

# Distributed Energy Resources Survey

## Questions

The IESO is issuing the following survey (“the Survey”) on behalf of the Ministry of Energy, Northern Development and Mines (ENDM) in order to better understand the role Distributed Energy Resources (DER) play in the Industrial Conservation Initiative (ICI) and the DER capacity available in Ontario. On June 26, 2020, the Government of Ontario announced that it was implementing an ICI peak hiatus for ICI participants, in order to allow industrial and commercial businesses to focus on recovering from the impacts of COVID-19. As a result, large customers (i.e., Class A customers) have not had to anticipate and reduce their electricity demand during peak hours throughout the summer, as they return to full levels of operation.

The response to the ICI decision indicates the need to collect information to better understand large customer peak load curtailment/shifting capabilities in Ontario. The attached survey will therefore focus on the investment in and operation of peak modifying behind the meter strategies (i.e., behind the meter storage, generation, etc. often referred to as distributed energy resources, or DER) including load control capabilities. This will include the type and scale of investment, the revenue streams and business models of those investments and the operation before and during the ICI hiatus.

The IESO will consolidate the information collected via the survey and provide to the Ministry and may publically post a summary. IESO is available for a select number of further discussions with stakeholders.

Respondents are encouraged to review the survey questions carefully and answer each question in as much detail as possible.

### Note on terminology to be integrated in survey

IESO typically defines Distributed Energy Resource (DER) as a resource that generates energy, stores energy, or controls load; and is located on the distribution system either directly or behind a customer’s meter.

This survey is interested only in DER that are located behind customers’ meters for the purpose of modifying peak demand as part of the ICI program, including at facilities connected to the

transmission system. Examples would include Battery Energy Storage Systems, natural gas generators, and load control equipment.

Energy efficiency and in front-of-the-meter DER investments such as solar PV or energy storage connected directly to the grid are not relevant to this survey.

## Confidentiality statement

By responding to the Survey the respondent consents to the IESO's collection and use of the information provided for the purposes contemplated above. The respondent further consents to the disclosure of its responses to ENDM, including any confidential information, which will be shared with ENDM under a confidentiality agreement with the IESO. Respondents are advised that information provided may be shared with the Demand Response Working Group or other IESO engagement forum and may be used for purposes related to other IESO initiatives, as appropriate, in an aggregated and non-identifiable manner.

The Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c.F.31, as amended, applies to information provided to the IESO by a respondent. IESO will consider all information provided in Survey responses as confidential. The confidentiality of such information will be maintained by the IESO, except as otherwise required by law or by order of a court or other administrative body.

## Streaming question (all target audiences)

1. *Required* Is your organization an ICI participant or an energy services company supporting customers participate in the program? Please select
  - ICI participant
  - Energy services company \*
  - Other stakeholder

\* For the purpose of this survey, energy services company refers to an organization providing one or more services to electricity customers to support participation in the ICI program including, but not limited to, peak prediction, identification of peak demand management solutions, DER installation, ongoing operational management of DER assets, and DER financing.

## **RELEVANT SECTION BELOW BASED ON RESPONSE TO Q1**

### For ICI participants

2. *Required* Do you use the services of a third-party energy services provider to support your participation in the ICI program? This information will be used to help IESO coordinate responses received from energy services providers.
  - Yes
  - No

3. *Required* Do you have behind-the-meter DER asset(s), including load curtailment capabilities, located at any of your organization's facilities? Load curtailment capabilities includes purely operational demand management strategies such as building pre-cooling, dimming lights, and adjusting production schedules.
- Yes
  - No

**IF YES ANSWER Q4-Q9, OTHERWISE SKIP TO Q10**

4. *Required* How many behind-the-meter DER assets does your organization **own** located at your facilities enrolled in the ICI program? Please treat all load curtailment capabilities, including purely operational strategies (such as building pre-cooling, dimming lights, and adjusting production schedules), as a single DER asset per facility.

**IF YOUR ORGANIZATION DOES NOT OWN ANY DER SKIP TO Q10-Q12, OTHERWISE ANSWER Q5-Q9.**

5. For each DER asset please indicate:
- Required* The type of DER:
    - Thermal storage (e.g. chilled water or ice storage)
    - Battery energy storage
    - Renewable generation
    - Combined heat and power
    - Other non-renewable generation
    - Load curtailment
    - Other – Please specify
  - Required* The postal code of the facility where the DER is located. This information will only be used to assign the DER asset to one of the Ontario electricity transmission system's ten zones
6. For each DER asset please indicate:
- Required* Nameplate capacity (kW)
  - Optional* Customer class of the facility where the DER asset is located
    - General Service >50 kW
    - Large User (>5000 kW)
    - Sub Transmission-connected
    - Transmission-connected

