

HDR AND DISPATCHABLE LOAD

Demand Response Working Group

May 3, 2018

Purpose

- Stakeholder(s) have asked the IESO to allow dispatchable load resources to be allowed to be a contributor to an aggregated hourly DR resource
 - This was previously permitted under past programs (DR3, CBDR)
- This presentation reviews the impacts of this change

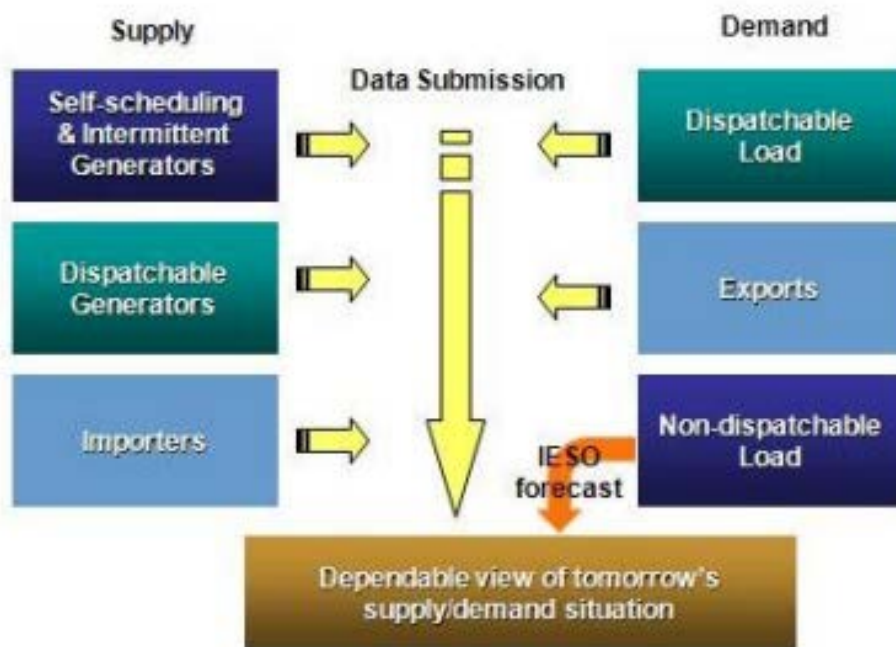
DR Auction

- Demand Response Market Participants (DRMPs) can deliver on their capacity obligation as either one of two resource types:
 1. Hourly Demand Response (HDR)
 2. Dispatchable Load (DL)
- Each resource type has a unique set of requirements
- Market Rules do not allow a load resource to participate as a DL and as a contributor to a HDR portfolio simultaneously
 - See MR Ch. 7 s. 19.1.2

Requirements

Resource Type	Metering	Registration	Energy Market Bids	Standby Notice	Activation Protocol
Hourly Demand Response	Physical (with revenue metering) or Virtual (without revenue metering)	NDL May participate directly or as a contributor to an aggregated portfolio	NDL may submit bids directly or as a contributor to an aggregated portfolio	If no standby received by 7am, must remove bids (no longer available)	Activated in 4-hour blocks
Dispatchable Load	Physical (with revenue metering) only	Must participate directly	Submitted directly	Not applicable (no standby protocol)	Activated on a 5-minute basis

Market Participant Framework



- Loads and generators that want to be dispatchable in the real-time energy markets are required to submit bids and offers into the IESO's Day-Ahead Commitment Process and in pre-dispatch

Participation Requirements

- Dispatchable Load and Hourly DR resources must bid their availability day-ahead to be able to participate in the energy market (and deliver on their capacity commitment)
- MR Ch. 7 s.3.3A.2

“...each registered market participant that intends its ...dispatchable load facility, or hourly demand response resource to be eligible for dispatch by the IESO for a given dispatch hour of a dispatch day shall, after 06:00 EST but before 10:00 EST of the pre-dispatch day, submit dispatch data for those dispatch hours of the dispatch day”

Background

DR3 and CBDR

Prior to DR Auction, dispatchable loads under DR3 were permitted to participate as a contributor to an aggregated portfolio

- When the DR3 program launched in 2008, dispatchable loads were permitted to join aggregated portfolios and were not allowed to become direct participants in the program
- This was allowed to continue in the Capacity-Based Demand Response (CBDR) program because it was a *transitional* and *temporary* program to honour the DR3 program design but under the structure of the Market Rules.
 - Last tranche of CBDR is due to expire in October, 2018

Background

DR Auction

- In 2014, the IESO launched the DR Auction stakeholder engagement in order to:
 1. Design a competitive auction procurement mechanism to secure DR capacity
 2. Create an enduring IESO resource type for DR resources to participate
- Through the development of the HDR resource type, the IESO reviewed its requirements
 - Determined that allowing a resource to participate as a DL and as a contributor to HDR simultaneously creates negative operational and market impact including:
 1. Loss of Flexibility
 2. Overstated demand

