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July 14, 2025

EB-2024-0129 – Distribution System Operator Capabilities – Stakeholder Consultation
Pollution Probe Comments

Dear Mr. Murray:

The Minister of Energy and Electrification's 2024 Letter of Direction to the Ontario Energy Board (OEB) requested that the OEB "develop and assess local and market opportunities for Distributed Energy Resources (DERs), including through alternative energy business models (e.g., Distribution System Operator capabilities)." In response to this direction, the 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, which can provide new means for ensuring reliable and cost-effective distribution services at the same time as enhancing opportunities for DERs.

In 2024, the OEB also retained a consultant, DNV Energy Insights, to assess the need and value of DSO functionality in Ontario, as well as a range of potential DSO models. The OEB published the DNV report '*Considerations for Establishing DSO Capabilities in Ontario*' on May 20, 2025. An OEB Staff Discussion Paper was also released on May 20, 2025 to set out objectives for the consultation and establish the key issues to be addressed. The OEB also held a hybrid stakeholder meeting on June 23, 2025 to discuss the materials released and enable presentations from several stakeholders. This consultation approach has been methodical and helpful, particularly given that there is a broad range of stakeholder understanding and opinions related to DSO capabilities.

It is important to note that the Ministry Direction and related focus defined by the OEB is not entirely new or discrete from some current activities, including certain tangible actions by leading Ontario distribution utilities to advance and deliver DSO capabilities and DERs. Some of these examples were shared with the OEB during the June 23, 2025 stakeholder session. Overall, the stakeholders presentations supported the DSO concept with some presentations highlighting the action and results already occurring, while some utilities that have not already

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progressed advised a more conservative approach. Ontario Association of Physical Plant Administrators (OAPPA) highlighted benefits of DERs, but expressed some operational concerns about difference between distributors and the potential for some DER participants if a distributor's affiliates resulted in a conflict of interest that limited efficient market participation. DERs already exist at customer sites and DSO approaches should not conflict with those operations.

The Energy Transition journey in Ontario is similar to other jurisdictions in Canada and the world. Leading juridictions have already begun or made the shift from the traditional power system of the past century to the modern and evolving, smart, flexible energy system for the future. Ontario has made some progress, but action and tangible results vary significantly across Ontario's electricity distributors. Additional opportunity also exists at the wholesale market level to advance and maximise modern solutions. Figure 1.1. below illustrates elements of the traditional vs. modern system[1]. DSO models are not new and elements of a DSO already exist in Ontario. The challenge is to enhance these capabilities and achieve tangible results across Ontario.

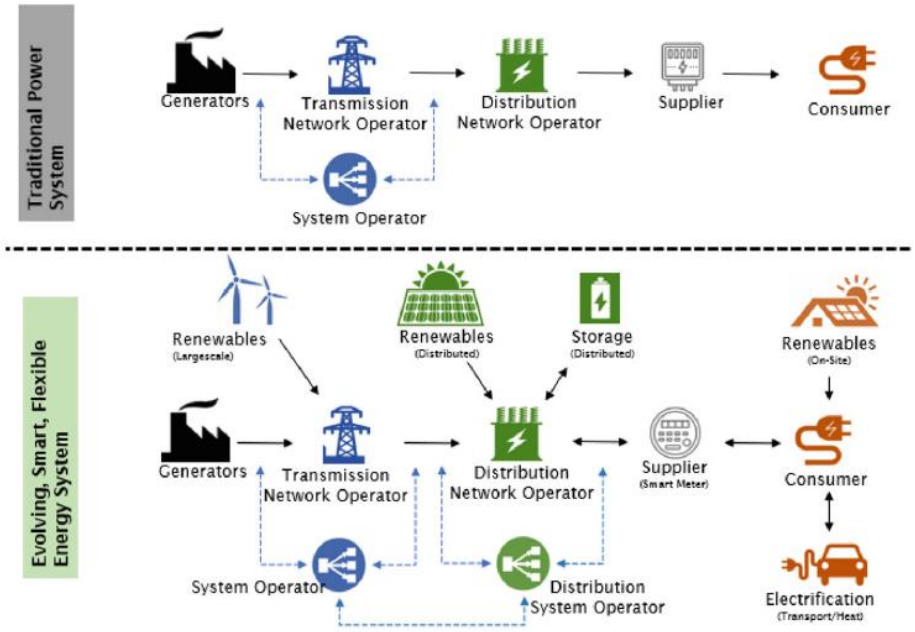

Fig. 1.1 Traditional versus smart flexible energy system

[1] Source: Distribution System Operation: Flexibility Services, Energy Networks Association, 2025 - https://doi.org/10.1007/978-3-031-92905-2

