Demand Response Working Group

November 12 2019

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Agenda

- Today's overview
- Review of Demand Response Pilot program
- Measurement data submission, contributor management and DR audit updates
- Enrolment and obligation transfers in the Capacity Auction
- Discussion of the in-day adjustment factor
- 2020 DRWG work planning

Review of Demand Response Pilot Program

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Purpose

- Review experience and outcomes of the Demand Response Pilot (DRP) Program which ran from May 2016-April 2018
- Discuss findings, lessons-learned and what might be instructive going forward with DRWG members

Pilot Objectives

Explore potential capability of DR to provide market products

- **Load-Following**: Respond to five-minute or hourly load changes in the real-time energy market; and
- **Unit Commitment**: Commit to load curtailment day ahead or four hours ahead of real-time with a bid guarantee.

Procure and learn from a diverse set of resources

- DR aggregators using five-minute scheduling,
- DR aggregators using hourly scheduling, and
- Direct participants or wholesale consumers using hourly scheduling;
- Some projects with unit commitment and some without; and
- Some projects with behind-the-meter generation (BMG) and some without.

DR PILOT PROCUREMENT

Pilot Procurement

Request for proposals (RFP) issued on April 1, 2015 with the following submission requirements:

- **Load Following Type**: Hourly or five-minute
- **Participation in Unit Commitment**: Yes or no
- **Contracted Curtailment Amount**: MW
- **Hours of Availability**: Specific hours on each day of the week
- **Months of Availability**: Specific months of participation
- **Curtailment Calendar**: Minimum number of hours of curtailment for each month of availability
- **Ramp Time**: Options for 10 minutes, 15 minutes, 20 minutes, 30 minutes, or 60 minutes.
- **Availability Rate**: $/MWh

RFP Results

Evaluation

- Proposals were evaluated based on their submitted ramp time, hours of availability, and price.
- Each project was also required to curtail consumption for at least **100 hours per year** (allocated over a monthly basis).

Results

- ~70 MW of DR from three companies representing ten projects ranging from 1 MW to 35 MW, each with unique technical characteristics, requirements and constraints.
- All of the resources participated in hourly load-following stream of the pilot

MARKET PARTICIPATION REQUIREMENTS

Market Registration

- Successful proponents were required to register as an IESO market participant and were then required to register resources, based on the number of successful pilot contracts for the participant
- Permissible facility types and requirements are outlined in the table below

Facility Type	Real-time Operational Metering	Dispatch Workstation	Revenue Meter	Measurement Data Submission	M&V Plan
Dispatchable load facility	✓	✓	✓		✓
Dispatchable demand response facility	✓	✓		✓	✓
Hourly load facility			✓		✓
Hourly demand response facility				✓	✓

Operational Telemetry

- Resources greater than 5 MW were also required to provide operational telemetry
  - With the exception of dispatchable loads, the IESO does not require other DR resources to provide operational telemetry
  - This was a unique feature of the pilot meant to improve real-time visibility of DR

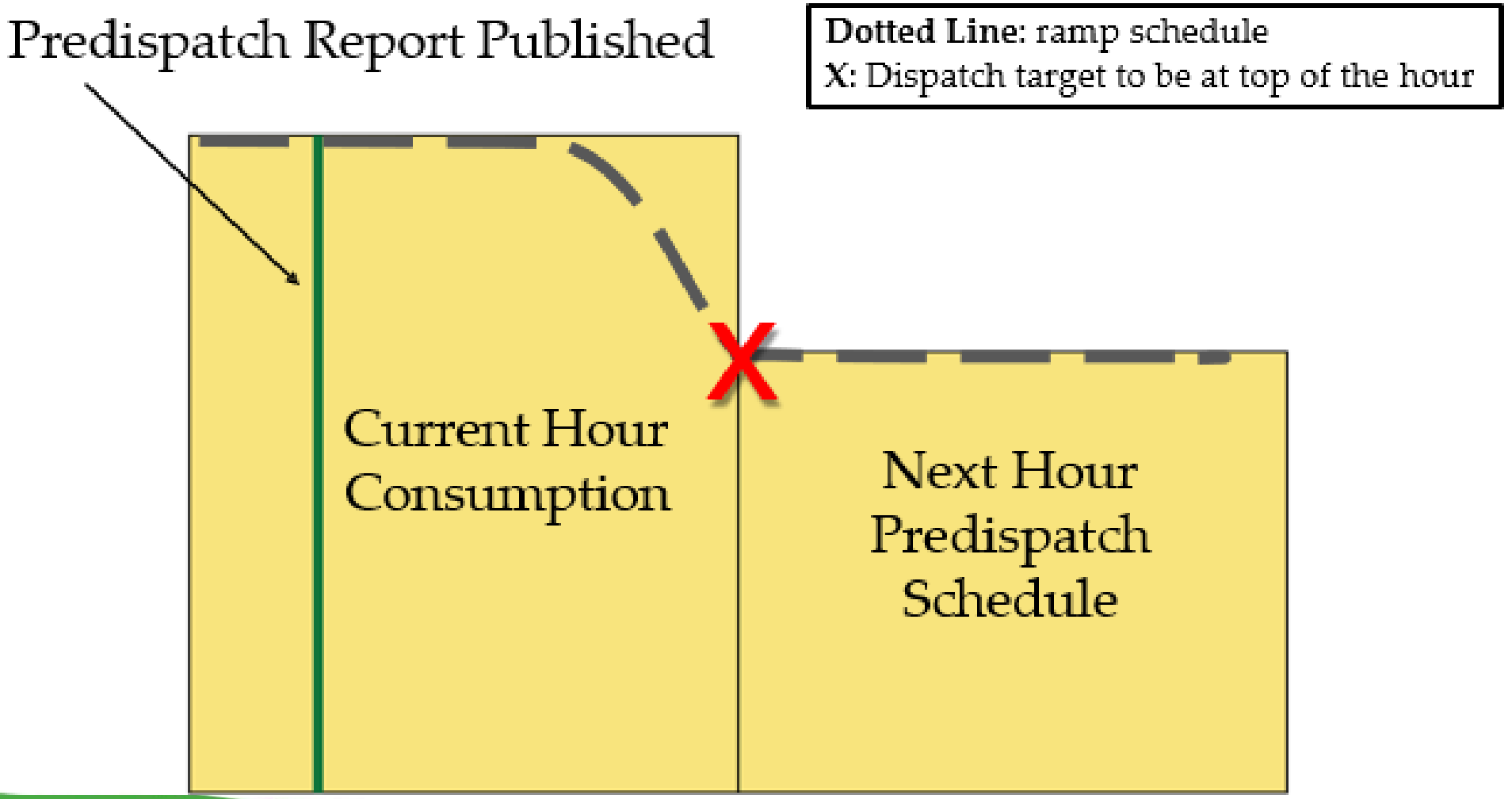
Energy Market Participation

- Participants were required to submit and manage bids in day-ahead (DA) and real-time (RT) to receive energy curtailment schedules
- Participants were required to bid both their dispatchable load (DL) and non-dispatchable loads (NDL) separately.
  - This requirement was included to test this measurement option as a potential alternative to the current baseline process for resources without IESO revenue metering.
  - DL and NDL quantities had to be bid in separate laminations as an alternative means to assess whether a load reduction had occurred.

