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## Market Rule Amendment Proposal

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### PART 1 – MARKET RULE INFORMATION

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|-------------------------------------|---|-----------------------------------|--|
| Identification No.:                 | MR-00416-R01                                    |                                   |  |
| Subject:                            | Demand Response Auctions                        |                                   |  |
| Title:                              | Demand Response Auctions – Auction Parameters   |                                   |  |
| Nature of Proposal:                 | <input checked="" type="checkbox"/> Alteration  | <input type="checkbox"/> Deletion | <input checked="" type="checkbox"/> Addition |
| Chapters:                           | 7 & 11  | Appendix:                         | N/A  |
| Sections:                           | 18.5 (new), 18.6 (new), 18.7 (new) & 18.8 (new) |                                   |  |
| Sub-sections proposed for amending: |   |                                   |  |

### PART 2 – PROPOSAL HISTORY

| Version                              | Reason for Issuing                         | Version Date  |
|--------------------------------------|--|---------------|
| 1.0                                  | Draft for Technical Panel Review           | June 30, 2015 |
| 2.0                                  | Publish for Stakeholder Review and Comment | July 9, 2015  |
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|                                      |  |               |
| Approved Amendment Publication Date: |  |               |
| Approved Amendment Effective Date:   |  |               |

### PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

Provide a brief description of the following:

- The reason for the proposed amendment and the impact on the *IESO-administered markets* if the amendment is not made.
- Alternative solutions considered.
- The proposed amendment, how the amendment addresses the above reason and impact of the proposed amendment on the *IESO-administered markets*.

#### Summary

The IESO proposes to amend the market rules in order to implement a Demand Response Auction to allow for the future competitive procurement and development of demand response in Ontario.

Specifically, this amendment proposal will establish:

- The demand response auction parameters;
- The IESO pre-auction and post auction reporting obligations; and
- The demand response auction mechanics to determine the auction clearing price(s) and quantity.

This proposal is based on the Demand Response Auction stakeholder engagement.

Further information on the Demand Response Auction stakeholder engagement can be found on the IESO's website at:

<http://www.ieso.ca/Pages/Participate/Stakeholder-Engagement/Demand-Response-Auction.aspx>

#### Background

The demand response auction is a competitive, transparent platform that will facilitate the procurement of Ontario's target demand response at the lowest cost to Ontario.

The annual demand response auction will determine, for the following year, seasonal demand response capacity obligations (MW) and demand response clearing price(s) for successful auction participants. For each commitment period, the IESO will establish a demand curve and the demand response capacity offers will be stacked against the demand curve to determine the capacity obligations that minimize total cost while respecting the parameters of the demand response auction.

Prior to each auction, the IESO will establish and publish the demand response auction demand curve parameters in a public, pre-auction report. The pre-auction report will also identify timelines for participation and zonal constraints. The outcomes of the demand response auction will be included in both public and private reports sent directly to auction participants.

#### Discussion

## PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

### Chapter 7

It is proposed to further expand new section 18<sup>1</sup>, “Demand Response Auctions” in Chapter 7 of the market rules as follows:

#### Section 18.5 – Demand Response Auction Parameters

- Insert section 18.5.1 to specify that the IESO will conduct a demand response auction for a one-year period. Each year will be divided into commitment periods with the first auction having a summer (May 1 to October 31) and winter (November 1 to April 30) seasonal commitment period. Subsequent auctions may have different seasonal commitment periods.

#### **Demand Curve, Zonal Requirement and Pre-Auction Reports**

- Insert section 18.5.2 to obligate the IESO, in accordance with the applicable market manual, to publish a pre-auction report, including the following reference points that define the demand response auction demand curve:
  - Demand response target capacity (new proposed defined term in Ch 11 below) – the IESO intends to maintain the current level (approximately 500 MW) of demand response capacity associated with the Capacity Based Demand Response program (“CBDR”). Prior to each auction, the IESO will assess the amount of CBDR exiting the program via contract expiry. The target capacity will be determined based upon the following factors: the amount of quantity exiting the CBDR program, the target capacity from the previous auction and any additional needs identified by the IESO.
  - Demand response auction reference price (new proposed defined term in Ch 11 below) – the reference price is an estimate of the cost of new entry at which new demand response resources would be incented to make their capacity available. The reference price is directly associated with the target capacity as another key reference point for the demand curve.
  - Minimum and maximum demand response auction clearing prices (new proposed defined term in Ch 11 below) – the maximum auction clearing price is the highest amount the IESO is willing to pay for demand response capacity in the auction. There are instances when the actual cost of demand response is higher than the projected cost (reference price) and therefore the maximum auction clearing price will provide some cost flexibility. The minimum will be \$0 per MW-day.
  - Minimum demand response capacity limit – is the minimum amount of demand response capacity the IESO shall clear in the auction.
  - Maximum demand response capacity limit at the maximum demand response auction clearing price – is the maximum amount of demand response capacity the IESO shall clear at the maximum demand response auction clearing price.
  - Maximum demand response capacity limit – is the maximum amount of capacity which the auction shall clear in the auction.

