

Illustrative Examples on In-period Adjustment Proposal to determine HDR Availability De-rate

At the October 25th technical engagement session, the IESO presented a proposal for an alternative to the availability de-rate in capacity qualification for HDR resources. Under the revised proposal, the IESO will use delivered performance during the self-scheduled capacity test to adjust the HDR resource's obligation and capacity payments for the obligation period during which the capacity test is conducted. A description of the final design can be found in Design Memo 5.2 - HDR Capacity Qualification which is posted at the top of the [Capacity Auction Enhancements](#) webpage.

During the November 22nd engagement session, participants had requested that the IESO provide illustrative examples to help understand how the in-period adjustment works with other existing capacity auction mechanisms and proposed design enhancements including the application of a performance adjustment factor (PAF) in a future capacity qualification process and settlement charges. Following the discussion during January 26th engagement session, this document has been revised to introduce a 10% threshold for the in-period adjustment assessment.

The example scenarios provided below are intended to provide clarity on the proposed designs once implemented but are not exhaustive of all the potential scenarios that could apply to capacity auction participants under the proposed design. Further details can be found in the final design memo now posted at the top of the Capacity Auction Enhancements webpage. For all the scenarios provided below, we assume that the cleared ICAP of an HDR resource during a summer obligation period is 10 MW. To pass the self-scheduled capacity test, the HDR resource must deliver at least 90% of its cleared ICAP, otherwise non-performance charges will apply and a performance adjustment factor (PAF) will apply in a future capacity qualification process. The HDR resource must also deliver at least 90% of its cleared UCAP to avoid an in-period UCAP adjustment. The following parameters are used in each of the calculations below:

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

Testing Month: June (2nd month of Summer obligation period)

Business days per month: 22 business days

In the scenarios being discussed below, the self-scheduling capacity test is conducted in the month of June. However, due to HDR resource data submission processes and associated performance assessment and settlement timelines, the in-period adjustment charge may not appear in the settlement statement for the month in which the test is conducted. Once the IESO has completed the assessment of capacity test performance data and the in-period adjustment has been determined, the HDR participant will be made aware of the revised obligation and its effective date.

Example Scenario 1 – No PAF in effect and Participant delivers less than obligation in the capacity test

In this scenario, an HDR resource is in the first year of capacity qualification where the cleared ICAP will equal the cleared UCAP (and capacity obligation) with no PAF applied. In the self-scheduled capacity test, assessment of the resource’s performance data demonstrates it delivered 8 MW, which is 2 MW below the cleared UCAP (and capacity obligation) of 10 MW.

As the assessment of the data submission demonstrates that the HDR resource delivered 8 MW, the in-period UCAP adjustment will revise the obligation amount to 8 MW. Additionally, the in-period adjustment charge will be applied, less any availability charges that were based on the original 10 MW obligation, to total availability payments over the obligation period based on the revised 8 MW obligation instead of the original obligation of 10 MW.

A separate assessment will be conducted to determine if the HDR resource passed or failed the test. In this scenario, the HDR resource fails the capacity test because it did not deliver to its cleared ICAP, within the performance threshold of 10%. As a result of the failed capacity test, a capacity charge is applied and a **PAF of 20%** will be applied during the applicable future capacity qualification process.

Obligation Months	Availability Payment	Obligation Amount	In-period Adjustment Charge	Capacity Charge	Net Payment
May	\$ 58,297.80	10 MW	-	-	\$ 58,297.80
June	\$ 46,638.24	8MW*	-\$ 11,659.56*	-\$58,297.80	-\$ 23,319.12
July	\$ 46,638.24	8MW	-	-	\$ 46,638.24
August	\$ 46,638.24	8MW	-	-	\$ 46,638.24
September	\$ 46,638.24	8MW	-	-	\$ 46,638.24
October	\$ 46,638.24	8MW	-	-	\$ 46,638.24
TOTAL	\$ 291,489.00	-	-\$ 11,659.56	-\$ 58,297.80	\$ 221,531.64

*Due to HDR resource data submission processes and associated performance assessment and settlement timelines, the in-period adjustment charge and revised obligation may not appear in the settlement statement for the month in which the test is conducted. Additionally, the in-period adjustment charge will correct any availability payments that were based on a 10MW obligation. All payments for the entire obligation period will not exceed what can be earned based on an 8 MW obligation.

