# Settlements and Credit Requirements Rationale

*Rationale*

## 9.1 Capacity market statements

9.1.1 AESO rationale:

(a) The capacity market should operate on a monthly billing cycle to align with the energy market. Aligning settlement of the two markets will reduce the administrative requirements by leveraging existing processes and will align the timing of common settlement activities across markets.

(b) Invoices across markets will be kept separate to simplify the implementation. The AESO may consider consolidating invoices in the future.

## 9.2 Settlements applicable to capacity assets

### *Capacity payments*

9.2.1 A capacity supplier will receive capacity payments for their cleared obligation in the year of their obligation. This is consistent with other capacity markets and Alberta's current energy market. In addition to the capacity payment, a capacity supplier may receive a payment adjustment as described in Section 8, *Supply Obligations and Performance Assessments*.

### *Calculating capacity payments*

9.2.2 The capacity payment needs to include the change in obligation from the base auction through to the associated rebalancing auctions. The formula to calculate capacity payment provided in the CMD ensures that all changes in obligations are incorporated in the capacity payment.

Below is a settlement example with payment adjustments. This example does not apply the payment adjustment caps. The example below is of a capacity asset that reduces its obligation prior to the delivery year by buying back a portion in each associated rebalancing auction:

CP$ = {[ Ob * Pb ] - [ (Ob – Or1) * Pr1 ] - [ (Or1 – Or2) * Pr2] } / # months in term

| For a 12 month term | Obligation (O) in MW | Price (P) in $K |
|---|---|---|
| **Base Auction (b)** | 80 | 200 |
| **1st Rebalancing Auction (r1)** | 30 | 150 |
| **2nd Rebalancing Auction (r2)** | 10 | 400 |

Annual Provider Payment = {[80*200] – [(80-30)*150] – [(30-10)*400]}

Annual Provider Payment = $500K for a 10 MW final obligation

## 9.3 Calculating capacity payment adjustments

The rationale for payment adjustments for unavailability, over-availability, non-performance and over-performance was provided in Section 8, *Supply Obligations and Performance Assessments*.

The below is a continuation from the example above in subsection 9.2.2, where payment adjustments to the capacity payment are applied.

### *Obligation price per MW*

9.3.1 The obligation price per MW = capacity payment divided by the obligation

The obligation price per MW = $500,000/10 MW = $50,000/MW

### *Payment adjustment for availability*

9.3.2 Unavailability payment adjustment rate ($/MWh) = 40% × 1.3 × obligation price per MW / 100 h

Unavailability payment adjustment rate ($/MWh) = 0.4 × 1.3 × $50,000/MW / 100 = $260/MWh

| Tightest hours | Obligation | Actual Average Availability* | Unavail. Volume | Unavailability Payment Adjustment Rate | Annual Unavailability Payment Adjustment |
|---|---|---|---|---|---|
| **100** | 10 | 7 | -3 | **260** | **-3*100*260 = -78K** |

* determined at the end of the obligation period as described in section 8 of the capacity market design (CMD) proposal.

Capacity payment = $500,000/12 = $41,666

Availability payment adjustment amount = $78,000 assessed at the end of the obligation period

Monthly capacity statement = $0

Payment adjustment balance owing increases by = $41,666 – $78,000 = ($36,333)

9.3.4 The over-availability payment adjustment is calculated after all asset settlements are completed.

### *Payment adjustment for performance*

9.3.5 Performance volume (MWh) = meter volume - expected performance × balancing ratio (BR)

BR = total meter volume of all obligated resources / total obligation MW sold in the auction
BR = 11,700 MW / 13,000 MW = 0.9

Non-performance payment adjustment rate ($/MWh) = 0.6 × 1.3 × obligation price per MW / max(expected EEA hours, 20 hours)

Expected EEA hours will be determined through the resource adequacy assessment performed in the base auction (three years before the period). For this example we will use 13 hours.

