Stakeholder Feedback and IESO Response

Distributed Energy Resources (DER) Roadmap – June 22, 2021

Following the June 22, 2021 engagement webinar on the DER Roadmap, the Independent Electricity System Operator (IESO) and Ontario Energy Board (OEB) received feedback from participants on the DER Roadmap, stakeholder views on the DERs that are most likely to emerge in Ontario, the OEB/IESO joint engagement objectives and proposed process, and finally, on the upcoming OEB/IESO joint targeted call on Enabling Resources.

The IESO received feedback from:

- Advanced Energy Management Alliance (AEMA)
- Canadian Renewable Energy Association (CanREA)
- Electricity Distributors Association (EDA)
- Energy Storage Canada (ESC)
- Ontario Energy Association (OEA)
- Ontario Waterpower Association (OWA)
- Peak Power

The presentation materials and stakeholder feedback submissions have been posted on the DER Roadmap webpage. Please reference the material for specific feedback as the below information provides excerpts and/or a summary only.

Notes on Feedback Summary

The IESO appreciates the feedback received from stakeholders. The IESO has provided a summary below, which outlines specific feedback or questions for which an IESO and/or OEB response was required at this time.

DER Roadmap – focus areas

Stakeholder feedback submissions generally indicated that the IESO has identified the appropriate focus areas to deliver on its goal for DER integration. However, some stakeholders recommended additional areas to focus on, requested additional information and specifics on the identified areas, and/or provided feedback on how best to go about the work, including timing of and integration with other initiatives.

Feedback	IESO Response
AEMA indicated in their submission the importance of clear direction on timelines and identification of priority focus areas and the interrelationship with other IESO initiatives, as well as defining of roles and responsibilities relating to transmission and distribution.	The DER Roadmap will include clear timelines for projects that contribute to each focus area. Interrelationships with other initiatives such as the Hybrid Integration Project (HIP), Resource Adequacy Framework, long-term storage design will be reflected in the plan and the IESO will work with stakeholders to ensure that relationships between the initiatives are clear. As part of the Market Vision Project work, Transmission-Distribution (T-D) coordination, including roles and responsibilities, will be addressed in the context of enabling DER market participation in the IESO-Administered Markets (IAMs).
AEMA suggested this work should not wait for the implementation of MRP in 2023, and advised against waiting 5-10 years for implementation of any changes that will integrate DERs.	The DER Roadmap will identify the work that must be completed prior to implementing participation models for DERs and the timing and interrelationships of that work. Limiting new tool and system changes until after the significant changes introduced in the Market Renewal Program is prudent to limit cost and risk for this significant ongoing change initiative. The IESO is currently developing an Enabling Resources Program work plan that will, among other things, identify and prioritize market enablement activities. The Enabling Resource Program prioritization process will be reflected in DER Roadmap timelines.

Feedback	IESO Response
CanREA indicated in their submission that the identified focus areas are all appropriate, but that specific consideration should also be given for enabling net-metered and load-displacing solar PV generation and behind-the-meter battery storage, and that for these types of resources wholesale market participation is unlikely to be a compelling motivator for consumers considering investing in these technologies.	As discussed in Exploring Expanded DER Participation in the IESO-Administered Markets: Options to Enhance DER Participation, load modifying resources are a growing part of the DERs in Ontario though the IESO has low visibility on these resources. Distribution-connected demand response (DR) resources, which could include load-displacing storage or other responsive resources behind-the-meter, play an important part in the IAMs today and are expected to continue to play a role in the future. The technical capability and potential system value of these resources will be explored through the DER Potential Study and reflected in the DER Market Vision Project to identify the highest value resources to enable for wholesale market participation The IESO acknowledges that direct wholesale market participation is not necessarily appropriate or desired for all resources and participants. The Local Initiatives Program, as part of the 2021-2024 CDM Framework, is exploring ways to meet regional and/or local system needs through the use of competitive mechanisms. Additionally, as part of the longer term recommendations of the Regional Planning Process Review, the IESO intends to explore procurement approaches for DERs to serve as non-wires alternatives. With respect to load-displacing solar generation, Ontario has had net metering in place since 2005. In 2017, regulations were amended to also enable the pairing of renewable energy systems with energy storage systems in net metering arrangements. Moreover, the Ministry of Energy, Northern Development and Mines has proposed amendments to Ontario's net metering regulation to allow for demonstration of community net metering projects.

