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Registrar  
Ontario Energy Board  
2300 Yonge Street, 27th floor  
Toronto, ON M4P 1E4

**Re: Distribution System Operator Capabilities (EB-2025-0060)**

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Toronto Hydro-Electric System Limited ("Toronto Hydro") is the local electricity distribution company for the City of Toronto. It serves over 790,000 customers and delivers approximately 18% of the electricity used in Ontario. Toronto Hydro's customers range from single family dwellings and neighbourhood shops to multi-use skyscrapers, and some of the province's largest commercial, institutional, and industrial facilities. The utility powers non-residential customers from a variety of sectors, including dozens of hospitals and healthcare operations; hundreds of schools, colleges, and universities; data centres; and large industrial and manufacturing facilities. Each of the thousands of multi-unit residential condominium and apartment buildings served by Toronto Hydro can have dozens or hundreds of units behind-the-meter. All told, every day, more than three million people are served by Toronto Hydro's electricity distribution system.

On January 28, 2025, the Ontario Energy Board ("OEB") initiated a consultation to consider and define a policy framework to set expectations for electricity distributors regarding the development of Distribution System Operator ("DSO") capabilities, intended to provide new means for ensuring reliable and cost-effective distribution services at the same time as enhancing opportunities for DERs. The consultation is in response to the Minister of Energy and Electrification (now Mines) 2024 Letter of Direction requesting that the OEB develop and assess local and market opportunities for Distributed Energy Resources ("DERs"), including through alternative energy business models (e.g., DSO capabilities), as well as examine the regulatory landscape, including the potential need for legislative or regulatory changes to enable future utility business models to support Ontario's broader DER strategy.

On May 20, 2025, the OEB released a Discussion Paper which sets out potential DSO opportunities and policy objectives, discuss the core regulatory considerations that DSO capabilities give rise to, and propose an approach for moving forward. This work was informed by OEB's Consultant DNV and its

report which focus on the core drivers behind the implementation of DSOs, use cases, DSO functionality, and architecture to support the ongoing DSO Capabilities Consultation. Further, against the backdrop of Ontario's Integrated Energy Plan, the June 2025 Ministerial Directive to the OEB mandates the agency to define a DSO roadmap by December 31, 2025, for the potential development and implementation of DSO capabilities, commensurate with need, value, and the flexibility to adapt to evolving circumstances.

Toronto Hydro supports the OEB's ongoing commitment to develop a regulatory policy framework that enables the implementation of DSO capabilities in a manner that maximizes opportunities for unlocking DER value while ensuring that the pace and scope remains aligned with consumer interests and system requirements. Echoing its presentation to the OEB at the June 23 DSO Symposium,<sup>1</sup> Toronto Hydro offers the following comments for consideration.

### **Enabling DSO Capabilities Through a Decade of Steady Regulatory Oversight**

Over the past decade, Ontario's electricity sector has advanced through a series of quiet, pragmatic regulatory progressions that steadily laid the foundation for DSO operations and capabilities. The OEB's measured approach in approving a small number of leading-edge technology pilots, rigorously evaluating their outcomes, and then authorizing wider roll-out, were the stepping stones in which successful innovations can now rapidly scale across the province. These precursor DSO functions, already embedded in rate-regulated Local Distribution Companies ("LDCs"), demonstrate that the LDC is the best home for advanced distribution operations: it aligns cost recovery and performance incentives, preserves local knowledge and customer relationships, and keeps full accountability under OEB's oversight. In other words, it maximizes customer value, system efficiency, and community responsiveness while maintaining robust regulatory governance. This is in keeping with the finding in the DNV report, which found that in leading jurisdictions, DSO functionality is embedded within Distribution Network Operators ("DNO"), which are what LDCs are known as elsewhere.

In the simplest of terms, a DSO should be capable of assuming real-time system operator functions for an active distribution network which empowers customers and yields consumer-side and system benefits by coordinating and dispatching DERs at a local level.<sup>2</sup> It also acts as a neutral facilitator to

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<sup>1</sup> [Link](#) to Toronto Hydro's June 2025 DSO Symposium Presentation

<sup>2</sup> Toronto Hydro contributed to [Ontario Energy Association \(OEA\) DSO Study](#) (December 2023) which explores the evolving role of DSOs in Ontario, highlighting their critical role in integrating DERs, enhancing grid reliability, and supporting a cost-effective, consumer-focused, and sustainable energy transition.

open markets at the bulk and local system level, to support the optimization of the bulk and local distribution systems. At a high level, a DSO should ideally provide for:

