

# Innovation and Sector Evolution White Paper Series - Exploring Expanded DER Participation in IESO Administered Markets: Part 2: Options for Enabling DER Participation Stakeholder Feedback and IESO Response from January 30th Webinar

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Following the January 30th webinar whereby the IESO presented draft options for enabling DER participation, the IESO invited stakeholders to provide comments and feedback.

The IESO received feedback from:

- [Alectra Utilities](#)
- [CanSIA](#)
- [Electricity Distributors Association](#)
- [Hydro One](#)
- [Markham District Energy](#)
- [Power Workers Union](#)

This feedback has been posted on the [Innovation and Sector Evolution White Paper Series Engagement](#) webpage.

## Note on Feedback Summary

The IESO appreciates the feedback received from stakeholders on the draft options. These have been noted and will be considered in the development of the second white paper in the series. This second white paper is intended to explore the options in more detail, evaluate potential impacts from a cost benefit perspective, to provide key insights and considerations for future market design work. In the summary table below, the IESO has outlined feedback or questions for which an IESO response was required at this time and is organized by themes to manage length and usefulness of this document.

### Stakeholder Comments and IESO Responses

Topic	Feedback	IESO Response
Support for Identified Draft Options	Stakeholders indicated their support to explore the draft options to enhance DER participation in the IESO Administered Markets (IAMs) presented at the January 30th webinar.  Stakeholders did not identify any additional options to include in the scope of the second white paper.	Given the stakeholder support for the draft options identified, the IESO is comfortable continuing with the development of the second DER white paper to explore those options and to provide key considerations and insights for any future market design work.

Reducing the Minimum Size Threshold Stakeholders broadly agreed that a reduction to the minimum size threshold would enhance DER participation in the IAMs. Stakeholders also agreed that a phased approach to reducing the minimum size threshold would be prudent in order to test the ability of IESO's systems and processes to handle greater resource volumes and their contingent operating constraints.

Clarity was requested on how the IESO would determine a reasonable methodology for a phased approach (i.e. if only a certain number of resources < 1MW were permitted to participate in the IAMs, how the IESO would choose those resources).

Concerns were raised about the cost of implementation by both the IESO and distributors relative to the level of interest and uptake by smaller resources.

It was also noted that other barriers to DER participation in the IAMs would remain even if the minimum size threshold were to be reduced (i.e. reducing the minimum size threshold alone would not necessarily allow DERs to participate).

As mentioned above, the IESO will move forward and further explore the costs and benefits of implementing a reduction in the minimum size threshold. As a part of this analysis, the IESO will include preliminary thoughts on administering a phased approach. Stakeholders should note, however, that the details of selection of resources within a phased approach are not the intended focus of the white paper, which instead aims to explore the costs and benefits of a reduction to the minimum size threshold in general.

The IESO acknowledges that implementation costs are a factor for both the IESO and distributors with regards to the integration of DERs. These costs will be gauged qualitatively within this white paper and the IESO is interested in further understanding the distributor perspective and any potential impacts distributors may perceive as a result of changes to the IESO administered markets. IESO notes that potential distributor costs and remuneration approaches will be explored in detail through the Ontario Energy Board's [Utility Remuneration](#) and [Responding to DERs](#) policy processes.

The IESO recognizes that reducing the minimum size threshold may not enable DERs to competitively participate in the IAMS, unless other barriers identified in the first DER white paper are also addressed. As such, the second white paper will also explore options to address other key barriers.

## Aggregation of DERs

Stakeholders supported the clarification of existing rules for aggregation with one organization suggesting this clarification could be performed within the Market Renewal Project timeframe.

One stakeholder indicated that reducing aggregation boundaries (i.e. the physical and electrical areas of the province in which multiple constituent resources may be combined into a single aggregation) will make it harder to form aggregations.

One stakeholder questioned the necessity of enabling aggregation if the minimum size threshold was lowered.

Stakeholders pointed out the potential for financial settlement complexity in the case of multi-nodal aggregation. Stakeholders also identified the uncertainty surrounding whether and how certain DERs may be subject to locational marginal pricing (LMP).

Stakeholders indicated that permitting aggregation would require information from distributors with respect to location of constituent resources (i.e. the individual resources that are operated together as a single aggregation).

A formal process should be considered for the review and modification of aggregation boundaries.

