Settlements and Billing

Configuration Guide: Day Ahead Congestion – AS Regulation Up Import Settlement

CC 6750

Version 5.4

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# Purpose of Document

The purpose of this document is to capture the requirements and design specification for a Charge Code in one document.

# Introduction

## Background

Suppliers of awarded Ancillary Services (AS) in the Day Ahead market (DAM) are paid the Ancillary Service Marginal Price (ASMP) for the Day Ahead market at the relevant interties. However, because AS capacity imports and Energy schedules compete for transmission capacity at interties, the suppliers of awarded Day Ahead AS capacity imports are also charged Congestion Costs based on applicable Shadow Prices at binding intertie constraints associated with the resources.

This charge code is part of the family of charge codes for settling Day Ahead AS Congestion costs emanating from the following AS product awards: (1) Regulation Up Import, (2) Regulation Down Import, (3) Spinning Reserve Import, and (4) Non-Spinning Reserve Import.

To the extent an Ancillary Service procured in the IFM from a System Resource becomes undispatchable due to an intertie transmission derate, in rescinding the Ancillary Service capacity payment, the CAISO shall credit back to the Scheduling Coordinator Congestion Charge assessed pursuant to Section 11 of the CAISO Tariff, but at the higher of the Day-Ahead and simple average of the fifteen (15) minute Real-Time Shadow Prices on the corresponding intertie. The keyword “lower” in the Tariff is replaced here with “higher” to account for the usual sign of the shadow prices - these are usually negative values, and preserve the intent of the FERC order.

The Billable Quantity that will be refunded shall be limited to the Undispatchable Capacity that was due to a transmission derate.

## Description

CC 6750 Day Ahead Congestion – AS Regulation Up Import Settlement will perform the calculations necessary to implement the business rules identified in the Business Rules section below.

# Charge Code Requirements

## Business Rules

| Bus Req ID | Business Rule |
| --- | --- |
| 1.0 | The Congestion Charge for Regulation Up import at a System Resource per hour is the product of (a) the awarded MW plus non-contract eligible QSP hourly capacity of Day-Ahead Regulation Up AS and the (b) negative of Day-Ahead import direction Shadow Price for the resource for the Trading Hour. |
| 1.1 | The charge per BA per hour h is the sum of all the congestion charges for Regulation Up import at its System Resources for the hour. |
| 1.2 | If congestion is present in the export direction, Day Ahead AS Regulation Up Importers will not be paid nor charged for the counter-flows over the applicable intertie constraint associated with the resource. (Fact) |
| 1.3 | Non-contract eligible QSP is the portion of QSP scheduled under contracts but beyond the available rights capacity. (Fact) |
| 1.4 | For adjustments to the Charge Code that cannot be accomplished by correction of upstream data inputs/recalculation or operator override Pass Through Bill Charge logic will be applied. |
| 1.5 | A refund of Congestion Charge shall be given to System Resources, where the refund is limited to the quantity of Undispatchable Capacity due to a transmission derate as per CAISO Tariff Section 11.10.9.1, assessed at the higher of the Day-Ahead Shadow Price and the simple average of RT Shadow Prices over the hour of the resource, for Import of AS Regulation Up for the relevant Trading Hour.  The keyword “lower” in the Tariff is replaced here with “higher” to account for the usual sign of the shadow prices - these are usually negative values. |
| 1.5.1 | The Regulation Up import Undispatchable Capacity MW value due a refund cannot exceed the MW values for DA Award plus the non-contract eligible portion of QSP for Regulation Up import. |
| 1.6 | AS qualified self-provision using ETC/TOR contracts, particularly Day-Ahead Regulation Up QSP, that is within the remaining capacity entitlement of such contract shall not be charged for congestion. (Fact). |

## Predecessor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| Ancillary Services Pre-Calculation |
| ETC/TOR/CVR Quantity Pre-Calculation |
| CC 6710 – Day-Ahead Congestion – AS Spinning Reserve Import Settlement |
| Regulation No Pay Quantity Pre-Calculation |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| CC 6700 - CRR Hourly Settlement |

