Feedback Form

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

Feedback Provided by:

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Following the September 22, 2021 DER Roadmap engagement meeting, where the IESO welcomed stakeholders to present their perspectives on the DERs that are most likely to emerge in Ontario and how they should be incorporated into wholesale markets to inform the Market Vision Project, the IESO is seeking any further thoughts from participants that were stimulated by the stakeholder presentations.

The recorded presentation can be found under the September 22, 2021 entry on the DER Roadmap webpage.

Please provide feedback by October 29, 2021 to engagement@ieso.ca. Please use subject: *Feedback: DER Roadmap.* To promote transparency, this feedback, if provided in an AODA-compliant format (e.g. using this form) will be posted on the DER Roadmap webpage unless otherwise requested by the sender.

Thank you for your time.

DER Roadmap – Stakeholder Views

Topic	Feedback
Views on the DERs that are most likely to emerge in Ontario and how they should be incoporated into wholesale markets.	

General Comments/Feedback

Thank you for the opportunity to provide comment on the DERs that are most likely to emerge in Ontario and how they should be incorporated into wholesale markets.

The Canadian Renewable Energy Association is the voice for wind energy, solar energy and energy storage solutions that will power Canada's energy future. We work to create the conditions for a modern energy system through stakeholder advocacy and public engagement. Our diverse members are uniquely positioned to deliver clean, low-cost, reliable, flexible and scalable solutions for Canada's energy needs.

Solar PV (approximately 2200 MW at over 33,000 sites) and wind (approximately 590 MW at 58 sites) together account for approximately 80% of IESO-contracted generation capacity connected to the Ontario distribution grid. Distributed wind and solar will begin coming off contract in late 2020s; Wind will be fully off-contract by 2037 and solar by 2040. These assets are already providing significant benefit to the Ontario system, and their value will only increase over time as resource and capacity needs grow.

IESO has posited that upon expiration of their current contracts, these, and possible future distributed renewables, could participate in competitive wholesale and ancillary services markets, and possibly derive additional value from the sale of renewable energy certificates (RECs). CanREA contends that while this may be technically possible, it is extremely unlikely to be a sufficiently attractive prospect from the perspective of existing asset owners, and that there is no viable route to market participation for new, non-contract distributed renewables.

In terms of wind and solar generation, the only DERs likely to emerge going forward would be net metered solar, which is growing in popularity but not yet at a stage where it is sufficiently compelling to see mass uptake (e.g.13-year payback periods for commercial or industrial rooftop solar, longer for residential). We would further note that Ontario's Distribution System Code restricts net metering capacity to one percent of the distributor's annual maximum peak load for the distributor's licensed service area – a limit that may already be approaching in some LDC service areas. CanREA predicts modest growth in this market segment over the coming years, relative to rapid uptake of FIT and MicroFIT rooftop solar in previous years.

At present, the owners of distributed wind and solar assets are working hard to keep these assets operating for the remainder of their contract periods, due to equipment performance degradation and the extraordinary difficulty of replacing equipment while maintaining FIT contract compliance. For these assets to remain operational post-contract would necessitate significant equipment

upgrades, as well as SCADA upgrades for those assets not currently participating in markets. Given low and extremely uncertain revenue from energy market participation, it is unlikely that these investments would be justifiable from the perspective of the owners of existing distributed wind and solar assets.

This reality is already having an impact on the long-term prospects for these assets: Since distributed wind sites are not being curtailed like the transmission-connected sites, they are presently running every hour possible – This impacts maintenance schedules and operations strategies, which in turn turn impacts asset lifespan. While solar PV has no variable operating costs, asset owners must still make decisions regarding the extent to which it is worthwhile to undertake vegetation control and module cleaning, maintain tracking systems, and to procure and store increasingly rare contract-compliant replacement parts.

Regarding energy storage, while there are no reliable statistics regarding distributed energy storage deployment in Ontario, we can be confident that there are hundreds of MWs of batteries connected behind-the-meter. This capacity would likely consist primarily of batteries at large-scale commercial and industrial sites enrolled in the Industrial Conservation Initiative (ICI) and to a much lesser extent demand response, but would also include batteries installed at non-ICI business premises for the provision of uninterruptible power supply (e.g. at advanced manufacturing plants), or simply for back-up power at homes. While data is unavailable, CanREA understands that it is becoming increasingly common for homeowners and businesses installing behind-the-meter solar PV to opt for co-located battery storage as well.