1. Loss of Flexibility

- One of the primary reasons for the IESO committing to developing DR in Ontario is to unlock greater flexibility and dispatchability from previously non-dispatchable loads *not to reduce flexibility from existing resources*
- Dispatchable Loads have participated in the energy market since Market Open
 - DLs are not subject to standby requirements for availability; they can respond in 5-minutes and can provide operating reserve
- HDR resources allow Ontario loads that may not be able to meet the requirements of a dispatchable load a means to actively participate in the energy market
 - Currently HDR must receive a standby to be available and can be activated in 4-hour blocks with ~2.5 hours lead time

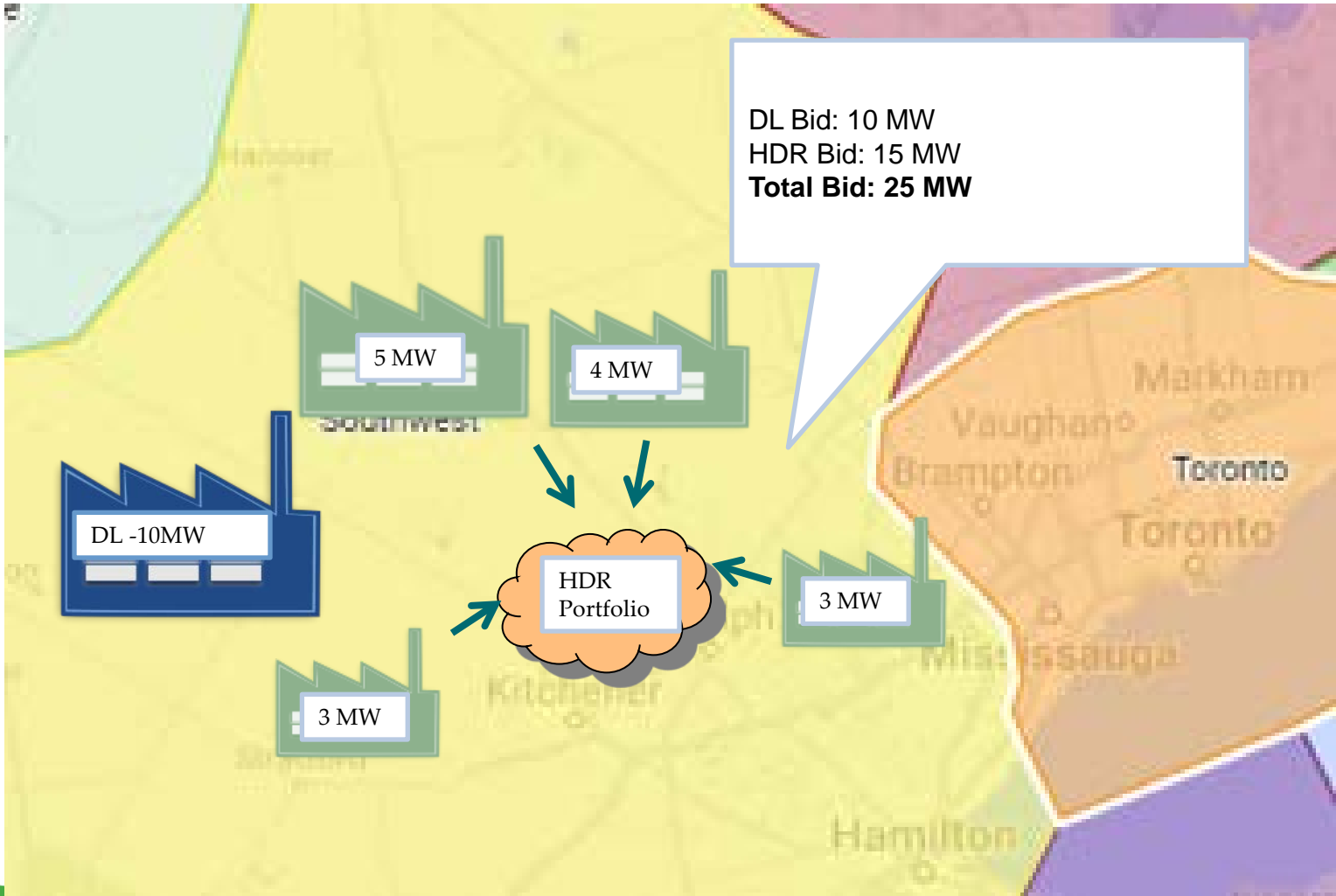
Loss of Flexibility cont'd

- Allowing a DL to participate in an HDR portfolio would mean the loss of flexibility from this resource particularly at times of system need
 - DLs participating as HDR would no longer be available for 5 minute dispatch or to be scheduled for operating reserve when the HDR resource is put on standby
- The IESO does not want to create rules that incent resources to become less flexible
- This change would run counter to the objective of enhancing the value of DR resources

