

# MAXIMIZING THE VALUE OF HDR RESOURCES THROUGH IMPROVED UTILIZATION

Demand Response Working Group

---

March 1, 2018

# Purpose

- To continue discussion on increasing utilization of HDR resources to ensure it can maximize its value to the system



# Introduction

- The IESO has been working with stakeholders to discuss ways to increase utilization of Hourly Demand Response (HDR) resources

## *Underway*

*Market Manual to be posted for review on March 15*

### 2017 DR Auction:

Add HDR resources to the Emergency Operating State Control Actions (EOSCA) list for Summer 2018 commitment period

## *In Development*

### 2018 DR Auction and Beyond:

Continue to evolve the HDR resource to better meet system needs and to prepare to compete in the future ICA

# 2018 DR Auction and Beyond

- Maximizing the value of HDR resources through increased utilization is essential to realizing the goals for DR

## 2018 Goals for DR

Develop DR to ensure it can compete with traditional supply

Alignment with Market Renewal

### Criteria for Improvements:

1. Must support efficient dispatch and evolve the effectiveness of the DR resource
2. Is likely to increase the number of Hourly DR Activations to demonstrate DR value when economic
3. Balances stakeholder needs
4. Can be implemented for the next DR Auction in December 2018

# Alignment with ICA

- The Incremental Capacity Auction stakeholder engagement is currently working on defining the capacity product over the coming months
  - DR resources are expected to transition from the DR Auction to the ICA
  - Discussions are currently happening on these design elements
  - High level design will be developed during 2018
- To improve utilization of HDR resources in 2018, the IESO will work with the DRWG on proposals that *align* or are consistent with ICA preliminary recommendations
  - Avoid creating new ‘seams’ issues as part of DR enhancement

# ICA Design Elements Impacting Utilization

## Must Offer

- Preliminary recommendation is to have a must-offer obligation in both day-ahead and in real-time
- Need to define the availability window for the capacity product

## Visibility and Control

- Need to establish the minimum duration over which a resource is required to deliver on its capacity obligation
- Need to conduct further analysis of system needs to set minimum dispatch duration taking into consideration resource type and capability

# Options to Improve Utilization for 2018

- Improving utilization of HDR resources will be a multi-step process to develop DR to be equivalent capacity supplier to participate in the future Incremental Capacity Auction
- For the 2018 DR Auction, the IESO has identified two areas for utilization improvement that will improve scheduling flexibility:

1.  
Minimum  
Dispatch  
Duration

2.  
Real-Time  
Availability

# 1. Minimum Dispatch Duration

- Currently, HDR resources can only be activated when scheduled for a four-hour block
- Reducing the minimum dispatch duration increases the number of scenarios that HDR resources can be utilized to meet system needs



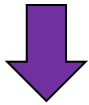
# 1. Minimum Dispatch Duration

*The IESO proposes to change the HDR resource's dispatch duration from a four-hour block to a one-up-to-four hour block*

## Current HDR Activation Protocol

### 1. Standby Notice:

4-hour schedule required for a standby



### 2. Activation:

4-hour schedule required for an activation



### 3. Duration:

DR activated for 4 hour blocks



## Proposed Change

### 1. Standby Notice:

**1-hour trigger** required for a standby



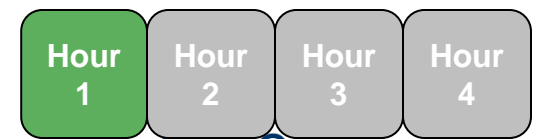
### 2. Activation:

**1-hour schedule** required for an activation



### 3. Duration:

DR activated for 1 up-to 4 hour block



# 1. Minimum Dispatch Duration

- Under the proposal, HDR resources are still required to be able to provide a four-hour DR activation. However, the IESO would be able to utilize DR resources for one up-to four hours
  - Activation compliance would continue to be measured based on a resource's schedule using the existing methodology
  - ICA stakeholder engagement will be reviewing minimum dispatch requirements through the *Visibility and Control Obligations* design element
- Based on stakeholder feedback received in 2017 through the DRWG, this proposed change received strong stakeholder support

## 2. Real-Time Availability

- Throughout 2017 and 2018, the IESO has been discussing improving real-time availability of HDR resources through the elimination of and modifications to the Standby notice
  - Based on stakeholder feedback, the IESO advised at the Jan 30 DRWG meeting it will not eliminate the standby notice in 2018
- Under current design, a standby notification is issued when a resource is **scheduled for four consecutive hours** by 7am of the dispatch day, otherwise the resource is no longer required to be available to be utilized

### Two Elements

#### Duration

- Four consecutive hour requirement is proposed to be reduced by IESO in Min. Dispatch Duration proposal

