



March 2, 2018

Barbara Ellard  
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Dear Barbara,

Power Advisory LLC (“Power Advisory”) and Compass Renewable Energy Consulting Inc. (“Compass”) have prepared this submission on behalf of the Distributed Energy Resources Advisory Committee (“DER AC”). The DER AC is an industry-led group that consists of energy service providers with interest developing resources that distribution-level to meet the needs of electricity customers, including solar PV, energy storage, demand response (“DR”), energy efficiency, electric vehicles (“EVs”), and other demand-side resources. The purpose of the DER AC is to coordinate well-informed stakeholders to contribute meaningfully to the Market Renewal Program and the implementation of the Ministry of Energy’s 2017 Long-Term Energy Plan (“LTEP”).

The purpose of this submission is to provide feedback in response to the Independent Electricity System Operator (“IESO”) with respect to the February 16, 2018 meeting of the Non-Emitting Resources Subcommittee (“NER-SC”), which is a subcommittee of the IESO’s Market Renewal Working Group (“MRWG”). During this session, stakeholders were asked to provide input to important questions regarding the participation of NERs in IESO’s administered markets. The following responses reflect the position of the DER AC with respect to non-emitting DERs.

**1. What do you see as the potential for your resource type in terms of meeting Ontario’s electricity needs i.e., MW and location in the Ontario system?**

Many non-emitting DERs are available and well suited to meet Ontario’s electricity needs such as solar PV, small wind, renewable biogas/biomass, DR, energy efficiency, energy storage and EVs. Such DERs can connect directly to distribution networks, behind-the-meter of a customer, or can leverage customers load directly. Given this wide potential, the use of DERs can be driven by customer choices (e.g., lowering costs, meeting environmental goals, etc.) as well as meeting the needs of the bulk system. With ongoing technology advances, there is a continued decline in equipment costs, which is making DERs more commercially available. Many DERs are modular and scalable, therefore relatively easy to site, which means that there is a shorter development timeline compared to larger-scale resources. Furthermore, different DER resources can be used in combination, to provide relatively low costs, non-emitting dispatchable supply (e.g., solar PV and storage).

The achievable potential (MW) is significant, with respect to meeting residential, commercial and industrial loads. While it is difficult to estimate achievable potential, we note that the IESO has stated

that there has been more than 2,000 MW of solar added to the grid over a 6-year period, and that the IESO expects to see over 3,000 MW of embedded wind and solar by the early 2020's with more than 1,000 MW being solar installations less than 5MW<sup>1</sup>.

## 2. What value streams/services can your resource type provide?

- At the bulk level
- At the distribution level
- At the consumer level

In today's market, DERs are currently participating in:

- the Demand Response Auction
- the Industrial Conservation Initiative
- the Net Metering Regulation

At the bulk system level, DERs, such as energy storage, have significant potential in meeting system flexibility needs (e.g., ramp, load following, reserves, regulation, resiliency, etc.). DERs, such as energy storage can be coupled with other resources (e.g., wind, solar, etc.) to provide relatively low cost, non-emitting, and dispatchable supply. Depending on the combination, or resource type, the capabilities of the services will vary (e.g., variable generation, such as solar, may only be able to ramp down).

Overall, DERs can provide capacity products (particularly DR & storage), energy products (particularly renewable supply), and environmental attributes (e.g., RECs). DERs could provide a variety of different ancillary services, such as Operating Reserve (OR), Regulation, Reactive Support and Voltage Control and Ramp (up and down). It should also be noted that many DERs and combinations provide value to the system with the ability to supply electricity during "on-peak" periods.

At the distribution level, DERs can be leveraged by local distribution companies as part of their distribution system plans and meeting regional reliability requirements and responding to future growth opportunities. For example, DERs can assist with capacity factor correction, providing reactive power and deferral of capital spends on upgrades (e.g., non-wires alternatives).