Similarly to the province's fleet of distributed wind and solar currently under IESO contract, this behind-the-meter storage capacity is not currently being utilized to anywhere near its full potential.

CanREA recently commissioned analysis of the whole-system impact of additional Behind-the-Meter solar in Ontario. This research found that BTM solar can provide savings by lowering HOEP during peak demand hours in the summer, reducing the need to procure additional capacity through IESO's Capacity Auction (or other future procurements) and mitigating costs related to carbon prices and gas-fired generation. BTM solar can also mitigate the need for transmission infrastructure in response to load growth and the forthcoming retirement of the Pickering NGS.

In terms of distributed wind generation, many turbines are strategically located such that they are in some cases uniquely capable of providing both regional resource adequacy as well as reactive power capability in areas of emerging need in southwestern Ontario. In general, wind output aligns well with overnight EV charging and the morning demand ramp-up, particularly during shoulder seasons.

The province's fleet of behind-the-meter energy storage is more than capable of providing a diverse array of services including reserves, frequency regulation, voltage support, black start, resource adequacy, transmission congestion relief, an transmission and distribution infrastructure deferral, while at the same time continuing to provide value to individual consumers in the form of back-up power and optimized solar PV self-consumption.

Recommendations:

Ontario market conditions are such that wholesale market participation is unlikely to be a viable strategy to keep existing distributed wind and solar assets online post-contract, let alone drive investment in new wind, solar or either co-located or stand-alone energy storage assets. Instead, CanREA recommends that IESO pursue the following options:

- Removing all regulatory barriers to repowering existing IESO-contracted wind and solar assets with new components, provided that the contracted name plate capacity remains the same
- Allowing owners of distributed wind and solar to "blend and extend" existing IESO contracts (IESO and Supplier agree a contract price for an extension period, and then agree to blend the current end extension period prices to give equal total value at a certain discount rate)
- Allowing owners of on-site solar PV the option to convert all or a portion of these assets to a net metering configuration, with an alternative revenue stream for excess solar capacity.
    - As it was installed under the FiT and MicroFiT programs, the vast majority of the province's rooftop solar PV capacity is separately metered from, and therefore not serving, on-site load. While it would be technically possible to switch over these assets to a net-metering configuration, many (perhaps most) are over-sized relative to the on-site load – For example, the significant number of schools with rooftop FIT solar that are empty during July and August. These assets can make a significant contribution to meeting summer peaks, and should be incentivized to remain on-line.
- Removing all barriers to energy storage co-location for both site-integrated and stand-alone distributed wind and solar generation –
    - Clarifying a participation model for hybrid resources: CanREA is actively taking part in the IESO's ongoing Hybrid Integration engagements, where we have expressed our view that the IESO should pursue implementation of both the ISM+G and Single Resource models of hybrid participation in order to allow market participants the opportunity to choose the participation model that best suits their corporate and project needs. Developing both models provides the best opportunity to maximize investment in hybrid projects and contribute the associated system benefits
    - Implementing transparent and competitive procurement of regulation services.
    - Moving toward greater cost-reflectivity in delivered electricity pricing, for example by increasing the differential between time-varying rate periods currently available to RPP consumers, allowing non-RPP Class B consumers to opt into a time-varying rate if they choose, and introducing some form of critical peak pricing available to all Class B consumers. The introduction of an opt-out for TOU customers in 2020 would seem to address any potential equity considerations associated with providing more consumers with these options.
    - Removing Capacity Auction and Operating Reserve constraints that restrict the types of resources allowed to participate

- Working with Government and the OEB to establish a path forward for both new and existing distributed wind, solar and energy storage to be procured by utilities as alternatives to traditional wires solutions to meet local distribution system needs. This is currently being explored to some extent through the OEB Framework for Energy Innovation engagement, however CanREA is also aware that utilities are proceeding of their own initiative in procuring non-wires alternatives to meet local reliability needs – This is indicative of the need to accelerate the pace of developing a robust and comprehensive regulatory framework for the province as a whole with respect to NWA procurement, in order to attract investment and competition toward delivering the best possible value to energy consumers.

Thank you for your consideration of our recommendations; we strongly support the IESO for initiating the DER Roadmap initiative and look forward to further engagement on this important topic.