

Discussion Brief 1.2: HDR Qualification and the Standby Availability Charge

Overview

At the August 26, 2022 Technical Session, IESO presented a recap of the general methodology for capacity qualification and the proposal for the Standby Availability Charge (SAC) presented earlier in 2022. Through stakeholder feedback and discussion on the proposal and alternative potential solutions, there was general agreement that a charge in lieu of an availability de-rate for HDR capacity qualification could be developed with stakeholder input. Stakeholders were invited to submit proposals which would be considered along with a revised IESO proposal for the SAC.

At the September 22, 2022 Technical Session, IESO provided commentary on two stakeholder proposals and presented a revised proposal for HDR qualification and SAC that built upon previous feedback and discussion with stakeholders. The latest iteration of the SAC proposal aimed to address stakeholder concerns raised in previous engagement sessions. For further background, please refer to Discussion Briefs [1.0](#) and [1.1](#) on the Capacity Auction Enhancements engagement webpage.

At today's October 25 Technical Session, the IESO intends to engage in a discussion with stakeholders on the IESO and stakeholder proposals outlined below for an alternative to an HDR availability de-rate. Discussion during this session and written feedback submitted after the session will be used to determine the recommended solution to proceed with, which will be outlined in a Design Memo to be presented at the November 2022 General Session.

Objective

Key objectives of the capacity auction include:

- Procuring capacity in a transparent, open, and fair manner, with all resource types treated as equal as possible; and
- Ensuring that the capacity product for each type of resource secured through the auction contributes equally towards meeting resource adequacy needs, while considering the unique characteristics of the underlying technology. The capacity product secured through the auction is the availability of capacity (MWs) during the availability window of an obligation

period. This availability is represented by offers and bids in the energy market that accurately reflect a resource's capability.

- The demonstrated performance capability and average availability of a resource should be reflected in the qualified capacity methodology, to ensure only reliable capacity is procured through the auction.

To help meet these objectives a capacity qualification process for all resources is proposed to be used to derive an Unforced Capacity (UCAP) value that a resource can offer into the auction.

The IESO HDR participation model allows for HDR resources to remove their bids for the day if they do not receive a standby notification, therefore daily bid data is often incomplete and cannot be used to determine an availability de-rate for this resource. The absence of an availability de-rate for HDRs does not support the objectives laid out above, and would represent an unacceptable level of unfairness across resource types. An alternative to this availability de-rate must be empirical and defensible, recognizing equivalency to other auction resource types.

Recap of the Standby Availability Charge Proposal

IESO's initial proposal for an alternative to an availability de-rate for HDR resources was an augmented availability charge with a non-performance factor of 10 that was designed to incentivize resources to make their full capacity obligation available in the energy market when they receive a standby notification. For further details on this proposal, please refer to the [2022 Capacity Auction Enhancements Design Document](#).

Through discussions with stakeholders and Technical Panel members throughout 2022, the initial proposal was revised to a standby availability charge (SAC) that included a multiplier of 5x the existing Availability payment that would be applied to any MWs below the resource's obligation that were not made available when a standby notice has been issued and a cap of 25 standby notices for which a SAC would apply to, per obligation period. Following the August 26 engagement session, stakeholder feedback on the SAC proposal indicated concerns with the level of financial exposure the multiplier of 5x the Availability Charge would present to HDR resources, particularly in light of the increased number of standby notices being issued due to pre-dispatch shadow prices exceeding the \$100/MWh standby price trigger more frequently.

In response to this feedback, the IESO committed to a review of the HDR standby price trigger. During the September 22 stakeholder engagement session, IESO presented analysis and findings of the HDR standby price trigger review and recommended the standby trigger price be updated to \$200/MWh for the 2022 Capacity Auction. The IESO noted that the proposed standby trigger price update is expected to reduce the frequency of standby notices in the future which is expected to reduce the frequency that HDR resources would be exposed to the SAC. Technical Panel members also raised fairness concerns with the cap of standby notices for which the SAC would apply, noting that, as a consequence, HDR resources may not be required to be available throughout the entire obligation period. Due to the expected reduced level of future standby notices and level of financial

exposure to this charge that is expected to be realized with an update to the standby trigger price and to address these fairness concerns raised by Technical Panel members, the IESO removed the cap imposed on the number of days on which the SAC would apply (previously 25), and the restriction on the charge only being applicable during peak months. An associated reduction in the multiplier included in the SAC proposal from 5x to 3x was made to ensure fairness in the level of financial exposure an HDR resource might be subject to under this revised proposal (see Discussion Brief 1.1 for further detail). The IESO presented this revised proposal to stakeholders at the September 22 technical engagement session for discussion and requested written feedback from stakeholders.