Example Scenario 2 – No PAF in effect and resource passes the capacity test and no in-period adjustment applies

In this scenario, an HDR resource is in the first year of capacity qualification where the cleared ICAP will equal the cleared UCAP (and capacity obligation) with no PAF applied. In the self-scheduled capacity test, assessment of the resource’s performance data demonstrates it delivered 9.2 MW, which is 0.8 MW below the cleared ICAP of 10 MW. Since a performance threshold of 10% is applicable to the in-period UCAP adjustment assessment and the resource delivered within 90% of its cleared UCAP, no in-period adjustment charge would be calculated and the obligation/cleared UCAP would remain as 10 MW. A separate assessment determines the resource passes the capacity test since delivered

performance was within the performance threshold of 10% of the cleared ICAP. As a result, no capacity charge is applied and no PAF would be applied for the applicable future capacity qualification process.

Obligation Months	Availability Payment	Obligation Amount	In-period Adjustment Charge	Capacity Charge	Net Payment
May	\$ 58,297.80	10 MW	-	-	\$ 58,297.80
June	\$ 58,297.80	10 MW	-	-	\$ 58,297.80
July	\$ 58,297.80	10 MW	-	-	\$ 58,297.80
August	\$ 58,297.80	10 MW	-	-	\$ 58,297.80
September	\$ 58,297.80	10 MW	-	-	\$ 58,297.80
October	\$ 58,297.80	10 MW	-	-	\$ 58,297.80
TOTAL	\$ 349,786.80	-	-	-	\$ 349,786.80

Example Scenario 3 – Participant delivers equal to obligation (Cleared UCAP) during the capacity test

The same HDR resource from Example Scenario 1 is participating in a future Capacity Auction with a cleared ICAP of 10 MW. The resource’s historical performance during the self-scheduled capacity test from the applicable previous obligation period is used to calculate their PAF of 20%. Once their PAF 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 and a cleared ICAP of 10 MW.

In the self-scheduled capacity test, assessment of the resource’s performance data demonstrates it delivered 8 MW of capacity. As the delivered capacity is equal to the obligation amount of 8 MW, **no in-period UCAP adjustment** will be applied during that obligation period because the resource delivered at least 90% of its cleared UCAP.

A separate assessment is conducted to determine if the HDR resource passed or failed the test. In this scenario, the HDR resource fails the capacity test because it did not deliver to its cleared ICAP, within the performance threshold of 10%. As a result of the failed capacity test, a capacity charge is applied and a **PAF of 20%** will be applied during the applicable future capacity qualification process .

Obligation Months	Availability Payment	Obligation Amount	In-period Adjustment Charge	Capacity Charge	Net Payment
May	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
June	\$ 46,638.24	8 MW	-	-\$ 46,638.24	-
July	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
August	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
September	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
October	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
TOTAL	\$ 279,829.44	-	-	-\$ 46,638.24	\$ 233,191.20

Scenario 3.1 – Participant delivers less than the obligation (Cleared UCAP) during the capacity test and in-period adjustment is applied

The same HDR resource from Example Scenario 1 is participating in a future Capacity Auction with a cleared ICAP of 10 MW. The resource’s historical performance during the self-scheduled capacity test from the applicable previous obligation period is used to calculate their PAF of 20%. Once their PAF 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 and a cleared ICAP of 10 MW.

In this obligation period’s self-scheduled capacity test, assessment of the data submission demonstrates that the HDR resource delivered 6 MW, therefore, the in-period UCAP adjustment charge will apply and the obligation amount will be revised to 6 MW. The in-period adjustment charge will be applied, less any availability charges that were based on the original 8 MW obligation, to total availability payments over the obligation period based on the revised 6 MW obligation instead of the original obligation of 8 MW.

A separate assessment will be conducted to determine if the HDR resource passed or failed the test. In this scenario, the HDR resource fails the capacity test because it did not deliver to its cleared ICAP, within the performance threshold of 10%. As a result of the failed capacity test, a capacity charge is applied and a **PAF of 40%** will be applied during the applicable future capacity qualification process.