Feedback	IESO Response
To avoid potential barriers to participation (monitoring and communications requirements, bureaucracy) in the proposed Local Initiatives Program for BTM solar and storage, CanREA suggested measures such as allowing for exposure to a time-varying/critical peak rate option for non-RPP Class B consumers could potentially provide equal or greater benefit in terms of incenting consumers to reduce peak demand and thus obviate the need for new peaking capacity and/or T-D infrastructure expansion and reinforcement.	The introduction of new rate structures is outside of the IESO's mandate. In principle, the IESO sees merit in rate structures that incentivize behavior that is aligned with system needs. The OEB has explored alternative approaches to the recovery of Global Adjustment (GA) costs from Class B consumers in the staff research paper: Examination of Alternatives Price Designs for the Recovery of GA Costs from Class B Consumers in Ontario. Class B rates for the recovery of Global Adjustment are defined in O. Reg. 429/04 under the *Electricity Act, 1998* which would require amendment in order to offer alternative rates for non-RPP Class B consumers. The interaction between rates and markets is a topic that will require coordination between the IESO, OEB, government and stakeholders moving forward.
CanREA also noted that it will be important to ensure coordination with the Hybrid Integration work stream, as Ontario's 2,756 MW of distribution-connected wind and solar would be well-situated for some form of repowering and pairing with storage if there were sufficient economic incentive to do so post-contract.	IESO appreciates support of the Hybrid Integration Project (HIP) and will develop the DER Roadmap alongside this initiative, coordinating staff efforts on both initiatives.
In addition to the identified focus areas, EDA encouraged the IESO to consider that local distribution companies (LDCs) will likely evolve concurrent with the proliferation of DERs, i.e., becoming distribution system operators.	A focus of the DER Roadmap is Transmission-Distribution (T-D) coordination, where the intent is to ensure that there is appropriate coordination among the IESO, LDCs and DER participants to enable wholesale participation and the reliable operation of the grid as a whole. For example, the IESO's York Region Non-Wires Alternative Demonstration explores distribution system operator models and the coordination of DER providing distribution and transmission services.

Feedback	IESO Response
	The DER Market Vision Project, which will be developed to form the basis of future wholesale market design/integration efforts, will also address IESO-LDC coordination with a focus on enabling reliable and efficient participation of DERs in wholesale markets. As part of the OEB's Framework for Energy Innovation: Distributed Resources and Utility Incentives (Framework for Energy Innovation), the DER Integration workstream is intended to ensure that utilities' planning is appropriately informed by DER penetration and forecasts. The near-term activities will focus on identifying information distributors require regarding existing DERs to effectively operate and make future system plans and establishing appropriate reporting requirements. The progress made on these near-term priorities will inform subsequent areas of focus.
ESC sought specificity on the focus areas: 1. NWAs – please clarify how the DER roadmap will "implement" the recommendations of the Regional Planning Process Review. Will the DER Roadmap specify procurement mechanisms, funding streams and operational requirements, etc.? We suggest that these topics will require significant stakeholder input, including policy and regulatory alignment. Therefore, is the intent of the DER Roadmap to outline IESO's preferred approach? 2. Wholesale Market Integration – please clarify the extent that this evaluation will align with IESO's Innovation and Sector Evolution Whitepaper Series (including the ability to provide capacity, energy and operating reserve). For example, will IESO consider options for aggregated DERs. We	Generally, the intent of the DER Roadmap is to identify the work that will address the focus areas, the timing of that work and how projects are interrelated. The projects captured in the Roadmap will proceed through their own engagement initiatives. 1. The IESO identified near-term action items in the Regional Planning Process Review focused on regional planning process updates (consistent approach to studying NWAs, screening mechanism, needs characterization). An update on the progress of these areas will be provided in the fall. Longer term components such as potential procurement mechanisms, value determination, and operational requirements will be developed with stakeholder input in future efforts planned for 2022 and as the OEB's Framework for Energy Innovation advances. 2. The DER market integration work identified in the Roadmap will build upon the commentary in the