- Economic optimization of the distribution grid and flexibility resources
- Forecasting, procurement, and scheduling of local resources and dispatch
- Establishment and management of local distribution electrical markets, as well as enabling grid flexibility to support the local and bulk system

Under the OEB's careful, enabling oversight, Ontario's LDCs have become the primary engines of grid-modernization, driving real-world deployments in close collaboration with DER aggregators, technology vendors, research institutes, and community partners. The OEB's model of setting clear guardrails, approving cost-recovery, and letting utilities and market actors innovate, has produced a string of tangible successes. Specific examples of Toronto Hydro's local demand-response program (the province's first non-wires alternative approved through a Custom Incentive Rate decision), Etobicoke benefit-stacking pilot that optimizes flexibility for both the bulk and local systems, and the further roll-out of DERMS platforms that securely integrate rooftop solar, storage, and EV chargers are explored below.

In every case, LDCs have led the engineering, procurement, and operational execution, while aggregators marshalled customer-side resources and the OEB provided the regulatory certainty via the Innovation Sandbox, Grid Innovation Fund endorsements, or targeted rate mechanisms needed to unlock investment. The result is an ecosystem where each party plays to its strengths: the regulator assures prudence and consumer protection, the utility leverages local grid knowledge and assets, and private-sector partners bring technology and capital, jointly transforming pilots into scalable DSO capabilities.

### **Evidence of Regulatory & Operational Success: Toronto Hydro's Proof-of-Concepts as a DSO**

Toronto Hydro's decade-long experience in Local Demand Response at Cecil, Manby, and Horner transformer stations, as well as its groundbreaking Benefit-Stacking pilot with the Independent Electricity System Operator ("IESO") offer compelling proof that the OEB's "pilot-then-scale" regulatory model delivers real, measurable results. Under the Board's oversight, the utility has deferred or avoided multimillion-dollar station upgrades, procured more than 10 MW of dispatchable flexibility at roughly half the cost of equivalent wires solutions, and now routinely co-optimizes the same customer-sited resources for both local and bulk-system benefit. Outcomes such as lower capital spending, enhanced

reliability, and new revenue streams for DER owners, all stem from OEB decisions that have empowered LDCs to innovate while safeguarding ratepayer interests, underscoring that the current regulatory approach is not merely theoretical, but already working on the ground.

#### 2015-2019: Local Demand Response Cecil TS Pilot

Toronto Hydro's LDR program, Ontario's first utility-led non-wires solution initiative, was successfully operational during the 2015-2019 rate period as a targeted alternative to station expansion. At Cecil Transformer Station, Toronto Hydro contracted 8 MW of commercial and institutional demand response, combining behind-the-meter generation with load curtailment and dispatching it 5-6 times per year. As a result, peak demand on two station buses fell by 8 MW in 2018-2019, allowing a multi-million-dollar transformer upgrade to be deferred and ultimately avoided when the local load profile shifted. By turning uncertain growth forecasts into "no-regrets" capacity, Toronto Hydro's LDR proved that contractual DR can provide planners with the flexibility to postpone or eliminate capital projects and redeploy scarce ratepayer dollars.<sup>3</sup>

#### 2020-2024: Etobicoke Benefits Stacking Pilot

Building on this success, from 2022 to 2024, Toronto Hydro deliberately expanded its LDR program beyond the pioneering Cecil TS pilot to address mounting capacity pressures at Manby and Horner Transformer Stations, two critical nodes in the southwest of the city where traditional load-transfer options are hamstrung by geography, voltage mismatches, and limited corridor rights-of-way.<sup>4</sup> By procuring up to 10 MW of contractually dispatchable demand response, Toronto Hydro created a flexible, interim capacity buffer that has already averted additional transfers. This launched the Benefit-Stacking Transmission & Distribution Pilot, co-funded by the IESO's Grid Innovation Fund and endorsed by the OEB Innovation Sandbox, and tested how the same LDR resources can simultaneously deliver local relief and bulk-system services through coordinated dispatch protocols, simulated market participation, and integration with Toronto Hydro's DERMS platform. In partnership with Power Advisory, Toronto Metropolitan University's Centre for Urban Energy, and Rodan Energy Solutions, Toronto Hydro collaborated with the IESO to develop coordination protocols between the LDC the IESO. Moreover, the pilot's early dispatches of roughly 5 MW during summer peaks validate the thesis that well-orchestrated customer-side flexibility can defer costly wires investments, reduce transmission

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<sup>3</sup> See Non-Wires Solution Program in 2025-2029 CIR Application EB-2023-0195, [Exhibit 2B, Section E7.2](#) for detailed description, p.1735.