Obligation Months	Availability Payment	Obligation Amount	In-period Adjustment Charge	Capacity Charge	Net Payment
May	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
June	\$ 34,978.68	6 MW	-\$ 11,659.56	-\$46,638.24	-\$ 23,319.12
July	\$ 34,978.68	6 MW	-	-	\$ 34,978.68
August	\$ 34,978.68	6 MW	-	-	\$ 34,978.68
September	\$ 34,978.68	6 MW	-	-	\$ 34,978.68
October	\$ 34,978.68	6 MW	-	-	\$ 34,978.68
TOTAL	\$ 221,531.64	-	-\$ 11,659.56	-\$46,638.24	\$ 163,233.84

Scenario 3.2 – Participant delivers less than the cleared ICAP during the capacity test but more than the obligation (cleared UCAP)

The same HDR resource from Example Scenario 1 is participating in a future Capacity Auction with a cleared ICAP of 10 MW. The resource’s historical performance during the self-scheduled capacity test from the applicable previous obligation period is used to calculate their PAF of 20%. Once their PAF 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 and a cleared ICAP of 10 MW.

In this obligation period’s self-scheduled capacity test, assessment of the resource’s performance data demonstrates it delivered 8.5 MW of capacity. As the delivered capacity is higher than the cleared UCAP/obligation amount of 8 MW, **no in-period obligation and payment adjustment** will be applied during that obligation period because the resource delivered at least its cleared UCAP/obligation.

A separate assessment will be conducted to determine if the HDR resource passed or failed the test. In this scenario, the HDR resource fails the capacity test because it did not deliver to its cleared ICAP, within the performance threshold of 10%. As a result of the failed capacity test, a capacity charge is applied and a **PAF of 15%** will be applied during the applicable future capacity qualification process.

Obligation Months	Availability Payment	Obligation Amount	In-period Adjustment Charge	Capacity Charge	Net Payment
May	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
June	\$ 46,638.24	8 MW	-	-\$ 46,638.24	-
July	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
August	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
September	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
October	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
TOTAL	\$ 279,829.44	-	-	-\$ 46,638.24	\$ 233,191.20

Scenario 3.3 – Participant delivers less than the obligation (Cleared UCAP) during the capacity test but within the performance threshold

The same HDR resource from Example Scenario 1 is participating in a future Capacity Auction with a cleared ICAP of 10 MW. The resource’s historical performance during the self-scheduled capacity test from the applicable previous obligation period is used to calculate their PAF of 20%. Once their PAF 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 and a cleared ICAP of 10 MW.

In this obligation period’s self-scheduled capacity test, assessment of the resource’s performance data demonstrates it delivered 7.3 MW of capacity. As the delivered capacity is within the performance threshold (10%) of the cleared UCAP/obligation amount of 8 MW, **no in-period obligation and payment adjustment** will be applied during that obligation period.

A separate assessment will be conducted to determine if the HDR resource passed or failed the test. In this scenario, the HDR resource fails the capacity test because it did not deliver to its cleared ICAP, within the performance threshold of 10%. As a result of the failed capacity test, a capacity charge is applied and a **PAF of 27%** will be applied during the applicable future capacity qualification process.

Obligation Months	Availability Payment	Obligation Amount	In-period Adjustment Charge	Capacity Charge	Net Payment
May	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
June	\$ 46,638.24	8 MW	-	-\$46,638.24	-
July	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
August	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
September	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
October	\$ 46,638.24	8 MW	-	-	\$ 46,638.24
TOTAL	\$ 279,829.44	-	-	-\$46,638.24	\$ 233,191.20

Impact of the in-period adjustment on the Dispatch Test:

A dispatch test is an energy market mechanism to determine whether a resource can deliver on bid/offers submitted to the IESO. The bids/offers in the energy market should be indicative of the real time capability of a resource and would be independent of the capacity obligation that the resource holds in that particular moment. As such, the results of the self-scheduling capacity test and any in-period adjustment resulting from the capacity test will have no bearing on the dispatch test of a resource. The dispatch test will continue to function in its existing state.

Failure to Submit test measurement data after the self-scheduling capacity test

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 have assumed to be 0 MW and PAF of 25% will be applied to that resource in a future capacity qualification process. Furthermore, the in-period adjustment will be based on 0 MW, meaning the resource will be deemed to have forfeited the entire obligation amount for the obligation period. As a result, the resource will no longer be eligible for any availability payments.