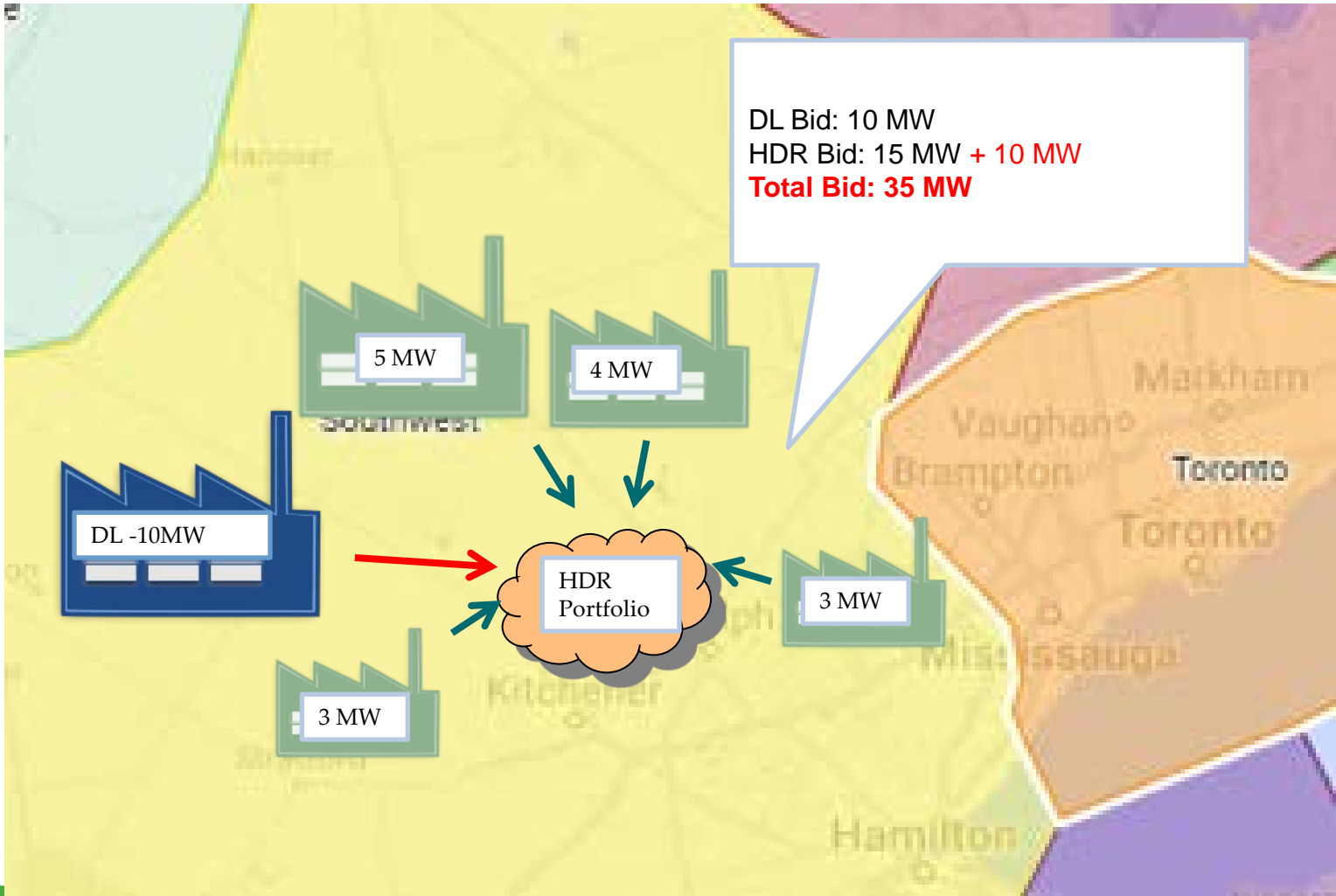
2. Overstated Demand

- In order to participate in the OR market, dispatchable loads must remain market participants outside of their participation in an aggregated portfolio.
- The bids from both the dispatchable load and the aggregator's Hourly Demand Response will be counted in the demand forecast
- IESO uses this information to help determine the amount of supply needed to reliably meet demand