<sup>1</sup> New section 18 (i.e. 18.1 to 18.4) “Demand Response Auctions” proposed in MR-00416-R00: Demand Response Auctions – Participant Authorization & Facility Registration.

**PART 3 – EXPLANATION FOR PROPOSED AMENDMENT**

- Insert section 18.5.3 to obligate the IESO to define and publish in the pre-auction report the demand response zonal constraints. These zones will be defined by any locational limitation or specific regional needs that arise from IESO planning studies. The zonal constraints will be used to set a minimum and maximum capacity limit for each zone if required.
- Insert section 18.5.4 to obligate the IESO to publish the following timelines associated with the demand response auction:
  - The deadline to submit the amount of demand response capacity that a demand response auction participant is willing to provide;
  - The deadline for submission of the demand response auction deposit, which is outlined in proposed new section 18.2.1.3 of Chapter 7 as part of MR-00416-R00;
  - The demand response auction offer submission window;
  - The date that the IESO will conduct the demand response auction; and
  - The date that the IESO will publish the public and private post-auction reports.

Section 18.6 – Demand Response Auction Offers

- Insert section 18.6.1 to outline the general obligations for demand response auction offers (new proposed defined term in Ch 11 below) submitted into the demand response auction by a demand response auction participant which are as follows:
  - Offers of demand response capacity may only be submitted and revised as per the timelines specified and published by the IESO in section 18.5.4;
  - Offers will only be applicable to the commitment period specified by the demand response auction participant; and
  - Offers will be time stamped by the IESO when received.
- Insert section 18.6.2 to outline the following requirements for a demand response auction offer to be submitted to the IESO by a demand response auction participant:
  - Obligates the demand response auction participant to comply with the participation requirements which were proposed in new section 18.2.1 of Chapter 7 as part of MR-00416-R00;
  - Ensures that the demand response auction participant has not been disqualified from auction participation, in full or in part, due to previous poor performance fulfilling a demand response capacity obligation. Referenced sections 19.4.8 and 19.5.4 are proposed new sections in Chapter 7 as part of MR-00416-R02 and contain the following provisions that are consistent for both hourly demand response resources and dispatchable load facilities. Proposed section 19.4.8 and 19.5.4 of Chapter 7:
    - The IESO may disqualify from future participation in the demand response auction any demand response market participant hourly demand response resource/dispatchable load facility that consistently fails to reduce its consumption when called upon in accordance with this section 19.

**PART 3 – EXPLANATION FOR PROPOSED AMENDMENT**

- Insert section 18.6.3 to detail the required parameters of demand response auction offers from participants. A demand response auction participant can submit up to twenty price-quantity pairs for each commitment period that shall comply with the following:
  - Offers shall be applicable for an entire commitment period;
  - The offer price be greater than or equal to \$0.00 and must not exceed the maximum demand response clearing price. The offer price needs to be expressed in dollars and whole cents per MW-day (e.g. \$10.01 per MW-day);
  - The offer must increase as the offered quantity increases therefore the 20 price-quantity pairs must be monotonically increasing;
  - The offer quantity must be expressed in MW to not more than 1 decimal place and must not be greater than the demand response capacity qualified during participant authorization as required by proposed new section 18.2.1.2 of Chapter 7 - MR-00416-R00; and
  - The offer must specify whether the participant is willing to accept a capacity obligation for a partial amount of the demand response capacity offered.

Section 18.7 – Demand Response Auction Clearing Prices and Quantities

- Insert section 18.7.1 to specify that the IESO will determine the demand curve for each commitment period based upon the demand response auction parameters outlined in section 18.5.
- Insert section 18.7.2 to outline that the process for the IESO to determine the demand response auction clearing price for each commitment period will be detailed in the applicable market manual.
- Insert section 18.7.3 to specify that the IESO will determine the demand response capacity obligation for each commitment period based upon the applicable market manual and the tie-breaking principles outlines in the section 18.7.5 of Chapter 7.
- Insert section 18.7.4 to obligate the IESO to determine the demand response auction clearing prices (new proposed defined term in Chapter 11 below) and the demand response capacity obligation for each demand response auction. The clearing price and capacity qualifications determined through the auction will apply for each day in the commitment period in accordance with the availability window.
- Insert section 18.7.5 to detail the tie-breaking process for demand response auction offers which will be validated by the time stamp received upon submission of the offer. Further details will be provided in the applicable market manual.

