

Capacity Auction Design Memo 4.0

Engagement Topic: Hourly Demand Response Standby Trigger

Engagement Status: In Progress

Date: September 2022

Objective

The focus of the design change to the standby notice price trigger outlined in this memo is intended to address a specific identified issue ahead of the 2022 Capacity Auction.

Background

The Hourly Demand Response (HDR) resource energy market participation model includes the use of standby and activation notices to ensure HDR resources are notified and respond to dispatch/activation instructions in a timely manner. The standby notice was designed to provide enough notification to capacity market participants with HDR resources that a system peak may be approaching and to prepare the contributor facilities for a potential activation. Historically, HDR resources have been most efficiently used to assist the IESO during times of peak system needs alongside other peak-demand resources, such as hydroelectric and quick start gas generation resources.

The issuance of standby notices should coincide with days when other peaking resources are being dispatched to maintain market efficiency.

Recent Observations

Recently, higher pre-dispatch shadow prices are triggering standby notifications more frequently than in the past, which may lead to inefficient market outcomes. As part of the capacity auction design, HDR resources are expected to be put on standby in order to compete against other peaking resources during times of system need; however, with the current standby notice price threshold of \$100, the HDR resources are being put on standby in advance of some baseload and intermediate generators.

At current levels the standby trigger is leading to inefficient market outcomes which is a concern to the IESO. This review was conducted to determine whether the standby notice price

threshold should be revised to bring the issuance of HDR standby notices into alignment with when other peaking resources may be used to address peak system conditions.

Beginning in 2021, the IESO engaged with stakeholders to develop enhancements to the 2022 Capacity Auction, which included enabling generator-backed imports to participate, modifications to the performance assessment framework and the introduction of a capacity qualification process. Through discussion with stakeholders on the introduction of a Standby Availability Charge to be used in lieu of an availability de-rate in qualification, stakeholders and the IESO agreed that the current pre-dispatch shadow price threshold of \$100 should be reviewed given that higher pre-dispatch shadow prices are triggering HDR standby notifications more frequently.

Analysis Approach

Analysis was conducted to determine a revised standby notice price threshold that would restore the frequency of standby notice occurrences to a level more consistent with when these resources are expected to be used. This analysis consists of two parts:

- **Part 1** looks at the ideal frequency of HDR resource standby notifications for grid reliability/system need based on gas peaking generator resources, and;
- **Part 2** analyzed a number of theoretical standby price thresholds to determine the optimal price to align HDR resource standby frequency with grid reliability/system needs.

Part 1: Frequency Analysis

To compare when HDR resources may be expected to participate and compete in the electricity market alongside other peaking resources, the IESO conducted analysis on the frequency of days that gas peaking resources were dispatched to provide energy between September 2019 and August 2022 (a 3-year period). Gas peaking resources were selected based on location and their utilization for system needs on a system-wide basis. This lookback period was selected to include conditions in the more normal pre- and post-pandemic months.

For the purpose of this analysis, years are defined as September 1st to August 31st, rather than trying to align with the capacity auction commitment periods (May to October, and November to April). This allowed the IESO to include significant events that have impacted system and economic conditions, such as the Russia-Ukraine war, towards the beginning of 2022.

The outcome of the frequency analysis showed that since 2019 the gas peaking resources have been dispatched to provide energy an average of 52 days a year.

Part 2: Price Threshold Analysis

To align the frequency of HDR resources being put on standby with the potential use of peaking resources, the next step in the analysis was to identify a standby price that would also result in an average of approximately 52 days when standby notices would have been issued per year.

To do this, the IESO then applied varying standby notice prices to the historical data over a 12-month period to understand the average number of standby notices HDR resources would have received under these different values. See Table 1 below.

Table 1: Theoretical Number of Standby Notifications Over a 12-Month Period at Various Standby Notice Prices

	Theoretical Number of Standby Notices at Various Price Thresholds						
Price Threshold	\$100 (actual)	\$125	\$150	\$175	\$200	\$225	\$250
Notifications (Sept 2021 - Aug 2022)	91	73	62	55	50	43	32
	Split by winter and summer months						
Winter Months ¹	23	17	14	11	10	8	7
Summer Months ²	68	56	48	44	40	35	25

In order to best capture changing market conditions, such as the recent increase in gas prices, the price threshold analysis looked at the time period between September 2021 and August 2022. While gas prices are not the only component that influences pre-dispatch prices, they have had a significant impact in the first half of 2022.

The results indicate that a standby price threshold between \$175-\$200 would have resulted in a theoretical 55-50 standby notices (respectively) for the HDR resources within the past 12 months.

Proposal

Given that gas generation resources were dispatched for energy an average of 52 days annually for peak system needs, according to the frequency analysis, and the price threshold analysis revealed a standby notice price threshold between \$175-\$200 would result in an equivalent number of days when standby notices would be issued, the IESO proposes to change the standby notice price to \$200 for the 2022 Capacity Auction.

Prior to future auctions, the IESO will also review the standby notice price threshold annually in the pre-auction period and follow the appropriate procedures to implement any future changes if and when they are required, including sufficient notification to stakeholders and capacity auction participants.

Market Rule/Market Manual Impacts

Any changes to the standby notice price threshold value will be reflected in the following governing documents:

- Market Manual 4.3 Section 7.3.1

¹ Winter months include: November to December 2021, and January to April 2022

² Summer months include: September to October 2021, and May to August 2022

- Market Manual 9.3 Section 4.11.2

Next Steps

For the change to be in effect prior to the 2022 Capacity Auction (opening November 30th, 2022), an update to the standby notice price threshold will be implemented through amendments to the above-noted market manuals that will be posted on the [Pending Changes](#) website in late October/early November. Stakeholders will have an opportunity to review the proposed amendments and provide feedback, as per the standard market manual amendment process.