Feedback	IESO Response
suggest that it would be helpful to consider the extent to which IESO's wholesale market integration align with near-by markets (e.g., Alberta, and FERC-regulated jurisdictions). 3. T-D coordination – the scope of this topic may be very broad, and we suggest that the IESO should clarify specifically what is intended to be achieved as part of the DER Roadmap. For example, does this refer to planning coordination vs. operational coordination? Does the IESO intend to consider new roles/responsibilities for distributors (e.g., independent DSO model per York Region NWA)? We suggest that this topic will require significant stakeholder input, including policy and regulatory alignment. Therefore, is the intent of the DER Roadmap to outline IESO's preferred approach?	Innovation and Sector Evolution Whitepapers. The DER Market Vision Project will leverage the whitepaper recommendations, results of the pilots/demonstrations, and the results of the DER Potential Study to inform the wholesale market participation model(s) to pursue for DERs. A key focus of this work will be to further enable aggregations of DERs in Ontario. The IESO is also following the Federal Energy Regulatory Commission (FERC) Order 2222 process in the U.S. closely and will leverage the learnings from other jurisdictions in the development of participation models for DERs in Ontario wholesale market. 3. The primary aims of the T-D coordination focus area are: (a) to ensure that appropriate coordination protocols are in place to support enhanced participation models for DERs in the wholesale market and (b) to work with others in the sector to explore options and solutions for T-D coordination in a high DER future. The IESO agrees that substantial engagement is required on these topics and is considering the best path(s) forward for IESO-led engagement.
Peak Power suggested renewed focus on the total value that DERs bring to the grid is required to ensure proper incentives are provided to support the growth DERs, and that increased focus on including DERs as part of the Annual Acquisition Report and Capacity auction participation is required.	The IESO acknowledges that DERs can provide multiple levels of value: to the customer/owner, to the distribution system, to the transmission system, to society and the environment. The goal of the DER Roadmap is to seek to maximize the value that DERs can provide to Ontario's electricity system by addressing challenges and opportunities related to DER integration within the IESO's mandate, while considering the potential to provide these other benefits. DERs can currently participate in the IESO's Capacity Auction either as dispatchable generation/storage resources or through demand response resources

Feedback	IESO Response
	connected behind load customer meters. DERs can also participate as stand-alone demand response resource or as part of demand response aggregation, depending on the size of the resource and preferences of the participant. The DER Market Vision Project will develop enhanced market participation models that may in turn enable increased opportunities for participation of DERs in future IESO acquisitions.

DER Roadmap – near-term initiatives

Stakeholder feedback on the whether the near-term initiatives will enable the IESO to make timely progress on its goal and focus areas was mixed. The identified initiatives were recognized as important, but general concerns around timelines, communications and how all of the projects fit together and are interrelated were also included in stakeholder submissions.

Feedback	IESO Response
AEMA noted the importance of clear timelines for decision making at the earliest opportunity.	The intent of the DER Roadmap is to provide clear timelines and interrelationships of the DER integration work.
CanREA cautioned that while the proposed projects may yield valuable insights, these proposed activities may not substantively address systemic barriers to DER integration at a province-wide level within a meaningful timeframe. CanREA notes DER connection application processes, lack of visibility into available network capacity, and monitoring and communication requirements as examples of barriers.	The IESO acknowledges the importance of continued progress in this area and aims to address barriers (including metering and telemetry requirements, aggregation models, T-D coordination, etc.) to DER participation in the IAMs through the DER Market Vision Project. Through non-market initiatives such as the Local Initiatives Program and other mechanisms for securing resources described in the Annual Acquisition Report and the Regional Planning Process Review, the IESO is exploring a range of options for resources to meet system needs. The IESO is also participating in the OEB's DER-related initiatives, including the Framework for Energy Innovation and the DER Connections Review.

Feedback	IESO Response
	The OEB's DER Connections Review is an initiative to review distributors' connection requirements for DERs. The purpose of the initiative is to identify any barriers to the connection of DERs, and where appropriate to standardize and improve the connection process. Additionally, the OEB/IESO Joint Engagement will provide an opportunity to identify and address systemic barriers to DER integration.
EDA recommended the IESO also consider the impacts at the distribution level to ensure that utilities' planning is appropriately informed by DER penetration and forecasts, including identifying information distributors require regarding existing DERs to effectively operate and make future system plans.	With respect to informing planning, the IESO published the final report for the Regional Planning Process Review in February 2021, which included a comprehensive list of IESO recommendations to improve the efficiency and effectiveness of the current regional planning process. Better integrating and coordinating regional planning with distribution planning processes is one of the recommendations. The OEB is leading work on this recommendation, as well as others it is leading, as part of the Regional Planning Process Advisory Group (RPPAG). The IESO is an active participant in the RPPAG. The T-D Coordination focus area of the DER Roadmap will address operational impacts and reliability of the distribution system (as well as the bulk system), with a focus on the impacts of DERs providing wholesale services. T-D Coordination will be a key element of the DER Market Vision Project. Furthermore, as part of the OEB's Framework for Energy Innovation, a near-term activity will be identifying information distributors require regarding existing DERs to effectively operate and make future system plans, with the intent of ensuring that utilities' planning is appropriately informed by DER penetration and forecasts.