The IESO will examine the potential timelines for implementation for all options considered within the second DER white paper. Stakeholders should note that the scope of the second DER white paper, as set out in the January 30th webinar, is targeting options that could be implemented in a post Market Renewal timeframe.

The IESO acknowledges the impact that reducing the aggregation boundaries (i.e. reducing the area from which an aggregator could pool constituent resources) would have on the formation of aggregations. However, other draft options (such as reducing the minimum size threshold and permitting alternative telemetry) would likely make it easier, or less costly, to form aggregations.

The IESO acknowledges the potential complexity of multi-nodal settlement alongside the application of LMP and is investigating possible approaches (such as forming aggregation boundaries within areas served by nodes with similar, or the same, LMPs).

With regards to information distributors may require on aggregations participating in the wholesale markets, the implementation and operational considerations of aggregations as they pertain to distributors will be explored as a part of the Enhancing Transmission-Distribution (T-D)

Interoperability option. IESO will also work with the Grid- LDC Interoperability Committee as appropriate to seek their input to related issues and coordinate on the implementation of measures necessary for distribution/transmission coordination.

The IESO will investigate the approach taken by other jurisdictions in the determination of aggregation boundaries taking into consideration distribution-side operational issues.

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Alternative Telemetry    The options for enabling alternative telemetry set out in the Draft Options presentation are strongly supported by stakeholders.

Stakeholders indicated that alternative telemetry would require investments or enhancements by both the IESO and distributors, and suggested leveraging existing capabilities of distributors to avoid duplication and unnecessary costs.

One stakeholder noted the potential issues that could arise from using new forms of telemetry acquisition and transmission to the IESO relating to data privacy, security, and controls.

The IESO plans to study alternative telemetry options in the white paper.

The IESO is interested in learning about the current capabilities distributors have with respect to capturing telemetry from DERs and will be including information on these capabilities within the second DER white paper.

The IESO acknowledges the importance of data privacy and will characterize the risks and considerations when examining the potential for alternative telemetry. The IESO will also seek to identify strategies used by other system operators in addressing such concerns.

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T-D  
Interoperability

One stakeholder noted that enhanced coordination should not be limited to aggregated DERs but include individual DERs as well.

The reliability risks to distributors were also identified, particularly if the control of DERs was performed by the IESO or customers. It was argued that distributors will be required to understand, model, predict and potentially control resources for both efficiency and reliability. It was further argued that distributors are well positioned to perform aggregation services for DERs and provide visibility to the IESO, but that investments would likely be required to provide that enhanced functionality.

Stakeholders reinforced the need for more coordination between the OEB and the IESO in this subject area.

The IESO agrees that the coordination of dispatch of individual DERs (and aggregations) are of interest to distributors. The IESO will include commentary on interoperability challenges for individual resources as well as aggregations within the second DER white paper.

The IESO appreciates hearing distributors' perspective on how DERs impacts their operations and reliability, as well as on functions distributors could perform that may create efficiencies across the distribution and transmission system. The IESO will identify and address such considerations in the development of the second DER white paper, however, it will not make recommendations with regards to which entities should perform aggregation functions for DERs.

There are currently many different types of entities in Ontario and other jurisdictions providing aggregator functions.

Communicating  
System Needs

Stakeholders are supportive of communicating T-D hosting capacity for DERs.

It was noted that investment by distributors may be needed in order to produce information on hosting capacity at the distribution level, and that these costs will have to be recovered.

It was recommended that the IESO coordinates with the OEB DER Interconnection Review and Responding to DERs policy process on this topic.

The second DER white paper will review methodologies that could be used to communicate system needs and hosting capabilities, including a qualitative assessment of potential resource impacts for the IESO.

The IESO is in agreement on the need for coordination with the OEB DER Interconnection Review consultation and the Responding to DERs process. The IESO is participating in the DER Interconnection Review working group as well as the Responding to DERs process. These OEB consultations are a more appropriate venue to discuss cost recovery of distributor investments.