<sup>4</sup> Ibid, p.1744-1746.

congestion, and unlock new revenue streams for DER owners, all while laying the operational groundwork for a full DSO framework.

### 2025-2029: Flexibility Services

In 2024, the OEB approved Toronto Hydro’s 2025-2029 proposal to further scale-up these distribution demand response operations, authorizing the procurement of up to 30MW of flexible capacity from customers and aggregators. This additional headroom is projected to avert roughly \$10M in traditional capital upgrades at about half the cost of a comparable poles-and-wires solution, delivering value to participants, the utility, ratepayers, and the broader electricity system.<sup>5</sup>

Toronto Hydro’s success is not an outlier. During the June 23 OEB DSO Symposium, participating utilities and stakeholders showcased live or near-term pilots and programs (e.g. Alectra’s York Region NWA Demonstration, Hydro One’s Flexibility Initiatives, Hydro Ottawa’s EV Everywhere Project, Essex Powerlines’ PowerShare Market, etc.) that are already unlocking meaningful capacity, cost savings, and decarbonization efforts. Across these initiatives, the common denominator is an OEB framework that authorizes LDC-led innovation, provides clear cost-recovery mechanisms, and encourages partnerships with aggregators and technology providers. Collectively, they demonstrate that when Ontario’s regulator authorizes utilities to procure local flexibility and recover prudently incurred costs, it accelerates DER participation providing customer and system-wide benefits, deepens utility-market collaboration, and lays the regulatory and operational groundwork for a cohesive, province-wide advanced DSO framework.

### **Evaluating Proposals and Approaches**

Based on the three proposals the OEB has laid out in its Discussion Paper,<sup>6</sup> Toronto Hydro has assessed each approach and strongly urges the OEB to adopt Proposal 3 in further developing an Advanced DSO Model, as reasoned below.

While the OEB’s Proposal 1 of “Mandatory Distributor DSO Needs and Capabilities Assessments” rightly recognizes that clear standardized assessments are valuable foundations for any utility before advancing DSO capabilities, they do not by themselves move the needle toward an operational DSO. Fortunately, Ontario’s LDCs are well-positioned on this front through successive Distribution System Plans (“DSP”)

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<sup>5</sup> Ibid, p.1747.

<sup>6</sup> OEB Discussion Paper, *Distribution System Operator Capabilities*, May 2025.

and the IESO Transmission-Distribution Working Group (“TDWG”) process. The TDWG presentations made clear that most of the foundational analysis envisioned under Proposal 1 is already on the shelf and ready to be leveraged. Rather than launching a new assessment cycle from scratch, the sector can leverage these completed studies and refine them where necessary to accelerate progress toward operational DSO capabilities. This approach keeps administrative effort focused, avoids duplication of work, and lets utilities that are ready to scale proven pilots move forward without delay. By pairing the insights from TDWG and DSP filings, the OEB can transform need assessments from a preliminary diagnostic into an actionable springboard, ensuring that Ontario meets electrification growth and Ministerial timelines while maximizing the value of existing DER potential.

OEB’s Proposal 2 of a “Simplified DSO Model” is very likely to freeze innovation at a rules-based pilot stage, locking in a common ruleset for early, program-level DSO activities. Such rigidity caps the value stack, discourages aggregator participation, and leaves no room for local customization, eroding the very flexibility that makes non-wires alternatives attractive. As Proposal 2 hinges on narrowly defined programs rather than competitive, market-based procurement, every incremental upgrade would potentially have to pass through a fresh prudence and cost-recovery review, injecting uncertainty and lengthening regulatory timelines. The result could be a “bridge to nowhere” – well-intentioned rules drafted in the abstract, without a clear path to scale or a mechanism to capture the full benefits that Ontario now needs.

By contrast, Proposal 3 starts from the practical realities already in place—pilots, cost-recovery precedents, and operational experience of Ontario electric utilities—and extends them into a market-facilitator framework that any willing LDC, regardless of size, can adopt. Proposal 3 provides a clear runway for local flexibility markets, real-time transmission–distribution coordination, and DSO-as-a-Service partnerships that smaller LDCs can buy into, all within the familiar guardrails of OEB oversight.