Feedback	IESO Response
ESC requested additional clarity and specificity to distinguish between the multiple projects underway/proposed within the DER Roadmap.	The purpose of the DER Roadmap is to identify the work required and timing of that work as it relates to the focus areas. A draft of the DER Roadmap will be shared in the fall as part of the stakeholder engagement process. The draft will include time bound objectives and details and timelines for the initiatives that will help to achieve those objectives.
OWA suggested there needs to be a tangible and visible relationship between the DER Roadmap and the Resource Adequacy Framework.	As described in the Annual Acquisition Report, the Resource Adequacy Framework aims to provide a flexible and competitive approach to secure the electricity services needed to ensure reliability of the system. The DER Market Vision Project will develop enhanced market participation models that may in turn enable increased opportunities for participation of DERs in future acquisitions.
Peak Power emphasized the stated near-term activities should not slow down the current DER momentum and suggested the existing 5000MWs of DERs in the province and interest in the York Region NWA shows potential and appetite for participation.	The IESO acknowledges the significant growth of DERs in Ontario over the past decade, and while much of this growth was a result of programs and procurements, now one of the IESO's focuses is on wholesale market integration of DER to enable them to participate in the IAMs and provide the system value that they are technically and economically capable of providing.

DER Roadmap – engagement plan

All stakeholder submissions indicated support for the approach detailed in the draft DER Roadmap Engagement Plan. A few stakeholders included recommended tweaks to the approach for consideration.

Feedback	IESO Response
AEMA and ESC recommended the IESO identify actions/activities that could be completed prior to 2023.	The DER Roadmap aims to identify the activities related to the focus areas out to the implementation

Feedback	IESO Response
	of any market design changes, including additional near-term activities beyond 2021.
EDA suggested the IESO provide a follow up of key action items and how they will be addressed for each stakeholder group, noting this additional step will be useful for future discussions on DER policy development for the sector.	As part of the OEB/IESO Joint Engagement, the work that each organization is undertaking with respect to cross-cutting issues will be identified and additional future activities required will be recorded.
ESC suggested that additional time may be required to respond to and incorporate stakeholder feedback with respect to the draft DER Roadmap.	The DER Roadmap aims to identify current and planned work required and timing of that work to address the DER Roadmap's focus areas. The DER Roadmap itself does not aim to propose solutions to DER integration. Many of the activities identified by the DER Roadmap have their own individual stakeholder engagement processes and timelines, and will allow appropriate timeframes to receive and incorporate stakeholders' feedback.
ESC suggested additional details within the engagement plan are required to provide stakeholders with clarity for this initiative (e.g. a draft high-level Table of Contents to illustrate expected outcomes of this report.)	The final DER Roadmap will be housed on an IESO webpage. The purpose of the DER Roadmap is to outline IESO objectives for DER integration and the activities the IESO will undertake to achieve the identified objectives. Objectives and initiatives will have clearly defined timelines. Individual initiatives captured in the roadmap will typically have their own engagement pages which will be linked to the DER Roadmap to provide more detailed information. The Roadmap is expected to evolve over time as new initiatives are added and progress is made by the IESO and others in the sector on near-term DER integration efforts.

DER Roadmap – stakeholder views

Five stakeholder submissions included their views on the DERs that are most likely to emerge in Ontario and how they should be incorporated into wholesale markets, details of which can be found in the posted stakeholder feedback documents. Stakeholders have been invited to share their views with the broader stakeholder community at the IESO's September engagement days. Stakeholder feedback and presentations will provide valuable insight for the IESO and other interested parties in advance of initiation of the IESO's DER Market Vision Project (planned for October, 2021).

OEB/IESO Joint Engagement on DER Integration – proposed objectives

All stakeholder submissions indicated support for the OEB/IESO joint engagement, with some recommendations for additional objectives and other considerations.

