MARKET MANUAL

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Market Manual 12: Capacity Auctions

Part 12.0: Capacity Auctions

Issue 8.0

This procedure provides guidance to *market participants* on the operation of the *capacity auction* process

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This *market manual* may contain a summary of a particular *market rule*. Where provided, the summary has been used because of the length of the *market rule* itself. The reader should be aware, however, that where a *market rule* is applicable, the obligation that needs to be met is as stated in the "Market Rules". To the extent of any discrepancy or inconsistency between the provisions of a particular *market rule* and the summary, the provision of the *market rule* shall govern.

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Related Documents

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Reference (Section and Paragraph)	Description of Change
Section 6.3	Added clause that capacity market participants with HDR resources will be compensated for out of market activations as detailed in Market Manual 5.5. These changes are applicable to the *demand response auction* held in December 2019, for the *commitment period* beginning May 1, 2020.
Section 6.3.2	Changed the measurement data submission requirement from a monthly basis to only for activation months. Added a section for Validation, Estimation and Editing of measurement data for virtual contributors. These changes are applicable to the *demand response auction* held in December 2019, for the *commitment period* beginning May 1, 2020.
Section 6.4	Added section about DR Auction Measurement Data Audit. These changes are applicable to the *demand response auction* held in December 2019, for the *commitment period* beginning May 1, 2020.
Appendix C	Added a Measurement Data Control Sheet template. These changes are applicable to the *demand response auction* held in December 2019, for the *commitment period* beginning May 1, 2020.

1. Market Manuals

The *market manuals* consolidate the market procedures and associated forms, standards, and policies that define certain elements relating to the operation of the *IESO-administered markets*. Market procedures provide more detailed descriptions of the requirements for various activities than is specified in the "Market Rules". Where there is a discrepancy between the requirements in a document within a *market manual* and the "Market Rules", the "Market Rules" shall prevail. Standards and policies appended to, or referenced in, these procedures provide a supporting framework.

– End of Section –

2. About This Manual

The "*Market Manual* 12: Capacity Auctions" is composed of the following sections:

Section	Name of Section
1.0	Market Manuals
2.0	About this Manual
3.0	Capacity Auction Overview
4.0	Pre-Auction Requirements
5.0	Auction Mechanics
6.0	Post-Auction Requirements
7.0	Settlements
8.0	Buy-out Process

2.1 Purpose

The *IESO* will conduct *capacity auctions* for the purpose of acquiring *auction capacity* through a competitive auction process (Ch. 7, S.18.1 of the *market rules*). The "Capacity Auctions" manual is designed to provide *market participants* with an introduction to the *transitional capacity auction*, operated by the *IESO* for the *IESO-administered markets* and the specific steps to be followed to conduct the auction. The manual also provides information on *market participants'* eligibility criteria, auction timelines, *energy market* participation, and settlement process.

The *IESO* previously conducted a *demand response auction* for the purpose of acquiring *demand response capacity* in Ontario through a competitive auction process, and this manual also provides direction with respect to activities and responsibilities related to that form of *capacity auction.*

2.2 Scope

Capacity auctions, with respect to *IESO-administered markets*, are comprised of the following aspects:

- *Market participant* registration and authorization;
- Submission of *capacity auction offers* by *market participants*;
- Processing of submitted offers by *IESO* and determining *capacity obligations*;
- Reporting obligations by the *IESO*;
- *Energy market* participation requirements; and
- *Settlement process* and *capacity prudential support obligations*

In support of these aspects, this manual details the conditions, actions, and timelines specific to the *transitional capacity auction* by *market participants* and the *IESO*. This manual also details the *energy market* participation requirements, settlement process, and *capacity prudential support*

obligations for the *capacity auctions* by *market participants* and the *IESO.* The manual is based on obligations expressed in the "Market Rules" (Ch. 2, Ch. 3,Ch. 7, and Ch. 9).

The document points to other *market manuals* and *market rules* that provide additional information.

2.3 Who Should Use This Manual

The "Capacity Auctions" manual is meant to be used by all those undertaking the following activities:

- Applicants seeking authorization as a *capacity auction participant* and/or *capacity market participant* for *a capacity auction*;
- *Capacity auction participants* seeking to submit *auction offers* into the *transitional capacity auction*; and
- *Capacity market participants* seeking to register *facilities* in order to meet their *capacity obligations* through the *energy market.*

2.4 Conventions

The standard conventions followed for *market manuals* are as follows:

- The world 'shall' denotes a mandatory requirement;
- Terms and acronyms used in this *market manual* including all Parts thereto that are italicized have the meanings ascribed thereto in Chapter 11 of the "Market Rules";
- Double quotation marks are used to indicate titles of legislation, publications, forms and other documents.

Any procedure-specific convention(s) shall be identified within the procedure document itself.

– End of Section –

3. Capacity Auction Overview

Capacity auctions acquire *auction capacity* for one *commitment period*, which consists of two *obligation periods*, referred to as summer and winter periods.

The *demand response auction* was conducted on an annual basis to acquire *demand response capacity*. The *transitional capacity auction* will be undertaken by the IESO after January 1, 2019, to acquire *auction capacity*, in accordance with sections 18 and 19 of Chapter 7 of the *market rules*.

3.1 Capacity Auction Process

Figure 3-1 below shows a representative *transitional capacity auction* process overview:

Figure 3-1: Transitional Capacity Auction Process

Market participants who wish to participate in the *transitional capacity auction* are required to be authorized as *capacity auction participants* and complete the capacity qualification process in order to submit their *auction offers* into the *transitional capacity auction*. Upon validating all submitted offers, the *IESO* will process the offers, determine the clearing price and quantity for each of Ontario's ten electrical zones, and prepare and *publish* the post-auction reports. All *capacity auction participants* that successfully obtain a *capacity obligation* are required to register as a *capacity market participant*, provide *capacity prudential support* as determined by the *IESO*, and allocate their *capacity obligation* to specific resources represented in the *IESO* registration system, as described in Market Manual 1.2 Section 2.4.1.

3.2 Transitional Capacity Auction Timelines

Ontario's *transitional capacity auction* follows the following timelines:

- The *IESO* will *publish* a pre-auction report no less than two months prior to the start of the offer submission window for the *transitional capacity auction.*

- *Market participants* intending to participate in the *transitional capacity auction* must complete their authorization as *transitional capacity auction participants* at least 40 *business days* in advance of the *transitional capacity auction*, or within such other period as set by the IESO in its sole and absolute discretion[1].

- *Market participants* intending to participate in the *transitional capacity auction* are required to complete the capacity qualification process and submit the *transitional capacity auction deposit* amount at least 5 *business days* prior to the start of the offer submission window for the *transitional capacity auction*.

- The *transitional capacity auction* will be opened to accept offers from *capacity auction participants* on the date announced in the pre-auction report, starting at 09:00 EST. The auction offer submission window will close on the next *business day* at 23:59 EST. *Capacity auction participants* intending to participate in the *transitional capacity auction* must have submitted their *capacity auction offers* to the *IESO* within this two-day timeframe.

- The *IESO* will process all submitted *capacity auction offers*, determine clearing price and quantities, and prepare the post-auction reports within four *business days*, following the day on which the auction offer submission window closes.

- The *IESO* will *publish* both public and confidential reports post auction.

The following figure illustrates the *transitional capacity auction* timelines:

[1] Should the IESO determine another period for *market participants to* complete authorization as a *capacity auction participant*, this period will be published in the Auction Timelines posted on the IESO website.

