirements on LDCs.

What This Submission Is NOT

This submission does **not** propose:

• any new residential DER programs,
• incentives or rebates,
• financing mechanisms,
• changes to distribution rate design, or
• modifications to net metering or net billing eligibility.

It addresses **export valuation only**, fully within the scope of EB-2025-02

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1. Purpose and Scope of This Submission

This submission addresses a foundational question for Ontario's distributed energy future: **How should export energy from small (≤10 kW) residential DERs be valued and compensated?**

The intent of this filing is to:

• identify structural valuation gaps in Ontario's current export frameworks,
• propose clear principles for modernized, cost-reflective compensation, and
• outline a practical, transitional methodology suitable for small residential DERs.

This submission does **not** propose a program. It presents a focused valuation approach that is compatible with the OEB's mandate, scalable across all LDCs, and appropriate for the earliest stages of residential DER integration.

Why Action Is Urgent

Ontario is entering a period of increasing system stress driven by:

- electrification of heating and transportation,
- growing climate-related reliability challenges, and
- escalating distribution capital requirements.

Against this backdrop, small residential DERs represent a low-cost, consumer-driven opportunity to support reliability, local capacity, and long-term affordability. Yet Ontario's current export compensation structures leave this potential largely unrealized.

Without predictable and cost-reflective export valuation:

• storage adoption remains uneconomic,
• financing models cannot form,
• residential aggregation cannot scale, and
• DERs cannot be used as planning resources by LDCs.

Export valuation reform therefore represents the first-order enabling condition for meaningful residential DER participation in Ontario.

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2. Ontario's Structural System Challenge

Ontario's electricity system is facing converging pressures that heighten the need for flexible, distributed solutions and cost-effective local capacity support. These pressures are well-documented across recent LDC Distribution System Plans and provincial policy statements.

Electrification and Rising Peaks

Electrification of heating and transportation is driving sustained growth in both winter and summer peaks. Many LDCs report anticipated **double-digit peak increases** over the next planning horizon, creating upward pressure on distribution capacity requirements.

Distribution Capacity Constraints

Across the province, LDCs identify near-term constraints arising from:

• feeder capacity limitations,
• transformer station refurbishments or expansions,
• conductor and cable upgrade needs,
• voltage regulation and power quality concerns.

These investments are **high cost and long lead time**, and their timing is increasingly difficult to optimize under rapid electrification.

Climate-Driven Reliability Risks

Extreme weather events and aging distribution assets have increased outage exposure and elevated the value of **local peak reduction**, **voltage support**, and **behind-the-meter resilience**.

Affordability Pressures

At the same time, consumers face rising bills. As capital requirements escalate, Ontario's electricity system needs credible **non-wires alternatives** that help moderate future rate impacts and reduce systemwide cost growth.

Yet Residential DER Penetration Remains Extremely Low

The barrier is not consumer interest, nor technology availability, nor installer capability.
The fundamental issue is **valuation instability**.

Uncertain, volatile, or opaque export valuation signals make residential DER investments difficult to justify and impossible to finance at scale. Without modernized compensation, the province cannot meaningfully leverage small distributed resources to help manage the very pressures described above.

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3. Why Residential DERs Are Not Scaling in Ontario

Despite growing interest and favourable long-term economics in many jurisdictions, residential DER adoption in Ontario remains exceptionally low. The barriers are structural and stem primarily from valuation and integration design rather than technology or market readiness.

3.1 Net Metering Masks System Value

Net metering credits consumption rather than exports. As a result, it:

• obscures the **timing** and **system-level value** of exported energy,
• provides no incremental benefit for **storage**, **peak shifting**, or **dispatchability**, and
• may unintentionally encourage **oversized** or **misaligned** system designs.

Net metering does not reflect the province's evolving system needs, nor does it provide the price signals required to support storage or future aggregation models.

3.2 Net Billing Exposes Customers to HOEP Volatility

Under net billing, exports are compensated at HOEP. However:

• HOEP is volatile and unpredictable,
• it bears no relationship to **distribution-level avoided costs**, and
• it cannot be reasonably forecasted or hedged by residential customers.

This makes net billing structurally incompatible with financing or investment planning for 15–25-year assets. While appropriate for some commercial DERs, it cannot serve as the foundation for residential-scale deployment.

3.3 Fragmented Integration Pathways

Ontario lacks uniform, province-wide standards for:

• interconnection,
• valuation,
• distribution-level participation pathways, and
• consumer protection.

