

Power Workers' Union Comments on Distribution System Operator Capabilities – Stakeholder Consultation (EB-2025-0060)

I. Introduction

On January 28, 2025, the Ontario Energy Board (“the Board” or OEB) issued a letter initiating a consultation to define a policy framework and set expectations for electricity distributors regarding the development of Distribution System Operator (DSO) capabilities. The letter indicated that the consultation was in response to the 2024 Letter of Direction from the Minister of Energy and Electrification.

To support the consultation, the OEB published two reports:

- i. **DNV Energy Insights Report:** which focuses on the core drivers behind the implementation of DSOs, use cases, DSO functionality and architecture.
- ii. **OEB Staff Discussion Paper (Discussion Paper):** which, based on the research that OEB staff has undertaken, sets out DSO opportunities and policy objectives; discusses the core regulatory considerations that DSO capabilities give rise to; and proposes an approach for moving forward.

The OEB also hosted a two-day stakeholders’ meeting at which stakeholders presented their views and comments on the two documents as well as on the Board’s proposals regarding the path to DSO implementation.

In the following, the PWU comments on two general items:

- ***The Case for DSOs and their Role in DER Integration***
- ***Ontario’s Path to DSO Implementation***

II. The Case for DSOs and their Role in DER Integration

The Discussion Paper notes that distributed energy resources (DERs) will continue to have an important role in realizing Ontario’s energy vision and that DERs – distribution-

connected generation, storage and controllable loads – create new ways for entities to provide services to the electricity system and for consumers to exercise customer choice.¹ Moreover, the Discussion Paper asserts that the adoption of greater DSO capabilities in Ontario is expected to help the electricity sector unlock greater value from DERs and their aggregations (collectively DER/As) at the wholesale, distribution and customer levels.²

The extraction of greater value from DERs as the driver behind the need to develop DSO capabilities is also evident in the three benefits that the Board identified in the Discussion Paper³:

- i. **Further facilitate the use of DERs as non-wires solutions**, by equipping distributors with tools to meet system or reliability needs using DERs, where such approaches are more favourable than conventional poles-and-wires solutions.
- ii. **Increase DER hosting capacity**, which would allow more DERs to connect to the distribution system without triggering costly infrastructure upgrades.
- iii. **Expand DER compensation mechanisms**, which would allow the electricity sector to take advantage of *program- and market-based* approaches to compensating DER/As for a greater portion of the value they provide to customers and the electricity system.

Clearly, the further integration of DERs is at the centre of the discussion on the proposal to develop DSOs.

The PWU submits that the claimed benefits of DSOs in realizing the full potential of DERs cannot be determined in the absence of (i) a realistic assessment of the role of DERs in Ontario's overall energy context – particularly in relation to DERs' potential to help avoid investments in new and existing transmission and distribution infrastructure; and (ii) an evaluation of the impacts of past, present, and upcoming policy measures intended to remove barriers to DER integration and increase their role in Ontario's energy supply mix.

¹ Discussion Paper, Page 4

² Ibid.

³ Ibid.

In PWU's view, DERs can play a significant role in Ontario's energy supply mix provided there is evidence-based justification with respect to their cost-effectiveness and contribution to system reliability.

In this respect, one common claim made about DERs is that they help avoid investment in traditional or bulk systems - transmission, distribution and generation. This claim should be treated with caution given the current lack of transparent and sound evidence to support it.

More broadly, the role of DERs in avoiding investments in traditional systems should be weighed against Ontario's reality in the face of a massive ongoing increase in demand for electricity, which according to the IESO/government is forecasted to increase by 75% by 2050.

This forecast is likely too conservative. As the PWU has noted in prior submissions, a consensus of third-party demand forecasts for Ontario shows that the province should be developing three times as much new capacity as currently suggested in the IESO's forecast.