Significantly, DERs can also provide benefit at the customer level by reducing electricity costs via self-generation and improving power quality. If a customer has a specific on-site reliability issue, DERs can help by providing capacity factor correction and reactive power. Non-emitting DERs also help customer achieve environmental or sustainability goals.

## 3. Are there value streams/products to which your resource can contribute that you are not currently capturing?

- In the current market
- In the future market as contemplated through Market Renewal

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<sup>1</sup> IESO presentation to Grid/LDC Interoperability Standing Committee, March 9, 2017

DERs are not capturing value associated with ancillary services (e.g., OR, regulation, ramp) and environmental attributes (outside of IESO contracts). For DERs that provide on-peak power, low energy prices may not reflect the value of the electricity supplied.

**4. For such value streams/products, what is preventing you from capitalizing on the value you create?  
• (e.g., technology, wholesale market structure, regulatory, contractual, other)**

There are a variety of factors preventing DERs from capitalizing on the value streams it creates.

- Some products do not exist (e.g., ramp)
- Inability to aggregate resources – e.g., DR participation in OR market
- Minimum capacity restrictions preventing individual projects from participating in the market (e.g., 1 MW threshold)
- Lack of sufficient definition of some resources (e.g., storage) within IESO market rules
- Contract provisions (e.g., IESO owns associated EAs from generators in vast majority of contracts)
- A significant amount of low-marginal costs resources lowers energy prices and does not necessarily reflect the value of on-peak power supplied
- Lack of specific markets, administered by IESO or otherwise (e.g., EAs)
- Regulatory requirements and rules, in addition to lack of economic signals/incentives and costs to participate, may be inhibiting broader participation of distribution-connected resources within the IESO-Administered Markets
- Benefits to distribution networks that are not recognized – e.g., value-stacking
- Restrictions with respect to participation of behind-the-meter resources – e.g., regulation RFP
- Interconnection and capacity constraints within distribution systems, preventing DERs from connecting to the grid or behind-the-meter of a customer and limiting customer participation (in some instances, even if there is no injection of electricity onto the grid).

**5. What changes to the current market structure, or existing products would enable you to more fully capture the value your resource creates?**

There are a variety of changes that could support participation:

- Additional regulatory certainty – e.g., with respect to cost recovery/rates for net metering and other behind-the-meter projects
- Creation of new AS products (e.g., ramp, etc.)
- Amendments to IESO Market Rules in accordance with above points to enable definition of some resources, broader provision of supply of some products (e.g., AS, etc.)
- Clarity regarding potential to ‘unlock’ EAs under contracts with IESO
- Creation of a specific market for EAs, whether administered through IESO administered market or not (e.g., third party exchange)
- Review of statutory framework (e.g., legislation, regulations, Ontario Energy Board (OEB) Codes to determine barriers that should be addressed)

**6. What changes to the future market structure, or new products as contemplated under Market Renewal would enable you to more fully capture the value your resource creates?**



While it is early in NERSC consultation to determine specific changes, we can identify three key areas of potential change:

- Definition of electricity products (e.g., capacity, energy, AS, EAs, etc.) that could be supplied by resources, including DERs, and where products do not exist today define a plan for their development and implementation (note for example: the AESO just completed a review of their market rules to ensure technology agnostic language was used so all programs would be technology neutral)
- Ability to achieve revenue adequacy to enable investments (e.g., maintenance of existing resources, upgrades/expansions of existing resources, development of new resources), where mechanisms to achieve revenue adequacy could be 'market' (i.e., through IESO administered market) and/or 'out of market' (e.g., contracts, etc.)
- Clarity with respect to market and regulatory stability – e.g., impacts to load customers, revenue forecasting, regulatory certainty, etc. We note the much of the value associated with DERs is attributed to customers, therefore matters related to cost recovery and rate formation are particularly important for DERs.

The DER AC appreciates this opportunity to provide feedback to the IESO. We look forward to working with the IESO, the MRWG and the NER-SC, and contributing to future stakeholder engagement sessions.

Sincerely,

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