#### Trigger

- Trigger for a standby notice to be issued is based on an *uneconomic* schedule

## 2. Real-Time Availability

- Based on discussions with the DRWG, the IESO has analyzed three options that can be used to trigger a standby notice for an HDR resource

1. Schedule-based trigger

2. Price-based trigger \$100

3. Price-based trigger \$200

- Parameters of analysis:
  - One up-to four hour dispatch duration is adopted
  - Lookback period of May 2014 to Oct 2017
  - Southwest, Toronto and East zones were selected for analysis, which represent ~70% of the virtual DR participation
  - For this analysis, HDR resources are assumed to be bid at \$1999/MWh

# 2. Real-Time Availability

## Schedule-based trigger

### 1. Standby Notice:

At least 1-hour schedule is required for a standby by 7am

### 2. Activation:

Activate when at least 1 hour scheduled for DR ~2.5hrs prior

### 3. Duration:

DR activated for up to 4 hours based on schedule when 1<sup>st</sup> hour activated



- The current standby notice criteria uses a schedule-based trigger
- For this analysis, when a resource's energy bid is "uneconomic" for an hour during the availability window prior to 7am of the dispatch day, a standby notice will be issued

## 2. Real-Time Availability

### Schedule-based trigger

#### Historical Observations:

Commitment Period	# of Standby Notices Issued
Summer 2014	0
Winter 2014/15	1
Summer 2015	0
Winter 2015/16	0
Summer 2016	1
Winter 2016/17	0
Summer 2017	0

*Based on assumption that DR energy bids are priced at \$1999/MWh*

ICI Year	Scheduled Based Trigger
2014/15	0 of 5 peak days
2015/16	0 of 5 peak days
2016/17	1 of 5 peak days
2017/18*	0 of 5 peak days

*2017/18 ICI year not finalized until year ending April 30, 2018*

# 2. Real-Time Availability

## Price-based trigger \$100

### 1. Standby Notice:

At least 1-hour is  $\geq$ \$100 trigger price required for a standby by 7am



### 2. Activation:

Activate when at least 1 hour scheduled for DR ~2.5hrs prior



### 3. Duration:

DR activated for up to 4 hours based on schedule when 1<sup>st</sup> hour activated



- A standby notice is issued for a resource when its respective pre-dispatch shadow price is equal to or greater than \$100 for an hour during the availability window prior to 7am of the dispatch day

## 2. Real-Time Availability

Price-based trigger \$100

### Historical Observations:

Commitment Period	# of Standby Notices Issued
Summer 2014	3
Winter 2014/15	17
Summer 2015	15-16
Winter 2015/16	0
Summer 2016	24
Winter 2016/17	1-4
Summer 2017	8

ICI Year	Scheduled Based Trigger
2014/15	3 of 5 peak days
2015/16	5 of 5 peak days
2016/17	5 of 5 peak days
2017/18*	2 of 5 peak days

*2017/18 ICI year not finalized until year ending April 30, 2018*



# 2. Real-Time Availability

## Price-based trigger \$200

### 1. Standby Notice:

At least 1-hour is  $\geq$ \$200 trigger price required for a standby by 7am



### 2. Activation:

Activate when at least 1 hour scheduled for DR ~2.5hrs prior



### 3. Duration:

DR activated for up to 4 hours based on schedule when 1<sup>st</sup> hour activated



- A standby notice is issued for a resource when its respective pre-dispatch shadow price is equal to or greater than \$200 for an hour during the availability window prior to 7am of the dispatch day

## 2. Real-Time Availability

Price-based trigger \$200

### Historical Observations:

Commitment Period	# of Standby Notices Issued
Summer 2014	0
Winter 2014/15	10
Summer 2015	4-6
Winter 2015/16	0
Summer 2016	6-7
Winter 2016/17	0-2
Summer 2017	5

ICI Year	Scheduled Based Trigger
2014/15	2 of 5 peak days
2015/16	2 of 5 peak days
2016/17	3 of 5 peak days
2017/18*	2 of 5 peak days

*2017/18 ICI year not finalized until year ending April 30, 2018*

# 2. Real-Time Availability

## Observations

Schedule-based	Price-based \$100	Price-based \$200
<ul style="list-style-type: none"><li>• Very little increase in quantity of standby notices triggered</li></ul>	<ul style="list-style-type: none"><li>• Increased availability of HDR resources to help meet system needs in real-time</li><li>• Intuitive trigger that aligns real-time availability during peak times such as ICI peak days</li></ul>	<ul style="list-style-type: none"><li>• Increased availability of HDR resources but less effective than \$100 trigger</li></ul>

## 2. Real-Time Availability

### Proposal

*The IESO proposes to change the standby notice trigger to a \$100 price-based trigger.*