This fragmentation increases soft costs, adds friction for installers and customers, and prevents LDCs from treating DERs as scalable, reliable planning resources.

3.4 Financing Cannot Develop Without Predictability

Residential financing models require **long-term stability** in export value—typically 15–20 years.
Hourly HOEP exposure is incompatible with underwriting, and valuation uncertainty suppresses:

• loan products,
• on-bill financing structures,
• third-party ownership models, and
• residential aggregation opportunities.

Without predictable and transparent export valuation, financing cannot scale—and without financing, adoption remains low.

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4. Why Compensation Reform Is Foundational

Export valuation is the determinant of whether small residential DERs remain isolated customer assets or evolve into **integrated, distribution-level resources** capable of supporting system needs. Without modernized compensation, the province cannot leverage residential DERs in any meaningful way.

4.1 Consumers Need Predictable, Multi-Year Signals

Predictability is not a subsidy; it is the basic condition required for private investment. Residential customers cannot commit to 15–25-year assets without a stable export value framework that allows them to assess payback, risk, and financing options.

4.2 LDCs Need Transparent Value to Plan Effectively

Residential DERs can provide measurable benefits—local peak reduction, deferral of infrastructure, improved voltage performance, and enhanced resilience—but only when export behaviour is:

• stable,
• forecastable, and
• aligned with avoided-cost principles.

Transparent valuation gives LDCs the ability to incorporate DERs into Distribution System Plans and long-term capacity strategies.

4.3 Storage Economics Depend Entirely on Valuation

For residential storage, the compensation structure is the economics.
Storage becomes viable only when:

• exports during peak periods earn higher credits, and
• those credits remain stable and predictable over time.

Without valuation reform, residential storage adoption will remain negligible regardless of technology cost reductions.

4.4 Export Reform Is the Lowest-Cost, Highest-Impact Option

Modernizing export valuation:

• relies on existing smart meters and billing architecture for implementation,
• does not require new hardware for the transitional ≤10 kW framework,
• protects non-participants through avoided-cost grounding, and
• mobilizes private capital into grid-supporting assets that would otherwise require ratepayer-funded infrastructure.

It is acknowledged that most LDCs are not yet fully equipped to manage sustained bi-directional power flow beyond the transformer at high levels of DER penetration. Any future upgrades to monitoring, voltage management, or protection systems would be driven by broader system evolution as aggregate DER adoption increases—not by the implementation of a simple export valuation methodology.

Compared to large supply procurements, major station upgrades, or long-lead distribution reinforcements, export valuation reform offers maximum system benefit at minimum cost—and can be implemented rapidly.

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5. Principles for a Modern Export Valuation Framework

A future-ready export valuation methodology must be predictable, fair, administratively simple, and aligned with system value. The following principles provide a foundation for a durable, scalable Ontario framework.

5.1 Align Valuation with Distribution-Level Avoided Costs

DERs provide measurable value through:

• deferring capacity upgrades,
• reducing local peaks,
• lowering marginal losses, and
• contributing wholesale energy value.

A transparent avoided-cost methodology—updated on a regular cycle consistent with OEB practice—ensures that export credits remain grounded in system benefit rather than retail rates or commodity volatility.

5.2 Ensure Predictability to Enable Investment

Predictability is essential for consumer participation. Stable valuation:

• supports financing and underwriting,
• guides appropriate system sizing,
• reduces investment uncertainty, and
• maintains fairness for all customers.

Predictable signals—not short-term volatility—enable DERs to become long-term grid-supporting assets.

5.3 Encourage Right-Sized Systems and Storage

Export compensation should reinforce best practices by favouring:

• systems sized appropriately to on-site loads,
• exports aligned with system peaks, and
• solar-plus-storage configurations that support capacity needs and resilience.

These design principles reduce risk, maximize grid value, and avoid excessive or misaligned system sizing.

5.4 Protect Fairness and Contain Risk for Non-Participants

Fairness is preserved when:

• export credits do not exceed avoided costs,
• oversizing is not financially incentivized beyond system benefit,

• LDC revenue sufficiency is maintained, and
• the ≤10 kW limit contains systemic and ratepayer risk.

This ensures that compensation reform supports DER growth without burdening non-participants.

5.5 Keep the Model Administratively Simple

A practical framework should:

• rely on standard bi-directional metering,
• avoid hourly settlement or complex dispatch requirements,
• integrate easily with existing TOU billing platforms, and
• require minimal system changes for LDCs.

