

Meeting System Needs with Demand Response

DR3 Working Group Meeting
April 3, 2014



- Expanding DR Participation in the Market
- Demand-side participation discussion
 - Unit Commitment
 - Load Following
 - Surplus Baseload Generation Management
- Future WG Discussion Topics

- The existing DR Mechanisms and the future DR Auctions provide payments to cover the fixed costs for consumers to make themselves available for DR reduction.
- These DR reductions can be delivered in a number of ways to meet system needs.
 - For example DR3 integration delivers into the energy market through an activation process.

- There may be other services that these DR resources can provide to the market in a cost competitive manner, such as:
 - Unit Commitment
 - Load Following
 - Surplus Baseload Generation Management
 - Other?

- Certain generator technologies require advance notification before they can come online and respond to dispatch instructions
- These generators are then required to run at a minimum level for a certain period of time for technical reasons
- Unit commitment provides these generators with sufficient notification (either day-ahead or intra-day) based upon anticipated system conditions

- Committed generators incur start-up and minimum generation costs over their minimum run time
 - They are guaranteed to recover these costs either through the market or through out-of-market
- Unit commitments can result in significant costs to the market
- These costs can be avoided through the selection of more economic resources to either provide cheaper supply or reduce demand

- Load following ensures that supply and demand balance is maintained at all times, through decisions made in different timeframes to match resource capabilities
- System conditions vary second-to-second, minute-to-minute, hour-to-hour and day-to-day
- Through IESO dispatch the following resources provide load following to the system
 - inertie transactions (hourly dispatch)
 - synchronized dispatchable generation and load (5-minute dispatch)
 - regulation service resources (second-to-second dispatch)

- Through manoeuvring their consumption, demand-side resources may be able to provide comparable flexibility to supply-based load following
 - Hourly
 - 5-minute
 - Second-to-second
 - Other?

- Surplus Baseload Generation (SBG) is a condition that occurs when the demand in Ontario is lower than the amount of baseload generation that is online and which wants to continue to run
- Baseload generation wishes to continue to run for economic, operational or regulatory reasons
- SBG can either be managed through reducing baseload generation or increasing demand

- Depending on system conditions, a range of actions may be taken which will incur different costs to the market and ratepayers:
 - Curtailed imports
 - Flexible nuclear manoeuvre
 - Variable generation dispatch
 - Hydro-electric spill
 - Nuclear shutdown
- An increase in demand, when economic relative to the cost of dispatching baseload generation, can help reduce the frequency and costs of these actions

- What are the characteristics of your resources that can match our system needs in these areas?
- What barriers exist to more participation in the IESO-administered markets?
- How do you participate in other markets to address their system needs?