- c. *Optional* NAICS code of the facility where the DER asset is located (select from drop down list)
  - d. *Optional* Who bills the facility where the DER asset is located
    - Billed by IESO
    - Billed by LDC or retailer
  - e. *Optional* Approximate total number of days a year the DER asset is utilized
  - f. *Optional* Approximately how much advanced notice is required to utilize the DER asset ahead of an ICI peak event?
    - Less than 0.5 hour
    - Less than 1 hour
    - 1 hour
    - 2 hours
    - 3 hours
    - ....
  - g. *Optional* Are there any restrictions on the frequency and duration for which the DER asset can be utilized?
  - h. *Required* What is the approximate remaining years of DER asset life (based on historic operation)?
  - i. *Optional* Do you rely on a third-party peak-prediction service (beyond the IESO's free Peak Tracker tool) to inform DER asset operation?
    - Yes
    - No
  - j. *Optional* Is operation of the DER asset managed by a third-party energy services provider?
    - Yes
    - No
7. The following questions are to better understand historic DER investment by your organization. For all DER your organization owns, please indicate the following:
- a. *Optional* Approximately how much capital, including Operations & Maintenance costs, has your organization invested in total?
  - b. *Optional* Approximately what percentage of this total asset investment has your organization recouped to date?
  - c. *Optional* Prior to the ICI hiatus, within how many additional years did you forecast fully recouping your existing investment?

8. *Optional* Which of the following use cases is the DER asset(s) you own utilized for? Please indicate the approximate percentage of total asset revenue (including cost savings) derived from each applicable use case.
- Managing global adjustment charges through ICI program participation
  - IESO Demand Response (DR) Auction participation (whether as direct participant or as contributor to aggregation)
  - Local distributor DR program participation
  - Managing non-global adjustment charges and uplifts calculated on peak demand
  - Load shifting/displacement/curtailment during high energy price periods
  - Enhanced facility reliability
  - Net-metering or microFIT arrangement
  - Other- please specify
9. *Optional* Have you participated in the IESO Demand Response Auction or plan to participate in a future Capacity Auction leveraging the DER assets you own?
- Yes
  - No

**IF SELECTED YES AT Q9 ANSWER, OTHERWISE SKIP**

- a. *Optional* Did you participate/were you planning to participate directly or through a demand response aggregator?
- Directly
  - Through an aggregator

**IF SELECTED NO AT Q9 ANSWER, OTHERWISE SKIP**

- b. *Optional* What are the barriers to participating in the DR Auction and future Capacity Auction? Please select all that apply.
- General complexity of participation requirements
  - Risk of financial penalties for not fully meeting participation requirements
  - Ongoing time investment required to meet participation requirements
  - Limited or uncertain financial benefit
  - 1 MW minimum resource size requirement to participate
  - Other- please specify

10. *Optional* How has the ICI hiatus impacted your DER asset operation, business planning, or investment decisions, if at all? Please indicate all that are applicable.

- Ceased operation of DER asset
- Deferred additional DER asset investment or investment decisions
- Enabled changes to facility operations delivering non-energy benefits (e.g. more flexible production scheduling, increased occupant comfort from HVAC changes)
- Deferred non-DER facility investment decisions pending further ICI program developments
- Other- please specify
- No impact

11. *Required* Do you have any additional comments or information regarding the ICI program you would like to share?

12. *Required* Are you willing to discuss your responses with IESO?

- Yes
- No

**IF SELECTED YES AT Q12 ANSWER, OTHERWISE SKIP**

a. *Required* please provide contact information below

### For service providers and other stakeholders

13. *Required* What types of services does your organization provide to ICI participants? Please select all that apply.

- Peak prediction
- Identification of non-DER peak management solutions (e.g., facility operational actions, energy efficiency measures)
- Identification of DER peak management solutions
- DER asset engineering, procurement, construction
- Operational management of DER assets you own
- Operational management of DER assets owned by clients
- DER asset financing
- DER asset maintenance
- Aggregation services to facilitate participation in Demand Response initiatives

- Other- please specify
- None of the above

14. *Required* Has your organization invested in behind-the-meter DER asset(s) at any of its clients' facilities in Ontario?

- Yes
- No

**IF YES to Q14 ANSWER Q15 to Q20 OTHERWISE SKIP TO Q21**

15. *Required* How many behind-the-meter DER asset(s) does your organization **own**? Please include DER assets that you own provided to clients through leasing or similar commercial arrangement.