## Inputs – External Systems

| Row # | Variable Name | Description |
| --- | --- | --- |
| 1 | HourlyResourceDARegUpImportShadowPrice rtmdh | Day-Ahead Shadow Price for a resource. It is the marginal value of relieving the particular intertie constraint (associated with the resource) for congestion in the import direction. ($/MW)  Note: This usually comes in as negative. |
| 2 | PTBChargeAdjustmentDACongestionRegUpAmount **BJmdh** | Pass Through Bill (PTB) amount for this charge code. ($) |
| 3 | FMMIntervalResourceRTRegUpImportShadowPrice rtmdhc | Real Time Shadow Price for Intertie resource. The marginal value of relieving particular intertie constraint(s) (associated with the resource) for congestion in the import direction. ($/MW)  Note: This usually comes in as negative. |

## Inputs - Predecessor Charge Codes or Pre-calculations

| Row # | Variable Name | Predecessor Charge Code/  Pre-calc Configuration |
| --- | --- | --- |
| 1 | DARegUpAward **BrtQ’F’S’a’mdh** | Ancillary Services Pre-Calculation |
| 2 | DARegUpNonContractEligibleQSP **BrtF’S’a’mdh** | ETC/TOR/CVR Pre-Calculation |
| 3 | DAtoRTPD\_OTCReductionFlag rtmdh | CC 6710 – Day-Ahead Congestion – AS Spinning Reserve Import Settlement |
| 4 | BAHourlyNoPayRegUpBid\_DAImportCongQuantity **BrtQ’F’S’a’mdh** | Regulation No Pay Quantity Pre-Calculation |
| 5 | BAHourlyNoPayRegUpQSP\_DAImportCongQuantity **BrtQ’F’S’a’mdh** | Regulation No Pay Quantity Pre-Calculation |

## CAISO Formula

DA Congestion Regulation Up amount for Business Associate B, Resource r, and Trading Hour h:

DACongestionRegUpAmount **BrtF’S’mdh**=

(DACongestionRegUpAwardChargeAmount **BrtF’S’mdh**

+ DACongestionRegUpQSPChargeAmount **BrtF’S’mdh**

+ DARegUpUndispatchableCapacityRefundAmt **BrtF’S’mdh** )

Where DACongestionRegUpAwardChargeAmount **BrtF’S’mdh**=

Sum(Q’,a’) (-1) \* DARegUpAward BrtQ’F’S’a’mdh \* HourlyResourceDARegUpImportShadowPrice **rtmdh**

Where Resource Type t = ITIE

Note: This filter is redundant as the quantity input is already filtered in AS Pre-calculation.

Where DACongestionRegUpQSPChargeAmount **BrtF’S’mdh**=

(-1) \* DARegUpNonContractEligibleQSP BrtF’S’a’mdh\* HourlyResourceDARegUpImportShadowPrice **rtmdh**

Where DARegUpUndispatchableCapacityRefundAmt **BrtF’S’mdh** =

Sum(a’) (DARegUpUndispatchableCapacityQty **BrtF’S’a’mdh** \* max(HourlyResourceDARegUpImportShadowPrice **rtmdh**, HourlyResourceAverageRTRegUpImportShadowPrice **rtmdh** ))

And Where HourlyResourceAverageRTRegUpImportShadowPrice rtmdh =

(1/4)\* FMMIntervalResourceRTRegUpImportShadowPrice rtmdhc

And Where DARegUpUndispatchableCapacityQty **BrtF’S’a’mdh** =

Min{( DARegUpAwardEligibleQuantity BrtF’S’a’mdh + DARegUpNonContractEligibleQSP BrtF’S’a’mdh),

[(BAHourlyNoPayRegUpTotal\_DAImportCongQuantity BrtF’S’a’mdh)\* DAtoRTPD\_OTCReductionFlag **rtmdh**]}

And Where DARegUpAwardEligibleQuantity BrtF’S’a’mdh = *Sum(Q’) DARegUpAward* ***BrtQ’F’S’a’mdh***

And Where BAHourlyNoPayRegUpTotal\_DAImportCongQuantity BrtF’S’a’mdh =Sum(Q’) BAHourlyNoPayRegUpBid\_DAImportCongQuantity **BrtQ’F’S’a’mdh** + BAHourlyNoPayRegUpQSP\_DAImportCongQuantity BrtQ’F’S’a’mdh

DA AS Regulation Up Congestion Charge per Business Associate B and Trading Hour h:

BAHourlyDACongestionRegUpAmount **Bmdh**=

*Sum (r,t,F’,S’)* DACongestionRegUpAmount **BrtF’S’mdh**

Note: This is provided as part of reporting structure and is not configured as an individual charge type. This is shown as a reporting BD in the BD matrix file.