Non-performance payment adjustment rate ($/MWh) = 0.6 × 1.3 × obligation price per MW / max(expected EEA hours, 20 hours)

Non-performance payment adjustment rate ($/MWh) = 0.6 × 1.3 × 50,000/ 20 = $1,950/MWh

The example EEA event was from 22:23 on March 8 to 01:05 on March 9:

| start time | end time | minutes per hour | Meter volume | Original Obligation | BR Adjusted Obligation | difference | Prorate | Non-Performance Payment Adjustment Rate | Hourly Payment Adjustment |
|---|---|---|---|---|---|---|---|---|---|
| 22:23 | 23:00 | 37 | 2 | 10 | 10 * 0.9 = 9 | **-7** | -7/60 * 37 = -4.31 | $1950/MWh | -4.31 *1950 = -8405 |
| 23:00 | 00:00 | 60 | 5 | 10 | 10 * 0.8 = 8 | **-3** | -3/60 * 60 = -3 | $1950/MWh | -3*1950 = -5850 |
| 00:00 | 01:00 | 60 | 11 | 10 | 10 * 0.8 = 8 | **3** | 3/60 * 60 = 3 | $1950/MWh | 0*1950 = 0 |
| 01:00 | 01:05 | 5 | 3 | 10 | 10 * 0.9 = 9 | **-6** | -6/60 * 5 = -0.50 | $1950/MWh | -0.5*1950 = -975 |
| | | | | | | | | total | $-15,230 |

The total hourly payment adjustment for the entire event equals ($15,230). This value will be subtracted from the monthly capacity payment and if there is a remaining balance it will be added to the outstanding payment adjustment balance.

9.3.6 In the example above hour ending 1:00 is eligible for an over-performance payment adjustment. The over-performance payment adjustment is calculated after all asset settlements are completed.

## 9.4 Capacity cost allocation settlements

9.4.1 The AESO's application for approval of a cost allocation methodology will be filed with the Commission for review, approval, and implementation before the beginning of the first capacity market delivery period in late 2021. Details of the rate design will be developed, including stakeholder consultation, prior to filing.

## 9.5 Net settlement instructions (NSI)

9.5.1 Buying back obligation volumes in rebalancing auctions and asset substitution and volume reallocation are tools capacity suppliers can utilize to facilitate the management of capacity resource obligation risk.

NSI works well in the energy market because the price paid for a MW of energy is equal to the price a consumer will pay for a MW of energy in the same time period. Given the current thinking on cost allocation in the capacity market, this will not be the same for the capacity market. A volume-based NSI approach no longer works because the price paid for capacity no longer equals the price paid by load in that same time period. Facilitating NSIs will cause discrepancy between the amount paid to capacity providers and the amount collected from capacity consumers. This does not eliminate the ability for counterparties to enter into independent financial hedges with each other; however, these will not be registered with the AESO and accounted for in capacity market settlement.

## 9.6 Credit requirements for capacity assets

9.6.1 The Security requirements for a capacity supplier have not yet been determined. The AESO will maintain separate credit requirements and not use monies from one market to pay for another.

9.6.2 The assessment of availability is conducted at the end of the delivery period and looks back at the entire 12 months. To minimize the credit risk, the AESO settlement will only claw back up to 100% of the capacity market payment on any one statement until the balance of payment adjustment is paid.

## 9.7 Measurement, verification and tracking of capacity resources

9.7.1 The capacity market should use metering data for the purposes of capacity settlement, as is done with the energy market.

Capacity will be measured based on historical observed availability factor or capacity factor in the obligation period depending on the type of capacity resource being settled.

9.7.2 In order to perform the settlement calculations and monitor rule compliance, the established metering and SCADA practices used in the energy market will be used in the capacity market.

***Alignment with criteria***

- The CMD should provide mechanisms for consumers to hedge the cost of capacity if and where appropriate. As described above, it was determined that facilitating capacity market NSI was not an appropriate tool for hedging the costs of capacity. Financial hedges may still be developed by market participants.
- Settlement design ensures the capacity market is compatible with other components of the electricity framework, such as load settlement and retail customer choice, and should be robust and adaptable to different government policy initiatives related to the electricity sector.