Areas of Concern

Concerns raised by the stakeholder community regarding the revised SAC proposal included:

- The high magnitude of the proposed SAC has the potential to drive undesirable behaviour by resources not reflecting accurate availability in bids submitted to the energy market to avoid the SAC.
- Removing the cap on the number of standby notices to 25 days will increase the risk profile for the HDR resources compared to other capacity auction resources.
- Removing the restriction on the standby charge being applicable to peak months only is not in alignment with the qualification methodology for other capacity auction resources.
 - Stakeholders noted that the SAC is being compared to the qualification methodology that looks at the top 200 hours of demand which captures data during hours of higher demand and suggests the IESO should be considering the same for the HDR methodology.

Alternative Stakeholder Proposals:

ERCOT Proposal

Following the August 25 and 26 engagement sessions, stakeholders provided a proposal to determine the availability de-rate of an HDR resource based on the methodology used by ERCOT. During the September 22 technical session, IESO discussed the stakeholder proposal and provided commentary on why the proposed model was inconsistent with the IESO's Capacity Auction processes and key objectives of 2023 Capacity Auction enhancements. Particularly, the introduction of a capacity qualification process which will ensure the MWs procured through the auction are reliable and can be counted towards resource adequacy. Other IESO concerns with the stakeholder proposal can be found in Discussion Brief 1.1.

In the written feedback provided by the stakeholders on the September 22 technical session, stakeholders argued that IESO's concerns raised on the proposal could be overcome and suggested that if applied correctly, this methodology will incentivize availability of load resources during the capacity period and account for outages that may occur throughout the season as well as seasonal variations in load. However, stakeholders did not provide any additional detail on the implementation of the ERCOT model that will help the IESO to ensure that this methodology will provide IESO the certainty that MWs procured through the auction are reliable and can be counted towards resource adequacy. IESO would like to discuss specific details and examples of how the IESO's concerns related to how this method does not properly account for the percentage of load available for curtailment can be overcome in the October 25th Technical Session.

In addition to this, stakeholders provided two additional proposals for an HDR availability de-rate that closely mirror other resource types' availability de-rate methodologies including Dispatchable Loads and hydro electric generation.

Option 1: Using Lowest Capacity of Real-Time bid data

Using the lowest capacity offered in day ahead or real-time bid data from the top 200 hours in the previous commitment period to determine a percentage availability de-rate during capacity qualification.

Based on IESO's understanding of this proposal, if the lowest submitted day-ahead or real-time bid value of an HDR resource during the top 200 hours of the previous commitment period was 6 MW with an obligation of 10MW, the availability de-rate for the HDR resource would be 40% and this availability de-rate will be applied to the subsequent auction.

IESO has discussed the challenges of using bid data to determine an availability de-rate for HDR resources in previous engagement sessions on the design of the capacity qualification process. HDR resources' bids and offers are not accompanied by revenue-grade meter data that provides evidence to support their accuracy. However, IESO would like to discuss this proposal in further detail at the October 25 technical engagement session.

Option 2: Using historical meter data to review the baseline of the HDR resource in top 200 hours

Under the second option, stakeholders are suggesting that the IESO use historical meter data to review the baseline of the HDR resource in the top 200 hours and derate the resource based on the baseline available across the 200 hours through a percentage availability de-rate.

IESO is not supportive of this proposal because the total consumption of the resource often does not equate to its registered curtailment capability which is indicated by the resource owner. The IESO does not agree that a resource's total load should be assumed to be fully curtailable. Stakeholders have also indicated curtailment capability can fluctuate on a frequent, sometimes daily, basis and simply using the baseline of a resource does not necessarily equate to the curtailment capability out of a resource.