Feedback	**IESO/OEB Response**
EDA suggested the IESO and OEB consider the need for amendments to the statutory framework (e.g., so that distribution-integrated resource planning can support LDCs owning and operating DERs, whether connected directly to the distribution system or behind-the-meter; to eliminate restrictions based on capacity).	As noted in the OEB's May 10, 2021 letter re: Framework for Energy Innovation, the OEB expects that issues relating to utility remuneration and utility ownership of DER assets will be considered in subsequent phases of the initiative. The IESO is a participant in the Framework for Energy Innovation consultation and will at that time provide input from the perspective of wholesale market impacts and impacts to other areas within the IESO's mandate.
ESC suggested that IESO and OEB establish a reporting function on the identified cross-cutting issues, including applicable frameworks for decision-making and resolution.	The OEB/IESO Joint Engagement will keep stakeholders updated on identified cross-cutting issues, including in what forum they are being addressed, how they will be addressed, how the OEB and IESO are coordinating, expected timeframes for milestones, and current status of the cross-cutting issues.
OWA suggested joint engagement should extend beyond this initiative, providing the example that IESO has adopted an "Ontario Zonal Price" model for settlement for market participants with existing contracts, and recommending the OEB do the same through an amendment to the Retail Settlement Code.	The support for the approach to the OEB/IESO Joint Engagement on DER Integration is appreciated. The OEB and the IESO will continue to explore opportunities for collaboration as appropriate.

Feedback	IESO/OEB Response
Peak Power suggested the objectives do not go far enough to ensure a proper framework for DERs to expand and thrive in Ontario, and that the objectives should include: • Ensure the full potential of DERs in the province is exploited expeditiously. • Ensure that barriers to deployment of DERs are eliminated at all levels for example at the IESO, LDCs, Utilities, and aggregators. • Ensure that proper incentives are provided to DERs commensurate to the value that they provide.	The OEB's and IESO's objectives and activities are intended to capture the areas identified. For example, the goal of the DER Roadmap is "To maximize the value DERs can provide to Ontario's electricity system by addressing challenges and opportunities related to DER integration within the IESO's mandate". The IESO is largely focused on transmission level value and barriers. The goal of the OEB's Framework for Energy Innovation consultation is "to facilitate the deployment and adoption of innovative and cost-effective solutions, including distributed resources, in ways that enhance value for energy consumers." The Framework for Energy Innovation is primarily focused on distribution level value and barriers. For instance, one of the near-term workstreams includes "Developing appropriate incentives for distributors to adopt DERs for distribution uses that do not require equity investment by the utility".

OEB/IESO Joint Engagement on DER Integration – proposed process

Stakeholder submissions generally indicated support for the proposed process, recognizing this is an important step toward ensuring IESO and OEB efforts are coordinated to make progress on DER integration in Ontario. Several stakeholder submissions included further points for consideration.

Feedback	IESO/OEB Response
AEMA noted the importance of the IESO and OEB continuing to engage the stakeholder community in a transparent manner as criteria are developed and implemented.	The IESO and OEB will continue to engage stakeholders in a transparent manner in the OEB/IESO Joint Engagement for cross-cutting issues as well is on other DER-related initiatives of the two organizations. Please see the OEB/IESO DER Placemat, which comprehensively identifies the initiatives related to DER.

Feedback	IESO/OEB Response
CanREA suggested a clear and specific definition of separate areas of focus and responsibility between OEB and IESO is of the utmost importance.	A key aim of the OEB/IESO Joint Engagement is to provide clarity on the actions of each organization in order to help stakeholders understand where their issues of interest are being addressed. Additionally, the OEB/IESO DER Placemat, helps identify the areas of focus and responsibility for each organization.
EDA suggested that as DER participation in the IESO-Administered Markets increases, IESO-LDC coordination could be extended to DERs and DER aggregations below 10 MW to help ensure the safe and reliable operation of both the bulk and distribution systems.	The DER Market Vision Project will address T-D coordination to facilitate DERs' participation in the IESO-Administered Markets to ensure the reliability of both the distribution and bulk systems.
ESC suggested process considerations, including: • Allow for stakeholder input on agenda setting • Provide pre-reading materials in advance of meetings • Schedule meetings consistent with IESO engagement days • Given the 6-month frequency, it will be important to provide meeting notes and track action items • Provide stakeholders with opportunity to respond to IESO/OEB proposals • Provide timely responses to stakeholder feedback	The OEB/IESO Joint Engagement will leverage existing processes, specifically the IESO's DER Roadmap engagement and OEB's Framework for Energy Innovation consultation. The DER Roadmap engagement will be conducted in accordance with the IESO's Engagement Principles. Meeting materials will be provided in advance, stakeholder feedback will be solicited, and the IESO will respond to such feedback. Similarly, the OEB's Stakeholder Engagement Framework ensures accessible and fair stakeholder participation. The OEB provides opportunities for meaningful input and incorporates feedback into its work as appropriate. The IESO and OEB expect to set agendas for these meetings but will welcome stakeholder feedback on how to make them as effective as possible.