- Increases value of HDR resources
  - Increased number of standby notices issued means an increase in real-time availability of HDR resources during times of system need
  - Changes to utilization criteria to facilitate activation when needed was encouraged by the Market Surveillance Panel's May 2017 report
- Balances capability of stakeholders
  - DR stakeholders have advised that removing the Standby notice for the 2018 DR Auction would significantly impact participation. A \$100 trigger helps transition DR resources to increase availability in real-time without impacting participation
  - Helps transition HDR resources towards future ICA requirements

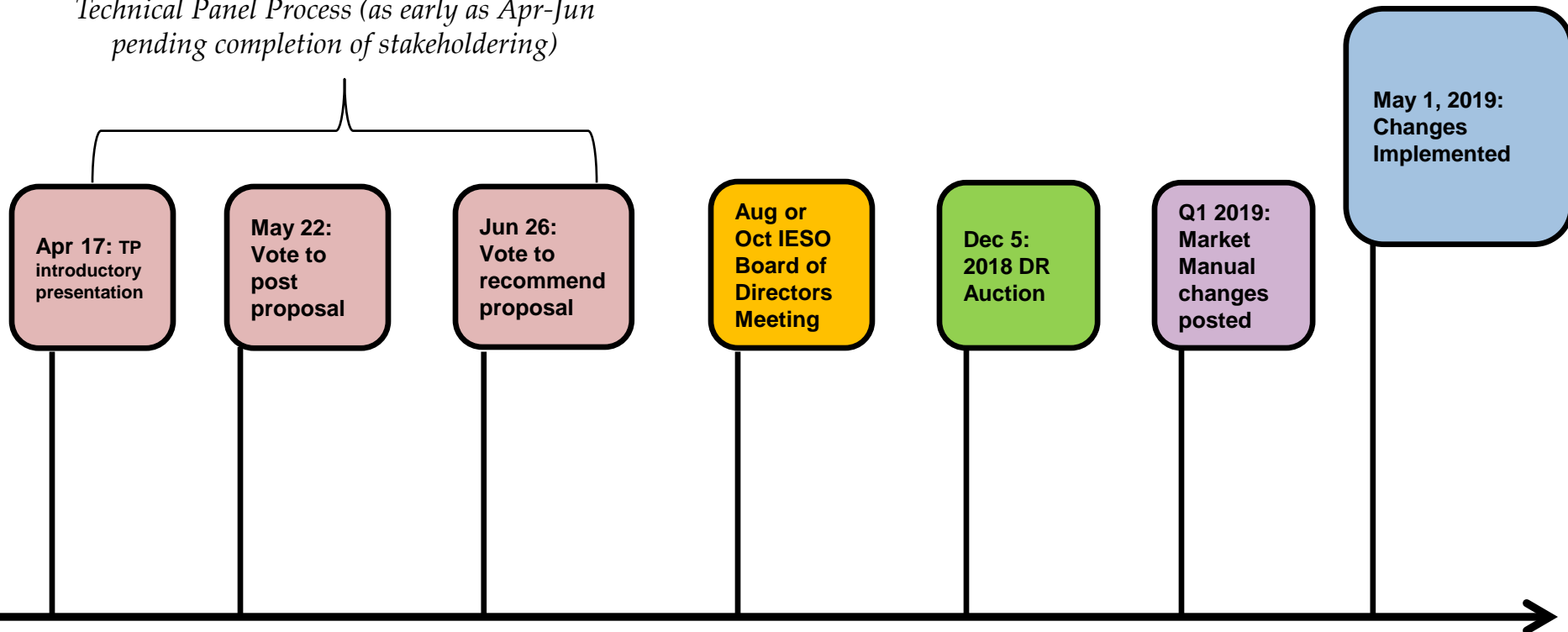
# Market Rule and Market Manual Impacts

- The proposed changes to reduce the minimum dispatch duration and to improve real-time availability will require changes to Market Rules
  - Chapter 7, Sec 19 will need to be amended
  - Market Manuals will also need to be aligned with the proposed changes
  - MM4.3 and MM5.5 will be updated
- May 3<sup>rd</sup> SE meeting: High level overview of expected market rule and market manual changes
- Stakeholders will have opportunity to review the proposed Market Rules and Market Manual changes as part of each respective change process

# Timeline for change

The IESO plans on introducing this proposal to the Technical Panel at the April 17 TP meeting.

*Technical Panel Process (as early as Apr-Jun pending completion of stakeholdering)*



# Discussion and Next Steps

- Improving the utilization of DR is critical to its ensuring its future in Ontario's supply mix
- The proposed changes to reduce the minimum dispatch duration and increase real-time availability will increase the value of HDR resources to the system and balance participant capabilities
- To provide feedback on the two proposals, please submit written feedback to the IESO by March 16 through [engagement@ieso.ca](mailto:engagement@ieso.ca)