Load-Following

- Required to follow the one-hour ahead pre-dispatch (PD) as its RT schedule.
- Expected to ramp up or down in a period of time less than or equal to its ramp time (in RFP submission)
- Consume energy within deadband of its real-time schedule in all dispatch intervals excluding ramp intervals
- Required to provide a certain number of hours of demand response per month (as part of their RFP submission).

Hourly Load-Following



Curtailment Requirements

- Resources were assessed for fulfilment of the curtailment requirement on a monthly basis.
  - If a resource was economically scheduled to curtail, (i.e. scheduled to consume below the total bid quantity) this schedule would be counted towards their curtailment requirement.
  - If a resource did not meet the required number of curtailment hours for the month, the IESO had the ability to reduce that month's availability payment based on the percentage of curtailment hours not provided out of the monthly curtailment requirement

Compliance Deadband

- All hourly load-following resources were required to follow their dispatch instructions in RT within a deadband of the maximum of:
  - 20% of the contracted curtailment amount; and
  - 5% of each interval of the constrained schedule, except when ramping down or up (ramp intervals).
- Example - Assuming a 1 MW contract:
  - Deadband is 0.2 MW when scheduled to consume 1 MW and;
  - Deadband is 0.25 MW when scheduled to consume 5 MW

Unit Commitment

- Meant to allow resources to be better scheduled to match their technical requirements and business processes, as well as increase IESO visibility of future consumption behaviour.
  - Participant was required to register certain unit commitment parameters associated with resource (Min/Max curtailment time and the maximum number of reduction hour blocks per day).
  - A unit-commitment could be established if the IESO scheduled the resource to curtail its consumption by at least 1 MW based on the Day-Ahead Commitment Process (DACP) schedule of record or the 4-hour-ahead PD schedule.

Bid Guarantee

- For a load, a bid guarantee may apply if the energy price in (RT) comes in *lower* than the DA or PD price at which they were economically committed.
  - If the RT price came in lower, it may have been more cost-effective for the participant to consume at the lower RT price; the bid guarantee is meant to restore load to the operating profit to what it would have been at the time the unit commitment was made.

PILOT PERFORMANCE

Capability Testing

- Resources were tested in the first month of participation in order to assess their load-following capability including their capability to ramp down and up to dispatch instructions on an hourly basis.
- Resources were expected to adjust their consumption to meet the next hour's dispatch instruction at the start of the next hour within the resource's registered ramp time.
- Resources that did not pass the test could be retested the following month.

Capability Testing Details

Before Ramp Down Test	• measures your performance before a curtailment
Ramp Down Test	• measures your ramp performance to meet your curtailment target
After Ramp Down Test	• measures if you followed your schedule during the curtailment
Ramp Up Test	• measures ramp performance to meet your post curtailment schedule

Each test is worth 25 % for evaluation (75% required to 'pass')

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Capability Testing Results

- Some resources were able to pass the capability tests, others had difficulty meeting the hourly load-following requirements.
- Resources had difficulty ramping up to the top of the hour after curtailment. Instead, resources would consistently ramp up after the top of the hour instead of during the hour.
- Resources had challenges consuming within their deadband both prior to and during curtailment.
- Resources would ramp down earlier than required by their schedule.

Unit Commitment – In Theory

- Example - Resource submits a bid at $1000/MWh
  - The resource receives a schedule to curtail (i.e. price > bid) during DA or PD for at least one hour for the next day (unit commitment)
  - Required to reduce bid to negative maximum market clearing price (–MMCP) for each hour of the unit commitment by 18:00
  - If RT prices are *lower* than the DA prices that established the unit commitment, a resource would be entitled to the difference between the two (bid guarantee), assuming it followed its schedule

Unit Commitment – In Practice

- Never utilized
  - Market prices rarely reach levels that would be within a load's price sensitivity. Average pre-dispatch prices for the pilot period were less than $20/MWh.
  - Instead of waiting for an economic commitment, participants would 'self-schedule' by dropping their bids to –MMCP when they planned to curtail.
  - In this case, a bid-guarantee is not really applicable because it was only intended to protect the participant from price *decreases* (i.e. if RT prices come in *lower* than bids when the unit commitment was established either DA or in PD)

LESSONS LEARNED

Context

- Pilot objectives were *educational*
  - Test and better understand resource capabilities to provide different products in the energy market
- Pilot provided insight into the unique features and requirements of DR and what areas may be instructive for further consideration

Key Lessons Learned

Flexibility	• DR demonstrated greater flexibility than the 4-hour block scheduling requirements
Ramp	• Fast ramp-down capability • May be suited to providing a 10-minute operating reserve product
Load-following	• Had difficulty following ramping requirements for hourly schedules even when curtailments were pre-planned
Unit commitment	• Never utilized (lack of price-sensitivity at current wholesale prices)

Lessons Learned: Looking Ahead

- Pilots results can help inform areas of future focus with respect to demand response participation:
  - More flexibility than 4-hour schedule
    - Note that HDR resources can now be scheduled for a minimum of 1-hour, up to 4-hours, as per the Increased Utilization of HDR project in 2018
  - Potential suitability to provide operating reserve
    - IESO has planned a 2020 research initiative to study expanding participation in OR. Stakeholders through the Market Development Advisory Group are providing input on research scope.
  - Continued ability to provide capacity value

Questions

Measurement Data Submission, Contributor Management and DR Audit – Proposed Updates

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Purpose

- Review and respond to feedback received on the Measurement Data Submission, Contributor Management and DR Audit proposed updates presented at the September 4, 2019 DRWG meeting, which included:
  - Measurement data submission for activation months only
  - Validating, editing, estimating (VEE) process to address meter data issues outside of DRMP's control
  - DR audit documentation
  - Contributor management enhancements
- Discuss next steps for implementing proposed changes

Agenda

- Stakeholder feedback
- Validation, Editing, Estimation (VEE) Proposal
  - Principles
  - Context and Illustrations
  - IESO's Position
- DR Audit
  - DR Audit Process
  - Audit Example
- Summary

Summary of Stakeholder Feedback

Feedback received from Advanced Energy Management Alliance (AEMA) with themes noted below:

- Support for proposal to submit contributor meter data for activation months only and request for 60 days to submit data for non-activation months
- Request to estimate " zero kWh" for missing contributor data as part of VEE Process to address issues outside of Demand Response Market Participants (DRMPs)' control
- Various suggestions for changes to the DR audit process, including a request to walk-through an example audit for DRWG members

Measurement Data Submission – Response to Stakeholder Feedback

- Stakeholder feedback:
  - Support for proposal to submit contributor meter data for activation months only
  - For non-activation months, it was requested that the participant have 60 days to submit data when requested
  - For non-activation months, it was noted that the VEE process should also apply for missing data outside the contributors control
- IESO Response:
  - The IESO can support the 60 day timeline for submitting data for non-activation months upon request
  - The IESO will report back on the remaining aspects regarding non-activation month data once these processes have been defined and the data needs are better understood.
    - This data will not be used for settlement purposes but could be used to support processes as part of the Capacity Auction, such as capacity qualification.