Feedback	IESO/OEB Response
Peak Power suggested the process should focus on 1) determining and eliminating barriers to DERs deployment and 2) valuing the broader impact of DERs on the grid and making commensurate incentives available.	The OEB's and IESO's objectives and activities are intended to capture these areas. For example, the goal of the DER Roadmap is "To maximize the value DERs can provide to Ontario's electricity system by addressing challenges and opportunities related to DER integration within the IESO's mandate". The IESO is largely focused on transmission level value and barriers. The OEB's Framework for Energy Innovation is largely focused on distribution level value and barriers. For instance, one of the near-term workstreams includes "Developing appropriate incentives for distributors to adopt DERs for distribution uses that do not require equity investment by the utility."

OEB/IESO Joint Engagement on DER Integration – focus issues

Submissions from six stakeholders included recommendations on the cross-cutting issues relevant to the OEB/IESO Joint Engagement that there should be focus on/awareness of, and provided rationale as to why the issues are of importance.

Feedback	IESO/OEB Response
AEMA recommended the following engagements be considered as design of the pilots occur to ensure consistency in messaging, minimize confusion and provide the market with clear signals: • Implementation of MRP • C&I rate design • Planning and procurement process for NWAs • Resource Adequacy Framework • Enabling Resources Engagement • Framework for Energy Innovation • Connection Reform and Technical Interconnection Requirements (TIR)update	The OEB and IESO appreciate the identification of these issues. This feedback will help inform topics for the OEB/IESO Joint Engagement. Further detail on pilots being sought as part of the OEB/IESO Joint Targeted Call will be provided to stakeholders in August. The IESO and OEB welcome further feedback to help ensure potential confusion in relation to the call is minimized.
AEMA recommended a review of the Affiliate Relationship Code be undertook to assess whether the regulatory requirements for affiliate relationships "maintain an appropriate balance between protecting the interest of consumers, efficiency in regulation and the role of utilities in an evolving energy sector", and that this review take place in tandem with the other work streams that are both ongoing/current for the IESO and the OEB.	The OEB has confirmed that the Framework for Energy Innovation consultation will engage distributed energy issues beyond those identified as current priorities, and expects that, among other matters, issues relating to utility remuneration and utility ownership of DER assets will be considered in subsequent phases. The latter topic may necessarily engage issues related to utility affiliates.
EDA noted the potential for an expanded role for LDCs with increased DER integration, and suggested it will need to be determined how	One of the OEB's Framework for Energy Innovation near-term workstream activities is "Developing appropriate incentives for distributors to adopt DERs

Feedback	IESO/OEB Response
incremental costs, if incurred, could be recovered by LDCs.	for distribution uses that do not require equity investment by the utility." As well, the OEB has confirmed that the Framework for Energy Innovation consultation will engage DER issues beyond those identified as current priorities, and expects that, among other matters, issues relating to utility remuneration will be considered in subsequent phases of work. It is anticipated that this incremental approach will allow progress made on near-term priorities to inform the thinking and approach to issues to be addressed subsequently.
ESC highlighted a number of cross-cutting issues: • Implementation of MRP, including prices that would be applicable to non-IESO market participants (e.g., embedded retail generators, embedded retail consumers, storage) • C&I rate design, including impacts of rates/price signals on energy storage (e.g., non-coincident peak rates) • Planning and procurement process for NWAs • Evaluation of NWAs (including assessment of revenues from wholesale market) • Resource Adequacy framework, including options for DER participation in Capacity Auction / RFPs (including connection requirements, etc.)	The IESO and OEB appreciate the identification of these issues. This feedback will help inform topics for the Joint Engagement.
OEA suggested the joint engagement should help ensure that the IESO and OEB develop a common understanding of the definition, value, cost, and benefits of DERs to inform	The OEB and IESO staff are coordinating with each other on their respective DER-related initiatives and are working towards a common understanding between the IESO and OEB as well as among

Feedback	IESO/OEB Response
appropriate policies and rules that do not act at cross-purposes.	stakeholders. The OEB/IESO Joint Engagement is a forum that will support that common understanding.
OWA suggested IESO/OEB and stakeholders establish additional priority areas for collaboration (i.e. Ontario Zonal Price application)	The support for the approach to the OEB/IESO Joint Engagement on DER Integration is appreciated. The OEB and the IESO will continue to explore opportunities for collaboration as appropriate.
Peak Power noted three issues for consideration: • Determining and eliminating barriers to DERs deployment • Valuing the broader impact of DERs on the grid and making commensurate incentives available • Investigate utility remuneration models that ensure that utilities have an incentive to encourage DER growth	The IESO and OEB appreciate the identification of these issues. This feedback will help inform topics for the OEB/IESO Joint Engagement.