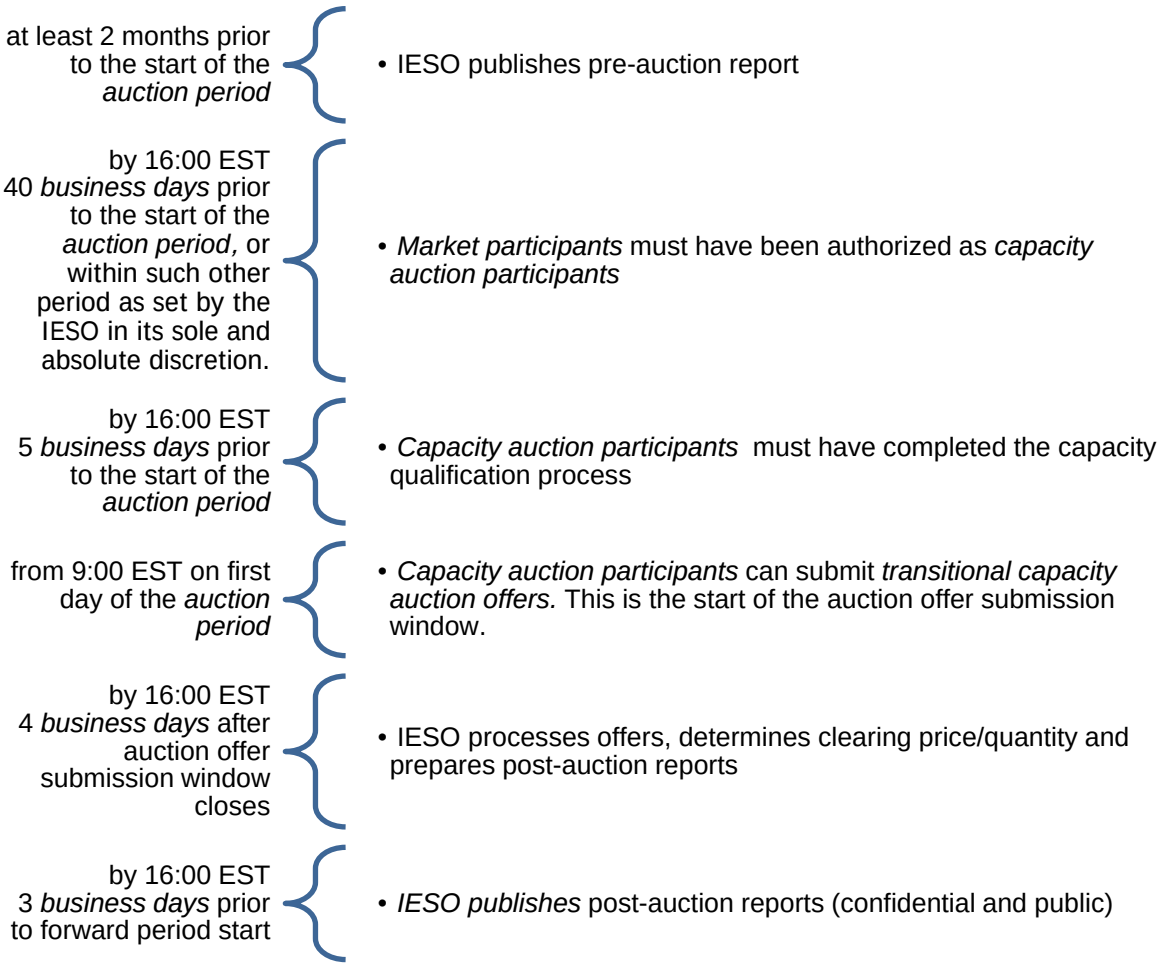

Figure 3-2: Capacity Auction Timeline

3.3 Commitment Periods and Obligation Periods

The c*ommitment period* is the period of time for each *capacity auction* over which it secures *auction capacity*. It consists of two *obligation periods*, which are the periods of time for which a *capacity market participant* is required to fulfill its *capacity obligation* through the day-ahead commitment process and energy market.

There are two seasonal *obligations periods* for a *capacity auction*, defined as:

- Summer – May 1 to October 31
- Winter – November 1 to April 30

Forward period means the period of time immediately following a *capacity auction*, to the commencement of an *obligation period*. The length of the forward period will vary depending on the date of a *capacity auction* relative to its *obligation period*.

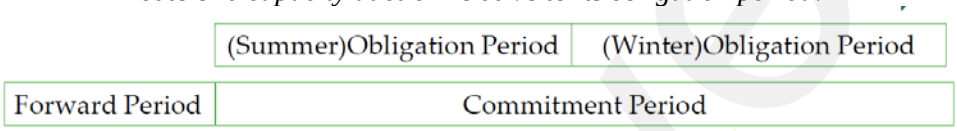

Figure 3-3: Periods of time related to *capacity auctions*

Capacity auction participants may choose to submit *capacity auction offers* into either one or both of the *obligation periods*. The auction for both *obligation periods* requires separate *capacity auction offers* for each of the *obligation periods*. The two *obligation periods* will be evaluated individually using seasonal *capacity auction offers* compared to seasonal demand curves, and will therefore have their own *capacity auction clearing price* and quantity. Participants will receive a separate *capacity obligation* for each period, where applicable, if they successfully clear the auction. *Capacity auction participants* who secure a position in a *capacity auction* are required to complete their authorization and registration requirements, during the forward period, as explained in Section 6 of this manual.

3.4 Availability Window

The summer *availability window* will consist of *business days* from 12:00 to 21:00 EST (hour ending 13 to hour ending 21) and the winter availability window will consist of *business days* from 16:00 to 21:00 EST (hour ending 17 to hour ending 21).

Demand response resources are eligible for an availability payment associated with their *capacity obligation* by submitting bids in every hour of the availability window in both the day-ahead commitment process and in pre-dispatch and through to real-time as described in Market Manual 5.5: Physical Markets Settlements Statements during the associated *obligation period* (Ch. 7, S. 19.5.1 and 19.4.1 of the *market rules*).

Capacity generation resources are eligible for an availability payment associated with their *capacity obligation* by submitting offers in every hour of the availability window in both the day ahead commitment process and in the hours of pre-dispatch and through to real-time as described in Market Manual 5.5: Physical Markets Settlements Statements during the associated *obligation period* (Ch. 7, S. 19.7.1 of the *market rules*).

3.5 Demand Curve Elements

A *capacity auction* demand curve is a representation of the IESO's willingness to acquire *auction capacity*; it defines the prices that the IESO is willing to pay for varying levels of *auction capacity* along the curve. The shape of the demand curve will impact the quantity (MW; the X-axis) and price

($/MW-day; the Y-axis) of *auction capacity* that will be acquired through an auction. The *transitional capacity auction* will make use of a downward-sloping demand curve defined by the following parameters and illustrated in Figure 3-4 below:

- Target capacity
- Reference price
- Maximum and minimum auction clearing prices
- Capacity limits

Given the dynamic nature of the *energy market*, the *IESO* will review the demand curve parameters at least once every three years to ensure it is reflective of the current market conditions and system needs.

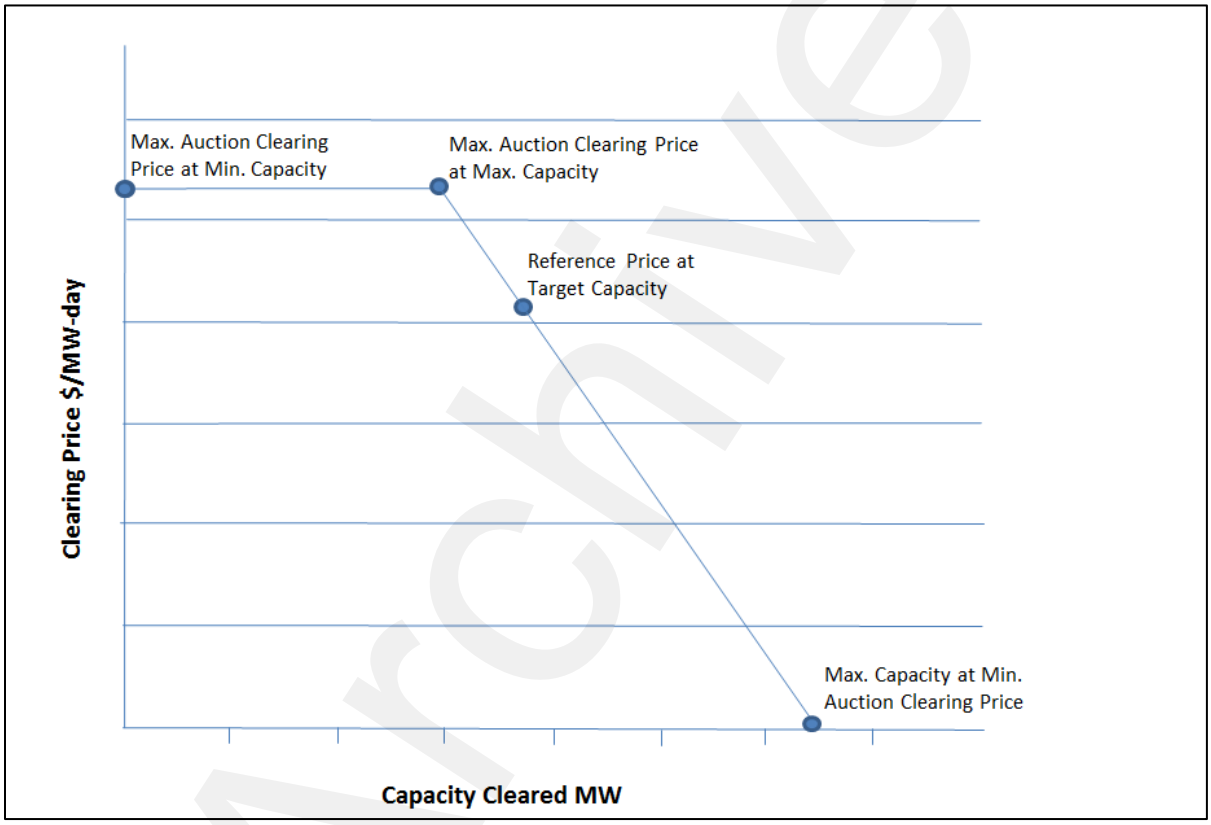

Figure 3-4: Downward Sloping Demand Curve

The key reference points on the downward-sloping curve shown above are further elaborated in the sections below.

3.5.1 Target Capacity

The *target capacity* for each *obligation period* will be determined based on the reliability need or any additional need identified by the *IESO*.

The *target capacity* for each *obligation period* shall be *published* by the *IESO* in the pre-auction report (Ch. 7, S.18.5.2 of the *market rules*).

3.5.2 Reference Price

The *transitional capacity auction reference price* represents the price at which resources would be incentivized to enter the market and recover the necessary costs to make their capacity available, recognizing their revenue opportunities and avoided costs in the *energy market*. The reference price is directly associated with the target capacity as another key reference point in the demand curve. (Ch. 7, S. 18.5.2 of the *market rules*).

The *transitional capacity auction reference price* for each *obligation period* shall be *published* by the *IESO* in the pre-auction report (Ch. 7, S.18.5.2 of the *market rules*).

3.5.3 Maximum and Minimum Auction Clearing Price

The maximum *transitional capacity auction clearing price* is the maximum price that a *capacity market participant* may be paid for *capacity*. The maximum *transitional capacity auction clearing price* will be set at a multiple of 1.25 times the *transitional capacity auction reference price*.

The minimum *transitional capacity auction clearing price* will be $0/MW-day.

The maximum and minimum *transitional capacity auction clearing price* for each *obligation period* shall be *published* by the *IESO* in the pre-auction reports.