VEE Process to Address Meter Data Issues Outside DRMP Control

- At the September 4, 2019 DRWG meeting, IESO proposed a VEE process to permit DRMPs to 'estimate' contributor meter data
  - Data is estimated at the contributor level for intervals where meter data is unavailable because of issues outside of the DRMP's control
    - Estimate '0' for any interval outside of the activation hours
    - Estimate '90 day peak interval value' for any interval within the activation hour(s)
  - DRMP to submit 'Measurement Data Control Sheet' with each measurement data submission identifying contributors with VEE data
  - Measurement data, contributor meter data and 'Measurement Data Control Sheet' will be used during DR Audit process

VEE Process – Principles

- The proposed VEE process is a principled approach that was developed using the following criteria:

Balance

- This proposal allows the DRMPs to manage the risks associated with their DR portfolio at the contributor level without devaluing the entire resource

Consistency

- It is also aligned with the VEE process used for physical contributors

Efficiency

- This is a risk based approach that will allow the DRMP will focus its efforts on collecting data for the contributors critical to their resource
- DRMPs are now required to submit measurement data for the activation months only. This will help alleviate burden on the DRMPs to collect missing contributor data.

Transparency

- Requirements will be clearly articulated in the appropriate market manuals.

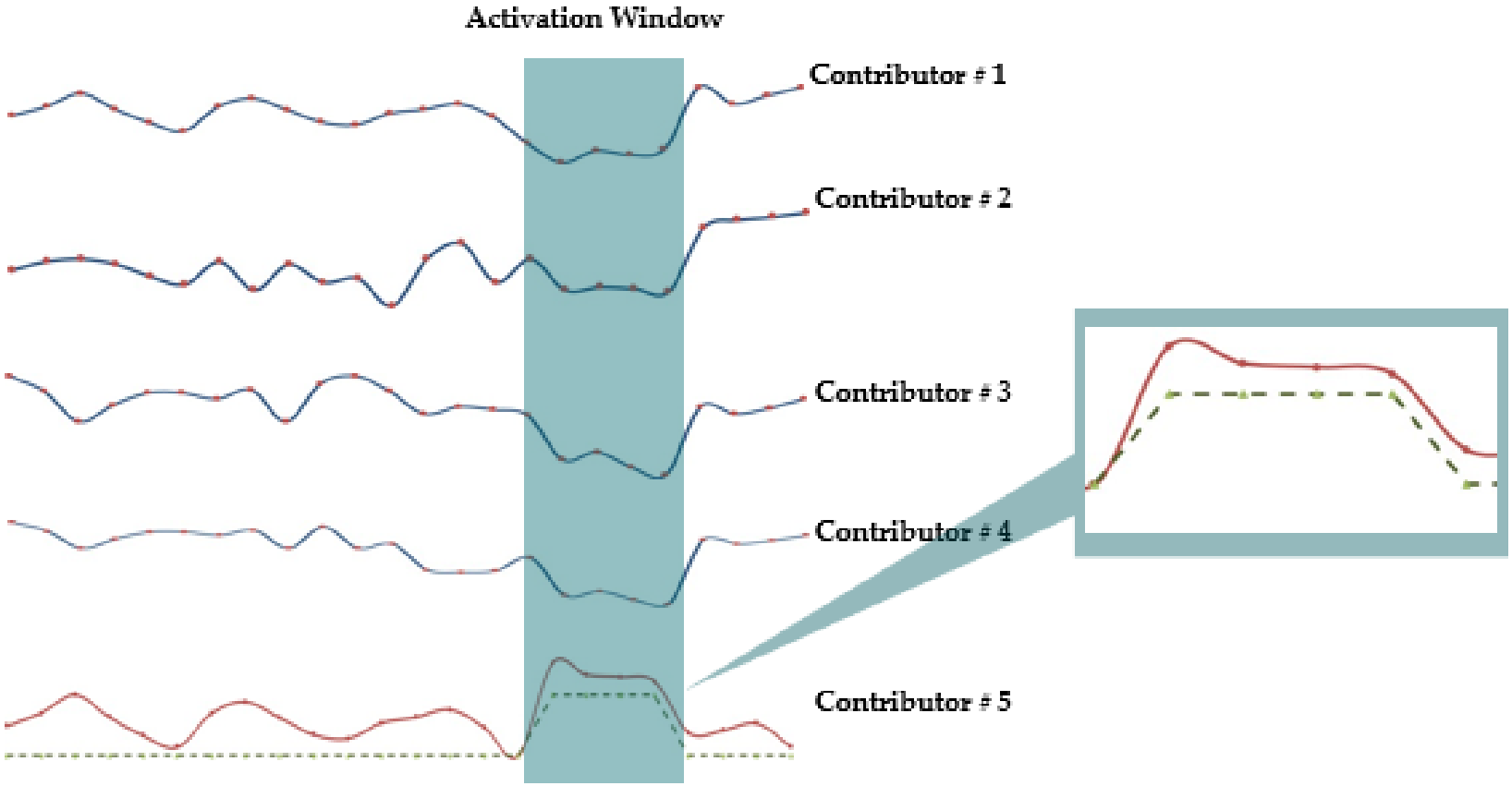
VEE Process – Context

- DRMP registers contributors associated with an HDR Resource
- After the activation, the DRMP is required to submit 3 months of contributor meter data including the month of activation and two previous months
- If the DRMP is not able to submit contributor meter data for some of its contributors, IESO has no visibility into how those contributors operated during the activation period.
- This is an issue because measurement data is critical to settlement and evaluation process
- Currently there is no mechanism for the DRMP to submit measurement data after the submission deadline has expired.
- This proposal provides an alternative approach that allows the DRMP to account for the missing data by way of estimation
- This is consistent with the estimation methodology used for physical contributors

VEE Process – Response to Stakeholder Feedback

- Stakeholder feedback:
  - DRWG community requested that missing data be estimated as 'zero kWh' during baseline as well as activation period to assess performance
- IESO Response:
  - There are multiple ways a contributor can operate its load during the activation window
  - There is a possibility that the contributor may operate in a manner during the activation period that counters the reduction provided by other contributors
  - Performance for a resource is assessed at the grid level and discounting missing contributor data to "zero kWh" during the activation window creates a gap in this assessment.
  - In order to bridge this gap, IESO has proposed to use the peak load value in the 90 day measurement data being submitted to the IESO.

VEE Process – Illustration



VEE Process – IESO Position

- The proposed VEE process will likely impact a very small portion of the DRMP's entire registered portfolio.
- The DRMPs have different means at their disposal to collect data from the meters.
- The principled approach to this proposal was designed to allow the DRMPs to focus their efforts on getting data for contributors that are critical to meeting their obligation.
- This will also alleviate the risk of devaluing the entire resource
- Taking all of these considerations into account, IESO does not recommend estimating missing data with "zero kWh" during baseline as well as during activation period.

DR Audit – Response to Stakeholder Feedback

Record Retention

- Stakeholder Feedback:
  - DRWG community requested that IESO adopt a policy to limit the audit period to within one year of a given settlement month
- IESO Response:
  - The record retention period of 7 years aligns with references in the Market Rules to retain records for various purposes
  - Also aligns with the record retention policy for physical DR contributors

DR Audit – Response to Stakeholder Feedback

Replacing ROI with an LDC Statement

- Stakeholder Feedback:
  - Consider LDC interval data as an alternate means to verify that the meter data can be traced back to the source (LDC Meter)
- IESO Response:
  - LDC statements contain the legal unit of measurement in accordance with Measurement Canada standards and currently the only source available to the IESO to authenticate the traceability of contributor meter data back to the LDC meter
  - The IESO is seeking feedback from stakeholders on other viable options to authenticate contributor meter data

DR Audit – Process

Upon notification of DR audit, the DRMP is required to provide to IESO;

- 3 months of contributor meter data (audit month and the two previous months)
- LDC statements for each contributor for the 3 month period
- Contributor Agreement with the DRMP
  - Provides confirmation that there is a contractual agreement between the contributor and the DRMP

DR Audit – Evaluation Overview

- DR audit process is a two step process
  - **Step 1** is to reconcile contributor meter data to the contributors LDC billing statement
  - **Step 2** is to reconcile the sum of the contributor's meter data to submitted measurement data (this is the monthly measurement data provided by the DRMP in accordance with DR Settlement Calendar).