OEB Innovation Sandbox and IESO Grid Innovation Fund Joint Targeted Call on Enabling Resources – barriers to address

Stakeholders indicated the following barriers to DER integration as being best suited to be addressed through the joint call.

Feedback	IESO/OEB Response
AEMA • Barriers such as metering rules could be addressed through this process or outside of it • It is also important to look at DER aggregation and their ability to provide capacity, energy and ancillary services	The IESO and the OEB agree that understanding the capabilities of DER aggregations represents an integral learning opportunity on the path to dual participation between the wholesale and distribution systems. As such, demonstrations of aggregation capabilities (both homogenous and heterogeneous) will be of high interest in this year's targeted call. The IESO and the OEB are seeking to understand what metering challenges exist today, and what potential solution are implementable given market rules, standards and other metering governing documentation.
EDA • Expanding the role for LDCs • Looking at how DER deployment will impact existing Distribution System Plans and capacity constraint	The joint targeted call expresses clearly the importance of project partnerships in its criteria, including those which may include LDCs. The joint call is also interested in projects that explore innovative arrangements that test new activities or business models for LDCs where regulatory requirements may currently prevent or impede those arrangements from proceeding.
ESC • Procurement of NWAs, including partnerships with LDCs • Aggregation of DERs, and ability to provide Capacity, Energy, ancillary services • T-D coordination and interoperability requirements	Partnerships, aggregation, coordination and interoperability all feature in this joint call.

Feedback	IESO/OEB Response
OWA • Costs for market participation vs. value • Alternatives to integration • Models for "bundling" (e.g. cascade river systems)	The joint targeted call is focusing on integration as that is a component of DER penetration that is not yet fully understood. The value that DERs specifically can provide to both the wholesale market and the distribution system relative to their costs is being explored through this call; applicants will be encouraged to incorporate these details into their submission. The IESO and the OEB are interested in combined capabilities of resources (e.g., aggregations). Aggregations can be comprised of various resource types including cascading river systems, if feasible and meet the objectives of the call.
Peak Power • Guaranteed/reliable revenue stream to allow hosts and investors the ability to model real fixed revenue streams in their financing models • Aggregation model to allow smaller DERs to aggregate and be dispatched as a single resource	DER aggregations and their associated capabilities in wholesale and distribution system are of high interest in this joint call.

OEB Innovation Sandbox and IESO Grid Innovation Fund Joint Targeted Call on Enabling Resources – projects for support from the Innovation Sandbox

Stakeholders suggested the following types of projects (designed to address the identified barriers) should benefit from OEB Innovation Sandbox support available through the Joint Targeted Call.

Feedback	IESO/OEB Response
AEMA • Look at the LDC and third party relationship in the DER integration process; clear rules regarding the business models and roles and responsibilities are critical	The IESO and OEB welcome projects that identify and test arrangements between third party providers and distributors. Where applications propose to test new business models or activities associated with those relationships, the IESO and OEB are interested in applicants' identification of any regulatory barriers to innovative business models or activities, as well as

Feedback	IESO/OEB Response
	identification of any Sandbox support required to move forward with the proposed project.
ESC • New business model for LDCs • Procurement and partnership related to NWAs • Clarity with respect to roles/responsibilities of LDCs per operations of NWAs	The IESO and OEB welcome proponents' identification of new business models as they pertain to efforts to integrate DERs. Where applications propose to test new business models or activities for distributors, the IESO and OEB are interested in applicants' identification of any regulatory barriers to those innovative business models as well as any Sandbox support required to move forward with those activities.
OWA • Cost benefit analysis • Locational Individual Distribution system breakdown of DERs (there may be multiple models as a result)	As stated in the Application Guideline, criteria include an expectation that the project demonstrates the prospect for mutual benefit to both the wholesale market and distribution systems and coordination between these systems. System integration is one of several project categories of interest. System Integration refers to the efficient and effective integration of DERs into the electricity grid such that the DERs are able to participate in wholesale markets and also provide services to the distribution system.
Peak Power • Determining the value of DER at specific areas of need and creating funding programs for DERs that meet the specific need • Fund the creation of DER aggregations via pilot projects to allow for aggregating multiple DERs and assist in determining barriers and benefits	This year's GIF is targeting DER system integration at the wholesale and distribution level and the capabilities associated with providing services for those levels. Please consult section 2 of the Application Guideline for more information on expectations for proposals. The IESO and the OEB agree that understanding the capabilities of DER aggregations represents an integral learning opportunity on the path to dual participation between the wholesale and distribution systems. As such, demonstrations of aggregation capabilities (both homogenous and heterogeneous) will be of high interest in this year's targeted call. An

Feedback	IESO/OEB Response
	understanding of barriers and paths forward to remedy those barriers is of high interest.