3.5.4 Capacity Limits

The three capacity limits used in the demand curve are:

1. the minimum capacity,
2. the maximum capacity at maximum *transitional capacity auction clearing price*, and
3. the maximum capacity

The minimum capacity is the minimum amount of *auction capacity* that the *IESO* will clear through a *transitional capacity auction* for each *obligation period*.

The maximum capacity at the maximum *transitional capacity auction clearing price* is the maximum amount of capacity which the *IESO* will clear through a *transitional capacity auction*. The maximum capacity *at* maximum *transitional capacity auction clearing price* will be determined based on the following formula:

$$MaxCap(MACP) = \frac{RP \times TC}{MaxP}$$

Where:

- MaxCap (*MACP*) is the maximum capacity at the maximum *transitional auction clearing price*,
- RP is the *transitional capacity auction reference price*,
- TC is the *target capacity*, and
- MaxP is the maximum *transitional capacity auction clearing price*.

The maximum capacity is the maximum amount of *capacity* which the *IESO* will clear through the auction. The maximum capacity is determined by forming a straight line between the points defined by the maximum capacity at the maximum *transitional capacity auction clearing price* and the *target capacity* at the *transitional capacity auction reference price*, and extending this line to the price of $0/MW-day.

The capacity limits for each *obligation period* shall be *published* by the *IESO* in the pre-auction reports (Ch. 7, S.18.5.2 of the *market rules*).

3.6 Zonal Constraints

The ten electrical zones of Ontario will be used to acquire *auction capacity* for the *transitional capacity auction*. The IESO will establish zonal requirements or limits that will be used to set any minimum and maximum capacity limits, respectively, that can be cleared in the *transitional capacity auction* for each zone.

Each zone will have a set of *capacity auction zonal constraints* defined. These include

- minimum amount of *auction capacity* to be acquired
- total maximum amount of *auction capacity* that can be acquired
- maximum amount of *auction capacity* from resources not revenue-metered by the IESO that can be acquired. This limit will not set the zonal *transitional capacity auction clearing price*.

The *transitional capacity auction* will establish an Ontario-wide *transitional capacity auction clearing price* as well as possible zone specific *transitional capacity auction clearing prices*.

The *IESO* shall *publish capacity auction zonal constraints* in the pre-auction reports.

– End of Section –

4. Pre-Auction Requirements

In order to conduct the *transitional capacity auction* in a consistent and transparent manner, the *IESO* and the *market participants* must satisfy certain pre-auction obligations.

The *IESO* shall prepare a pre-auction report containing *transitional capacity auction* related information and *publish* it in advance of the auction, as explained in Section 4.1 below. There are pre-auction registration, authorization, and *capacity auction deposit* requirements for *market participants* who wish to participate in the *transitional capacity auction*, as further explained in Sections 4.2 and 4.3 below.

4.1 Pre-Auction Reporting Obligations

Prior to the *transitional capacity auction*, the *IESO* shall *publish* a pre-auction report to include the following reference points, for both *obligation period*s (Ch. 7, S. 18.5.2 of the *market rules*):

- *Target capacity*
- *Transitional capacity auction reference price*
- Minimum and maximum *transitional capacity auction clearing prices*
- Minimum and maximum *auction capacity* to be secured
- Maximum *transitional capacity auction auction capacity* to be secured at the maximum *transitional capacity auction clearing price*
- Zonal limitations for each electrical zone, as explained in Section 3.6 of this manual

In addition to these reporting obligations, the *IESO* will also *publish:*

- the timelines for *capacity auction participants* to submit the amount of *auction capacity* that they are willing to provide as *transitional capacity auction offers*;
- the dates that the *IESO* will conduct the *transitional capacity auctions* as well as the date by which the *IESO* will *publish* the public and confidential post-auction reports (Ch. 7, S. 18.5.4 of the *market rules*); and
- a mapping of Local Distribution Companies (LDCs) to the *IESO*'s electrical zones.

4.2 Pre-Auction Authorization Process

All prospective participants who wish to participate in the *transitional capacity auction* are required to be authorized as *capacity auction participants* (Ch. 2, S. 2.1.1.1.11 and 2.1.1.1.12 of the *market rules*). This would require participant authorization through the *IESO*'s market registration process. Where a *market participant* has already registered as a *demand response auction participant* for participation in a *demand response auction*, their registration status shall be automatically updated to *capacity auction participant* status. Market registration processes are further detailed in "Market Manual 1, Part 1.1: Participant Authorization, Maintenance and Exit".

In addition to authorization as a *capacity auction participant*, market participants may be authorized as one of the following classes, as applicable:

- Generator
- Load

4.3 Capacity Qualification

Capacity auction participants who wish to participate in a given *transitional capacity auction* shall provide to the *IESO* the quantity of *auction capacity* that they could provide from each individual *generation resource* or *demand response resource*, with supporting documentation that describes where the *registered facility* or HDR resource is electrically located (Ch. 7, S. 18.2.1 of the *market rules*). This submitted amount shall be used to set the *capacity auction participant's qualified capacity* for that auction. The IESO will communicate the submission deadline via the pre-auction report.

Authorized *capacity auction participants* are required to submit, via Online IESO[2], the following information in order to qualify through the capacity qualification process:

- The amount of *auction capacity*, not less than 1 MW per electrical zone, they may be willing to provide.
- The *obligation period* for which they are willing to submit *capacity auction offers*. Participants may choose to submit *capacity auction offers* for one or both *obligation periods*.
- The zonal location of *capacity generation resources*, *demand response resources* and/or contributors for which they are willing to submit offers. Participants may choose from the ten electrical zones to submit offers. The *IESO* shall *publish* zonal constraints in the pre-auction reports, as explained in Section 4.1 of this manual.the type of resource that will deliver *auction capacity* during the *obligation period*. The resource type can be one of a *demand response resource* or *capacity generation resource*, but not both.
- If the resource type is a *demand response resource*, whether or not the demand response resource is revenue metered by the *IESO*. Refer to Section 6.3.2 for details on submitting meter data information.

  If the resource type is a *capacity generation resource*, a signed attestation declaring that the *generator* that will deliver *auction capacity* meets the requirements of a *capacity auction eligible generation resource* as set out in Chapter 11, Definitions.
- Confirmation of having submitted the *capacity auction deposit* as determined by the *IESO*, further explained in Section 4.3.1 of this manual.

Based on the information provided, the *IESO* will:

- Verify the *capacity auction participant* has completed the authorization process as outlined in Section 4.2 of this manual, and
- Ensure the *capacity market participant* has not been disqualified from auction participation, due to failure to reduce consumption pursuant to a dispatch or activation notice (Ch.7, ss. 19.4.8, 19.5.4, and 19.6.4 of the *market rules*).

4.3.1 Capacity Auction Deposit

All *capacity auction participants* wishing to submit *capacity auction offers* into the *capacity auction* are required to provide to the *IESO* a *capacity auction deposit*, no less than five (5) *business days* prior to the date which the *capacity auction* is to be conducted (Ch. 7, S.18.2.1 of the *market rules*).

[2] Online IESO is an online tool for *market participants* to submit data to the *IESO*; accessible at https://online.ieso.ca.

The purpose of this deposit is to establish the creditworthiness of the *capacity market participant* for auction activities. The pre-auction deposit is also intended to ensure that the *capacity auction participant* fulfills any post-auction and *forward period* obligations.

The *IESO* will calculate the *capacity auction deposit* amount a *capacity auction participant* is required to submit for each *obligation period*, based on the amount of *qualified capacity* in each *obligation period* of the *capacity auction* (Ch. 7, S. 18.3.1 of the *market rules*).

The formula for calculating a *capacity auction participant's* pre-auction deposit amount in a *capacity auction* is as follows:

Capacity auction deposit = 3% * (*qualified capacity* * maximum auction clearing price per MW day) * number of *business days* in *obligation period*

The *IESO* may impose a higher *capacity auction deposit* requirement depending on creditworthiness of the *capacity auction participant* in the *IESO-administered market*.

For *capacity obligation* transfers, the *IESO* will determine and notify the *capacity transferee* if additional *capacity auction deposit* funds are required, as determined in Section 9, to complete a transfer.

If additional *capacity auction deposit* funds are required, the formula for determining a *capacity transferee's* deposit for a transfer is as follows:

Capacity auction deposit = 3% * (transferred *auction capacity* * maximum auction clearing price per MW day) * number of *business days* in *obligation period*

However, the additional *capacity auction deposit* requirements from a transfer request may be satisfied by the *capacity transferee's* existing *capacity auction deposit*, if it has not been refunded back to the *capacity transferee*.

All *capacity auction participants* are required to submit a *capacity auction deposit* in one (or a combination of both) of the following forms:

- Irrevocable commercial letter of credit, in a form acceptable to the *IESO* (Ch.7, S.18.4.2 of the *market rules*), provided by an *IESO*-approved bank (Ch.7, S.18.4.1.1 of the *market rules*), or
- Cash deposits made to the *IESO* by or on behalf of the authorized *market participant* (Ch.7, S.18.4.1.2 of the *market rules*). The *IESO* will not pay interest on cash deposits.

Letters of credit must be submitted to the *IESO* in original hard copy form.

Capacity auction deposits by cash may be submitted by *electronic funds transfer* to an *IESO*-designated account. The *IESO* will verify all submitted *capacity auction deposits* for participation in a *capacity auction* by:

- Reviewing the amount and type of deposit,
- Verifying that it meets the submission timing requirements, and
- Ensuring applicants are authorized as *capacity auction participants*.