DR Audit – Evaluation Steps

- Step 1 consists of two individual reconciliation checks
  1. Comparing the total kWh for a given month
  2. Comparing the highest kW value
- Step 2 uses **Absolute Error methodology** to determine the difference between sum of contributor meter data and submitted measurement data. The methodology is described below:
  - The contributor meter data is compared to the monthly submitted measurement data on a 5-minute interval level.
  - An absolute difference between the contributor meter data and submitted measurement data is calculated.
  - Sum of the absolute difference for contributor meter data is compared against the sum of the monthly submitted measurement data.

DR Audit – Evaluation Results

- A DR audit is considered '**Complete**' when the data submitted is within +/-1% of contributor meter data in both Step 1 and Step 2.
- A DR Audit is '**Closed with Observations**' when it is concluded that contributor meter data and supporting documentation differs from submitted measurement data and supporting documentation (Ch. 9 s.4.7J.4) by more than +/-1%.

DR Audit – Step 1

Site Name	Month	LDC Name	LDC Billing Cycle		Energy Assessment			
					LDC Statement Data (kWh)	Contributor Data (kWh)	Difference	
			Start	End			kWh	%
Resource ID: XXXXXX								
Contributor ABC	**March**	LDC 1	**Feb 28**	**Mar 31**	**1,010,000.0**	**1,050,000.0**	**40,000.0**	**-3.8%**
	April		**Mar 31**	**Apr 30**	**1,000,000.0**	**1,045,000.0**	**45,000.0**	**-4.3%**
	May		**Apr 30**	**May 31**	**1,015,000.0**	**1,080,000.0**	**65,000.0**	**-6.0%**
Contributor XYZ	March	LDC 2	Feb 28	Mar 31	230,000.0	231,000.0	1,000.0	-0.4%
	April		**Mar 24**	**Apr 22**	**82,000.0**	**86,000.0**	**4,000.0**	**-4.7%**
	May		Apr 23	May 24	58,418.0	58,418.4	0.4	0.0%

DR Audit – Step 2

Resource ID: XXXXXX					
Month	Actual Measurement Data (A)	Submitted Measurement Data (B)	Difference between actual and submitted measurement data	Absolute Difference	% difference
March	**5,500,000.0**	**20,000,000.0**	**14,500,000.00**	**14,500,000.00**	**72.5%**
April	**5,250,000.0**	**15,000,000.0**	**97,500,000.00**	**97,500,000.00**	**65.0%**
May	**4,750,000.0**	**19,300,000.0**	**14,500,000.00**	**14,500,000.00**	**75.1%**

Summary

- DRMPs will now be required to submit measurement data only for activation months
- DRMPs can utilize the VEE process to estimate data for missing contributors
- The VEE process will
  - Estimate '0' for any interval outside of the activation hours
  - Estimate '90 day peak interval value' for any interval within the activation hour(s)
- Current record retention policy for DRMPs is 7 years
- DRMPs will have to submit an LDC statement at the time of contributor registration
- IESO is seeking feedback to evaluate alternative means to authenticate contributor meter data back to the LDC meter

Next Steps

- The discussed changes are scheduled to be implemented for the June 2020 obligation period.

- Please provide feedback using the feedback form on the DRWG webpage to engagement@ieso.ca by December 10

Questions

June 2020 Capacity Auction: Highlights for DR Community

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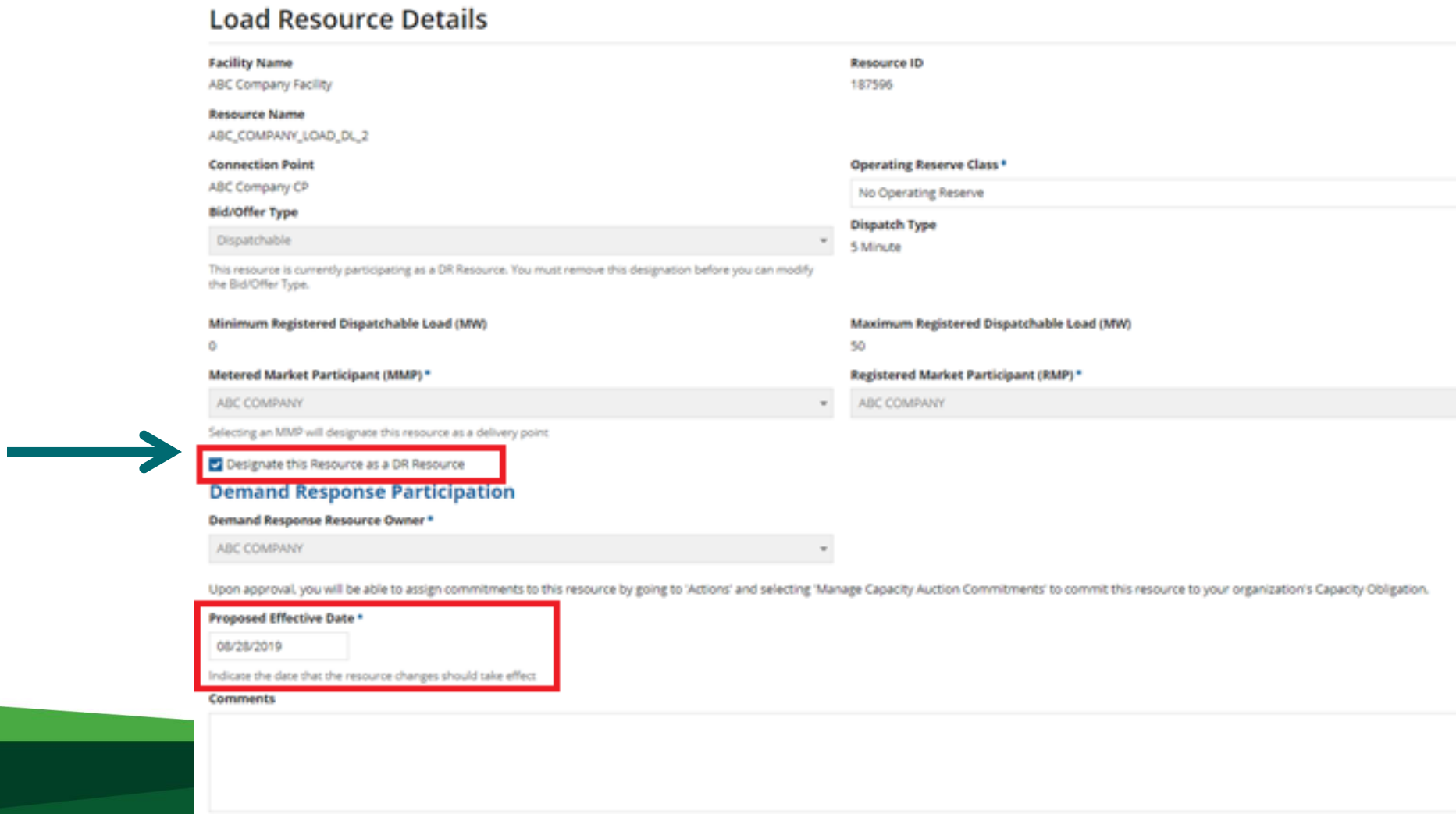
Purpose & Overview