Simplicity reduces implementation costs and accelerates adoption.

5.6 Provide a Technology-Neutral Foundation for Future DER Pathways

The methodology should apply to any small DER capable of exporting energy and should create a platform for—but not predetermine—future innovations such as:

• residential aggregation,
• virtual power plants (VPPs),
• local flexibility markets, and
• the longer-term evolution toward DSO structures.

A technology-neutral design ensures that Ontario's export valuation framework remains flexible and adaptable.

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6. A Practical, Cost-Reflective Export Compensation Model

This section does not propose a program; it outlines a **transitional export valuation approach** consistent with OEB principles of cost-reflectiveness, fairness, simplicity, and predictable customer economics.

6.1 Eligibility

• Residential customers
• DER systems ≤10 kW
• Any export-capable technology (solar, solar-plus-storage, small wind, etc.)
• A voluntary alternative to net metering or net billing

Why ≤10 kW?
This threshold aligns with micro-generation norms, reflects typical residential system sizes, minimizes risk to non-participants, and keeps billing and settlement integration straightforward for LDCs. It also ensures export volumes remain inherently limited, which is particularly important given Ontario's limited operational experience with residential DER exporting.

6.2 Export Valuation Approach

Export credits should reflect the value DERs provide to the distribution and provincial system, including:

1. avoided distribution capacity costs,
2. peak-period marginal value,
3. marginal distribution losses,
4. wholesale energy value.

However, Ontario currently lacks real-world performance data for small-scale DERs and especially for solar-plus-storage systems. For this reason, a **transitional export valuation based on existing RPP energy rates** represents a practical and fair starting point:

- RPP provides a simple, province-wide, predictable value signal;
- RPP is familiar to customers;
- RPP avoids HOEP volatility and avoids-cost assumptions that cannot yet be empirically validated;
- RPP supports early-stage DER adoption while the OEB and LDCs gather empirical data.

Under this transitional approach, **export values would follow the standard RPP review cycle established by the OEB**, ensuring alignment with existing regulatory processes.

6.3 Battery Storage and Export Considerations

Ontario has very limited experience with **residential battery export behaviour**, and therefore lacks the empirical basis needed to design rigid or highly technical export rules at this time. A transitional, learning-oriented approach is appropriate.

1. Allow battery export but scale it to the solar system size

Exporting stored solar energy can provide meaningful value during seasonal peaks and local distribution constraints.
To ensure fairness and prevent large-scale arbitrage:

- battery export should be permitted,
- but the **exportable quantity should be reasonably bounded by the size of the associated solar array**.

This keeps export volumes proportionate, manageable, and aligned with distributed generation.

2. Allow consumers flexibility in how they use their battery

Customers may choose to:

- charge the battery from their solar panels, or
- charge the battery during off-peak TOU periods for personal use or resilience.

Both behaviours provide legitimate value to consumers and the system. At ≤10 kW scale, these operational choices pose limited system risk.

3. Use RPP as a transitional export value for all DER exports, including battery discharge

Using RPP energy rates as the export credit:

- provides a clear, predictable baseline until real data becomes available;
- limits arbitrage because off-peak TOU rates remain lower than RPP energy values;
- avoids premature avoided-cost modelling based on assumptions instead of evidence.

This approach ensures fairness while enabling learning-by-doing.

4. A Fairness Consideration: Occasional On-Peak Export Upside Supports Future Emergency Needs

Residential batteries may, in time, be called upon to support emergency load requirements or local reliability conditions. If small-scale storage is expected to provide such contingency value to the system, then allowing customers a modest economic upside through occasional **on-peak export**—even if it results in a limited degree of price arbitrage—is a reasonable trade-off. At ≤10 kW scale, any arbitrage is inherently small, while the benefit of having distributed storage available during emergency conditions is potentially significant. Using RPP as the transitional

export value appropriately balances these considerations without imposing complex dispatch or performance requirements on homeowners.

5. Light LDC oversight is appropriate and easy to administer

Given the early stage of residential storage adoption, modest controls can be implemented through existing connection processes, such as:

- registering battery size and configuration,
- verifying that storage is paired with solar and sized proportionally,
- applying export caps tied to inverter or solar nameplate limits,
- enabling post-connection monitoring where warranted.

These measures keep administrative burden low while ensuring that the system remains protected.