In all scenarios, there is no question that Ontario needs to invest in new infrastructure and upgrades to accommodate the generation required to meet the huge increase in demand for electricity:

To meet increasing demand, Ontario must do more than just generating power – we also need to get that power where it needs to go. The province is home to over 30,000km of high voltage electricity transmission lines that act as highways for the electricity system, carrying power from generating stations to the communities, industries and homes that rely on it...Transmission infrastructure ensures that electricity flows efficiently and reliably across Ontario – avoiding bottlenecks, keeping costs down, and making room for new generation to come online. **As demand grows across the province, driven by population growth, electrification and new industrial projects, Ontario must act now to support the building and upgrading of the lines that will power our future and unleash our economy.**⁴ [emphasis added]

⁴ Energy for Generations: Ontario's Integrated Plan to Power the Strongest Economy in the G7

Ontario's Integrated Plan also makes a similar recommendation with respect to distribution infrastructure:

As electricity demand grows, driven by new housing, industrial expansion, and the electrification of vehicles and heating, LDCs are being asked to do more than ever before....**To meet these growing demands, LDCs will need to strengthen their infrastructure, adopt new technologies, and deliver services more efficiently and affordably. This includes making significant capital investments in substations, transformers, and digital grid management tools.**⁵ [emphasis added]

Given that the growth in demand could exceed even IESO's forecasts, an even higher level of new investment and upgrades in transmission and distribution will be needed. Since the OEB is framing the benefits of implementing DSO capabilities in terms of DER integration, it should exercise caution in its report to the Minister regarding the role that DERs realistically play in avoiding these required investments, and hence the extent to which DSOs would help achieve this same goal.

In fact, to unpack the full potential of DERs in the long-term, it is important that more transmission and distribution investments are made now to ensure the system has the capacity to accommodate higher levels of DERs.

Separately, Ontario has been actively working to remove barriers to integrating DERs through a number of OEB and IESO policy initiatives. This includes IESO initiatives that would enable aggregated DERs and, potentially, smaller standalone DERs to participate in wholesale electricity markets. The following is a list of some of these efforts, compiled from Board Staff's Discussion Paper and other documents:

- **DER Connection Review:** Which is streamlining the requirements for connecting DERs across Ontario and has resulted in Distribution System Code amendments to facilitate distributor experimentation with flexible connection offerings.
- **OEB-IESO DER Incentive Study:** Which aims to understand how existing incentives function collectively, develop recommendations for improvement, and apply those learnings to future programs and policies.

⁵ Energy for Generations: Ontario's Integrated Plan to Power the Strongest Economy in the G7, page 80

- **OEB Framework for Energy Innovation (FEI):** Which sets out the OEB's policies and next steps with respect to the integration of DERs into distribution system planning and operations, as well as the use of DERs by electricity distributors as non-wires solutions.
- **OEB Benefit-Cost Analysis Framework** which standardizes the evaluation of various solutions, including non-wires solutions, for electricity system requirements. The first Phase focuses on distribution-level impacts, with optional assessments for upstream benefits like avoided generation and transmission costs, which is now incorporated into the Filing Requirements for Electricity Distribution Rate Applications. Phase 2 is expected to refine the analysis of upstream impacts and explore societal impacts.
- **OEB Non-Wires Solutions Guidelines:** Which help distributors implement alternatives such as conservation programs and DERs to address system needs, enhancing efficiency and reducing costs for customers.
- **OEB Performance Incentive Mechanisms (PIMS):** Which among other things propose to reward incentives to LDCs for efficient DER connections
- **IESO's Enabling Resources Program (ERP):** Which according to the IESO⁶ will start with implementing simple no-regret functionality to enable aggregated DERs and, potentially, smaller standalone DERs to participate in wholesale electricity markets.
- **IESO: Local Generation Program:** Which will competitively secure small scale electricity generation resources, such as biogas, wind, solar, and natural gas generators (including CHPs) – both new-build and re-contracted – that are connected to the distribution system. According to IESO, the Program, set to launch in 2026, will unlock new opportunities for DER providers to participate in the electricity system and help ensure customers benefit from more affordable, locally supplied power.

Before embarking on market-based DSOs, it is important to assess objectively the efficacy of DERs in avoiding or deferring investment in new build and upgrades (transmission, distribution, and generation) in the face of the forecasted surge in electricity demand. It is also important to assess objectively the incremental potential value that DERs can offer through DSOs beyond what has been achieved or will be achieved through the existing and upcoming regulated, rule-based, or program-based approaches.