- During this session, the IESO will highlight design decisions in the June 2020 Capacity Auction that are specific to the demand response community:
  - DR ownership
  - Assigning residential or C&I baseline

Current DR Owner Relationship

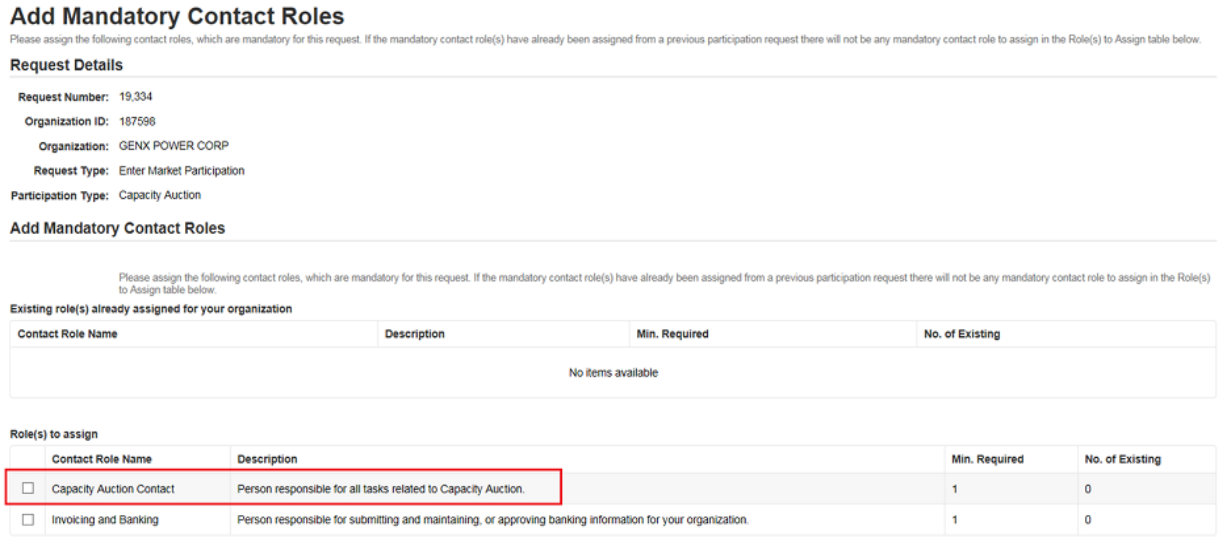
- Today, some organizations with a physical HDR obligation use another organization's non-dispatchable load to satisfy the obligation

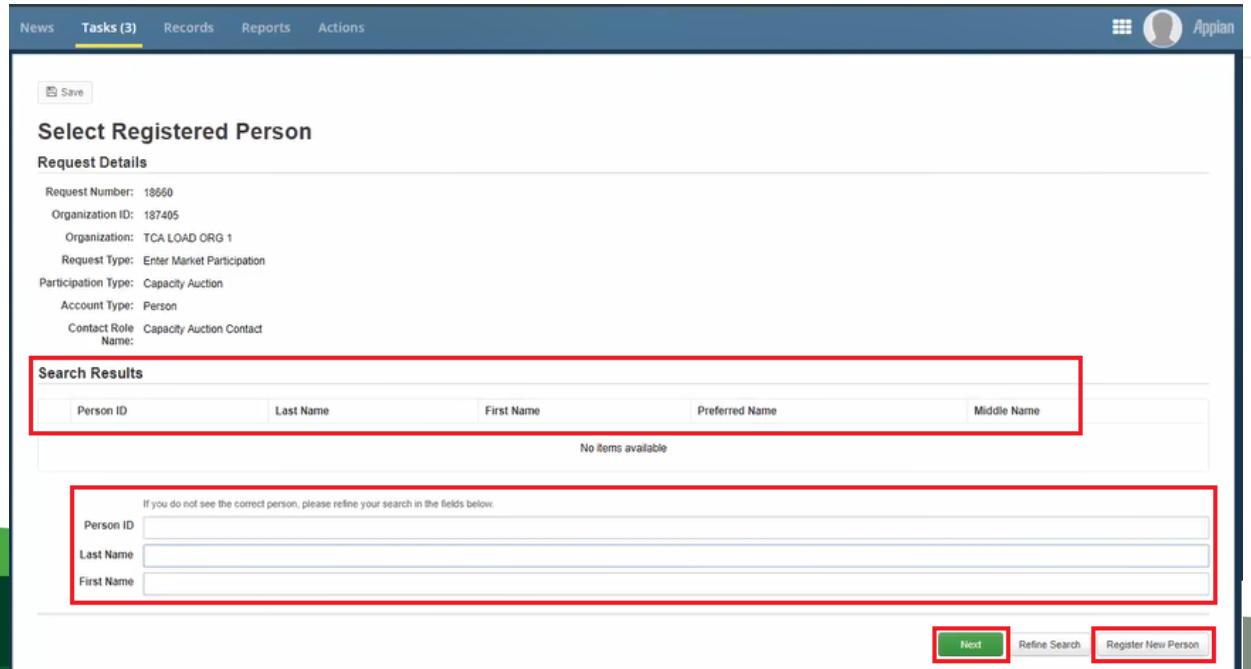


Proposed Changes to DR Owner Relationship

- Beginning with the June 2020 capacity auction, obligations will be tied to the specific resource rather than the organization
- Only the owner of a physical load resource will be able to register this resource against their obligation
- If another organization (i.e., aggregator) is authorized to act as an agent on behalf of the owner, auction and energy market representation can be done by assigning a representative from that third-party authorized organization as a capacity auction contact in Online IESO (see next slide)
- This change creates straightforward lines of accountability for capacity obligations

Proposed Changes to DR Ownership (Online IESO)