6.4 Predictable, Transparent Terms

The methodology should be:

• formula-based and publicly documented,
• free from retroactive changes,
• aligned with established OEB pricing review processes,
• optional for customers who prefer HOEP-linked net billing.

Predictability is essential both for consumer investment confidence and for building the evidence base needed for a more precise avoided-cost model in the future.

6.5 Fairness for All Consumers

Grounding transitional export credits in the RPP energy rate — and limiting eligibility to ≤10 kW systems — ensures:

• no material cross-subsidization,
• preserved LDC revenue sufficiency,
• bounded ratepayer and system risk,
• an evidence-driven pathway to future refinement.

This transitional approach allows Ontario to begin integrating residential DERs now, without waiting years for perfect methodologies, while building the dataset necessary for a mature, fully cost-reflective export valuation model.

6.6 Administrative Simplicity

The model requires:

- no new metering capability,
- no hourly settlement,
- a simple export credit line on the bill.

It is implementable by **all Ontario LDCs** with minimal cost.

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7. Implementation Considerations for the OEB

The following considerations outline a practical pathway for implementing a transitional export compensation model while maintaining fairness, administrative simplicity, and alignment with OEB processes.

7.1 Establish a Standard Avoided-Cost Methodology

To support long-term development of a cost-reflective framework, the OEB could define:

• valuation components,
• the calculation approach and formulas,
• minimum data standards and reporting requirements.

In the early stages, **transparency is more important than precision**. Establishing a standardized methodology creates a common foundation for future refinements as empirical DER performance data becomes available.

7.2 Begin with a Province-Wide Uniform Rate

A province-wide avoided-cost–based rate (or transitional RPP-based rate) would:

• minimize regulatory burden,
• accelerate implementation,

• provide clarity to consumers, installers, and financiers,
• reduce LDC administrative requirements.

LDC-specific refinements or locational adders can be introduced in later stages if warranted by system needs or hosting capacity constraints.

7.3 Integrate Within Existing Billing Architecture

Implementation complexity is significantly reduced by leveraging existing infrastructure:

• standard TOU billing structures,
• widely deployed bi-directional smart meters,
• existing billing system modules and settlement processes.

This avoids costly system upgrades and enables rapid adoption across all LDCs.

7.4 Consumer Protection (Context Only)

While outside the scope of this proceeding, it is recognized that modernized export valuation may lead to increased residential DER adoption. As participation grows, future DER pathways may benefit from standardized consumer protection measures such as:

• clear and consistent export-value disclosures,
• installer competency or accreditation standards,
• guidance on appropriate system sizing and configuration.

These measures are not part of the export valuation framework itself but may help maintain consumer confidence and reduce risk in an expanding DER market.

7.5 Evidence-Based Review Cycle

As DER penetration grows, the OEB may wish to:

• monitor the impacts of the valuation framework,
• refine inputs and assumptions based on observed behaviour,
• adjust methodologies in line with emerging data,
• maintain stable and predictable review cycles to support consumer investment and LDC planning.

This ensures that the valuation framework evolves with the system while preserving predictability for consumers and market participants.

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8. Conclusion and Requested Outcome

Ontario must meet rising electrification demand while managing affordability, reliability, and growing distribution system pressures. Small residential DERs—especially when paired with storage—can provide meaningful system benefits, including peak reduction, deferred infrastructure, improved voltage performance, and enhanced resilience.

However, **none of these benefits can be unlocked** without a modern, predictable, and cost-reflective export valuation framework. Valuation stability is the enabling condition for financing, for consumer participation, and for LDCs to treat residential DERs as reliable planning resources.

Requested Outcome

The OEB is respectfully asked to:

Establish a stable, transparent export valuation methodology for small residential DERs (≤10 kW), grounded in distribution-level avoided-cost principles and implemented through a simple, predictable structure that is administratively feasible and technology-neutral.

A transitional RPP-based valuation offers an immediate, practical starting point while empirical data is gathered to refine a long-term avoided-cost model.

This reform:

• requires no public subsidies,
• avoids cross-subsidization,
• mobilizes private capital into grid-supporting assets,
• reduces long-term system costs,
• contains risk to non-participants through the ≤10 kW threshold,
• supports LDC planning by providing stable valuation signals, and
• enables future DER pathways such as aggregation, VPPs, and flexibility services.

Without resolving export valuation, Ontario will continue to see limited residential DER participation—leaving the province more dependent on costlier supply-side and infrastructure-based solutions.