The Market Facilitator/Advanced DSO model highlighted in the DNV report<sup>7</sup> aligns with Ontario’s current regulatory landscape as it treats the distributor as a neutral platform operator rather than a gatekeeper. Under this design, an efficient way to unlock the full value stack of distributed resources is to let DSOs host local flexibility markets that transparently price and procure services for voltage, capacity, and resilience, while preserving open access for aggregators and customers.<sup>8</sup> This approach mirrors the

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<sup>7</sup> DNV, *Considerations for Establishing DSO Capabilities in Ontario: Final Report for OEB*, May 2025.

<sup>8</sup> Ibid, p. 24.

OEB's own evolution over the past decade: approve pilots in which LDCs set clear technical requirements, run competitive tenders, and settle performance-based contracts, demonstrating that distributed solutions to local needs coupled with technology-agnostic rules and market competition is a recipe for success.

### **Proposal 3: Balancing Standardization & Flexibility**

A markets-first framework can also guard against both monopoly lock-in and one-size-fits-all mandates. Toronto Hydro recommends that the OEB enable interoperability through regulation (e.g., common data interfaces, baseline performance metrics, dispute-resolution rules) to create a level playing field that encourages diverse technologies and business models without dictating a single platform or vendor. In the case of UK's Open Networks Program led by the Energy Networks Association ("ENA"),<sup>9</sup> it was determined that "common interface for all Flexibility Service Providers ("FSPs") to provide flexible power in local constrained areas to electrical network operators using a common interface was essential to prevent eco-system fragmentation and reduce barriers to entry for FSPs".<sup>10</sup>

Additionally, regulators should set high-level, outcomes-oriented regulatory principles, leaving industry actors free to design and implement the technologies, processes, and commercial arrangements that best meet those goals, rather than prescribing technical specifications in detail. While common standards in setting up a DSO Model could be helpful, it should flow and be shaped from market-tested rules that evolve and mature organically over time. When looking at the example of billing systems and smart meters in Ontario, the OEB did not design a single, province-wide billing platform; instead, it defined the outcomes and multiple vendors produced fully compliant systems that now serve every utility. The same approach can deliver interoperable DSO functionality where the OEB defines the end-state requirements in regulation, then allows the utilities and technology providers build to those requirements in the field. This pathway institutionalizes the successes already proven by Toronto Hydro and peer utilities, scaling them into a province-wide framework that can be replicated across utilities of every size in order to maximize customer value, drive system efficiency, and keep decision-making close to the communities it serves.

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<sup>9</sup> UK's Open Networks Program led by the ENA in partnership with energy regulator Ofgem and the state's Department for Business, Energy, and Industrial Strategy is now a world leading flexibility market, which was initially developed in 2017 to consider how the UK's electricity distribution networks could harness the growing volumes of distributed generation and demand to develop markets for flexibility.

<sup>10</sup> [\*Distribution System Operation: Flexibility Services, Summary of Key Outputs from the Open Networks Programme, p. 168.\*](#)

### Precursor DSO Functionalities Belong with Regulated LDCs

The Market Facilitator/Advanced DSO model codifies and scales what the sector has proven in the field, leveraging existing rate-frameworks, asset knowledge, and customer relationships. More than that, the precursor DSO functionalities that Ontario utilities have already built (e.g. network monitoring, DER dispatch, local market facilitation) rightfully belong inside rate-regulated LDCs, just as DNV confirmed they exist in many other jurisdictions.

Creating a new, province-wide entity or shifting these functions to the IESO would orphan expertise, duplicate infrastructure, and undermine the OEB's proven oversight model. Over the past decade, LDCs have developed DNO and emerging DSO roles under clear regulatory frameworks such as Distribution System Code requirements, Chapter 5 filing requirements, and cost-of-service or incentive-rate proceedings. Relocating these functionalities would strip utilities of responsibilities they are uniquely qualified to perform and force customers to fund an entirely new layer of bureaucracy.

Moreover, an IESO-centric or other non-LDC DSO construct would transplant local distribution functions into a province-wide, wholesale-oriented organization that by design lacks the granular asset knowledge, customer trust, and boots-on-the-ground operational presence that regulated LDCs have cultivated for more than a century. As explored above, Toronto Hydro along with other Ontario LDCs and their respective experience prove why keeping DSO responsibilities inside the utility boundary maximizes value and minimizes risk. Utility field crews, technicians, and planners already possess line-by-line data and practical wisdom on conductor loading, distribution automation settings, and neighbourhood growth trends; they know exactly which feeders are constrained each peak summer afternoon and which customers can respond within ten minutes. That same embedded expertise underpins public and worker safety protocols and allows LDCs to integrate DER flexibility without compromising reliability. Just as important, LDCs enjoy long-standing, trust-based relationships with residential, commercial, and industrial customers, relationships that proved decisive in Toronto, where the LDC contracted 8 MW of downtown demand response and up to 10 MW of benefit-stacking capacity at Manby and Horner stations. Layering local flexibility markets onto existing infrastructure (e.g. AMI, SCADA, and DERMS) avoids duplicative investment, accelerates deployment, and keeps accountability under the OEB's familiar prudence and performance framework.