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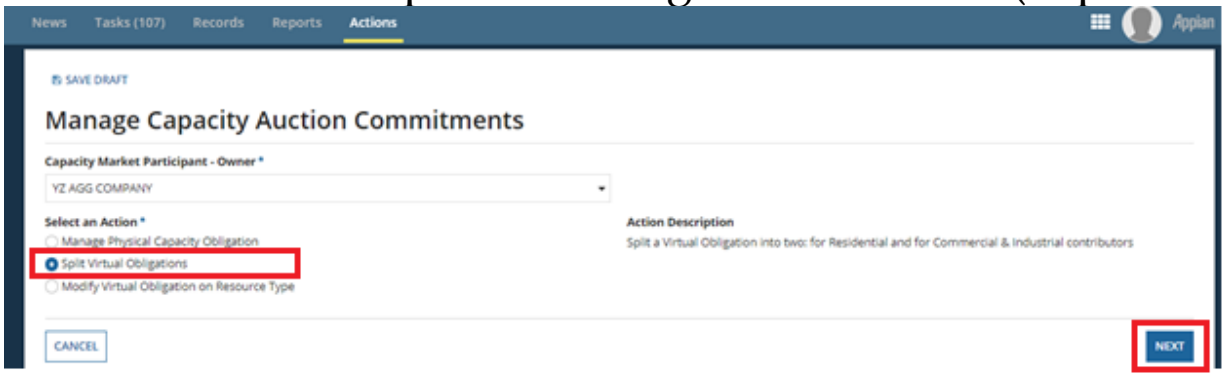
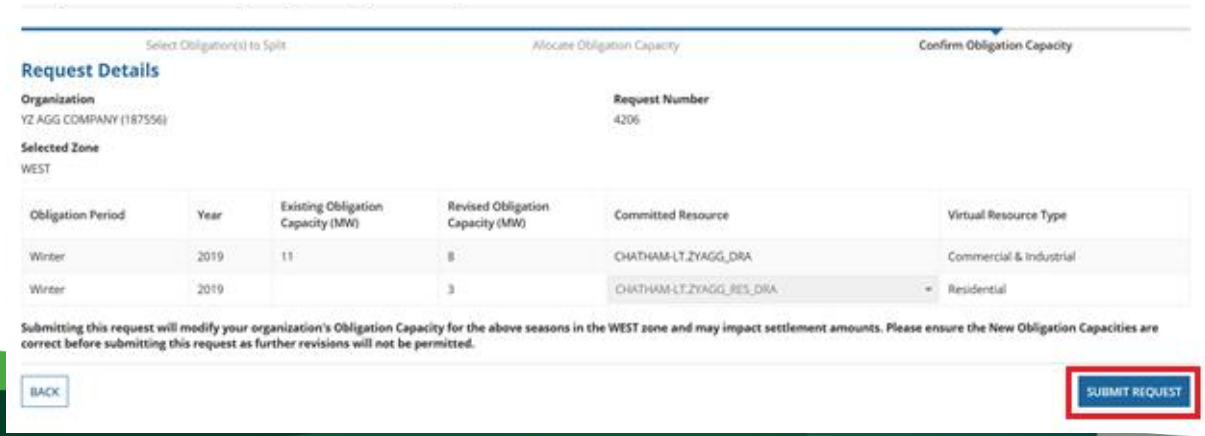
Current Assignment of a Baseline

- There are two baselines for demand response: Residential and Commercial & Industrial (C&I)
- An organization can participate using both; they must register two separate virtual HDR resources during the forward period
- This is completed through Online IESO ("Split Virtual Obligations")

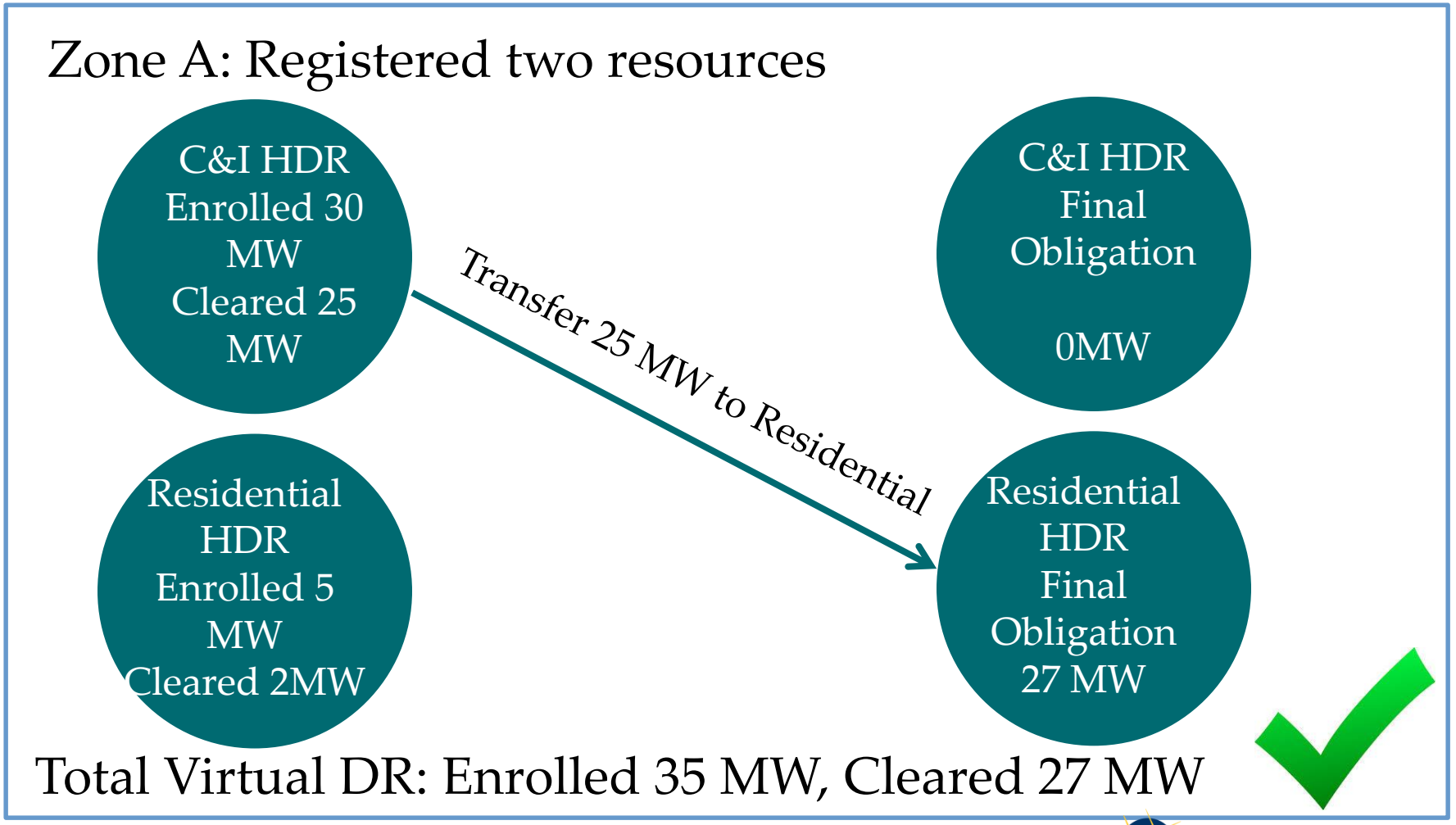




Proposed Changes to Assignment of a Baseline

- Beginning with the June 2020 capacity auction, obligations will be tied to the specific resource rather than the organization
- The resource must be identified during capacity enrollment
- If you anticipate using both residential and C&I baselines in the same zone, you must enroll two separate resources during capacity enrollment
  - Enrollment of resources in advance allows the IESO to process transfers and tie obligations in a more efficient manner during the forward period
- If you receive a capacity obligation for virtual demand response and wish to transfer all or a portion of a capacity obligation from one baseline type to another, the IESO will look only at the sum of the two resources
  - i.e. the sum of the capacity obligations for both resources cannot exceed the capacity enrollment amount for both resources

Example: Obligation Transfer After Assigning a Baseline



Next Steps

- All information is available on Capacity Auction stakeholder engagement webpage at:

http://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives/Engagements/Capacity-Auction

- The June 2020 draft design document was posted for comment on October 18, 2019. Stakeholder comments are due on November 15, 2019 to engagement@ieso.ca