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There is a large number of OEB initiatives/proceedings currently underway and several of these have the potential to impact (directly or indirectly) this DSO capabilities initiative. In the Discussion Paper for this initiative, the OEB has acknowledged linkages between this DSO capabilities initiative and other ongoing initiatives by the OEB and IESO. Mapping these linkages is a best practice and recommended for all OEB initiatives. This helps avoid unintended consequences between initiatives and explicitly indicate where initiatives need to be specifically coordinated. When the OEB develops an action plan to support and advance DSO Capabilities, it will be important to be clear on the linkages to maximise synergies and avoid conflicts that have the potential to undermine results. It will also be important to consider how tangible results will be tracked and reported. The OEB's advancing PBR initiative is considering metrics to incent action and results from distributors and DSO capabilities that increase distributed energy resource (DER) results in a service territory that can reduce peak load is one are for consideration. As noted, some distributors are already doing this through their rates case approvals without any extra carrots or sticks.

The recent integrated energy policy document 'Ontario's Energy for Generations'[2] and the related Directives to the OEB[3] and Independent Electricity System Operator (IESO)[4] included requirements for enhanced coordination related to integrated planning and advancing DERs. It will be important for the IESO and OEB to interlink ongoing activities and consolidate their initiatives and outcomes in a common project plan. Some of this has occurred in OEB initiatives such as DER Connections and RPPAG. There are gaps that remain to be closed from some of these initiatives. For example, there was unanimous agreement that better coordination is required across the Regional Planning process to include DERs and align more effectively with local opportunities, including those outlines in municipal energy and emission plans.

OEB Staff also highlighted some of the activities being conducted through the IESO's Transmission & Distribution Coordination Working Group (IESO TDWG). There is an opportunity to align the focus and use of the work of the TDWG more successfully with the OEB initiatives related to DERs. While noting that there are differences between the wholesale market and local DSO focus, perhaps this would include more regular sharing of information and initiative scoping between IESO initiatives and OEB initiatives, plus sharing of information across working groups. Success will require enhanced coordination and sharing of integrated project plans through IESO and OEB consultation initiatives. The recent Directives to the OEB and IESO highlight the need for greater coordination.

[2] https://www.ontario.ca/page/energy-generations
[3] OC-802-2025.pdf
[4] https://www.ieso.ca/-/media/Files/IESO/Document-Library/corporate/ministerial-directives/Directive-from-the-Minister-of-Energy-and-Mines-20250612-IEP.pdf

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Pollution Probe represents a consumer and policy perspective related to DSO issues and regularly coordinates on a range of topics that fit within successful DSO delivery, including enabling DERs. Research by Pollution Probe (*Achieving Reliability in a Future Ontario Power System*)[5] demonstrates that DER/As can provide significant benefits, and help ensure essential reliability requirements. Local flexibility markets and, as proposed in the research, Local Reliability Auctions and Local Voltage Stability Support. These services can provide value to the system and to consumers if they are implemented correctly. Yet most require more DSO capabilities within the LDC. As we consider how to capture the value of DER/A to provide system and local benefits it is important to consider the structure that will allow distributors to access all the benefits possible for DER/A.

In the OEB Staff presentation at the June 23, 2025 stakeholder session, OEB Staff included a set of Discussion Questions on slide 15. The more detailed Discussion Paper included a larger number of issues and questions. Before systematically providing comments on those issues and questions, below is a short summary of key considerations and recommendations.