Section 18.8 – Post-Auction Reporting

- Insert section 18.8.1 to obligate the IESO to publish the following:
  - The demand response auction clearing price;
  - The amount of demand response capacity procured through the auction; and
  - The names of the demand response auction participants that received a demand

**PART 3 – EXPLANATION FOR PROPOSED AMENDMENT**

response capacity obligation and their respective demand response capacity obligations.

- Insert section 18.8.2 to obligate the IESO to issue confidential post-auction reports to each demand response auction participant detailing the offers that have cleared the auction and the accompanying demand response capacity obligations.

**Chapter 11 – Defined Terms**

The following new defined terms are required for the implementation of a demand response auction and for the delivery of demand response auction offers into the auction:

- “commitment period” means the length of time for which a demand response market participant is required to fulfill its demand response capacity obligation by making its demand response capacity available for dispatch through the day-ahead commitment process and energy market
- “demand response auction clearing price” means the price at which the demand response auction clears for a commitment period and will be quoted in \$/MW-day;
- “demand response auction offer” means an offer to sell demand response capacity in a demand response auction
- “demand response auction reference price” means the estimated costs necessary to support the sufficient return on investment for a new, representative demand response resource, net of expected ancillary services revenues and avoided energy costs; and
- “demand response target capacity” means the amount of demand response capacity which the IESO seeks to clear through the demand response auction;
- “demand response zonal constraints” means the minimum or maximum amount of demand response capacity that the demand response auction seeks to clear for a specific electrical zone as detailed by the IESO in each pre-auction report;

**PART 4 – PROPOSED AMENDMENT**

## Chapter 7

### 18. Demand Response Auctions

#### 18.5 Demand Response Auction Parameters

18.5.1 The IESO shall conduct a *demand response auction* on an annual basis to procure *demand response capacity* for a one-year period. In each *demand response auction* the IESO shall procure *demand response capacity* for each *commitment period* as specified in the applicable *market manual*.

##### Demand Curve, Zonal Constraints and Pre-Auction Reports

18.5.2 The IESO shall, in accordance with the applicable market manual, publish a pre-auction report in advance of each *demand response auction*, including the following *demand response auction demand curve reference points*:

18.5.2.1 a *demand response target capacity* in accordance with section 18.1.2;

18.5.2.2 a *demand response auction reference price*;

18.5.2.3 a maximum and minimum *demand response auction clearing price*.

18.5.2.4 a minimum *demand response capacity limit* that a *demand response auction* shall clear;

18.5.2.5 a maximum *demand response capacity limit* at the maximum *demand response auction clearing price* that a *demand response auction* shall clear; and

18.5.2.6 a maximum *demand response capacity limit* that a *demand response auction* shall clear.

18.5.3 The IESO shall define *demand response zonal constraints* for each demand response auction and the IESO shall publish, in the pre-auction report, those requirements as specified in the applicable *market manual*.

18.5.4 The IESO shall specify and *publish* the following timelines associated with a *demand response auction*:

18.5.4.1 the deadline to submit the amount of *demand response capacity* the *demand response auction participant* is willing to provide pursuant to section 18.2.1.2;

- 18.5.4.2 the deadline for a *demand response auction participant* to submit a *demand response auction deposit* in accordance with section 18.2.1.3;
- 18.5.4.3 the dates in which a *demand response auction participant* may submit *demand response auction offers* for a *demand response auction*;
- 18.5.4.4 the period over which the *IESO* shall conduct the *demand response auction*; and
- 18.5.4.5 the date of *demand response auction* post-auction reporting in accordance with sections 18.8.1 and 18.8.2.

## **18.6 Demand Response Auction Offers**

### 18.6.1 A demand response auction offer:

- 18.6.1.1 may be submitted or revised by the *demand response auction participant* on the dates specified in accordance with section 18.5.4 and the applicable *market manual*;
- 18.6.1.2 shall only be applicable to the *commitment period* for which a *demand response auction participant* has submitted a *demand response auction offer*, in accordance with the applicable *market manual*; and
- 18.6.1.3 shall be time stamped by the *IESO* when received.