Shifting these functions to the IESO or any other non-LDC entity would require recreating parallel control rooms, customer-engagement channels, and safety regimes, introducing latency and



administrative complexity just when real-time responsiveness is most critical. In short, regulated LDCs are already the natural stewards of distribution-level market facilitation: they know the wires, they know the people, and they can turn DER potential into tangible capacity relief faster and more cost-effectively than a centralized alternative.

#### Pathway to Scaling Advanced DSO Functions

Toronto Hydro strongly endorses OEB's Proposal 3 and is prepared to operationalize it through detailed outcomes-oriented business cases. The OEB's policy framework should now shift from theory to the practical, province-wide scaling of the DSO-like functionalities that utilities across all sizes and services areas are already performing in the field. Proposal 3 should offer a disciplined pathway to full cost recovery, moving projects forward when and where they demonstrably outperform conventional poles-and-wires solutions, ensuring that customers, participating DER providers, and all ratepayers share in the gains. Robust, outcomes-based business cases will keep advanced DSO operations financially sound within rate-regulated LDCs, consistent with Section 1 of the OEB Act's mandate to "facilitate and maintain a financially viable electricity industry".<sup>11</sup> Ontario LDCs already carry out classic DNO functions, as well as many DSO functions. The task now is to scale those capabilities on a full-cost-recovery basis and tie them directly to measurable outcomes.

Utilities are exploring complementary funding sources (i.e. federal infrastructure programs, IESO supply procurements, electricity Demand Side Management ("eDSM") funding avenues) to bridge any gaps while OEB precedent further evolves. Where a robust benefit-cost analysis favours non-wires solutions, those expenditures must be recoverable. Toronto Hydro suggests the OEB consider the interplay and coordination among its other ongoing policy consultations such as the Benefit-Cost Analysis Framework and Framework for Energy Innovation 2.0, ensuring that the financial, technical, and incentive structures across these initiatives are internally consistent and mutually reinforcing. Clear alignment across these frameworks will provide a coherent signal on prudence, performance, and cost recovery that will streamline and accelerate the adoption of cost-effective solutions.

Lastly, scaling must follow a path that allows for building DSO capacity just ahead of DER arrival—not so early that assets sit idle, and not so late that interconnection queues stall growth. By staying slightly ahead of load growth and embedding the right capabilities now, it is important to create market signals

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<sup>11</sup> Ontario Energy Board Act, 1998, S.O. 199, Chapter 15 Schedule B, Part I General, Section 1.2.

that entice DERs to materialize and, once present, to deliver their full value stack for the benefit of all Ontarians.<sup>12</sup>

Ontario already has a well-travelled roadmap to advanced DSO functionality, shaped over ten years of OEB rulings, IESO coordination, LDC innovation, and aggregator partnerships. Hitting the reset button now would squander that collective investment, push full DSO capability years into the future, and jeopardize meeting the Minister's December 31 milestone. Instead, the sector should stay on its current trajectory of building on proven pilots, scaling them just ahead of emerging load and DER growth, and locking in a cost-recovery framework that keeps utilities financially whole while expanding opportunities for customers and aggregators. Toronto Hydro notes that every major distributor as well as groups representing small and mid-size LDCs, have largely reached the same conclusion that proven pilots have validated the model and recent Ministerial directives confirm DSO as integral to Ontario's future. The task is no longer to debate "if," but to refine "how" by leveraging the existing policy foundation and accelerating toward full outcomes-based deployment.

Toronto Hydro appreciates the opportunity to continue to work with the OEB and stakeholders on policies to enhance LDC DSO capabilities in Ontario and supports the OEB's broader efforts to adapt to evolving energy needs, integrate DERs, and ensure that the distribution network is equipped to meet future challenges while maintaining reliability and affordability.

Respectfully,



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<sup>12</sup> Refer to OEA & Energy Storage Canada (ESC) report on [Unlocking DERs to Meet Ontario's Electricity Needs \(December 2024\)](#) written by Power Advisory that explores development of an overarching policy and regulatory framework to enable DERs to play a larger role in meeting Ontario's electricity resource needs to support economic growth.