Settlements and Billing

Configuration Guide: No Pay Spinning Reserve Settlement

**CC 6124**

Version 5.4

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# Purpose of Document

The purpose of this document is to capture the business and functional requirements for the charge code No Pay Spinning Reserve 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 (FMM) performs unit commitment and AS procurement, if needed, at 15-minutes intervals for the current hour and next Trading Hour. The AS awards published for the first 15-minute interval of the time horizon are binding, the rest are advisory. The AS Pricing and Settlement will be based on Ancillary Service Marginal Prices (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. The Day Ahead and Real-Time Ancillary Services Capacity Settlement Charge Codes are a 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.

The fundamental concepts of the 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 the 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 Markets 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 the IFM optimization
* The difference between total net AS Requirements and total AS Obligations results in a neutrality adjustment for each Scheduling Coordinator for each of the Regulation Up, Regulation Down, Spinning Reserve, and Non-Spinning Reserve AS types.
* The 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.

The No Pay Charge for Spinning and Non-Spinning Reserve Settlement rescinds Day Ahead and Real-Time Reserve Capacity Awards payments for the service to the extent that the resource awarded the Reserve Capacity does not fulfill the requirements associated with that payment. The Spinning and Non-Spinning No Pay rescinds Spinning and Non-Spinning capacity payment when one of the following conditions occurs:

* AS capacity is undispatchable due to Outage, de-rate, or Ramp Rate limitation
* AS capacity is unavailable due to Uninstructed Deviations
* A Generating Unit failed to deliver Energy from an accepted AS Dispatch Instruction.
* AS Dispatch Instruction was declined for a System resource in the Automated Dispatch System (ADS)

The requirements dictate that the resource awarded the Spinning and Non-Spinning Reserve capacity payment must either convert that capacity into Energy if dispatched in Real-Time or keep that capacity unloaded and available for a potential dispatch for Energy in Real-Time. If the resource fails to fulfill these requirements, then it is not entitled to its full AS Reserve Capacity payment.

The rescission of payment shall not apply to a capacity payment for any particular Ancillary Service if the weighted average of the Ancillary Service Marginal Prices (ASMPs) is less than or equal to zero.

## Description

The No Pay Spinning Reserve Settlement charge rescinds Day Ahead and Real-Time Spinning Reserve Capacity Awards payments to the extent that the resource awarded Spinning Reserve Capacity does not fulfill the requirements associated with that payment.

No Pay Charges for Spinning Reserve are calculated on an hourly basis at a resource-specific level and summed by Scheduling Coordinator for the Settlement Statement. No Pay Charges at a resource-specific level are calculated by multiplying the No Pay quantity and the No Pay Spinning Reserve Price. The CAISO calculates the Spinning Reserve No Pay Billable Quantity. The No Pay Spinning Reserve Price used in the No Pay charge is calculated as the weighted average of the Spinning Reserve ASMPs across the Day Ahead IFM and Real-Time markets.

# Charge Code Requirements

## Business Rules

| Bus Req ID | Business Rule |
| --- | --- |
| 1.0 | No Pay Charges for Spinning Reserve are calculated at a resource specific level and on an hourly basis. |
| 1.1 | No Pay Spinning Charges at a resource-specific level are calculated by multiplying the hourly No Pay Spinning quantity and the No Pay Spinning Reserve Price. |
| 1.2 | The No Pay Spinning Reserve Price used in the No Pay charge is calculated as the weighted average of the Spinning Reserve ASMPs across the Day Ahead IFM and Real-Time AS markets. The weighting factors are Awarded Spinning Bid in each AS market. |
| 1.3 | The rescission of payment shall not apply to a Spin capacity payment if the weighted average of the No Pay Spinning Reserve Price is less than or equal to zero. |
| 2.0 | 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 |
| 3.0 | 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 |
| 3.1 | EDAM Requirements:  EDAM resources will have 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 Services Pre-calculation |
| Day Ahead Spinning Reserve Capacity Settlement (CC 6100) |
| Real Time Spinning Reserve Capacity Settlement (CC 6170) |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| Spinning Reserve Obligation Settlement (CC 6194) |

## Inputs – External Systems

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Description |
| 1 | PTBChargeAdjustmentNoPaySpinBQ’Jmdh | No Pay Spinning Reserve PTB Pay Charge Adjustment Amount due BA *B* PTB ID *J* of Trading hour *h* and Trading Day *d* **($)** |
| 2 | DASpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Spinning Reserve Awarded Bid capacity for resource r (MW) |
| 3 | 15MinuteRTMSpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdhc | Real-Time Spinning Reserve Awarded Bid capacity for resource r **(MW)** |