- IESO to respond to feedback at the next Capacity Auction meeting on December 6

Questions

Discussion of the In-day Adjustment Factor

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Purpose

- Review stakeholder feedback on experience with the in-day adjustment, and;
- Initiate dialogue with the DRWG to better understand:
  - Broader stakeholder experience with in-day adjustment; and,
  - Whether the IESO should consider exploring and evaluating options to evolve the in-day adjustment factor methodology

Overview

1. Review need for baseline adjustment factor
    - In-day adjustment factor for commercial, industrial and institutional (C&I) Hourly Demand Response (HDR) resources
    - Same-day adjustment for residential HDRs
2. In-day adjustment: illustrative impact
3. Stakeholder feedback on experience with the in-day adjustment
4. Questions for further discussion

Need for the Baseline Adjustment Factor

- Captures changes in typical load consumption during the activation day
  - Capturing changes in HDR participant's baseline during the activation day is essential for providing accurate performance calculations
- Separate formulas are used to determine the baseline adjustment factor for C&I and residential HDR participants

In-Day Adjustment Factor for C&I HDRs

$$\text{In-Day Adjustment Factor (IDAF)} = A \div B$$

Where:

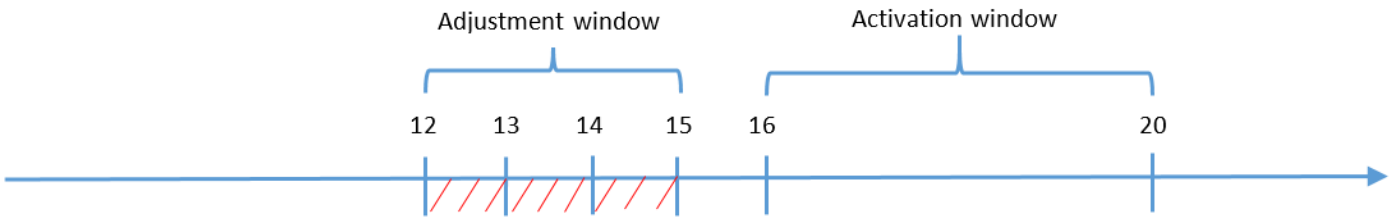
- "A" is the average actual consumption during the adjustment window* hours on the actual DR activation day
- "B" is the average actual consumption during the adjustment window* hours in the past highest fifteen (15) of twenty (20) suitable business days* prior to the DR activation day
- IDAF can only be as low as 0.8 and as high as 1.2

*defined on the next slide

In-Day Adjustment Factor for C&I HDRs cont'd

Adjustment Window

- Three (3) hour window occurring one (1) hour before a DR activation event



Suitable Business Days

Any business days where a C&I HDR resource:

- Has placed at least one *demand response energy bid* (as defined in Chapter 11 of Market Rules) for at least one hour within the availability window for the day; and,
- Was not activated to provide demand response

Same-Day Adjustment for Residential HDRs

Same-Day Adjustment Factor (SDAF) = C ÷ D

Where:

- "C" is the average actual consumption during the adjustment window* hours on the DR activation day for the treatment group divided by the number of contributors in the treatment group
- "D" is the average actual consumption during the adjustment window* hours on the DR activation day for the control group divided by the number of contributors in the control group

*defined on the previous slide

In-day Adjustment: Illustrative Impact

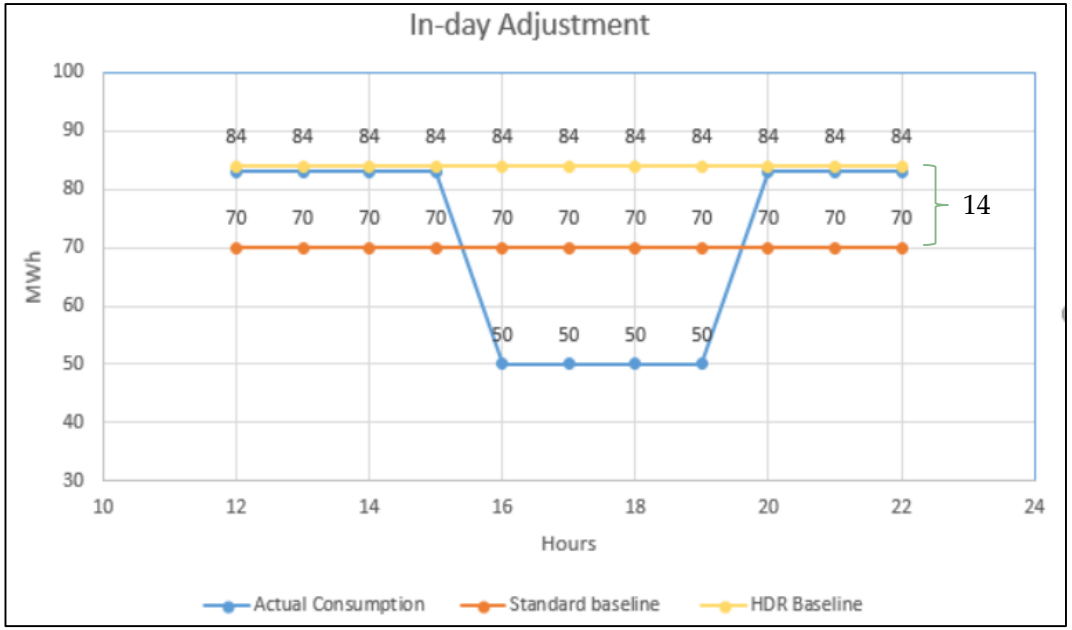
- HDR participants whose consumption is higher than typical consumption during activation day will have IDAF > 1
- Provides a process to adjust the baseline for weather dependent loads and thus may better reflect the amount of capacity provided by the resource

HDR Baseline = Standard Baseline x IDAF

Example:
- Standard Baseline = 70 MWh
- IDAF = 1.2

HDR Baseline = 70 MWh x 1.2 = 84 MWh

Curtailment compared to **Standard baseline** = 20 MWh
Curtailment compared to **HDR baseline** = 34 MWh



In-day Adjustment: Illustrative Impact (cont'd)

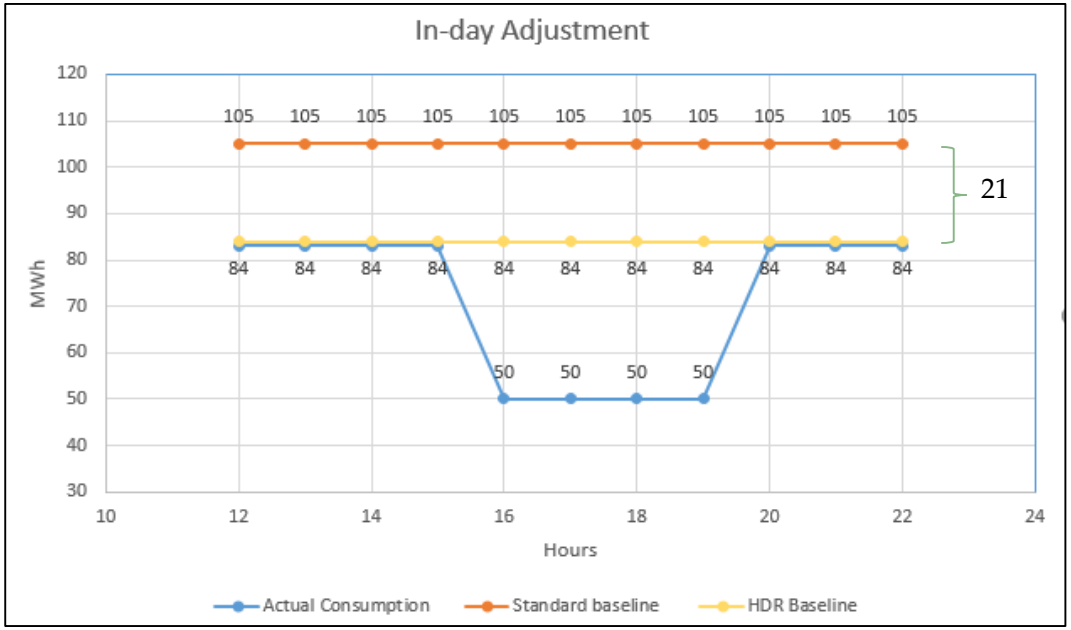
- HDR participants whose consumption is lower than typical consumption during activation day will have IDAF < 1