If you have invested in load curtailment capabilities at client facilities, please treat load curtailment investments as a single DER asset per facility.

**IF YOUR ORGANIZATION DOES NOT OWN ANY DER SKIP TO Q21 TO Q24, OTHERWISE ANSWER Q16- Q20**

**ROWS WILL APPEAR IN RESPONSE TO NUMBER OF DER INDICATED AT Q4**

16. For each DER asset please indicate:

a. *Required* The type of DER:

- Thermal storage (e.g. chilled water or ice storage)
- Battery energy storage
- Renewable generation
- Combined Heat and Power
- Other non-renewable generation
- Load curtailment
- Other – please specify

b. *Required* The postal code of the facility where the DER asset is located. This information will only be used to assign the DER asset to one of the Ontario electricity transmission system's ten zones

c. *Optional* What entity manages operation of the DER asset

- The client
- Your organization
- Another third-party energy services provider

17. *Required* For each DER asset(s) please indicate:

- a. *Required* Nameplate capacity (kW)
- b. *Optional* Customer class of the facility where the DER asset is located
  - General Service >50 kW
  - Large User (>5000 kW)
  - Sub Transmission-connected
  - Transmission-connected
- c. *Optional* NAICS code of the facility where the DER asset is located (select from drop down list)
- d. *Optional* Who bills the facility where the DER asset is located
  - Billed by IESO
  - Billed by LDC or retailer
- e. *Optional* Approximate total number of days a year the asset is utilized
- f. *Optional* Approximately how much advanced notice is required to utilize the asset ahead of an ICI peak event or DR activation?
  - Less than 0.5 hours
  - Less than 1 hour
  - 1 hour
  - 2 hours
  - 3 hours
  - ...
- g. *Optional* Are there any restrictions on the frequency and duration for which the DER asset can be utilized?
- h. *Optional* What is the approximate remaining years of asset life (based on historic operation)?

18. The following questions are to better understand historic DER investment by your organization. For all DER assets your organization owns, please indicate the following:

- a. *Optional* Approximately how much capital, including Operations & Maintenance costs, has your organization invested in total?
- b. *Optional* Approximately what percentage of this total asset investment has your organization recouped to date?
- c. *Optional* Prior to the ICI hiatus, within how many additional years did you forecast fully recouping your existing investment?



19. *Optional* Which of the following use cases is the DER asset(s) you own utilized for? Please indicate the approximate percentage of total asset revenue (including cost savings) derived from each applicable use case.

- Managing global adjustment charges through Industrial Conservation Initiative (ICI) participation
- IESO Demand Response (DR) Auction participation (whether as direct participant or as contributor to aggregation)
- Local distributor DR program participation
- Managing non-global adjustment charges and uplifts calculated on peak demand
- Load shifting/displacement/curtailment during high energy price periods
- Enhanced customer reliability
- Net-metering or microFIT arrangement
- Other- please specify

20. *Optional* Have you participated in the IESO Demand Response Auction or plan to participate in a future Capacity Auction leveraging the DER assets you own at client's facilities?

- Yes
- No

**IF SELECTED YES AT Q20 ANSWER, OTHERWISE SKIP**

a. *Optional* Did you participate/were you planning to participate directly or through or as a demand response aggregator?

- Directly
- As an aggregator
- Through a third-party aggregator

**IF SELECTED NO AT Q20 ANSWER, OTHERWISE SKIP**

b. *Optional* What are the barriers to participating in the DR Auction and future Capacity Auction? Please select all that apply.

- General complexity of participation requirements
- Risk of financial penalties for not fully meeting participation requirements
- Ongoing time investment required to meet participation requirements
- Limited or uncertain financial benefit
- 1 MW minimum resource size requirement to participate

- Other- please specify

21. *Optional* How has the ICI hiatus impacted your overall DER asset operation, business planning, or investment decisions? Please indicate all that are applicable.

- Ceased operation of DER asset
- Reduced operation of DER asset
- Deferred additional DER asset investment or investment decisions
- Sought changes to services agreements with customers
- Deferred additional investment in Ontario business development activities
- Deferred additional investment in expanding or enhancing product or service offerings
- Other- please specify
- No impact

22. *Optional* If you manage DER asset operation, do you rely on another third-party entity to provide peak-prediction services (beyond the IESO's free Peak Tracker tool) to inform asset operation?

- Yes
- No
- Not applicable

23. *Required* Do you have any additional comments or information regarding the ICI program you would like to share?

24. *Required* Are you willing to discuss your responses with IESO?

- Yes
- No

**IF SELECTED YES AT Q24 ANSWER, OTHERWISE SKIP**

d. *Required* please provide contact information below