The *IESO* will release the *capacity auction deposit*, at the *capacity auction participant's* request, within five *business days* for:

- An unsuccessful *capacity auction participant* after the publication date of the post-auction report;
- A successful *capacity auction participant* when the *capacity auction participant* is authorized as a *capacity market participant*, sufficient *capacity prudential support* is posted, and at least one resource is registered to meet the *capacity auction participant's capacity obligation* awarded to the *capacity auction participant* for each *obligation period* in each of the cleared electrical zones;

Upon completion of a successful *capacity obligation* transfer, the *IESO* will release all or a portion of a *capacity transferor*'s *capacity auction deposit* at the *capacity transferor's* request, within five (5) *business days* under the following conditions:

- The *IESO* will release the *capacity auction deposit* if the *capacity transferor*'s remaining *capacity obligation* is 0MW; or has at least one resource registered and sufficient *capacity prudential support* is posted to meet the *capacity auction participant*'s *capacity obligation* in each *obligation period* in each of the cleared electrical zones; or
- The *IESO* will release a portion of the *capacity auction deposit*, if the above condition is not met, determined by the following formula:

Partial *capacity auction deposit* release =	3% * (transferred *auction capacity* * maximum auction clearing price per MW day) * number of *business days* in *obligation period*

– End of Section –

5. Auction Mechanics

The *transitional capacity auction* mechanics involves a 3-stage process, as displayed in Figure 5-1 below:

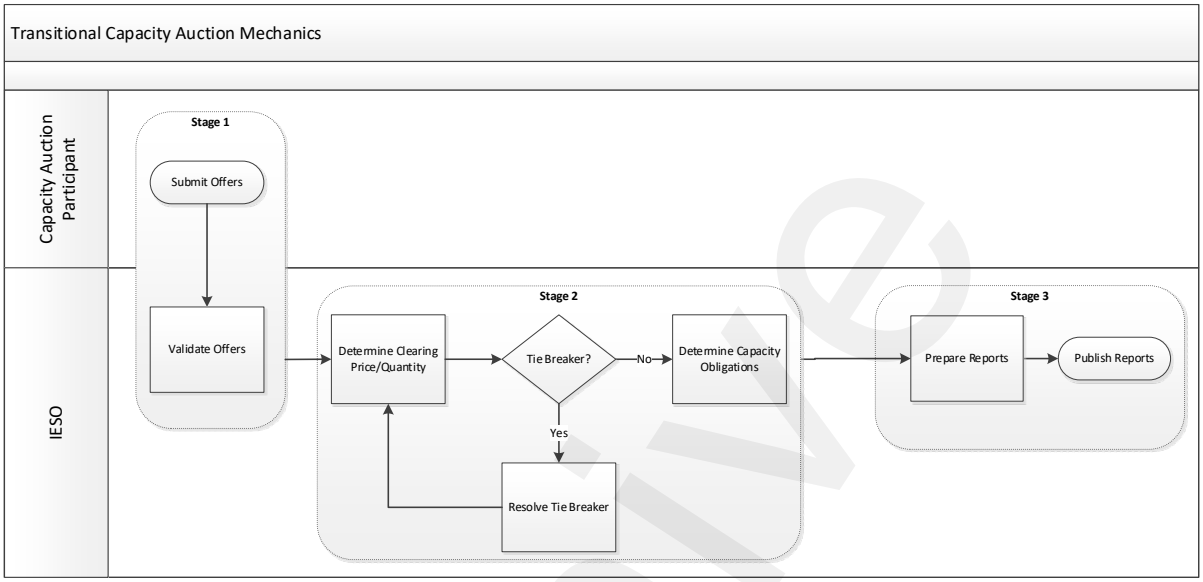

Figure 5-1: Transitional Capacity Auction Mechanics Overview

5.1 Stage 1: Offer submission and validation

Capacity auction participants are required to submit *capacity auction offers* to the via Online IESO, following the auction timelines detailed in Section 3.2 of this manual. Each *capacity auction participant* may submit c*apacity auction offer* for any quantity between 1 MW and the *qualified capacity* in the pre-auction process, using offer laminations reflecting the price of providing the various levels of capacity.

Capacity auction offers must be submitted on a seasonal *obligation period* basis. A complete *capacity auction offer* includes a set of up to 20 monotonically increasing *price-quantity pairs* with the total offered quantity across all offers equal to or less than the *qualified capacity* for that zone. The *capacity auction offer* quantity must increase with every new lamination added to an offer set (Ch.7, S. 18.6.3.5 of the *market rules*).

A *capacity auction offer* will apply for the entire *obligation period*. The prices offered represent the minimum price at which the participant is willing to provide each incremental quantity of *auction capacity*.

A *capacity auction offer* must also specify, for each *price-quantity pair*, whether the entire *auction capacity* represented in the lamination must be cleared in full or whether it may be partially cleared (Ch.7, S. 18.6.3.4 of the *market rules*). A full flag indicates to the *IESO* that the *capacity auction participant* is only willing to clear the auction with the full amount of *auction capacity* offered in that lamination. A partial flag indicates to the *IESO* that the *capacity auction participant* is willing to clear the auction in 0.1 MW increments of the offer in that lamination.

The participant must be ready to provide *capacity* in the amount of their *capacity obligation* by the first day of the *obligation period* or be subject to non-performance charges as explained in Section 7 of this manual.

5.2 Stage 2: Auction Clearing

Once the *capacity auction offer* submission window closes, the *IESO* will review all *capacity auction offers* to determine the *transitional capacity auction clearing prices* and quantities for each zone, as per the timelines detailed in Section 3.2 of this manual. For each *obligation period*, the *IESO* shall determine the *capacity obligation* in each zone for each *capacity auction participant* (Ch. 7, S. 18.7.3 of the *market rules*), following the process stated below.

The *IESO* will take all *capacity auction offers* and clear them against a downward-sloping demand curve, utilizing an optimization model to maximize the social welfare (i.e. the area under the demand curve less supply costs). This clearing process will respect all *capacity auction zonal constraints* and will determine the *transitional capacity auction clearing price* for each zone. When there is a *capacity auction offer* not selected, either partially or in full, due to the total maximum *capacity auction zonal constraint*, the *transitional capacity auction clearing price* for that zone will be set at the lesser of:

- the price associated with the next economic quantity from a *capacity auction offer* in the same zone that would have cleared but for the total maximum *capacity auction zonal constraint*; or
- the Ontario-wide *transitional capacity auction clearing price*.

The Ontario-wide *transitional capacity auction clearing price* will be equal to the price associated with the last cleared *price-quantity pair* associated with a *capacity auction offer*, and may clear at, below or above the demand curve. The total quantity cleared through a *transitional capacity auction* may clear above the demand curve where doing so will maximize the overall objective function. An example of the auction clearing process, including zonal limitations, is shown in Figure 5-2.

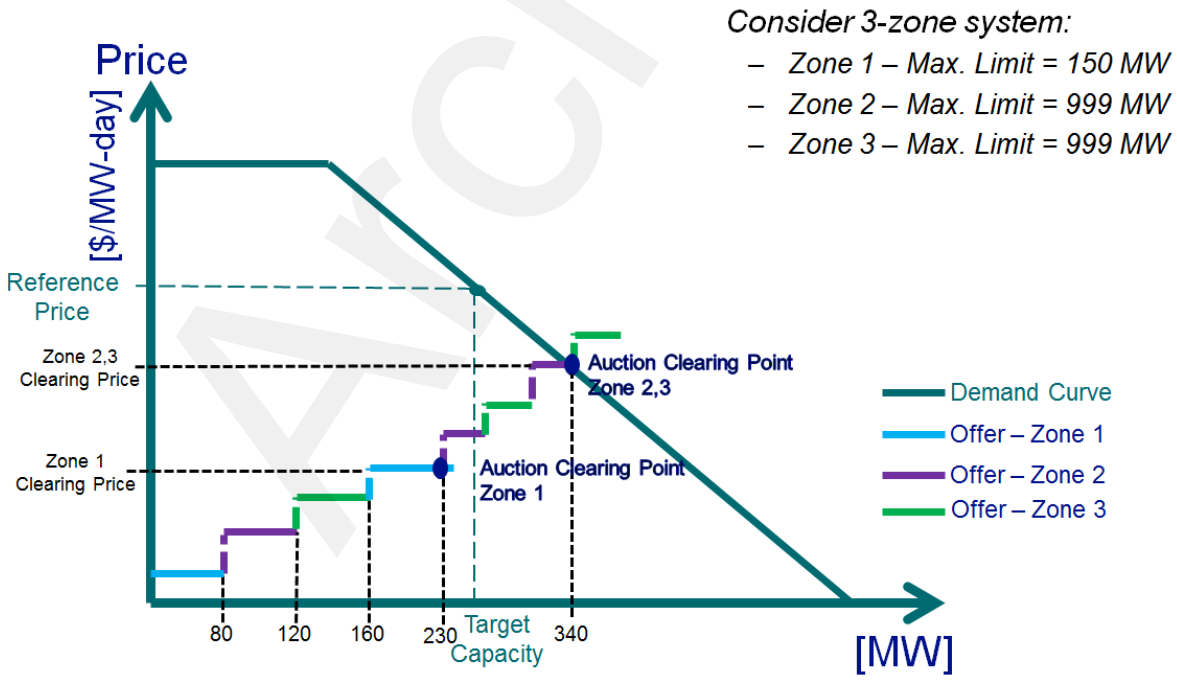

Figure 5-2: Auction Selection Process with Zonal Limits

In the example illustrated in Figure 5-2, Zone 1 has a total maximum *capacity auction zonal constraint* of 150 MW. All offers are stacked by increasing price against the demand curve for the

obligation period. As shown in the figure, after clearing the first offer of 80 MW from Zone 1, the auction engine can only partially clear the second offer (70 MW) at which point the total cleared quantity in Zone 1 is equal to the total maximum *capacity auction zonal constraints*. If the auction engine determines that the un-cleared quantity from the second offer in Zone 1 would have cleared but for the total maximum *capacity auction zonal constraints*, a zonal *transitional capacity auction clearing price* will be determined, in the manner described above. The overall procurement will continue and the *capacity auction offers* will clear until the intersection with the demand curve at 340 MW, which will also set the *transitional capacity auction clearing price* for Zone 2 & 3, and is also referred to as the Ontario-wide *transitional capacity auction clearing price*.