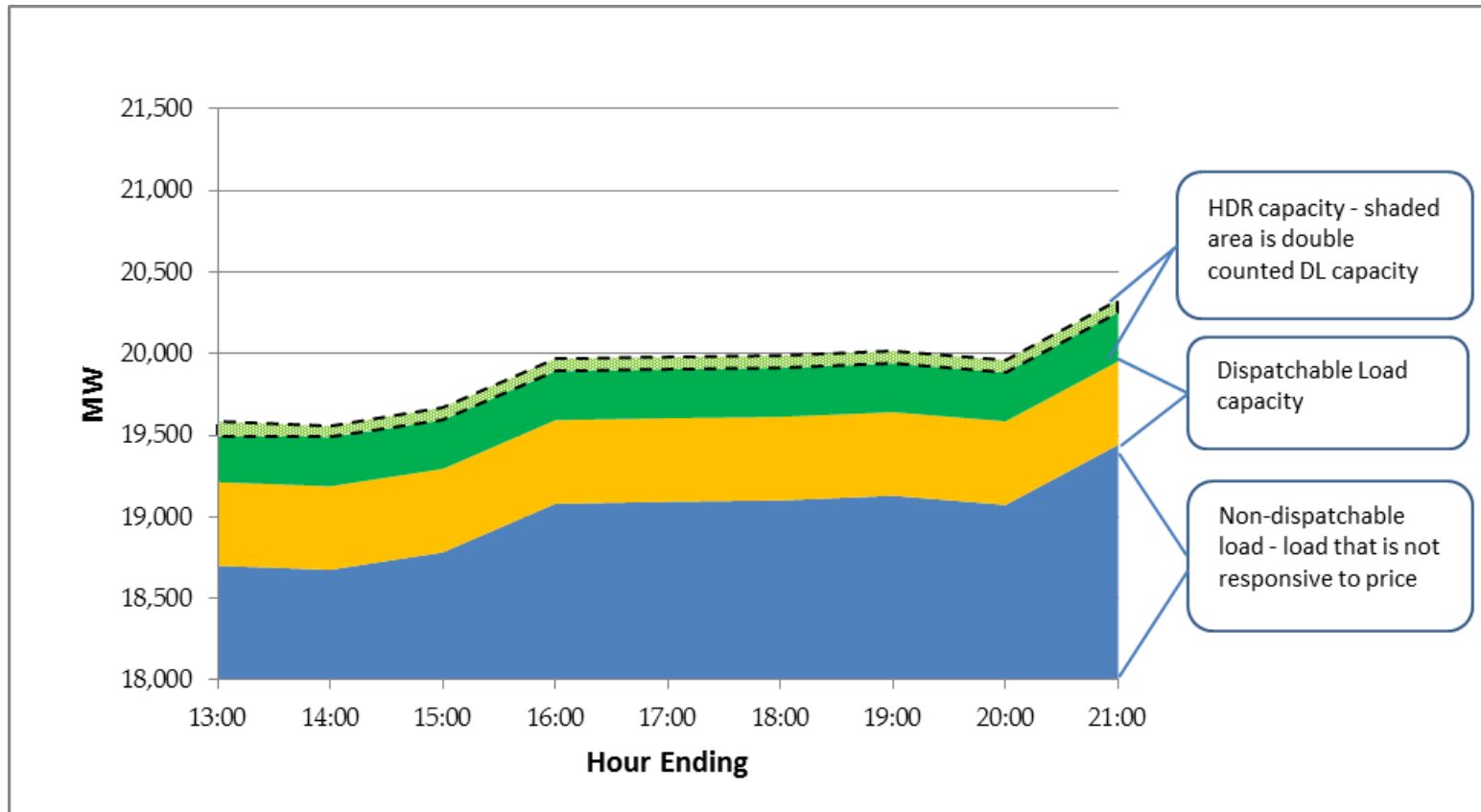
Example: Current Status



Example: Allowing DR in HDR



Overstated Demand Forecast



Illustrative example for discussion purposes

Overstated Demand Forecast cont'd

- MWs from energy bids from both the dispatchable load and the aggregator's Hourly Demand Response will be counted in the demand forecast, leading to a double counting of price-responsive load and demand being overstated
- Over-forecasting contributes towards less efficient market outcomes which can increase energy and uplift costs
- Overstating the amount of price-responsive capacity can negatively impact reliability

Conclusion

- Stakeholders have advised that not allowing DLs to participate in HDR will have a negative commercial impact
- IESO looked into this matter closely and determined there was no practical way to allow DL participation in HDR in the market design. Doing so would:
 - Reduce flexibility
 - Increase system costs
 - Run counter to DR Goals and Objectives
- DL can participate in an aggregated HDR portfolio by de-registering the resource (ie registering as non-dispatchable) in order to participate in an Hourly Demand Response resource
 - MR Ch. 7 s. 19.2.5