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Additional Analysis to  
Include in White Paper

Stakeholders indicated that the following aspects of  
the options should be explored:

- The benefits to prospective DER market participants, the IESO, ratepayers, and the system as a whole - to determine if the option or initiative is worth implementing
- Whether implementing an option will yield sufficient interest and DER participation to justify the options' costs; it was suggested that a more appropriate route for smaller DERs would be through retail rates (e.g. TOU)
- Whether uptake is driven by policy or by consumer preferences
- Implementation considerations (i.e. difficulty to implement an option for affected parties like the IESO and distributors)
- Interdependencies between options

Insights from prospective DER market participants are important in order to gauge the material benefit of the draft options and their ability to translate to market viability for DERs. If the target classes of market participants (e.g. sub-1 MW resources) are not sufficiently enabled by the options being explored in the white paper (e.g. there is very limited expected interest to participate in the wholesale markets based on the change), it may not justify the costs and effort of the required changes for the IESO and distributors. If this is the case (particularly for smaller DERs), existing mechanisms such as net metering or load displacement may be more appropriate. Feedback on these points will be welcome on the draft of the second DER white paper.

As part of this second white paper the IESO will qualitatively evaluate the potential impacts of the options from a cost-benefit perspective in order to better understand the pros and cons of moving forward.

The IESO acknowledges the role both policy and consumer preferences can have in shaping the potential for deployment of DERs. As a system operator, it's prudent for the IESO to be prepared for shifts in both of these factors.

The IESO is currently developing a [white paper on consumer preferences](#) that will assess consumer

interest in DERs based on focus groups, surveys and other primary and secondary research. The IESO is undertaking this work in coordination with the Ontario Energy Board.

The IESO will examine implementation considerations and interdependencies between options in the second DER white paper.

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Coordination with the Ontario Energy Board (OEB)

Stakeholders expressed the need for greater policy and regulatory coordination with the OEB on the options under consideration, and the need for involvement by the IESO in OEB's DER-related initiatives. One stakeholder suggested the important role for the OEB in determining the public interest value in proceeding with options.

The IESO regularly communicates with the OEB regarding the activities of this DER white paper series. Furthermore, the IESO is involved in the OEB's [DER Interconnections Review](#) and the Utility Remuneration and Responding to DERs policy processes.

The IESO agrees that the OEB is an appropriate venue to determine the public interest value and cost-allocation of distributor-side investments in DER-supporting infrastructure.

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## Additional Concerns

Stakeholders identified certain additional concerns, including:

- Seeking information on what decision criteria would be used to select which options move forward (i.e. which options are implemented);
- Market participation doesn't provide the revenue certainty to encourage DER participation in the IAMs; and
- The options imply an interoperability framework whereby the IESO will assume a Total System Operator (TSO) function.

The second DER white paper will not be used to determine which options, if any, are implemented by the IESO. The white paper is intended to explore the options in more detail, evaluate impacts from a cost benefit perspective, to provide key insights and considerations for future market design work and to move from the broad set of all possible options to a narrower set of options with actual potential viability for implementation in Ontario. If any of the options were implemented in the future, these options would proceed through the normal IESO processes, including consideration by the Market Development Advisory Group and IESO's internal capital planning and prioritization process.

The IESO is cognizant that revenues from participation in the IAMs may not be sufficient on their own to drive DER uptake. However, the IESO does not want to discount the possibility of DERs providing multiple value streams and stacking revenues from these value streams, which can create avenues of competitiveness in the capacity, energy, and OR markets. For example, in Ontario DERs are currently realizing value from the Industrial Conservation Initiative (ICI). The IESO is also exploring the value that DERs can provide as alternatives to traditional distribution and transmission infrastructure through the [IESO's York Region Non-Wires Alternative Demonstration](#)

project. It should further be noted that the IESO is not focussing on encouraging DER uptake, per say. The IESO is focused on addressing any unnecessary barriers to DERs participating in the wholesale markets in order to improve competition and outcomes for ratepayers and enable the thousands of megawatts of DERs that are already owned by homes and businesses across Ontario to compete in the IAMs to provide additional value. It is not the intention of this paper to pre-suppose a TSO model as an end-state, or as a requirement for DERs to participate in the IAMs. Participation in the IAMs does not preclude the future evolution of DSO or independent DSO model (where the local market administrator is a separate entity from the entities that own distribution networks and DERs).

Separately, the IESO is also studying how independent DSOs could use local markets to provide Non-Wires Alternatives, as well as T-D interoperability approaches. The following draft white papers have been developed to further explore these areas:

- [Development of a Transmission-Distribution Interoperability Framework](#)
- [Non-Wires Alternatives Using Energy and Capacity Markets](#)

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