Settlements & Billing

Configuration Guide: Day Ahead Spinning Reserve Capacity Settlement

CC 6100

Version 5.3

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# Purpose of Document

The purpose of this document is to capture the business and functional requirements for the MRTU SaMC Day Ahead Spinning Reserve Capacity Settlement (Charge Code 6100).

# Introduction

## Background

The CAISO will procure the Ancillary Services, Regulation Up, Regulation Down, Spinning Reserve, and Non-Spinning Reserve in the Day Ahead Integrated Forward Market (IFM) and procure incrementally as needed in the Real-Time Market (RTM). Ancillary Services (AS) are procured simultaneously with Energy bids to meet Regulation and Operating Reserve requirements, using submitted Ancillary Service bids. IFM is performed for each hour of the next Trading Day. The Fifteen Minute Market performs AS procurement, if needed, at 15-minutes intervals for the current hour and next Trading Hour. The AS awards published for the first 15-minutes interval of the time horizon are binding, the rest are advisory. The AS pricing and Settlement will be based on Ancillary Service Marginal Price (ASMP), which are calculated for each AS region for each market time interval for each market.

The AS procurement cost is the payment for AS Awarded bids in the Day Ahead IFM and RTM. This Charge Code is part of the family of Charge Codes for payment to Scheduling Coordinators (SCs) for Awarded Ancillary Services Capacity bids: (1) Regulation Up, (2) Regulation Down, (3) Spinning Reserve, and (4) Non-Spinning Reserve. This charge code deals with Spinning Reserve Capacity in the Day Ahead IFM market.

The fundamental concepts of settlement methodology for allocation of AS procurement cost to scheduling coordinators are as follows:

* The AS procurement cost allocation for all AS commodity types is hourly, system-wide, and across IFM and Real-Time markets
* The cost of procuring the AS by the CAISO on behalf of the demand isallocated to the demand using a system wide user rate. The user rate is the average cost of procuring a type of AS in both the forward and real-time market for the whole CAISO system
* The rate for each AS incorporates the No Pay/Non Compliance Capacity and the No Pay/Non Compliance Charge to reflect the ultimate average AS cost
* The rate for each AS reflects an average AS substitution to capture the cascaded AS procurement as it is performed optimally in each AS market. For example, Settlements reflects that multiple service types are procured and substituted simultaneously during IFM optimization
* A difference between AS Requirements and total AS Obligations results in a neutrality adjustment for each AS
* A difference between total AS Procurement and total AS Requirements over all Spinning, Non-Spinning and Regulation Up Ancillary Services results in a single neutrality adjustment for all these services.
* Ancillary Services awards from Intertie Resources are charged explicitly for the Marginal Cost of Congestion on the relevant inter-tie interface at the relevant Shadow Price. The cost of AS Congestion Charges is not recovered through the AS cost allocation, but is settled in the RT Congestion Offset, CC 6774.

By design, the AS settlement methodology has the following property: If the total AS Procurement matches the total AS Requirements, and if the AS Requirement matches the total AS Obligation for each AS, the AS Cost Allocation is neutral.

By reflecting AS substitution in the AS Rates, this AS settlement methodology eliminates any neutrality loss due to AS substitution and results in an equitable AS Cost Allocation to Scheduling Coordinators’ that self-provide AS, since there is no AS substitution among self-provided AS.

## Description

This Day Ahead Spinning Reserve Capacity (CC 6100) pays Scheduling Coordinators (SCs) for awarded Spinning reserve capacity in the Day Ahead IFM market. This charge code applies whenever Day Ahead Spinning capacity bids have been Awarded during the IFM Day Ahead market. Payments are calculated on an hourly basis at the resource level and summed up by Business Associate (BA) for the Settlement Statement.

Spinning reserve in Day Ahead are awarded to Spinning Reserve Certified Generator Resources, Dispatchable Load Resources, Pump Storage Generator Resources, System units (MSS), System (inter-tie generating dynamic import) resources, and import Inter-Tie Resources. The Day Ahead Spinning Reserve Awarded Capacity is paid at the Day Ahead Spinning Reserve Capacity Ancillary Service Marginal Prices (ASMP) of the relevant Day Ahead Trading Hour for the resource.

# Charge Code Requirements

## Business Rules

| Bus Req ID | Business Rule |
| --- | --- |
| 1.0 | Day Ahead IFM Spinning reserve capacity amount should be calculated for resources awarded Spinning reserve bid in IFM. |
| 2.0 | Spinning reserve capacity is settled on an hourly basis at the resource level. |
| 2.1 | The Spinning reserve pricing and Settlement will be based on Day Ahead Spinning reserve Ancillary Service Marginal Price (ASMP) for the resource for the hour |
| 3.0 | Day Ahead Spinning Reserve Capacity Settlement Amount value should be calculated for each resource by multiplying Day Ahead Awarded Spinning Bid Capacity for the resource and the Spinning reserve Ancillary Service Marginal Prices (ASMP) for the resource for hour. |
| 4.0 | For adjustments to the Charge Code that cannot be accomplished by correction of upstream data inputs, recalculation or operator override Pass Through Bill Charge (PTB) logic will be applied |
| 5.0 | EDAM Requirements:  EDAM entities have AS Self Provision (QSP) and AS Requirement.  EDAM resources cannot bid in for Ancillary Services  EDAM BAA resources cannot provide Ancillary Service for CISO BAA  EDAM AS Self Provision (QSP) is not assessed No Pay |
| 5.1 | EDAM Requirements:  EDAM resources will receive Ancillary Service Awarded Bid quantities of zero and Ancillary Service Capacity Schedules of non-zero. They will be filtered out in equations. EDAM BAA Ancillary Service Self-provision and requirements are simply information at this point. |

