Settlements and Billing

Configuration Guide: Day Ahead Regulation Up Capacity Settlement

**CC 6500**

 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 Regulation Up Capacity Settlement.

# 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 Regulation Up 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 will be allocated 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.

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 Regulation Up Capacity Settlement pays SCs for awarded Regulation Up capacity in the IFM market. This Charge Code applies whenever Day Ahead Regulation Up capacity bids have been awarded during the IFM market. Payments are calculated on an hourly basis at the resource level and summed up by Business Associate (BA) for the Settlement Statement.

Regulation Up capacity is awarded to Regulation Certified Generator resources and System (inter-tie generating dynamic import) resources with Automatic Generation Control (AGC). The Awarded Day Ahead Regulation Up capacity is paid at the Day Ahead Regulation Up Capacity Ancillary Service Marginal Price (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 Regulation Up Settlement amount should be calculated for awarded Regulation Up capacity bids in the IFM market.  |
| 2.0 | Regulation Up capacity is settled on an hourly basis at the resource level.  |
| 2.1 | The Regulation Up pricing should be based on Day Ahead Regulation Up Ancillary Service Marginal Price (ASMP) for the resource for the hour |
| 3.0 | Day Ahead Regulation Up Capacity Settlement Amount value should be calculated for each resource by multiplying Day Ahead Awarded Regulation Up Capacity for the resource and the Regulation Up 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 ServicesEDAM BAA resources cannot provide Ancillary Service for CISO BAAEDAM 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 |
| --- |
| Non Compliance Regulation Up Settlement (CC 6524) |
| Regulation Up Obligation Settlement (CC 6594)  |
| Regulation Up Neutrality Allocation (CC 6596) |
| Ancillary Services Upward Neutrality Allocation (CC 6090)  |

## Inputs – External Systems

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Description |
| 1 | DARegUpCapacityASMPrtQ’mdh | Day Ahead Regulation Up Ancillary Service Marginal Price (ASMP) for the resource *r*  for Trading Day *d and*  Trading Hour *h* **($/MW)** |
| 2 | PTBChargeAdjustmentDARegUpBidBQ’Jmdh  | Day Ahead Regulation Up PTB Pay Charge Adjustment Amount due BA *B* PTB ID *J* for Trading Day *d and*  Trading Hour *h* **($)** |
| 3 | DARegUpAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Regulation Up Awarded Bid capacity for resource r. **(MW)** |
| 4 | DARegUpBidPrice BrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Regulation Up Capacity Bid Price for resource r. |

## Inputs - Predecessor Charge Codes or Pre-calculations

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Predecessor Charge Code/ Pre-calc Configuration |
|  |  |  |

## CAISO Formula

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

DARegUpAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh **\*** DARegUpCapacityASMPrtQ’mdh)

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

Note: BAHourlyTotalDARegUpSettlementAmount Bmdh and CAISOHourlyTotalDARegUpSettlementAmount mdh are calculated as part of the reporting structure and will not be configured as individual charge types.

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

DARegUpAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh **\*** DARegUpBidPrice BrtuT’I’Q’M’VL’W’R’F’S’mdh)

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

## Outputs

| Row # | Name | Description |
| --- | --- | --- |
| 1 | DARegUpSettlementAmountBrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Regulation Up Capacity Settlement Amount due Business Associate *B* for resource *r* for Trading Day *d and*  Trading Hour *h* **($)** |
| 2 | In addition, all inputs are required to be accessible for review by analysts and report on Settlement Statements. |  |
| 3 | DARegUpBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Regulation Up Capacity Bid Cost Amount due resource *r* for Trading Day *d and*  Trading Hour *h* **($).** |

# Charge Code Effective Date

| Charge Code/Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type |
| --- | --- | --- | --- | --- |
| Day Ahead Regulation Up Capacity Settlement  | 5.0 | 04/01/09 |  10/31/13 | Documentation Edits Only |
| Day Ahead Regulation Up Capacity Settlement  | 5.1 | 11/01/13 |  4/30/14 | Configuration Impact |
| Day Ahead Regulation Up Capacity Settlement  | 5.1a | 05/01/14 | 6/30/15 | Documentation Edits Only |
| Day Ahead Regulation Up Capacity Settlement  | 5.2 | 7/1/15 | 4/30/26 | Configuration Impact |
| Day Ahead Regulation Up Capacity Settlement  | 5.3 | 5/1/26 | Open | Configuration Impact |