### 18.6.2 A demand response auction offer shall only be submitted in respect of a given demand response auction if:

- 18.6.2.1 the *demand response auction participant* complies with the *demand response auction participation requirements* in section 18.2.1; and
- 18.6.2.2 the *demand response auction participant* has not been disqualified from full or partial participation in the *demand response auction* in accordance with section 19.4.8, 19.5.4 and the applicable *market manual*.

### 18.6.3 A demand response auction offer may include up to twenty price-quantity pairs for each commitment period and shall comply with the following:

- 18.6.3.1 the *demand response auction offer* shall be for and applicable over an entire *commitment period* associated with a *demand response auction*;
- 18.6.3.2 the *demand response auction offer price* in any *price-quantity pair* shall:



- be expressed in dollars and whole cents per MW-day of *demand response capacity* to be provided in each hour of the availability window throughout the *commitment period* associated with that *demand response auction*;
- be greater than or equal to \$0.00/MW-day;
- not exceed the applicable maximum *demand response auction clearing price*; and
- increase as the associated *demand response auction offer quantity* increases.

18.6.3.3 the *demand response auction offer quantity* in any *price-quantity* pair shall be expressed in MW to not more than one decimal place and the total offered quantity shall not exceed the qualified *demand response capacity* of the resource, determined through the submission of *demand response capacity* that a *demand response auction participant* is willing to provide in accordance with section 18.2.1.2; and

18.6.3.4 the *demand response auction offer* shall indicate whether the *demand response auction participant* is willing to clear an auction with the full amount of *demand response capacity offered* in a lamination or a partial amount of the *demand response capacity offered* in a lamination, in accordance with the applicable *market manual*.

## **18.7 Demand Response Auction Clearing Prices and Quantities**

18.7.1 The IESO shall determine a *demand response auction demand curve* to be utilized for each *commitment period* in an auction year, based upon the *demand response parameters* detailed in the pre-auction report pursuant to section 18.5 and in accordance with the applicable *market manual*.

18.7.2 The IESO shall, in each *demand response auction*, determine for each *commitment period* the *demand response auction clearing price* in accordance with the applicable *market manual*.

18.7.3 The IESO shall, in each *demand response auction*, determine for each *commitment period* the *demand response capacity obligation* for each *demand response auction participant* and its resources in accordance with section 18.7.5 and the applicable *market manual*.

18.7.4 The IESO shall, for each *demand response auction*, determine for each *commitment period* associated with the *demand response auction*:

18.7.4.1 the demand response auction clearing prices for each electrical zone identified in the pre-auction report; and

18.7.4.2 the zonal demand response capacity obligation for each demand response auction participant,

in accordance with this section 18.7.

18.7.5 If two or more demand response auction participants submit a demand response auction offer at the same price, for the last available quantity, the demand response auction offer with the earlier time stamp shall be selected as the successful demand response auction offer, in accordance with the applicable market manual.

## **18.8 Post-Auction Notification and Publication**

18.8.1 The IESO shall, as soon as practicable following the conclusion of a demand response auction, publish the following in accordance with the applicable market manual:

18.8.1.1 the demand response auction clearing price;

18.8.1.2 the amount of demand response capacity that has been procured; and

18.8.1.3 those demand response auction participants who received a demand response capacity obligation and all respective demand response capacity obligations.

18.8.2 The IESO shall, following the conclusion of a demand response auction, issue post-auction reports to each demand response auction participant by the date specified in the pre-auction report, to detail the demand response capacity offers that have cleared in the demand response auction and the associated demand response capacity obligations for each commitment period in accordance with the applicable market manual.

## **Chapter 11**

commitment period means the length of time for which a demand response market participant is required to fulfill its demand response capacity obligation by making its demand response capacity available for dispatch through the day-ahead commitment process and energy market;

demand response auction clearing price means the price at which the demand response auction clears for a commitment period and will be quoted in \$/MW-day;

demand response auction offer means an offer(s) , submitted by a demand response auction participant, in the form of a price-quantity pair(s) to provide demand response capacity in a demand response auction;

demand response auction reference price means the estimated costs necessary to support the sufficient return on investment for a new, representative demand response resource, net of expected ancillary services revenues and avoided energy costs;

demand response target capacity means the amount of demand response capacity which the IESO seeks to clear through the demand response auction;

demand response zonal constraints means the minimum or maximum amount of demand response capacity that the demand response auction seeks to clear for a specific electrical zone as detailed by the IESO in each pre-auction report;

## **PART 5 – IESO BOARD DECISION RATIONALE**

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