If two or more *capacity auction participants* submit *capacity auction offers* at the same price for the last available quantity, the *capacity auction offer* with the earlier time stamp[3] shall be selected as the successful *capacity auction offer* (Ch.7, S. 18.7.5 of the *market rules*).

Once the *transitional capacity auction clearing price* and quantity are set, the *IESO* shall determine for each *obligation period*, the *capacity obligation* for each *capacity auction participant* and its resources (Ch. 7, S. 18.7.4 of the *market rules*).

5.3 Stage 3: Post-Auction Reporting Obligations

Once the auction has been cleared and successful *auction capacity* quantities and clearing prices are determined for all zones, the *IESO* will prepare public and private reports to communicate this information, as explained below.

For the *demand response auction*, the *IESO* shall *publish* public reports containing the following information for each *obligation period* (Ch.7, S. 18.8 of the *market rules*):

- The *demand response auction clearing price*;
- The amount of *demand response capacity* acquired through the auction for each electrical zone;
- The successful *demand response auction participants* that received a *demand response capacity obligation* and their respective *demand response capacity obligations;* and
- The qualified *demand response capacity* of each *demand response auction participant*.

The *IESO* will also issue confidential post-auction reports to each *demand response auction participant* with the *demand response capacity obligations* for each electrical zone and *commitment period* (Ch.7, S. 18.8.2 of the *market rules*).

For the *transitional capacity auction*, the *IESO* shall *publish* public reports containing the following information for each *obligation period* (Ch.7, S. 18.8 of the *market rules*):

- The *transitional capacity auction clearing price* for each zone;
- The amount of *auction capacity* acquired through the auction for each electrical zone by type (i.e. *virtual demand response resource auction capacity*, *physical demand response auction capacity*, *generation resource auction capacity*) ;
- The successful *capacity auction participants* that received a *capacity obligation* and their respective *capacity obligations;* and

[3] A time stamp refers to the time recorded by Online IESO when a *market participant* submits an offer during the 2-*business day* offer submission window.

- The *qualified capacity* of each *capacity auction participant*.

The *IESO* will also issue confidential post-auction reports to each *capacity auction participant* with the *capacity obligations* for each electrical zone and *obligation period* (Ch.7, S. 18.8.2 of the *market rules*).

If *capacity obligations* are modified as a result of a buy-out or *capacity obligation* transfer, the *IESO* will prepare public and confidential reports to communicate the information, as explained above.

– End of Section –

6. Post-Auction Requirements

6.1 Participant Authorization

There are post-auction authorization and registration requirements for *capacity auction participants* who have successfully cleared and secured a *capacity obligation.* Such participants are required to become authorized as a *capacity market participant* (Ch. 7, S.18.2.3 of the *market rules*). This authorization enables participants to link *capacity obligations* to *demand response resources* or *capacity generation resources*.

Note that *market participants* that currently operate in the *IESO-administered markets* as a *demand response market participant* or as a *generator* will need to complete a review of their *prudential support.* Post-auction *market participant* authorization processes are further detailed in Market Manual 1, Part 1.1: Participant Authorization, Maintenance and Exit

6.1.1 Prudential Support

All *capacity auction participants* with a *capacity obligation* are required to post *capacity prudential support* for the *obligation period,* at least 60 days prior to the *obligation period.*

Further details on *capacity prudential support* requirements are outlined in Market Manual 5, Part 5.4: Prudential Support.

6.2 Registration Requirements

All participants that have received a *capacity obligation* shall, for each zone, allocate the *capacity obligation* to either *demand response resources* or *capacity generation resources* (but not both), as submitted during the capacity qualification process (Ch. 7, S. 19.2, 19.3, and 19.6 of the *market rules*).

Market participants seeking to register their *facilities* must follow the processes outlined in Market Manual 1, Part 1.2: Facility Registration, Maintenance, and De-registration. In order to allocate their *capacity obligation, demand response resources* shall register their facilities as a load resource type, while *capacity generation resources* shall register their facilities as a generator resource type.

Market participants that are seeking to change attributes of their resources in the *IESO's* registration system in order allocate a *capacity obligation* to a *demand response resource* or a *capacity generation resource*, must complete the market registration process, including commissioning tests, 45 *business days* prior to the start of the obligation period. For example, a resource may change its Bid/Offer type in the *IESO's* registration system.

6.2.1 Contributor Management

As part of the contributor management registration process, the *demand response market participant* must submit individual contributor information via Online IESO that will be associated with their registered *hourly demand response* (HDR) resource(s). Each *demand response market participant* is responsible for maintaining its contributor registry throughout their commitment period.

The Online IESO interface allows *demand response market participants* to generate monthly contributor reports that provides a summary of their contributor participation information (resource IDs, meter point IDs, contributor type, and effective start/end dates), and corresponding capacity obligations secured under each of their respective *demand response resource*(s).

The *demand response market participant* must submit their contributor information through Online IESO within the specified submission window, but no later than the 14th *business day* prior to the start date of the effective month. Contributor registration requests will be processed and responded to by the *IESO*, including notice of approval or rejection, at least four *business days* before the start of the effective month. Rejections and/or failure to submit appropriate registration information by specified deadlines will defer the effective date of the changes to the next effective month. Refer to the latest Demand Response Contributor Management and Measurement Data Submission Timelines posted on the IESO public website under Market Calendars.

Demand response market participants must also retain individual contributor *meter* data and all relevant supporting information for each respective contributor. The *IESO* may request such information in order to verify the accuracy of information disclosed by the *demand response market participant* at the time of an audit as detailed in section 6.4.

There are two categories of *demand response contributors* that can be registered to meet a *capacity obligation*:

1. HDR consisting of commercial, industrial, institutional and/or *non-dispatchable loads* (C&I) that can be classified as:
    a. Virtual C&I HDR contributors; and
    b. Physical C&I HDR contributors;
2. HDR consisting of residential[4] smart-metered loads that can be classified as:
    a. Virtual residential HDR contributors

Virtual C&I HDR Contributors registration requirements:

For virtual C&I HDR contributors, the information must satisfy the following applicable requirements:

i. Contributor name and physical address (street, city, province, postal code), where the physical address must be in the same electrical zone as the associated demand response resource
    - The *demand response market participant* may use the zonal map tool located at; http://www.ieso.ca/zonal.map/index.html to confirm the electrical zone for the associated contributor;

ii. Applicable licensed Local Distribution Company (LDC) name, and LDC account number indicated on the contributors' LDC billing statement;

iii. Contributor load class type (i.e., industrial, commercial, and/or institutional);

iv. Whether the *demand response* is to be provided via load interruption or behind-the-*meter* generation;
    - If *demand response* type is behind-the-*meter* generation, then the *demand response market participant* must specify the following *generator* name plate capacity information: model number, capacity in MW, fuel type and (if applicable) load following technology;

[4]A residential customer refers to a smart-metered service account that is billed (by a licensed local distribution company) on a residential-rate class specified in a rate-order produced by the *Ontario Energy Board*. For the purposes of this program the term 'residential', as intended by the *IESO*, excludes 'net-metered' and/or 'unit sub-metered' customers.

v. Identification of whether the contributor is participating in other demand response or conservation initiatives;

vi. *Demand response capacity* of contributor in MW;

vii. A declaration of acknowledgement by the *demand response market participant* that the LDC has been notified of the contributors' participation in a *capacity auction*;

viii. Data acquisition method used to collect contributor *meter* data;

ix. Submission of LDC Billing statement for each LDC meter installation that is issued within three months of the contributor effective date;

x. Submission of single line diagram (SLD) is required when the *demand response resource* type is behind-the-*meter* generation. SLD submissions (at a minimum) must include the following details:

- Facility/contributor name, physical address
- Embedded connection point(s) (point of sale) to the local distribution company (LDC)
- Location of distribution transformer
- Location of breakers, disconnect switches, etc.
- Location of the metering installation and meter point reference identification (as indicated on contributors' Record of Installation)
- If behind-the-meter generation, indicate generation location and nameplate information (MVA/kVA rating, output voltage)

Physical C&I HDR Contributors registration requirements:

For physical C&I HDR contributors, the information must satisfy the following applicable requirements:

i. *Non-dispatchable load* Resource ID (subject to confirmation from *non-dispatchable load* owner); and

ii. *Demand response capacity* in MW.

As part of the contributor management process, any updates, revisions or amendments to contributor information applicable to C&I HDR resources must be submitted using Online IESO for review and approval, including when:

- A new contributor is added;
- An existing contributor is removed; or
- An existing contributor's information is modified or amended.

In instances when a new contributor is added and/or an existing contributor is removed, subject to *IESO*'s approval, the *demand response market participant* will be issued a new virtual meter point ID to reflect these changes. During a demand response activation event, the *demand response market participant* will be required to submit three months of measurement data under the issued virtual meter point ID, as detailed below in section 6.3.2.

Virtual Residential HDR Contributors registration requirements:

For virtual residential HDR contributors, the information submitted to the IESO must satisfy the following applicable requirements.

