

Demand Response Auction High Level Design Considerations

Demand Response Working Group
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- This is an introductory presentation which describes the key design areas for a competitive auction mechanism to procure demand response resources who will then deliver energy in the real-time energy market.
- Opportunity for initial comment from DRWG
 - In future stakeholder meetings, specific design alternatives will be presented
- The auction design will form the basis of a separate stakeholder engagement process

- Auction Targets
- Planning Horizon
- Commitment Period
- Capacity Assigned to Resources
- Participant Requirements and Obligations
- Monitoring, Compliance, Penalties and Mitigation
- Auction Design and Mechanics
- Settlement and Cost Allocation

- Target MW for each auction will be the quantity of MW expiring from OPA contracts plus additional identified needs
 - Additional needs may be identified through regional planning or other reliability assessments
- MW from previous auctions will carry forward and build upon the target MW for future auctions
 - Example: 2015 auction target is 150 MW. 50 MW expire before delivery date of 2016 auction, therefore the 2016 auction target is 200 MW (150 MW from 2015 plus 50 MW of expired DR)

- If required, zonal targets will be established for different locations within Ontario
 - Zonal boundaries will be defined by transmission constraints
 - Zonal targets may either be minimum or maximum target to ensure local reliability and resource adequacy
- Design decisions:
 - Defining zones and zonal targets
 - Assessments that trigger increased target to meet “additional needs”

- Planning Horizon
 - The planning horizon (i.e. amount of time between the auction and capacity delivery) should be as short as possible while ensuring sufficient competition
- Commitment Period
 - Commitment period should reflect the level of risk taken by participants in response to market signals and the effect that risk has on required payments

- What length of planning horizon is needed to give sufficient lead time to allow for competitive entry?
- What length of commitment period is needed for DR resources to sufficiently manage market risk?

- All DR providers must pre-qualify their DR facilities to determine capability to vary consumption
- Existing resources: expected availability based on historical performance over a predetermined period
- New resources: expected availability based on forecasted performance based on similar technologies, contributor subscription and obligations imposed by energy market
- Establishes upper limit on MWs offered

- Capacity shall be re-evaluated prior to each auction for the next commitment period
- Design decisions:
 - Determination of:
 - Net capacity
 - Forced outage rates
 - Seasonal weighting or variation in available capacity
 - Different processes for new vs. existing DR resources

- DR providers must become market participants and register their facilities to participate in the auction
 - OEB licence requirements will align with licence requirements for transitional DR rules
- Pre-qualification must be completed prior to each auction
- Both technical data and financial (credit support) requirements must be met by market participants

- Participants who are selected in the auction must then participate in and provide applicable dispatch data to the energy market to allow them to be scheduled
- Data must also be submitted (after the fact) to verify the capacity that they have provided over the course of the commitment period
- Design decisions:
 - Credit support requirements
 - Required technical data to support capacity assignment and verification

- Offer prices will be subject to limits
 - maximum offer prices akin to our MMCP in the energy market
 - minimum offer prices to act as mitigation against undue price-suppression effects
- Penalties will be applied for these reasons:
 - Failure to deliver DR capacity in time for start of commitment period
 - Failure to submit dispatch data to the energy market in accordance with capacity obligation throughout delivery period
- Exercise of market power (e.g. coordination of offers) will be monitored

- Existing penalties in the energy market will result when demand response providers do not comply with their dispatch instructions
- Design decisions:
 - Structure of financial penalties for failure to meet obligations
 - Indicators of exercise of market power

- DR providers submit offers for the capacity that they are able to provide in the target year
 - Offers reflect revenue required to make capacity, net of expected revenues from energy/ancillary services
- Offers (units of \$/MW-month) are stacked from lowest to highest cost and cleared against a demand curve representative of the target capacity need
- Offers should indicate whether resources are located in zones with specific target requirements and, if so, which zones

- Participants may not revise their offers nor see competing offers
- Shape of the demand curve will be established to allow for appropriate price signals and cleared quantities
- Least expensive set of offers will be selected to meet the target requirements, subject to system constraints
- MCP will be developed for any zones with minimum targets as well as for the rest of Ontario

- Design Decisions:
 - Shape of the demand curve (including representative points such as maximum price, floor price and target) as well as any break points
 - Specific objective function that the auction seeks to achieve

- All participants that have cleared the auction will receive the market clearing price for the quantity of demand response that they have been selected to provide
- Payments will be made on a monthly basis
- Loads shall be charged the auction payments on a monthly basis through an uplift charge

- The uplift charge will consist of:
 - Net cost of payments made to demand response providers cleared in the auction (e.g. $MW * MCP$ (\$/MW-month))
 - Sum of penalties charged to participants who fail to meet their obligations
- Design decisions:
 - Process of demonstrating that obligations have been met to satisfy monthly payment and determination of penalties
 - Cost recovery process and potential overlap of incentives and compensation with Global Adjustment High-5 peak avoidance