General Comments/Feedback

Several stakeholders included general comments and feedback in their submissions.

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AEMA and ESC recommended the IESO identify actions that may be completed in the near term (e.g., 2022/2023) to ensure that DERs are able to compete with traditional supply resources as IESO moves to procure resources to meet resource requirements emerging in the mid-2020s (e.g., Capacity Auctions and RFPs).	DERs can currently participate in the IESO's Capacity Auction either as dispatchable generation/storage resources or through demand response resources connected behind load customer meters. DERs can also participate as stand-alone demand response resource or as part of demand response aggregation, depending on the size of the resource and preferences of the participant. The DER Market Vision Project will develop enhanced market participation models that may in turn enable increased opportunities for participation of DERs in future IESO acquisitions. The IESO will continue to clarify the relationship between the two initiatives, beginning with the draft DER Roadmap engagement session in the fall. The IESO is currently developing a 5-10 year plan as part of the Enabling Resources Program (ERP) that will, amongst other things, identify and prioritize market enablement activities to support competition to meet emerging system needs. The ERP prioritization process will be reflected in DER Roadmap timelines that will be shared with stakeholders this fall. Additionally, the non-wires alternative focus area of the DER Roadmap is aimed at unlocking potential for DERs to serve as non-wires alternatives, where cost effective and implementable to address needs in regions across Ontario.
CanREA suggested the IESO consider whether rate structures are efficiently and effectively incenting DER siting decisions and operational characteristics to maximize transmission and distribution system cost deferrals and reductions, and whether more could be done to	Through the DER Roadmap and related work, the IESO will explore how best to enhance DER participation in the IAMs, including load displacing resources that participate as demand response. The IESO is also supportive of resources providing value outside of wholesale market participation in ways

Feedback	IESO Response
enable load-displacing and net-metered renewable generation to help avoid the need to procure additional capacity through IESO's Capacity Auction (or other future procurements) and to mitigate costs related to carbon prices and gas-fired generation.	that are efficient and aligned with system needs. However, the introduction of new rate structures is outside of the IESO's mandate, while the interaction between rates and markets is a topic that will require coordination between the IESO, OEB, and stakeholders moving forward. The IESO is also exploring the potential for peak demand reduction to contribute to deferring the need for T-D infrastructure upgrades or replacement through the Regional Planning Process Review recommendations and the York Region Non-Wires Alternative Demonstration work. With respect to load-displacing solar generation, Ontario has had net metering in place since 2005. In 2017, regulations were amended to also enable the pairing of renewable energy systems with energy storage systems in net metering arrangements. Moreover, the Ministry of Energy, Northern Development and Mines has proposed additional amendments to Ontario's net metering regulation to allow for demonstration of community net metering projects.
Noting the DER interconnection process in Ontario as an obstacle to DER integration, CanREA suggested there may be potential for the IESO to make progress in addressing this through the improved T-D coordination work stream.	The IESO intends to work with the OEB, LDCs and other stakeholders in the development of a framework for T-D coordination to enable participation in the IESO-Administered Markets. This work will likely include evaluating the connection process for DERs and will be coordinated with OEB efforts, including the OEB's DER Connections Review initiative.
EDA encouraged the IESO to explore all options that foster the responsible adoption of DERs, whether connected to the IAM or a distributor's infrastructure, and suggested that LDCs will need to be at the table as DER regulations are	While the IESO's focus is on participation in the IESO-Administered Markets and on removing barriers within the IESO's mandate, the IESO agrees that this work will require collaboration with OEB and LDCs through IESO engagement efforts, participation in the Framework for Energy

Feedback	IESO Response
developed to ensure the safe and reliable operation of distribution systems.	Innovation, and other forums as appropriate to address DER integration.
OEA stated that coordination between the IESO and OEB should not slow or 'put on hold' the work that is being done to connect DERs and increase the participation of DERs in the IESO-Administered Markets where that work is not likely to be materially impacted by changing policies related to DERs.	The IESO and OEB will look to continue the progress made in these areas while collaborating on cross cutting issues and leveraging each other's areas of expertise and influence to further progress on DERs across the province. The OEB and the IESO will continue to explore opportunities for collaboration as appropriate.