

Alberta Capacity Market

Comprehensive Market Design (CMD 1) Design Proposal Document

Section 8: Supply Obligations and Performance Assessments

Prepared by: Alberta Electric System Operator

Date: January 26, 2018

Table of Contents

8	Supply Obligations and Performance Assessments	1
8.1	Overview of Payment Adjustment Mechanism	1
8.2	Supply Obligations: Failure to Deliver for New Resources	1
8.3	Updates to Qualified UCAP Ratings	1
8.4	Unavailability Payment Adjustment Mechanism	2
8.5	Availability Assessment Period	2
8.5.1	<i>Unavailability Volume Definition</i>	2
8.5.2	<i>Unavailability Payment Adjustment Rate</i>	2
8.5.3	<i>Unavailability Payment Adjustment Exemptions</i>	3
8.6	Performance Payment Adjustment Mechanism	3
8.6.1	<i>Performance Assessment Period</i>	3
8.6.2	<i>Performance Volume Definition</i>	3
8.6.3	<i>Non-performance Payment Adjustment Rate</i>	4
8.6.4	<i>Over-performance Payment Adjustment Rate</i>	4
8.6.5	<i>Non-performance Payment Adjustment Exemption for Transmission Constraints</i>	4

8 Supply Obligations and Performance Assessments

8.1 Overview of Payment Adjustment Mechanism

Capacity resource performance will be measured prior to and during the obligation period.

Prior to the obligation period the AESO will monitor resources with capacity market obligations and assess in two ways:

- Failure to deliver assessment for new committed capacity resources to ensure development in time to meet capacity obligations; and
- Resources with capacity obligations that experience unforced capacity (UCAP) deterioration relative to their prequalification level.

During the obligation period resources with capacity market obligations will be assessed on an availability and performance basis:

- Unavailability payment adjustments to existing resources that are unavailable during periods of supply tightness; and
- Performance assessment will assess resource performance during energy emergency alert (EEA) events and will assess under-performance payment adjustments to resources that are unavailable relative to their obligations while providing the opportunity for over-performance payment adjustment for resources that over-perform relative to their obligations.

8.2 Supply Obligations: Failure to Deliver for New Resources

The AESO will use milestone tracking to assess the timely completion of new resources based on predefined milestones for both generation and demand resources and to establish credit requirements (see discussion regarding Market Participant Buy Bids and Sell Offers in Section 5.2 and Credit Requirements in Section 2.4).

New resource owners must demonstrate that they have fulfilled development milestone requirements prior to each rebalancing auction. New resources that have not met development milestones will be deemed to have failed to deliver on the new capacity resource and will be required to buy out their obligation in one of the rebalancing auctions **up to the market price cap** or engage in asset substitution prior to the final rebalancing auction such that their obligation is met via supply from another qualified capacity resource.

Detailed milestone tracking requirements for different resource types will be established in the detailed design phase of the development of the capacity market.

8.3 Updates to Qualified UCAP Ratings

UCAP ratings of resources with capacity obligations will be recalculated in advance of each rebalancing auction to reflect changes in the resource's capabilities. Resources with capacity obligations that experience a reduction in UCAP relative to their prequalification UCAP for a delivery period will be required to:

- Buy out their obligation in the final rebalancing auction **up to the market price cap**; or
- Engage in asset substitution prior to the final rebalancing auction such that their obligation is met via supply from another qualified capacity resource.

8.4 Unavailability Payment Adjustment Mechanism

The AESO will apply an unavailability payment adjustment to resources that are not available to provide their capacity obligation during the obligation period. Availability assessments will be conducted during hours with tight supply cushion, when the system faces reliability risks. Note that these hours will not necessarily correspond to emergency event hours where performance payment adjustments, described in Section 8.5 are assessed. Rather, availability will be assessed during those hours in a year during which the UCAP assessments described in Section 2.3 are assessed. In the event performance and availability assessment hours overlap, availability and performance of the capacity resources will be assessed separately and, if applicable, both types of payment adjustments will be applied.

Resources that have higher available capacity than committed capacity will not be eligible to receive an over-availability payment adjustment. Unavailability payment adjustments collected by the AESO will be returned to customers.

8.5 Availability Assessment Period

Unavailability payment adjustments will be assessed by comparing each resource's capacity obligation to its availability during a fixed number of hours in a year (annual assessment hours). Such hours determined by the AESO will be the 100 tightest supply cushion hours over the course of a delivery period (Nov. 1 through Oct. 31). Variable resources, such as wind and solar resources may be assessed over fewer hours per year to match the period of time over which their UCAP is determined. For dispatchable resources availability will be measured as the amount of MW offered to the energy and ancillary services market (including any dispatched volumes) during the annual assessment hours. For non-dispatchable resources availability will be measured as the amount of MW generated during the annual assessment hours.

Given that the tightest supply cushion hours are not known in advance, the specific availability assessment hours will be known only after the year is complete and will be determined based on supply cushion analysis to be performed by the AESO.

8.5.1 Unavailability Volume Definition

During each year resources with capacity commitments will be required to demonstrate that their actual availability was at least equal to their committed UCAP (expected availability) during the availability assessment hours.