IESO's Preferred Proposal

IESO carefully reviewed feedback submitted by the stakeholders and concerns raised regarding the revised proposal for the SAC. IESO has taken particular note of the point that the SAC proposal may incent undesirable behaviour by participants not updating bids to reflect true capability of their resource. Stakeholders warned that some participants would try to avoid the SAC by maintaining their bids at full capability and risk incurring the lower dispatch charge. IESO appreciates this feedback, acknowledging these as potential risks and has discussed an alternative proposal for stakeholder consideration described below.

Availability De-rate using the Self Scheduled Capacity Test

Under the current capacity testing framework, the IESO is responsible for scheduling and dispatching resources. Under the proposed testing framework, all capacity resources will be required to demonstrate their ability to get scheduled and deliver within a resource-specific performance threshold to their cleared ICAP within an IESO-determined capacity test window once per obligation period. IESO will then use the capacity delivered during a self-scheduled test to determine a performance adjustment factor (PAF) for future capacity qualification.

After consideration of recent discussions with and feedback submitted by stakeholders, and to address the concerns raised on previously proposed iterations of the SAC, IESO has developed an alternative proposal to determine an HDR availability de-rate in qualification based on key elements of the stakeholder proposal (ERCOT model) discussed above. IESO is proposing to use delivered performance during the self-scheduled capacity test to adjust the resource's obligation and capacity payments for the obligation period during which the capacity test is conducted.

This proposal suggests that if an HDR resource does not deliver to its cleared ICAP value, within the proposed performance threshold, that resource's capacity obligation and capacity payments for the entire obligation period would be revised to reflect the capacity that was demonstrated during the capacity test. Total availability payments received throughout the obligation period, including payments received prior to the test and performance assessment, would be included in the payment adjustment. An adjustment will only be made if the resource performance results show that it delivered below its cleared ICAP value within the performance testing threshold or in other words, if the resource fails the capacity test. If the resource passes the test and curtails load equal to the cleared ICAP value within the performance threshold, no payment adjustment will be made during the obligation period. Delivered performance during the same capacity test would also be used to determine the performance adjustment factor used in future capacity qualification. During obligation periods where the PAF has taken effect, any in-period payment adjustment would not apply if the resource's cleared UCAP and obligation are already set lower than the delivered performance during the self-scheduled capacity test.

This proposal has been developed by taking into consideration the fundamental concepts outlined in the ERCOT methodology proposed by stakeholders. Under the ERCOT proposal, a resource's availability is considered to be 100% or fully available at the time of the auction. At the end of the

obligation period, submitted data showing the resource’s total load is assessed and if it demonstrates total load is less than 95% of its obligation, total payments are de-rated accordingly. IESO’s proposal for an in-period availability de-rate uses this general approach but proposes to use capacity test performance data instead of load consumption data to determine the revised obligation and make necessary payment adjustment. This proposal is in alignment with IESO’s objectives of ensuring only reliable capacity is procured through the Capacity Auction and appropriately balances risk between participants and the IESO.

Scenario 1 – ICAP Equals UCAP

As an example, assume that the cleared ICAP of an HDR resource during a summer obligation period is 10 MW, cleared UCAP and their capacity obligation are all 10 MW because the performance adjustment factor has not yet taken effect. To pass the self-scheduled capacity test, the HDR resource must deliver its cleared ICAP (within the performance threshold). If the HDR resource delivers only 8 MW, i.e. fails their capacity test, the obligation amount will be revised to 8 MW and a payment adjustment will be applied to total availability payments over the obligation period, based on the 8 MW obligation instead of the cleared ICAP of 10 MW. In addition, a PAF of 20% will be used during future capacity qualification. The calculation below demonstrates this in more detail;

Auction Clearing Price – 2021 = 264.99\$/MW-day in summer

Cleared ICAP = 10 MW

Cleared UCAP = 10 MW (PAF has not taken effect yet)

Testing Month: July (3rd month of Summer obligation period) and assuming 22 business days in a month