Such assessments of incremental benefits from market-based approaches are crucial because market-based approaches are not an easy feat – they require significant effort

⁶ IESO Presentation for Stakeholders Consultation on DSO Capabilities

and cost and involve regulatory, implementation, and financial risks – such as when there is little interest to participate by customers, which in turn could expose distributors and DER aggregators to financial loss, all of which put into question the cost-effectiveness of investments in DERs and DSO capabilities.

III. ONTARIO’S PATH TO DSO IMPLEMENTATION

The PWU has consistently advocated that the most cost-effective way to advance DER integration into Ontario’s electricity system is via rate programs, not the markets. Some analyses, for example, demonstrate that the market approach is unsuitable for the non-emitting energy resources that Ontario seeks to procure.⁷

In this respect, the PWU considers Board Staff’s graduated approach to be the least risky path for Ontario. Board Staff’s graduated approach to facilitating the adoption of DSO capabilities in Ontario proposes to begin with a simplified DSO model design that reflects the existing regulatory framework, anticipated system conditions and foreseeable DER penetration levels.⁸

Board Staff state that this approach will also allow for development of more advanced DSO models that become of greater value as the electricity sector attracts DERs and matures in its use of DER/As to meet needs at the wholesale, distribution and customer levels.⁹

The PWU, informed by the analysis and experiences of other jurisdictions in DNV’s report, and, based on the discussion points raised in Board Staff’s Discussion Paper, supports a graduated approach for the following reasons:

- i. As the DNV report points out, market development takes time, effort, and cost:

Developing competitive and liquid flexibility markets requires significant investment, time, industry coordination, regulatory steering, and a high

⁷ Strategic Policy Economics, Electricity Markets in Ontario: An Examination of Mismatched Conditions and Options for Future Competitive Procurements, Dec 2020.

⁸ Board Staff: DSO Capabilities Discussion Paper, page 7

⁹ Ibid.

implementation effort to ensure that there is sufficient reliable flexibility to manage congestion and that the benefits of competition are fully leveraged. To deliver value-for-money for consumers, the development of flexibility markets must, therefore, be planned and timed carefully.¹⁰

- ii. Market-based solutions can have benefits in the long term. However, these benefits can be realized only if there is sufficient customer interest and DER penetration. This is clearly stated in DNV's report:

The market-based approach in Europe, while still in its infancy, has not been consistently effective, mainly because of low customer interest/participation. A regulated, rule-based approach may prove to be more effective in enhancing the reliability of, and derisking, DER flexibility – especially in the early development stage of flexibility use cases and flexibility supply.¹¹

- iii. If the ultimate purpose of developing DSO capabilities is to promote DER integration and generate interest in participation, it is important to evaluate first the results of existing and upcoming regulatory and policy initiatives before LDCs embark on investment in capacity needed to implement market-based DSOs. The cost can outweigh the incremental benefits that the market approach is supposed to realize. DNV's report on the experience of other jurisdictions suggests that premature implementation of market-based DSOs is not cost-effective and that the regulatory, financial, economic and implementation risks could far outweigh the benefits.
- iv. Ontario's current reality is that LDCs will have to respond to many challenges including soaring electricity demand, more frequent and severe weather events, and cybersecurity threats, all of which require an unprecedented level of capital investment. This is a particularly important challenge for municipal and other shareholders who are facing competing financial priorities.¹² In this respect, committing resources to uncertain, untested initiatives could expose LDCs to undue commercial and financial risk.

¹⁰ DNV Final Report: Consideration for Establishing DSO Capabilities in Ontario, page 4

¹¹ Ibid., Page 5

¹² Energy for Generations: Ontario's Integrated Plan to Power the Strongest Economy in the G7, page 93

- v. According to DNV, introducing DSO functionality on a system-wide basis is complex and costly and requires alignment across all relevant stakeholders.¹³ Adopting the Board Staff proposed graduated approach would help the OEB, IESO, LDCs and other stakeholders have the time to plan and put in place mechanisms that would ensure such alignment is achieved, and also to develop strong governance and accountability required to mitigate adverse consequences of implementing DSO functionality in a system-wide basis.

¹³ Ibid.