## Inputs - Predecessor Charge Codes or Pre-calculations

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Predecessor Charge Code/  Pre-calc Configuration |
| 1 | BAResourceNoPaySpinAwardQuantity BrtT’uI’Q’M’R’W’F’S’VL'mdhcif | Spin and NonSpin No Pay Quantity Pre-Calculation |
| 2 | DASpinSettlementAmountBrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Spinning Reserve Capacity Settlement (CC 6100) |
| 3 | RT15MINSpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhc | Real Time Spinning Reserve Capacity Settlement (CC 6170) |
| 4 | DASpinBidCostAmountBrtuT’I’Q’M’VL’W’R’F’S’mdh | Day Ahead Spinning Reserve Capacity Settlement (CC 6100) |
| 5 | RT15MINSpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhc | Real Time Spinning Reserve Capacity Settlement (CC 6170) |

## CAISO Formula

### NoPaySpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdh = NoPay5MSpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhcif

### NoPay5MSpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhcif = Max (0, NoPay15MSpinSettlementPrice BrtuT’I’Q’M’VL’W’R’F’S’mdhc) \* BAResourceNoPaySpinAwardQuantity BrtT’uI’Q’M’R’W’F’S’VL'mdhcif

### NoPay15MSpinSettlementPrice BrtuT’I’Q’M’VL’W’R’F’S’mdhc = Total15MSpinCost BrtuT’I’Q’M’VL’W’R’F’S’mdhc /(DASpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh + ((.25) \* 15MinuteRTMSpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdhc))

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

### Total15MSpinCost BrtuT’I’Q’M’VL’W’R’F’S’mdhc = (-1) \* (DASpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdh + RT15MINSpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhc)

### NoPay5MSpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhcif = Max (0, NoPay15MSpinBidCostPrice BrtuT’I’Q’M’VL’W’R’F’S’mdhc) \* BAResourceNoPaySpinAwardQuantity BrtT’uI’Q’M’R’W’F’S’VL'mdhcif

### NoPay15MSpinBidCostPrice BrtuT’I’Q’M’VL’W’R’F’S’mdhc =Total15MSpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhc /(DASpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdh + ((.25) \* 15MinuteRTMSpinAwardedBidQuantity BrtuT’I’Q’M’VL’W’R’F’S’mdhc))

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

### Total15MSpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhc = (-1) \* (DASpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdh + RT15MINSpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhc)

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

## Outputs

| Output Req ID | Name | Description |
| --- | --- | --- |
| 1 | NoPaySpinSettlementAmountBrtuT’I’Q’M’VL’W’R’F’S’mdh | No Pay Spinning Reserve Settlement Amount charged to Business Associate *B* for resource *r*.**($)** |
| 3 | NoPay15MSpinSettlementPrice BrtuT’I’Q’M’VL’W’R’F’S’mdhc | No Pay Price used to calculate the No Pay Spinning Reserve Settlement amount for Business Associate *B* for resource *r*. **($/MWh)** |
| 4 | CAISOHourlyTotalNoPaySpinSettlementAmountmdh | Total Hourly No Pay Spinning Reserve Settlement Amount due CAISO.**($)** |
| 5 | Total15MSpinCost BrtuT’I’Q’M’VL’W’R’F’S’mdhc | Total 15M Spinning Reserve Settlement Amount across the IFM DA and RTM AS Markets **($)** |
| 6 | In addition to the outputs listed below, all inputs shall be included as outputs. |  |
| 7 | NoPay5MSpinSettlementAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhcif | No Pay 5 Minute Spinning Reserve Settlement Amount charged to Business Associate *B* for resource *r*.**($)** |
| 8 | NoPay5MSpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhcif | No Pay 5 Minute Spinning Reserve Bid Cost Amount for Business Associate *B* for resource *r*.**($)** |
| 9 | NoPay15MSpinBidCostPrice BrtuT’I’Q’M’VL’W’R’F’S’mdhc | No Pay Bid Cost Price used to calculate the No Pay Spinning Reserve Bid Cost amount for Business Associate *B* for resource *r*. **($/MWh)** |
| 10 | Total15MSpinBidCostAmount BrtuT’I’Q’M’VL’W’R’F’S’mdhc | Total 15M Spinning Reserve Bid Cost Amount across the IFM DA and RTM AS Markets **($)** |

# Charge Code Effective Date

| Charge Code/  Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type |
| --- | --- | --- | --- | --- |
| No Pay Spinning Reserve Settlement (CC 6124) | 5.0 | 04/01/09 | 01/31/10 | Documentation Only |
| No Pay Spinning Reserve Settlement (CC 6124) | 5.0a | 02/01/2010 | 11/30/12 | Documentation Only |
| No Pay Spinning Reserve Settlement (CC 6124) | 5.1 | 12/1/12 | 4/30/14 | Configuration Impacted |
| No Pay Spinning Reserve Settlement (CC 6124) | 5.2 | 5/1/14 | 06/30/15 | Configuration Impacted |
| No Pay Spinning Reserve Settlement (CC 6124) | 5.3 | 07/01/15 | 4/30/26 | Configuration Impacted |
| No Pay Spinning Reserve Settlement (CC 6124) | 5.4 | 5/1/26 | Open | Configuration Impacted |