Key Considerations and Recommendations

- Success will require a transparent and objective approach to assess DSO capabilities and tangible results from distributors. There is a large discrepancy between distributors on plans and results achieved and this a difference between intentions from action and results. Some distributors are very conservative, while others are already moving forward wit DSO capabilities.
- Policy approaches could be more progressive where those with demonstrated capacity, plans and results have greater ability to demonstrate tangible results, while those lagging are supported by a suite of tools and transparent requirements to gradually improve over time.
- As noted previously, carrots and sticks could be considered. The OEB's advancing PBR initiative is currently doing this and only focusing on time to connect DERs is pedestrian compared to what is needed for future success. Build the approach and monitoring system for the future you want, not the status quo. This further reinforces the need for carefully coordination across related initiatives.
- Clarity on the benefits and what services that DSOs could provide needs to be clear, and distributors have to ensure that they are actually provide these services. Monitoring and reporting is important to validate this.
- Recognise that tangible action and results are already present by some Ontario distributors. The approach must be careful not to impede progress by leading distributor

[5] https://www.pollutionprobe.org/netzero-reliability-initiative/

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which have been leading the ways. Avoid creating new processes or approaches that would move the leading distributors backwards. Leveraging case studies from leaders will help others move up the curve.

- If the OEB leverages working groups for this initiative, the scope will need to carefully align with the intended outcomes and not add confusion when some distributors have already moved forward. Changing the rules for those already delivering will serve as an impediment for progress.
- Recognise that distributors have the ability to deliver many DSO services already and the OEB has the regulatory authority to supplement these activities as appropriate.
- Recognise that many distributors have not taken proactive (or in some cases regulated) action to advance their planning and delivery of DSO capabilities, including NWA and DER enablement. Continuous focus (mostly through rates cases) will be needed to ensure that current requirements are met and that other DSO activities do not dilute those requirements.
- Include expectations for distributors to advance DSO capabilities and outcomes through their rates case applications as long as they are aligned with desired policy outcomes and capabilities of the distributor. Also reinforce the OEB requirement that rates case application (including demand forecast and distribution system plan) are to include a comprehensive assessment of non wire alternatives (NWAs) including DERs. The OEB could consider a floor value (e.g. percentage) of peak load the distributors must address in the future to reinforce this option and support market development. Distributors that are not able to meet the baseline would need to explain the reason.
- Aggregators and implementation of DERs will mature in Ontario if it is clear that there are greater consistent opportunities and that the grid planning process is moving away from a bias toward Capital intensive wires solutions. More work is needed from the local net demand forecast to the integrated regional plans to make this a reality. Although there is a recognition that these gaps exist (including through the OEB RPPAG report and sub-reports), there has been little tangible progress to change the outcomes of the process. Wires solutions dominate over more flexible customer-oriented solutions like DERs.
- Improve the Regional Planning process to align more tangibly with local plans and opportunities, including better alignment with municipal energy and emission plans. Distributors are closest to customer demands and have the greatest visibility to where DERs are best promoted and placed, yet little to no local DERs are included in distributor net demand forecasts that form the foundation for the Regional Planning exercise. Distributors are largely relying on IESO to add local DER benefits to the net forecast and IESO has no local visibility other than loads they directly control. Utilities that defer DER forecasts to the IESO are not demonstrating DSO capabilities and opportunities to

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manage net demand locally are being lost. Distributors that do not leverage local e-DSM and DER program opportunities are also not demonstrating DSO capabilities.

- The OEB, IESO and Province need to set a long-term plan to drive consistency across Ontario as DSO capabilities advance. A varying quilt work of approaches and results across Ontario will limit long-term success.
- Enable a coordinated approach which maximises the strengths and opportunities of local DSO development and implementation, plus wholesale market programs. Not one or the other. This maximises the opportunity for success and the two-prong complimentary approach can be used to benchmark each other and make continuous improvements.
- It is recommended to continue to monitor individual distributor plans and progress through their rates case process, combined with broader review at an aggregate level for Ontario.

The following are additional comments based on issues identified in the Discussion Paper and supporting consultation materials.