Submitted on a monthly basis through Online IESO using an excel template (refer to Appendix B):

i. Contributor physical address (in the order of: street# & name, city, province, postal code), where the physical address must be in the same electrical zone as the associated demand response resource;
   - The *demand response market participant* may use the zonal map tool located at: http://www.ieso.ca/zonal.map/index.html to confirm the electrical zone for the associated contributor;

ii. Applicable licensed Local Distribution Company (LDC) name and LDC account number indicated on contributors' LDC billing statement;

iii. Indicator flagging the control group contributors, as defined in the section entitled "Randomized Control Trial Baseline Methodology" below, where there must be at least 350 control group contributors which are chosen randomly (i.e. using a process of selection in which each contributor has an equal probability of being chosen) each month by the *demand response market participant* from the total population of contributors under the residential HDR resource;

The following fields must be directly entered into the input fields in Online IESO:

iv. *Demand response capacity* in MW (note: the total capability from only the treatment group contributors and must be equal to or greater than 1 MW);

v. Total number of contributors in the treatment group as defined in the section entitled "Randomized Control Trial Baseline Methodology" below; and

vi. Total number of contributors in the control group.

As part of the residential contributor management process, the *demand response market participant* shall use the excel template available in Online IESO (refer to Appendix B) to submit contributor information on a monthly basis.

Rejections and/or failure to submit appropriate contributor management registration information each month by the specified deadlines will exclude the residential HDR resource to participate in the energy market (submit energy bids) for that month, and result in Availability Charges to be applied (as further described in "Market Manual 5, Part 5.5: Physical Markets Settlement Statements").

Randomized Control Trial Baseline Methodology

For HDR resources associated with either virtual or physical C&I contributors, performance is evaluated using a historical baseline (as described in Market Manual 5, Part 5.5: Physical Markets Settlement Statements).

For HDR resources associated with virtual residential contributors, a randomized control trials (RCT) baseline methodology is used where two groups of contributors are established, as follows:

- A "treatment" group, where contributors are activated to provide demand response upon receipt of the demand response standby and activation notice; and
- A randomized "control" group, where contributors serve as a proxy for baseline consumption; therefore, are not activated to provide demand response. The "control" group

contributors are randomly selected using a process of selection in which each contributor has an equal probability of being chosen each month.

The RCT evaluates the consumption difference between the two groups of contributors to determine the amount of demand response delivered, as illustrated in Figure 6-1.

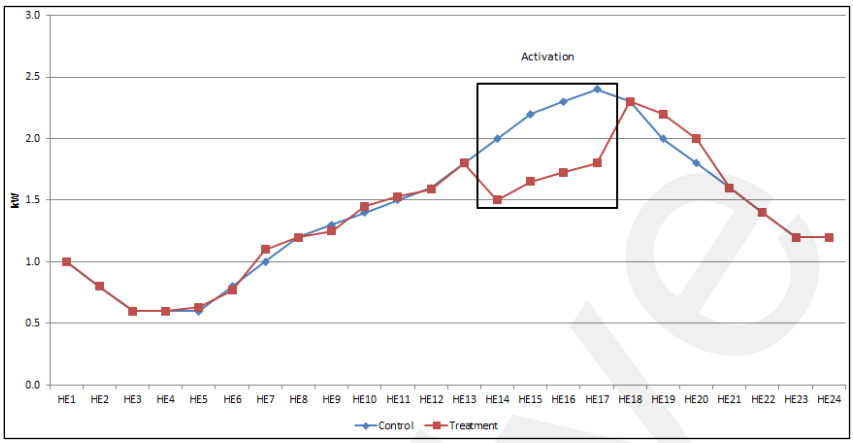

Figure 6-1: Randomized Control Trials (RCT) performance evaluation

Refer to "Market Manual 5, Part 5.5: Physical Markets Settlement Statements" for a further description of how residential HDR performance is evaluated and how settlements are calculated.

6.2.2 Allocating a Virtual Demand Response Capacity Obligation

A *demand response market participant* with a *capacity obligation* associated with a virtual HDR resource in a given zone, where there is both a C&I HDR resource and a residential HDR resource, will be required to allocate (or split) their virtual *capacity obligation*. Each of the two virtual resources will then be settled against its respective *capacity obligation*. The virtual *capacity obligation* allocation must be requested by email to the IESO Customer Relations (customer.relations@ieso.ca) by the *demand response market participant* no later than the 14th *business day* prior to the start of the commitment period. Once the request is approved by the *IESO*, no further changes will be accepted for remainder of the commitment period, unless the *demand response market participant* opts to buy-out (see Section 8 "Buy-Out Process").

Prior to allocating (or splitting) the obligation, the *demand response market participant* must ensure that they have registered the required virtual HDR resources to meet the additional obligation. All registration and contributor management requirements and timelines are applicable, as set out in the latest Demand Response Contributor Management and Measurement Data Submission Timelines posted on the IESO public website under Market Calendars.

6.3 Energy Market Participation

In order to satisfy their *capacity obligation*, *capacity market participants* will be required to submit *dispatch data* in the day-ahead commitment process as set out in Market Manual 9, Part 9.2: Submitting Operational and Market Data for the DACP, and in the *real-time market* as set out in Market Manual 4, Part 4.2: Submission of Dispatch Data in the Real-Time Energy and Operating Reserve Markets. *Capacity market participants* are required to follow *dispatch instructions* as set out in Market Manual 4, Part 4.3: Real-Time Scheduling of the Physical Markets.

Both *capacity generation resources* and *demand response resources* will be subject to test activations in the *real-time market*, as set out in Market Manual 7, Part 7.3: Outage Management. *Capacity market participants* with *capacity obligation(s)* allocated to *HDR* resources will be compensated for out of market activations, including test activations, as detailed in Market Manual 5.5

6.3.1 Outage Management/ Non-Performance Events

Capacity market participants with either *dispatchable load* resources or *capacity generation resources* are required to submit *outage* requests as set out in Market Manual 7, Part 7.3: Outage Management.

Capacity market participants with *hourly demand response* resources are required to inform the *IESO* of non-performance events[5] as set out in Market Manual 7, Part 7.3: Outage Management.

6.3.2 Measurement Data Submissions

For Virtual C&I HDR resource(s):

Each Virtual C&I HDR resource is associated with a virtual meter point ID that reflects contributor changes to a *demand response market participant's* virtual portfolio. *Demand response market participants* are required to submit three months of aggregated measurement data (on a five-minute interval basis) through Online IESO only for months in which they are activated for their demand response capacity obligations. The Online IESO data submission must include measurement data for the activation month and two previous months of historical data in a single three-month data file per virtual meter point ID.

Processing of Measurement Data

Virtual C&I HDR will have either a uni-directional meter (kWh delivered) or a bi-directional meter (kWh delivered and kWh received). The *demand response market participants* must adhere to the following methodology when aggregating contributor meter data and submitting a consolidated three-month measurement data file:

- Virtual contributors with a uni-directional meter type, the uni-directional interval meter readings will be recorded in the summation of Channel 1 (kWh delivered) energy quantities. Channel 2 (received) energy is recorded as zero for that contributor
- Virtual contributors with a bi-directional meter type, the contributor's bi-directional interval meter readings must be netted (kWh delivered – kWh received) and recorded as follows:
    - if the resultant net kWh quantity is less than or equal to zero, then the total net kWh value will be zero and is recorded in the summation of Channel 1 (delivered) energy quantity for that interval. Channel 2 (received) energy is recorded as zero for that interval; or
    - if the resultant net quantity is greater than zero, then the total net value will be equal to the net amount and will be included in the summation of Channel 1 (delivered) energy quantity for that interval. Channel 2 (received) energy is recorded as zero for that interval

  The measurement data submission is the summation of all contributors by channel per interval.

[5] Non-performance event means an event determined by the DRMP where a demand response resource is, in whole or in part, in a Demand Response *Outage* or otherwise unable to Curtail for a period of time.

File Format Requirements for Measurement Data Submissions

Measurement data submitted by *demand response market participants* through Online IESO, must adhere to the following requirements:

- Must *not* include any measurement error corrections;
- Must *not* include any loss adjustments;
- Must be provided in the following format:
    - A CSV (comma separated values) file format compatible with the *IESO*'s Meter Data Acquisition System, containing two channels of 5-minute engineering unit values (without any gaps or overlaps).
    - The CSV data file shall adhere to the following format (separated by commas) corresponding to each column name, as illustrated in Figure 6-2 below;
        - Row 1 (Main header): "DATE,TIME,CH1,CH2"
        - Row 2 (Data intervals): "YYYY/MM/DD, HH:MM, ###.###,###.###", where:
            - Date: "YYYY/MM/DD", as in year/month/day
            - Time: "HH:MM", hour: minutes in Eastern Standard Time (EST);
            - Channel 1: Summation of all virtual contributors' energy withdrawn from the grid, in Numeric "###.###," in kWh up to three decimal places;
            - Channel 2: Summation of all virtual contributors' energy injected into the grid, in Numeric "###.###," in kWh up to three decimal places; and
    - The CSV data file must contain 288 rows of data per day, having a beginning time of 00:05 and an end time of 24:00.

```
DATE,TIME,CH1,CH2
2017/05/01,00:05,111.222,0
2017/05/01,00:10,333.444,0

...
.....

2017/05/01,23:55,555.666,0
2017/05/01,24:00,777.888,0
```

Figure 6-2: Sample CSV File Format for Measurement Data Submission for C&I HDR

For Virtual Residential HDR resource(s):

Demand response market participants are required to submit aggregated hourly (60-minute interval) measurement data only for days in which they received demand response activations during the commitment month. Measurement data (single data file per virtual meter point ID for all activation days) must be submitted for each of the two groups of contributors (treatment and control group) through Online IESO in accordance with the latest Contributor Management Timelines posted on the IESO public website under Market Calendars.