HDR Baseline = Standard Baseline x IDAF

Example:
- Standard Baseline = 105 MWh
- IDAF = 0.8

HDR Baseline = 105 MWh x 0.8 = 84 MWh

Curtailment compared to **Standard baseline** = 55 MWh
Curtailment compared to **HDR baseline** = 34 MWh



Stakeholder Feedback: In-day Adjustment Impact

- Non-weather-sensitive loads can be impacted when curtailing load prior to an HDR activation
  - Activation day consumption that occurs within adjustment window can be lower than typical consumption resulting in IDAF < 1 and a lower baseline, which leads to a lower calculated amount of capacity delivered for the activation
- HDR participants could curtail prior to the activation
  - Depending on the test time of day, some loads will forgo operation for the entire day in anticipation of needing to curtail later on
  - Some processes require longer than one hour to ramp-down and thus must start prior to or during the adjustment window
- These curtailment strategies get factored into the in-day adjustment even though these MWs remain curtailed during activation

Questions for Discussion

- The IESO is interested in learning more about the scenarios in which the:
  - IDAF is more/less accurate for C&I HDR baselines
  - SDAF is more/less accurate for Residential HDR baselines
- What are the key factors to consider behind the scenarios that increase/decrease accuracy? (e.g., loads with storage, pre-heating or pre-cooling) Is there data that can be shared?
- Do you have any insights to share on in-day adjustment methodologies based on experience in other jurisdictions?
- Please provide feedback using the feedback form on the DRWG webpage to engagement@ieso.ca by December 10

Questions

DRWG Work Planning for 2020

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Purpose

- To review status of the initiatives included in the revised June 2019 DRWG work plan; and,
- Discuss initiatives that should be included in the 2020 DRWG work plan
  - 2019 work plan initiatives to carry forward
  - New initiatives

Status of Revised June 2019 DRWG Work Plan

2019 Initiative	Status
Cost Recovery for Out-of-Market Activation of HDR Resources	Proposal is complete and currently being implemented (TP voted to recommend enabling market rules to IESO Board for approval); on track for implementation for May 2020 obligation period
Energy Payments for Economic Activation of DR Resources	IESO launched a new engagement on August 22 to address this issue. DRWG will be kept informed of progress.
Testing of HDR Resources	Proposal is complete; implementation in market manuals is on track for May 2020 obligation period

Status of Revised June 2019 DRWG Work Plan
(cont'd)

2019 Initiative	Status
Contributor Management, Measurement Data Submission and DR Audit	Proposals for addressing the measurement data submission process, contributor meter data issues, DR audit and contributor management have been presented and discussed with DRWG. Proposals will be implemented for May 2020 obligation period. It is proposed that feedback received in April 2019 regarding the baseline be considered as part of a new work plan initiative in 2020.
Transfer of Capacity Obligations	Proposal is complete and has been implemented in the market rules to enable the capacity auction

Status of Revised June 2019 DRWG Work Plan
(cont'd)

2019 Initiative	Status
Separating Virtual and Physical HDR Resources	As per the current market rules, to fulfil a capacity obligation, a DRMP may register: • One or more physical HDR resource per zone • One virtual HDR resource per zone Given that it is possible to register one or more physical HDR resource per zone, the IESO is currently exploring different options for modelling virtual HDR resources and proposes that this work be carried forward as a work plan initiative in 2020.
Facilitating DR input into Capacity Auction (CA) design	Ongoing, as required.

2020 DRWG Work Plan

Ongoing initiatives carried forward from 2019:

- Separating virtual HDR resources
  - Objective: Develop and assess options for allowing a DRMP to register virtual HDR contributors into separate aggregates within a zone
  - *Note: This is the 2019 initiative with "physical HDR" removed from the title to reflect the nature of the work*

2020 DRWG Work Plan cont'd

Ongoing initiatives carried forward from 2019:

- Facilitating DR input into Capacity Auction (CA) design
  - Objective: Utilize DRWG as a forum for more focused discussions on the impact of particular CA design decisions to provide clarity and understanding for both IESO and DR participants. This includes the capacity qualification and performance obligation and assessment processes.
  - *Note: Design issues and discussions will continue under the CA stakeholder engagement; stakeholders should continue to participate and send feedback on the CA design to the CA engagement directly*

2020 DRWG Work Plan cont'd

New possible initiatives:

- In-day adjustment methodology
  - Objective: Determine whether the in-day adjustment methodology, as part of the baseline determination, should be revised to better reflect consumption patterns for non-weather sensitive loads
- Baseline methodology
  - Objective: Explore the need for different baseline methodologies for different load types, including options for such methodologies
  - *Note: This initiative is closely linked to the in-day adjustment initiative and these discussions will be coordinated*

2020 DRWG Work Plan cont'd

New possible initiatives:

- Explore barriers to residential DR
  - Objective: Explore barriers to residential DR in Ontario (including their materiality) and investigate possible options for barrier mitigation where feasible

Draft 2020 DRWG Work Plan Summary

2019 Initiatives Carried Forward	• Registering virtual HDR resources • Facilitating DR input into Capacity Auction design
New Possible Initiatives	• In-day adjustment methodology • Baseline methodology • Explore barriers to residential DR
Other Initiatives?	• Stakeholder feedback requested

Stakeholder Feedback on 2020 Work Plan Initiatives

- What other initiatives should be considered for inclusion in the 2020 work plan? Please specify whether this is a separate initiative or a sub-component of another initiative
- Please provide feedback on the impact that the underlying issues and opportunities of each of the proposed initiatives (i.e. 2019 initiatives carried forward and new) could have on DR resources. This will help the IESO identify priority of the initiatives
- Please provide feedback using the feedback form on the DRWG webpage to engagement@ieso.ca by December 10

Next Steps

- The 2020 DRWG Work Plan will be presented at the next DRWG meeting in February 2020

Questions

Closing and Next Steps

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Summary of Feedback Requested

- Alternative means to authenticate contributor meter data back to the LDC meter
- In-day adjustment factor
  - Details and scenarios that impact the accuracy of the in-day adjustment factor and same-day adjustment factor
  - In-day adjustment methodologies used in other jurisdictions
- Proposed 2020 DR work plan

- Please provide feedback using the feedback form on the DRWG webpage to engagement@ieso.ca by December 10

Questions