Other Specific Issues from the Discussion Paper

Pollution Probe agrees that the adoption of greater Distribution System Operator (DSO) capabilities in Ontario can help the electricity sector unlock greater value from DERs and their aggregations (collectively DER/As) at the wholesale, distribution and customer levels, reducing costs and improving services.

It is important to note that there is and will continue to be variation across distributors on their ability, capacity and willingness to deliver value-added DSO capacity and maximise the system and customer benefits that can be achieved. Hopefully over the long-term, those variances diminish and a more consistent level of results are achieved, while retaining the ability for innovation by leaders. It will be important to monitor progress for each distributor based on their situation through their rates cases which is the principle proceeding to comprehensively review distributor performance and set direction for the future. Complimentary broader monitoring and analysis to determine overall progress, trends and changes needed is also appropriate.

Pilots are highlighted as an opportunity to develop and share insights. A structured approach to share pilots and results is recommended. This has worked well in other OEB DER initiatives. It is also important to recognise that some DSO capabilities are already occurring beyond pilots. Collecting and sharing those activities and the results (if results exist already) will also be important. Recognising that some distributors are already delivering some DSO capabilities

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(often highlighted in their rates cases) will avoid moving backwards or slowing down existing progress. Distributors have the ability already to advance some DSO capabilities and those results should not be slowed down by a DSO capability building approach that only focuses on those in the very early stages.

As noted, there is significant ability for distributors to already develop and deliver DSO capabilities as part of their existing regulated activities. As highlighted at the stakeholder session, some distributors are already doing this and it has been supported by the OEB through rates case approvals that highlighted those activities. This worked well in the Toronto Hydro 2025-2029 rates case which enabled system development (including DERs) in one of Ontario's heavily growing municipalities and in alignment with the most demanding electrification goals in Ontario, Net Zero by 2040[6]. There are other utilities at the back of the pack who despite having the same access to similar resources, have fallen behind on keeping their system current and struggle to meet future needs in the same manner. This is where the value of benchmarking and holding utilities accountable through their rates case reviews holds strong value. The rate case is the single most important regulatory event for each utility and leveraging that process to reward leaders and mitigate laggards aligns existing processes with expected outcomes.

OEB staff indicated that it is of the view that legislative changes would likely be required if Ontario were to:

- Implement a Total DSO model, where an electricity distributor, as DSO, would adopt a commercial position with respect to the aggregation of DERs for participation in the wholesale market.
- Require a separate entity to serve as a DSO, distinct from today's electricity distributor; in such a case, a new regulatory regime would likely be required to provide oversight of this new class of entities.

Pollution Probe agrees with this assessment, but this should not impede moving forward with DSO activities that are already available and being demonstrated by leaders. In fact, the majority of the activities are already allowed and should be encouraged in parallel with advancement of the broader DSO regulatory model.

OEB staff proposes a graduated approach to facilitating the adoption of DSO capabilities in Ontario, beginning with DSO model design choices that reflect the existing regulatory framework, anticipated system conditions and foreseeable DER penetration levels. This

[6] Summary of the details is available in EB-2023-0195 dec_order_Partial_THESL_20241112

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

It is unclear what is intended by "graduated" since not all distributors are starting at the same point. Ontario electricity distributors are already expected to be more than just distribution wire companies to meet customer needs and some are delivering on that expectation more than others. Distributors already have accountability for local net load modeling and integration, which includes DERs. They also have requirements to assess and enable NWSs that are more beneficial than just adding more Capital wire solutions. Distributors are also the starting point for demand forecasts that form the foundation for Regional Planning. Unfortunately, the Regional Planning process has not evolved sufficiently to put more focus on distributors to consider NWSs over traditional solutions. Foundational local forecasts are largely void of net benefits from DERs, with the current expectation that the IESO is able to fill this gap. There is a gap between expectations and what is actually occurring. Enhancing DSO capabilities without modernising the Regional Planning process and enhancing information and data sharing will result in opportunities being lost and not reflected in the integrated resource plans.