## Predecessor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| Ancillary Service Pre-Calc |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| No Pay Spinning Reserve Settlement (CC 6124) |
| Spinning Reserve Obligation Settlement (CC 6194) |
| Ancillary Services Upward Neutrality Allocation (CC 6090) |
| Non Spinning Reserve Obligation Settlement (CC 6294) |

## Inputs – External Systems

|  |  |  |
| --- | --- | --- |
| Input Req ID | Variable Name | Description |
| 1 | DASpinCapacityASMPrtQ’mdh | Day Ahead Spinning Reserve Ancillary Service Marginal Price (ASMP) for the resource *r*  for Trading Day *d* and Trading Hour *h* **($/MW)** |
| 2 | PTBChargeAdjustmentDASpinBidBQ’Jmdh | Day Ahead Spinning Reserve PTB Pay Charge Adjustment Amount due BA *B* PTB ID *J*  for Trading Day *d* and Trading Hour *h* **($)** |
| 3 | DASpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Spinning Reserve Awarded Bid capacity for resource r **(MW)** |
| 4 | DASpinBidPrice BrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Spinning Reserve Capacity Bid Price (in $/MW) for a given resource and Trading Hour. |

## Inputs - Predecessor Charge Codes or Pre-calculations

|  |  |  |
| --- | --- | --- |
| Input ID | Variable Name | Predecessor Charge Code/ Pre-calc Configuration |
| 1 | NONE |  |

## CAISO Formulas

### DASpinSettlementAmountBrtuT’I’Q’M’VL’W’R’F’S’mdh *=*(-1) \*

DASpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh ***\**** DASpinCapacityASMPrtQ’mdh

Where Bal Authority Area (Q’) = ‘CISO’

### BAHourlyTotalDASpinSettlementAmount Bmdh = sum(r,t,u,T’,I’,Q’,M’,W’,R’,F’,S’,V,L’) DASpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdh

### CAISOHourlyTotalDASpinSettlementAmount mdh = sum(B,r,t,u,T’,I’,Q’,M’,W’,R’,F’,S’,V,L’) DASpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdh

### DASpinBidCostAmountBrtuT’I’Q’M’VL’W’R’F’S’mdh

### DASpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdh *=*(-1) \* DASpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh ***\**** DASpinBidPrice BrtuT’I’Q’M’VL’W’R’F’S’mdh

Where Bal Authority Area (Q’) = ‘CISO’

## Outputs

| Output ID | Name | Description |
| --- | --- | --- |
| 1 | DASpinSettlementAmountBrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Spinning Capacity Settlement Amount due Business Associate *B* for resource *r* Entity Component Type F’ Entity Component Subtype S’ for Trading Day *d* and Trading Hour *h* **($)** |
| 2 | BAHourlyTotalDASpinSettlementAmountBmdh | Total Day Ahead Spinning Capacity Settlement Amount due Business Associate *B* for Trading Day *d* andTrading Hour *h* **($)** |
| 3 | CAISOHourlyTotalDASpinSettlementAmountmdh | CAISO hourly total Day Ahead Spin Capacity Settlement Amount for Trading Day *d* andTrading Hour *h* **($)** |
| 4 | In addition, all inputs are required to be accessible for review by analysts and report on Settlement Statements. |  |
| 5 | DASpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Spinning Capacity Bid Cost Amount due resource r for Trading Date d, and Trading Hour h |

# Charge Code Effective Date

| Charge Code/  Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type` |
| --- | --- | --- | --- | --- |
| Day Ahead Spinning Reserve Capacity Settlement (CC 6100) | 5.0 | 04/01/09 | 10/31/13 | Documentation Edits Only |
| Day Ahead Spinning Reserve Capacity Settlement (CC 6100) | 5.1 | 11/1/13 | 4/30/14 | Configuration Impact |
| Day Ahead Spinning Reserve Capacity Settlement (CC 6100) | 5.1a | 5/1/14 | 6/30/15 | Documentation Edits Only |
| Day Ahead Spinning Reserve Capacity Settlement (CC 6100) | 5.2 | 7/1/15 | 4/30/26 | Configuration Impact |
| Day Ahead Spinning Reserve Capacity Settlement (CC 6100) | 5.3 | 5/1/26 | Open | Configuration Impact |