Subject to *IESO*'s approval, the *demand response market participant* will be assigned two unique Meter point IDs (MPID), one for the treatment group and one for the control group. The MPID format for each group is as follows:

- DRAT########## to represent the treatment group contributors; and
- DRAC########## to represent the control group contributors.

File Format Requirements for Measurement Data Submissions

Measurement data submitted by *demand response market participants* through Online IESO must adhere to the following requirements:

- Must *not* include any measurement error corrections;
- Must *not* include any loss adjustments;
- Must be provided in the following format:
  - A CSV (comma separated values) file format containing two channels of 60 minute engineering unit values (without any gaps or overlaps);
  - The CSV data file shall adhere to the following format (separated by commas) corresponding to each column name, as illustrated in Figure 6-3 below;
    - Row 1 (Main header): "DATE,TIME,CH1,CH2"
    - Row 2 (Data intervals): "YYYY/MM/DD, HH:MM, ###.###,###.###", where:
      - Date: "YYYY/MM/DD", as in year/month/day
      - Time: "HH:MM", hour:minutes in Eastern Standard Time (EST);
      - Channel 1: Summation of all virtual contributors' withdrawn energy in kWh up to three decimal places, in numeric value "###.###";
      - Channel 2: Shall remain zero (with respect to the exclusion of 'net-metered' customers under residential HDR);
  - The CSV data file must contain 24 rows of data per day, having a beginning time of 01:00 and an end time of 24:00.

```
DATE,TIME,CH1,CH2
2017/05/01,01:00,111.222,0
2017/05/01,02:00,333.444,0

...
.....

2017/05/01,23:00,555.666,0
2017/05/01,24:00,777.888,0
```

Figure 6-3: Sample CSV File Format for Measurement Data Submission for Residential HDR

Timelines for Data Submission and Processing

Upon activation, *demand response market participants* must submit their measurement data no later than the 6th *business day* before the end of the subsequent month. Refer to the latest Demand Response Contributor Management and Measurement Data Submission Timelines posted on the IESO public website under Market Calendars for details.

The *IESO* will process all measurement data submissions and respond to the *demand response market participant* with notice of any errors by the 4th *business day* prior to the start of the effective month. The *demand response market participant* will then have (at a minimum of) 2 *business days* from the date the IESO provides such notice to correct and resubmit a revised measurement data file through Online IESO. Measurement data submissions not submitted by the specified deadlines will incur non-performance charges in accordance with Market Rules Chapter 9: Settlements and Billing Section 4.7J Demand Response Capacity Obligations.

Demand response market participants must retain individual contributor measurement data and all supporting information provided at the time of registration, for audit purposes for a period of seven (7) years. The *IESO* may request such information in order to verify the accuracy of information disclosed by the *demand response market participant.*

Validation, Estimation and Editing (VEE) Process for Virtual C&I HDR Contributors

For virtual C&I HDR contributors, if the *demand response market participant* has identified, within the measurement data submission deadline, that a portion of the measurement data is missing for particular contributor(s), the *demand response market participant* shall:

- Collect data for all contributors for the period of three months excluding the missing period
- Utilize the following Validation, Estimation and Editing (VEE) criteria for virtual C&I HDR contributors to account for the missing period:
    - If the data is missing for any period outside the hours of a *demand response* activation event; measurement data for the missing period will be estimated to zero.
    - If the data is missing for any period within the *demand response* activation event; the *demand response market participant* shall take the highest 5 min interval energy value (kWh) from the entire three-month data set and estimate the missing period with that value.

Demand response market participants must submit a “Measurement Data Control Sheet” with each measurement data submission identifying contributors with VEE data (if applicable). A template of the “Measurement Data Control Sheet” can be found in Appendix C.

At the time of an audit, the IESO shall take into account all supporting information provided by the *demand response market participant* including measurement data submitted during the commitment period, the actual measurement data submitted at the time of the audit along with the measurement data control sheet (if applicable).

6.4 Measurement Data Audit

The IESO conducts audits to assess and verify the completeness and accuracy of submitted demand response measurement data, and supporting information and documents including but not limited to the Local Distribution Company billing statements, and Single Line Diagrams. The audit procedures and processes described herein are specific to the Virtual C&I *hourly demand response* (*HDR*) resources.

6.4.1 Demand Response Participant's Responsibilities

This Section covers the *demand response market participants'* responsibilities associated with performing measurement data audits.

The *demand response market participant* is responsible for:

- Providing the *IESO* auditor with access to the information required;
- Submitting information and evidence requested; and
- Payment of non-performance charges, as outlined in Section 7, if the audit requirements are not met

6.4.2 Virtual C&I HDR Resource Audit

Virtual C&I HDR resource audit will be conducted by evaluating each contributor that is mapped to the selected Virtual C&I HDR resource. The IESO will establish audit results by conducting a review of the supporting information provided at the time of registration and documentations provided during the audit including: Local Distribution Company (LDC) billing statements and individual contributor measurement data for the respective virtual C&I HDR resource. All processes related to the virtual C&I HDR resource audit will be managed through the Online IESO.

6.4.3 Audit Scheduling and Submission of Supporting Documents

The Virtual C&I HDR Resource audit can be categorized as follows:

- Full Audit
    - *Demand response market participants* are required to submit all required documents for all contributors
- Partial Audit
    - A spot check to evaluate and compare meter data interval(s) for one or more contributors against their respective LDC interval meter data; or
    - A manual selection of a set of contributors from a portfolio. In case of a manual selection, *demand response market participant* is required to submit all required documents for the selected contributors.

The default deadline is set to one calendar month from the date of issuance for the submission of all required supporting documentation:

Local Distribution Company Billing Statement

The *demand response market participants* are required to provide to the *IESO* a copy of Local Distribution Company (LDC) billing statement for all the contributors registered under the *demand response market participant's* portfolio. This information will be used by the *IESO* auditor to verify:

- The LDC account number with the information found in the *meter registry*.
- The total energy presented on the LDC statement against the meter data file submitted for the individual contributor.

Measurement Data

The *demand response market participants* are required to provide the *IESO* with individual contributor *meter* data as explained in section 6.3.2. The *IESO* auditor will assess the following criteria at the time of audit:

- The participant is available to curtail its load on *business days* and hours during a commitment period as defined in section 3.4 of this manual.
- The participant has submitted measurement data[6] for the audit month and an additional two months of baseline.
- Actual measurement data[7] meets the criteria defined in Section 6.4.4 of the document.

6.4.4 Procedure to Conduct a Virtual C&I HDR Audit

The Virtual C&I HDR audit consists of two steps:

1. **Step 1** of the audit reconciles actual contributor measurement data to the contributors LDC billing statement
2. **Step 2**[8] of the audit reconciles the sum of the contributor's actual measurement data to the submitted measurement data (this is the measurement data provided by the *demand response market participant* during activation months in accordance with the Demand Response Measurement Data Submission Timelines).

Mechanism for Step 1 of the audit process

To determine the error in Step 1 of the audit process; the sum total of the actual measurement data file for a single contributor is compared against the total monthly consumption indicated in the LDC billing statement for that contributor. The difference between the two values shall be within 1% of the consumption indicated in the LDC Statement.

Step 1 of the audit process consists of two individual reconciliation checks

1. Comparing the total kWh (energy) for a given month – Area under the curve
2. Comparing the highest kW (Power) value – Peak Demand

These reconciliation checks verify the contributor's data against the total monthly consumption and the peak demand indicated on the LDC statement. However, these reconciliation checks do not provide adequate assurance that the data will reconcile on an interval by interval basis. As such, the IESO at its discretion, may request the *demand response market participant* to provide 5 min **LDC interval data** with a declaration stating that the data has been collected from the LDC. This data will then be compared against the data provided by the *demand response market participant* as part of the audit request. An audit

[6] Submitted measurement data refers to the monthly Data submissions for the DR Resource in accordance with the Demand Response Submission Timelines.
[7] Actual contributors' measurement data refers to the individually submitted Contributor Data through the DR Audit task in Online IESO.
[8] If a partial audit is conducted, the actual measurement data will only be assessed using Step 1 of the audit process

can be deemed as “Complete with Observations” if the intervals from the submitted measurement data are outside the +/-1% threshold when compared to intervals from the LDC verified 5 min interval meter data.

Mechanism for Step 2 of the audit process

IESO uses **Absolute Error methodology** to determine the error in Step 2 of the audit process. The methodology is described below:

1. At the time of the audit of a resource, the aggregator is required to submit actual meter data for each contributor that makes up that resource.
2. The actual data is then compared to the submitted measurement data on a 5 min interval basis.
3. An absolute difference between the actual measurement data and submitted measurement data is taken.
4. Sum of the absolute difference is compared against the sum of the submitted measurement data.
5. This sum of the absolute difference should be within 1% of the summed submitted measurement data.

6.4.5 Audit Review and Remedial Actions

The IESO will review supporting documents submitted by the *demand response market participant* for completeness and accuracy. If the review produces any findings, the *demand response market participant* shall be required to submit remedial evidence within the prescribed period as per the audit outcome. If findings are not resolved after one resubmission, the IESO shall close the audit with observations and determine a course of action in order to enforce compliance.