The recent Provincial policy direction and related Directives reinforce the need for greater coordination. The Discussion Paper references the IESO DER Potential Study, but does not reference the more recent DER Potential Studies which has been undertaken by the IESO. IESO has already started to add findings from the 2025 DER Potential Studies into Regional Planning assumptions and it is expected that IESO will publicly release these studies in 2025. Stakeholder engagement during DER potential forecasts and sharing of draft information from the DER Potential Study would serve to identify any gaps in the study and enable Ontario stakeholders to advance their knowledge during the process. These studies should be circulated to stakeholders once available from IESO and examined for enhancements to DER potential since 2022.

OEB staff proposes to work with the sector on these three next steps:

- **Mandatory and Standardized Assessment Methods**
- **Simplified DSO Model Development**
- **Advanced DSO Model Development**

Overall, Pollution Probe agrees that these general buckets of steps make sense, but the devil will be in the details and proper scoping of those steps is important. For example, if a standard

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set of tools and a simplified model is developed, what negative impacts could that have on actions already being taken by leading distributors that have advanced past minimum requirements? It could make sense to allow leaders to transition to an advanced DSO model sooner, once they have met minimum criteria for building capacity and demonstrating results. Also, what approach will the OEB use for distributors that fail to meet the minimum requirements? If working groups are set up to help build out these steps, it will be important that the working groups include distributors and stakeholders that align with the Provincial vision and have an urgent disposition to advance this innovative approach instead of embracing status quo. Some of those challenges occurred during the Future of Energy Innovation, where some members of the working group appeared to favour the status quo over making the innovative changes needed to advance to a modern energy system. Scoping workplans for those groups can help ensure that progress is made in the timelines required.

The best approach appears to be retaining the benefits of wholesale market programs while enabling and encouraging local DSO activities and markets that are appropriately coordinated and provide benefits to the local grid and customers. Removing regulatory barrier to allow distributors to perform DSO functions would provide a full set of options. As noted above, distributors already have broad ability to develop and undertake DSO delivery and related programs. These should be reviewed by the OEB at the regular rates case intervals. Broader capabilities that are unlocked through legislative change (e.g. Total DSO Model), should include an OEB review based on distributor proposals to ensure that each distributor that wants to leverage the Total DSO Model has the abilities to do so, or is willing to partner with an organization that can provide those services. Any movement of a distributor to a Total DSO Model would require enhanced and transparent coordination with IESO to ensure appropriate coordination.

Any advancement of DSO capabilities will require an understanding of how it fits with the regulated electricity distributor, which is the entity that understands and manages the local grid. A DSO that is separated from the regulated distribution operation must ensure that delivery of DSO services locally aligns directly with the information and services of the distributor. It is possible that a DSO could consolidate some of the distributor responsibilities at a level that enables a consolidated DSO to serve multiple service areas. A distributor can delegate delivery of services, but under the current OEB model a distributor retains accountability for delivery of the monopoly distribution services. Potential abuses (e.g. affiliate promotion over market services) will need to be monitored and minimised to enable efficient market participation. Over time, market service are expected to grow as Ontario demonstrates its commitment to growing the DSO approach. Having the wholesale market mechanisms

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operated in parallel is also a safeguard against barriers being created at a local level. If activity is visibly migrating to the wholesale level, it could be a signal that the local market is not working efficiently.

What is a DSO?

The Discussion Paper suggested a definition for a DSO.

A DSO is an entity with advanced capabilities to integrate, manage and optimize DERs for distribution and wholesale market services. DSOs actively manage distribution systems, and the sophistication of their capabilities would evolve as system needs or DER penetration levels increase. They perform these functions with capabilities that can be considered incremental to those already undertaken by distributors, and could include supporting reliability services, developing local flexibility markets, and allowing for the increase in DERs. A DSO can serve multiple distributors, potentially having more opportunities to optimize DER integration and increasing local flexibility.

Overall, this definition appears appropriate, but it is also important that the required actions and results also occur. If a distributor meets the definition above, but does not undertake the tangible actions and produce the intended results, the distributor is not acting as a DSO.

What are DERs?