The CAISO total DA congestion revenue from RegUp for Trading Hour h:

CAISOHourlyTotalDACongestionRegUpAmount **mdh**=

** BAHourlyDACongestionRegUpAmount **Bmdh**

Note: This is provided as part of reporting structure and is not configured as an individual charge type. This is shown as a reporting BD in the BD matrix file.

## Outputs

| Output Req ID | Name | Description |
| --- | --- | --- |
| 1 | In addition to any outputs listed below, all inputs shall be included as outputs. | All inputs. |
| 2 | DACongestionRegUpAmount BrtF’S’mdh | The congestion charge for scheduling RegUp at a congested import resource r where location type t = ITIE for Trading Hour h of the DAM. ($) |
| 3 | BAHourlyDACongestionRegUpAmount Bmdh | The congestion charge for scheduling RegUp for Trading Hour h of the DAM. ($)  This is provided as part of reporting structure and is not configured as an individual charge type. This is shown as a reporting BD in the BD matrix file. |
| 4 | CAISOHourlyTotalDACongestionRegUpAmount mdh | The CAISO total DA congestion revenue from RegUp imports for Trading Hour h. ($)  This is provided as part of reporting structure and is not configured as an individual charge type. This is shown as a reporting BD in the BD matrix file. |
| 5 | DARegUpUndispatchableCapacityRefundAmt BrtF’S’mdh | The amount of Regulation Up Congestion Charge refund for Undispatchable Capacity due to a transmission derate affecting Scheduling Point / System Resource r of resource type t, Entity Component Type F’, Entity Component Subtype S’, for Business Associate B for Trading Hour h. ($) |
| 6 | DARegUpUndispatchableCapacityQty BrtQ’F’S’a’mdh | The recognized Day-Ahead Undispatchable Capacity due to a transmission derate that is eligible for refund. (MW)  This is for Business Associate B, resource r, resource type t, Entity Component Type F’, Entity Component Subtype S’, intertie constraint a’ for Trading Hour h. |
| 7 | DARegUpAwardEligibleQuantity BrtF’S’a’mdh | The recognized Day-Ahead Undispatchable Capacity |
| 8 | BAHourlyNoPayRegUpTotal\_DAImportCongQuantity BrtF’S’a’mdh | The No Pay Regulation Up Capacity |
| 9 | DACongestionRegUpAwardChargeAmount BrtF’S’mdh | The congestion charge for DA AS Regulation Up Import Award. This includes the charge for Undispatchable Capacity that would be refunded in valid cases.  This is for Business Associate B, resource r, resource type t, Entity Component Type F’, Entity Component Subtype S’ for Trading Hour h. |
| 10 | DACongestionRegUpQSPChargeAmount BrtF’S’mdh | The congestion charge for DA AS Regulation Up Import qualified self-provision. This charge includes ETC/TOR contract usage beyond the rights capacity.  This is for Business Associate B, resource r, resource type t, Entity Component Type F’, Entity Component Subtype S’ for Trading Hour h. |
| 11 | HourlyResourceAverageRTRegUpImportShadowPrice rtmdh | The hourly average Real Time Import Shadow Price for a resource. |

# Charge Code Effective Dates

| Charge Code/  Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type |
| --- | --- | --- | --- | --- |
| CC 6750 – Day Ahead Congestion - AS Regulation Up Import Settlement | 5.0 | 04/01/09 | 11/30/2012 | Documentation Edits Only |
| CC 6750 – Day Ahead Congestion - AS Regulation Up Import Settlement | 5.1 | 12/01/12 | 4/30/14 | Configuration Impacted |
| CC 6750 – Day Ahead Congestion - AS Regulation Up Import Settlement | 5.2 | 5/01/14 | 10/31/2021 | Configuration Impacted |
| CC 6750 – Day Ahead Congestion - AS Regulation Up Import Settlement | 5.3 | 11/01/2021 | 4/30/2026 | Configuration Impacted |
| CC 6750 – Day Ahead Congestion - AS Regulation Up Import Settlement | 5.4 | 5/1/2026 | Open | Configuration Impacted |