6.4.6 Closure of Audit

Once the review of the submitted evidence is complete, the IESO will disclose the audit results to the *demand response market participant* and close the audit as follows:

1. Virtual C&I HDR Resource audit is considered ‘Complete’ when
    a. Contributors actual measurement data reconciles with associated LDC billing statement (tolerance of +/- 1%) and
    b. Sum of actual measurement data reconciles with submitted measurement data (tolerance of +/- 1%)

2. A Virtual C&I HDR Resource audit is ‘Closed with Observations’ when it is concluded that actual measurement data and supporting documentation differs from submitted measurement data and supporting documentation (Ch. 9 s.4.7J.4) i.e. that the audit reveals that data was outside the prescribed threshold in either Step 1 or Step 2 of the audit process.

– End of Section –

7. Settlements

Capacity market participants with *capacity obligations* will be settled, for both payments and non-performance charges, using the *physical markets settlement process* as detailed in Market Manual 5, Part 5.5: Physical Markets Settlement Statements. Details on how the costs will be recovered are also provided in Market Manual 5, Part 5.5: Physical Markets Settlement Statements.

Capacity market participants will be paid availability payments as detailed in Market Manual 5, Part 5.5: Physical Markets Settlement Statements. Applicable non-performance charges will apply when *energy market* participation requirements outlined in Section 6.3 are not met.

In general, non-performance charges occur for the following situations:

i. Availability requirements are not met (i.e. availability charge);
ii. Measurement data submission was not received by the *IESO* by the deadline (i.e. administration charge);
iii. *Dispatch instructions* were not followed (i.e. *dispatch* charge); and
iv. Failing to deliver capacity in the *energy market* (i.e. capacity charge).

Non-performance charges will be calculated and settled as detailed in Market Manual 5, Part 5.5: Physical Markets Settlement Statements.

7.1 Non-Performance Factors

The non-performance factors referenced in Market Manual 5, Part 5.5: Physical Markets Settlement Statements will use the factors listed in the table below for settling *capacity obligations* acquired through a *demand response auction* for the month that is being settled.

Table 7-1: Non-Performance Factors for the *Demand Response Auction*

Month	Factor
January	2.0
February	2.0
March	1.5
April	1.0
May	1.0
June	1.5
July	2.0
August	2.0
September	1.5

Month	Factor
October	1.0
November	1.0
December	1.5

The non-performance factors referenced in Market Manual 5, Part 5.5: Physical Markets Settlement Statements will use the factors listed in the table below for settling *capacity obligations* acquired through a *transitional capacity auction* for the month that is being settled.

Table 7-2: Non-Performance Factors for the *Transitional Capacity Auction*

Month	Factor
January	2.0
February	2.0
March	1.5
April	1.0
May	1.0
June	1.5
July	2.0
August	2.0
September	2.0
October	1.0
November	1.0
December	1.5

– End of Section –

8. Buy-out Process

Successful *capacity auction participants* and *capacity market participants* have the option to buy-out of their *capacity obligations* at any time. A full or partial buy-out may be requested anytime during the forward period or the *obligation period*. The buy-out will be valid from the effective date of the buy-out request until the end of the associated *obligation period*. Upon *IESO's* acceptance of a buy-out request, a buy-out charge will apply and is settled using the *physical markets settlement process* for the next available month-end *preliminary settlement statement*. Participants may refer to "Market Manual 5, Part 5.5: Physical Markets Settlement Statements" for details on how the buy-out charge is calculated prior to initiating the buy-out process.

In order to initiate a buy-out, a written request must be submitted to the *IESO* by the registered *capacity auction* contact via email to: customer.relations@ieso.ca.

The email must contain the following information for each *capacity obligation* the participant requests to buy-out from:

- *Capacity obligation* ID;
- Effective date of the buy-out request[9];
- Buy-out *obligation period*: Specify the *obligation period* the buy-out is being requested for;
- Buy-out zone; and
- Buy-out capacity: Specify the capacity of the buy-out request in MW. In the case of a partial buy-out request, the remaining *capacity obligation* must be greater than or equal to 1 MW. In the case of a full buy-out request, the remaining *capacity obligation* must be 0 MW.

The *IESO* will process the buy-out request within five *business days* At the end of this review period, the *IESO* will either:

a. Approve the buy-out request: The *IESO* will notify the participant of the applicable buy-out charge.
   - If the participant has requested for a partial buy-out, the *IESO* will notify it of the revised *capacity obligation.*
   - If the participant has requested for a full buy-out, the *IESO* will refund its pre-auction deposit amount within ten *business days* after the *IESO* has received payment for the buy-out charge.
   - If the *capacity prudential support obligation* is revised downward due to a buy-out, the *IESO* will refund the difference after the *IESO* has received the payment for the buy-out charge. The revised *capacity prudential support obligation* will be based on the revised *capacity obligation*.

   OR

b. Reject the buy-out request: The *IESO* will provide a reason for rejection.

– End of Section –

[9] For a *capacity market participant* that has not registered a resource for a *capacity obligation*, the effective date of the buy-out request must be specified as the first day of the associated *obligation period*;

9. Capacity Obligation Transfer

Capacity auction participants and *capacity market participants* may transfer their *capacity obligations.* A *capacity transferor* may request a full or partial *capacity obligation* transfer prior to the last date to register/update contributor management for virtual resources[10]. The *capacity obligation* transfer will be valid for all or some of the *obligation period* based on IESO approval.

In order to initiate a *capacity obligation* transfer, a written request must be submitted to the *IESO* by the *capacity transferor*, via email to: customer.relations@ieso.ca.

The email must contain the following information for each *capacity obligation* transfer request:

- *Capacity obligation* ID;
- The name of the *capacity transferee*;
- If the *capacity obligation* was acquired from a *transitional capacity auction, c*onfirmation from the *capacity transferee* that it accepts the new/additional *capacity obligation (*only when the *capacity transferor* and the *capacity transferee* are not the same *capacity auction participant)* and that the obligation will be delivered with the same attributes as follows:
    - from a zone where the *transitional capacity auction clearing price* to a zone is equal to the Ontario-wide auction clearing price, or within the same zone; and
    - same resource type (*virtual demand response*; *physical demand response*; *capacity generation resource*).

  A template for this confirmation is provided in Appendix A;
- If the *capacity obligation* was acquired in a *demand response auction*, confirmation from the *capacity transferee* that it accepts the new/additional *capacity obligation* and that the obligation will be delivered with the same attributes (e.g. same electrical zone, physical/virtual)
- Specify the attributes of the *auction capacity* requested to be transferred; specifically:
    - The *obligation period* for which the transfer is being requested;
    - The resource type (*virtual demand response*; *physical demand response*; *capacity generation resource*)
- The transfer zone;
- The capacity (in MW) of the transfer request. For both transferee and transferor, the respective resulting *capacity obligations* cannot be between 0 and 1 MW (but, for greater certainty, can be 0 MW and can be equal to or greater than 1 MW).

The *IESO* will assess the *capacity obligation* transfer request and will notify the *capacity transferee* of any additional deposit or *capacity prudential support obligation*, if required.

- If the *capacity obligation* to be transferred will be satisfied by the transferee's existing resource that is registered to meet the *capacity obligation* for the same commitment period and sufficient *prudential support* is posted, then the *capacity transferee* must satisfy the

[10] The auction timeline, including this date, is published on the IESO website in advance of the release of the pre-auction report.

capacity prudential support requirements within five (5) *business days*, or such longer period as agreed upon with the *capacity transferee*, as specified in Manual 5.4;

If not, the *capacity transferee* must satisfy the *capacity auction deposit* requirements within five (5) *business days*, or such longer period as agreed upon with the *capacity transferee*, as specified in Section 4.3. The *IESO* will assess whether the *capacity obligation* transfer request meets the criteria stipulated in Chapter 7, Section 18.9.1 of the *market rules* and approve or reject the *capacity obligation* transfer.

- If approved, the *IESO* will notify the *capacity transferor* and the *capacity transferee*. If the *capacity transferor* has requested a partial transfer, the *IESO* will notify the *capacity transferor* of the revised *capacity obligation*.
- Upon completion of a successful transfer, the *capacity transferor* may request to reduce its *capacity auction deposit*, if applicable, as specified in Section 4.3.1.
- If rejected, the *IESO* will provide a reason for rejection to both the *capacity transferor* and the *capacity transferee.*

– End of Section –

Appendix A: Template for Capacity Transferee to Confirm Acceptance of a Capacity Obligation

To: CAP Transferor contact

Subject: Capacity Obligation Transfer Request

[Capacity Transferee Name] confirms that [Capacity Transferee Name] previously qualified this *capacity obligation* with the IESO in the [*demand response auction/transitional capacity auction]* for the [Summer/Winter] Obligation Period of [Year].

[Capacity Transferee Name] confirms that it intends to enter into a transaction whereby the [Capacity Transferee Name] will acquire the entire right, title and interest of the [Capacity Transferor Name]'s *capacity obligation*. In consideration of the consent provided by the IESO, the [Capacity Transferee Name] hereby assumes by its execution of this letter [in the space provided below], the requirements, obligations and liabilities of the [Capacity Transferor Name] as of [Date] with respect to the *capacity obligation*.

- **Obligation Period:** [Summer/Winter] of [Year]
- **MWs Accepted:** [##.#] MW
- **Zone**: [Name of Zone]
- **Type**: [Capacity Generation Resource/Physical DR/Virtual DR]

– End of Section –

Appendix B: Template for DR Residential Contributor Management Registration

This excel template is available in Online IESO under residential contributor management:

Contributor Address	LDC Name	LDC Account#	Control Group Flag (Y/N)
(Street # & Name, City, Province, Postal Code)			
E.g. 123 Street Ave, Toronto, ON, L5C 2B3			

– End of Section –

Appendix C: Template for Measurement Data Control Sheet

This template is available in Online IESO.

Resource ID	Contributor ID	Contributor Name	Commitment Month	Time Interval for which data was estimated

– End of Document –