The Discussion Paper indicated that the OEB is avoiding a definition of what a DER is for purposes of the Discussion Paper, but that the IESO's TDWG suggests that DERs are resources that generate, store and discharge electricity, or dynamically modify electric load. They are connected directly to an electric distribution system or an end-use customer's premises within a distribution system. They can include solar photovoltaics, combined heat and power plants, backup generators, energy storage, electric vehicles and consumer devices that can reduce or increase electricity use on demand. Energy efficiency measures are excluded from the definition of a DER because their performance is not dynamically variable.

The OEB indicates that it is important to note that the TDWG definition differs from the OEB's definition of DERs that is used for regulatory purposes in documents such as the DER Connection Procedures, where a context-specific definition was required. It is understandable that IESO can have a more narrow definition based on its role, but the OEB definition needs to be more inclusive. A definition of DERs would need to be more inclusive for application to distributor service areas where a DSO would operate. Leveraging a more inclusive best practice

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definition is recommended across OEB initiatives, where practical. The DER definition from the best practice National Standard Practice Manual is[7]:

> *Distributed Energy Resources (DERs) are resources located on the distribution system that are generally sited close to or at customers' facilities. DERs include EE, DR, DG, DS, EVs, and increased electrification of buildings. DERs can either be on the host customer side of the utility interconnection point (i.e., behind the meter) or on the utility side (i.e., in front of the meter). DERs are mostly associated with the electricity system and can provide all or some of host and/or support the utility system by reducing demand and/or providing supply to meet energy, capacity, or ancillary services (time and locational) needs of the electric grid.*

The Discussion Paper indicates that the evolving energy landscape and increasing integration of DERs present both opportunities and challenges for Ontario's electricity system. One of the main challenges is creating ways to ensure that DERs can deliver value at the customer, distribution and bulk-system levels, which in turn can enable more efficient use of energy assets, allow for more efficient integration of DER/A, and providing value to local customers. DSOs have the potential to directly address this challenge. Pollution Probe agrees with this assessment. Another potential barrier is cultural, where some distributors do not seem to exhibit a culture that embraces the Energy Transition changes needed to fully support DERs and the benefits they can bring to customers and the grid. More rapid culture change driven by regulatory requirements and supported by enabling industry initiatives will help make this transition faster.

Although there will need to be some investments as outlined in the Discussion Paper, it is important to note that some distributors have been able to make significant progress within their existing regulator rates case framework. Suggestions that significant incremental investments are needed before a distributor can start to exhibit DSO capabilities is not based on what is being seen in Ontario and this should not be used as an excuse to impair progressive progress. A logical and fact based analysis will be required to determine what investments are truly incremental to current utility operations. The OEB already has processes in place for distributors to highlight incremental requirements beyond what they already have. Distributors that have used a more long-term systematic focus to utility planning have been able to make more progress over time.

[7] nationalenergyscreeningproject.org

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The Discussion Paper indicates that OEB staff proposes to require all distributors to conduct two mandatory assessments to inform preparations to integrate DER/As effectively into their systems and take advantage of DER/As to meet system needs, both at the bulk level and at the distribution level, when cost effective to do so:

1. An assessment of current and future needs to identify DSO use cases (such as non-wires solutions, congestion management and operational efficiency) applicable to its service area.
2. An assessment of current capabilities to identify what capabilities the distributor needs to develop and when, including requisite grid modernization investments, to support the identified use cases.

These assessments would be helpful, particularly if the OEB is able to compare them and identify common success factors and barriers. It is likely that some assessments will show strong progress and alignment, while others show gaps and lack of current demonstration of DSO capabilities. This will need to become an integrated part of a distributor's planning and continuous improvement process, so requiring a regular gap analysis and action plan as part of the distributor's distribution system plan could help shift the culture and align progress with more standardised distributor planning activities.

Pollution Probe remains a firm supporter and advocate for modern innovation and cost-effective energy solution that unlocks the benefits of the Energy Transition, including DERs that reduce overall grid emissions and provides a more flexible energy system for local customers. Pollution Probe looks forward to continuing to support the OEB and the Province in its pursuit to these goals as the DSO capabilities initiative advances. Please do not hesitate to reach out if there are any questions in the interim.

Respectfully submitted on behalf of Pollution Probe.

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