Illustrative Example of Payment Adjustment

Obligation Months (Summer)	Availability Payment	Payment Adjustment (20%)	Net Payment
May	\$58,300	\$11,660	\$46,640
June	\$58,300	\$11,660	\$46,640
July	\$58,300	\$11,660	\$46,640
August	\$58,300	\$11,660	\$46,640
September	\$58,300	\$11,660	\$46,640
October	\$58,300	\$11,660	\$46,640
Total Payment	\$349,800	\$69,960	\$279,840

Scenario 2 – PAF Applied and Resource Delivers at least UCAP

The same HDR resource from Example Scenario 1 with a cleared ICAP of 10 MW is now participating in a Capacity Auction two years later when their delivered performance during the self-scheduled capacity test from the first year of participation is used to calculate their PAF. Once their PAF of 20% is applied, they receive a UCAP of 8 MW and clear the full amount in the auction, resulting in a cleared UCAP of 8 MW. During the self-scheduled capacity test, the HDR resource must deliver the cleared ICAP (within performance thresholds) to pass the test. If the HDR resource only delivers 8.5 MW of capacity, no additional in-period obligation and payment adjustment will be applied during that obligation period because the obligation and payments are based on 8 MW established through capacity qualification. However, the PAF for the next applicable capacity qualification will be based on the resource's delivered performance of 8.5 MW.

Scenario 3 – PAF Applied and Resource Delivers less than UCAP

The same HDR resource from Example Scenario 1 with a cleared ICAP of 10 MW is now participating in a Capacity Auction two years later when their delivered performance during the self-scheduled capacity test from the first year of participation is used to calculate their PAF. Once their PAF of 20% is applied, they receive a UCAP of 8 MW and clear the full amount in the auction, resulting in a cleared UCAP of 8 MW. During the self-scheduled capacity test, the HDR resource must deliver the cleared ICAP (within performance thresholds) to pass the test. If the HDR resource only delivers 5 MW of capacity, the obligation amount will be revised to 5 MW and a payment adjustment will be applied to reflect total availability payments over the obligation period, including past payments, based on the 5 MW obligation instead of the cleared UCAP of 8 MW. In this scenario, the HDR resource's obligation and payments were revised based on the 5 MW of delivered capacity to align total payments over the obligation period with the demonstrated capability. In addition, a PAF of 50% will be used during capacity qualification two auctions later.

If a participant does not successfully schedule a capacity test for a resource within the IESO-determined capacity test window or fails to submit the test data to the IESO within the prescribed timeline, delivered performance will be assumed to be 0 MW and PAF of 25% will be applied to that resource.

IESO's Alternative Proposal

An alternative proposal is presented here for stakeholder consideration that the IESO may consider in the event agreement is not reached on the IESO's preferred proposal. This alternative proposal also aims to address concerns raised by stakeholders regarding the previous SAC proposal leading to unintended behaviour by potentially incenting resources not to update their availability bids and risk incurring the dispatch charge.

IESO proposes that, in addition to introducing a standby availability charge equal to 3x the monthly availability payments, with no cap on the number for standby days for which the SAC is applied and making the charge applicable to the entire obligation period, IESO also proposes to increase the

magnitude of the dispatch charge that is applied to the resource for MWs not delivered in accordance with its dispatch schedule. A dispatch charge that would apply a greater penalty for failure to follow dispatch instructions will eliminate the opportunity to avoid the SAC in lieu of a lower penalty. With a lower SAC, participants would be encouraged to submit accurate bids reflective of capability and then to follow those dispatch instructions.

Under section 1.6.26.3.4 of part 5.5 of Market Manual 5, dispatch charge is defined as a non-performance charge applicable only to C&I HDR resources that have failed to follow their dispatch instructions within 15% dead band. The dispatch charge applies to the dispatch hour when the HDR resource fails to meet the dispatch instruction for any 5 min interval within the dispatch hour.

The IESO is conducting analysis to determine what revisions would need to be made to the dispatch charge that would drive the appropriate behaviour described above. This analysis can be presented in a future engagement session pending discussion on the other proposals included in this discussion brief.

Conclusion and Next Steps:

The IESO looks forward to feedback and discussion with stakeholders on an alternative to an HDR availability de-rate that will lead to final refinements of these proposals and a recommended solution that supports the objectives of the auction and what an availability de-rate is intended to achieve.