A committed resource's unavailability volume, which will be defined as:

$$\text{Unavailability Volume (MW)} = (\text{Expected Availability, MW} - \text{Actual Availability, MW}) > 0$$

Where Actual Availability = average availability during relevant tightest supply cushion hours

8.5.2 Unavailability Payment Adjustment Rate

Resources with positive unavailability volume throughout the year will be assessed a payment adjustment equal to the product of their annual unavailability volume and the unavailability payment adjustment rate multiplied by the number of assessment hours. The unavailability payment adjustment rate is based on a 40 per cent share of the maximum of the base capacity price or the last rebalancing auction price annual amount, multiplied by 1.3.

$$\text{Unavailability Payment Adjustment Rate (\$/MWh)} = 40\% \times 1.3 \times \text{MAX} [\text{Annual Base Capacity Auction Price; Annual Last Rebalancing Auction Price}] / 100 \text{ hours}$$

For example, assume the clearing price of the last rebalancing auction was \$100,000/MW which was greater than the clearing price in the base auction. The resulting unavailability payment adjustment rate would be:

$(0.4 \times 1.3 \times \$100,000/\text{MW-year}) / 100 \text{ hours} = \$520/\text{MWh}$ for each assessment hour in the year

Alberta's capacity market will not include over-availability payment adjustments for resources that demonstrate availability exceeding their capacity commitments. All unavailability payment adjustments collected by the AESO will serve to reduce capacity charges to consumers.

8.5.3 Unavailability Payment Adjustment Exemptions

Resources with capacity obligations that are constrained down due to limits on the Alberta internal transmission system will be exempt from unavailability payment adjustments on that volume of their obligation. Capacity obligation volume that is unavailable due to forced or planned derates or forced or planned outages and **force majeure** will not be exempt from availability obligations.

Down-by-demand response units may require different availability performance measures that take into consideration how the resource's average tight supply cushion load compares to more recent energy consumption of the load. These measures will be developed in subsequent versions of the CMD.

8.6 Performance Payment Adjustment Mechanism

Resources with capacity obligations will be assessed performance relative to capacity obligations during EEA events.

8.6.1 Performance Assessment Period

Performance assessment periods will occur during EEA events. When the AESO declares an EEA 1, EEA2 or EEA3 event the performance assessment period will begin from the time of such declaration until the AESO declares an EEA-0 event, at which point the performance assessment period will end. Resources will not be given any prior notification before a performance assessment period is declared by the AESO. There will be no limit on the duration of a performance assessment period; resources with a capacity obligation will be measured against performance for the full duration of the performance assessment period.

8.6.2 Performance Volume Definition

Performance volume of a capacity resource will be calculated as a resource's actual energy and or operating reserve dispatch minus its expected performance during a performance assessment periods. Performance volume will be measured in MWh and the expected performance will be multiplied by the balancing ratio (BR)¹ to determine the volume of a resource's capacity that will be subject to either over-performance or under-performance payment adjustments.

A committed resource's performance volume will be defined as:

*Performance Volume (MWh) = Actual Performance MWh -- (Expected Performance MWh * Balancing Ratio)*

¹ The Balancing Ratio is the ratio of the energy and reserves produced by committed resources during a performance assessment period to the total procured capacity for that obligation year and is a number less than or equal to

8.6.3 Non-performance Payment Adjustment Rate

Resources with capacity obligations that have a negative performance volume will be subject to a non-performance payment adjustment. The non-performance payment adjustment rate will be set based on the higher of a resource's base capacity auction price or the last rebalancing auction price. The non-performance payment adjustment rate will also be dependent upon the **expected number of EEA hours** for that year as determined in the **base capacity auction**. The non-performance payment adjustment rate will be calculated using the following formula:

Non-performance payment adjustment rate (\$/MWh) = 60% x 1.3 x MAX[Annual Base Capacity Auction Price; Annual Last Rebalancing Auction Price] / Expected EEA hours

The specific value of **expected EEA hours** will be revised for each delivery year based on reliability modelling.

8.6.4 Over-performance Payment Adjustment Rate

Resources with capacity obligations that have a positive performance volume will be eligible to receive an over-performance payment adjustment which will be wholly funded from the non-performance payment adjustments from resources with negative performance volumes. Over-performance payment adjustments will be made for each MWh of over-delivery during EEA events and will be paid at the \$/MWh Payment Adjustment Rate:

Over-performance Payment Adjustment Rate (\$/MWh) = Total Non-Performance Payment Adjustments Collected \$ / Total volume of positive Performance Volume MWh

If there is no positive performance volume, all Non-performance payment adjustment funds will be allocated to load.

8.6.5 Non-performance Payment Adjustment Exemption for Transmission Constraints

Resources with capacity obligations that are constrained down due to limits on the Alberta internal transmission system will be exempt from performance payment adjustments on that volume of their obligation. Capacity obligation volume that is unavailable due to forced or planned derates or forced or planned outages and **force majeure** will not be exempt from performance obligations.

Down-by-demand response units may require different availability performance measures that take into consideration how the resource's average tight supply cushion load compares to more recent energy consumption of the load. These measures will be developed in the detailed design phase.

Maximum Amounts for Unavailability and Under-performance Payment Adjustments

For any one capacity resource, the combined payment adjustment exposure to availability and performance payment adjustments will be capped monthly and annually.

- Cumulative monthly unavailability and non-performance payment adjustments of an individual capacity resource will be capped at **300 per cent** of the monthly capacity revenue based on the higher of the annual base auction capacity price received by that resource, or the latest rebalancing auction price.
- Cumulative annual unavailability and non-performance payment adjustments of an individual capacity resource will be capped at **130 per cent** of the annual capacity revenue based on the higher of the annual base auction capacity price received by that resource, or the latest rebalancing auction price.