Settlements and Billing

Configuration Guide: Real Time Marginal Losses Offset

CC 6985

Version 5.8

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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

The CAISO calculates and accounts for Imbalance Energy for each Dispatch Interval The CAISO calculates and accounts for Imbalance Energy for each Dispatch Interval and settles Imbalance Energy for each Settlement Interval for each resource within the EIM Area and all System Resources Dispatched in Real-Time.

Imbalance Energy consists of following:

* IIE – instructed imbalance energy
  + FMM Instructed Imbalance Energy Settlement (CC 6460)
  + FMM Instructed Imbalance Energy EIM Settlement (CC 64600)
  + RTD Instructed Imbalance Energy Settlement (CC 6470)
  + RTD Instructed Imbalance Energy EIM Settlement (CC 64700)
* UIE – Uninstructed Imbalance Energy
  + Real Time Uninstructed Imbalance Energy Settlement (CC 6475)
  + Real Time Uninstructed Imbalance Energy EIM Settlement (CC 64750)
* UFE – Unaccounted for Energy
  + Real Time Unaccounted for Energy Settlement (CC 6474)
  + Real Time Unaccounted for Energy EIM Settlement (CC 64740)
* GHG - Greenhouse Gas Emission Cost Revenue (CC 491)

To the extent that the sum of the Settlement Amounts for IIE, UIE, and UFE does not equal zero within the CAISO Balancing Authority Area, the CAISO will assess Charges or make Payments in Real Time Imbalance Energy Offset (CC 6477) and in Real Time Imbalance Energy Offset EIM (CC 64770) for the resulting differences to all Scheduling Coordinators based on a pro rata share of their Measured Demand for the relevant Settlement Interval. To the extent that the sum of the Settlement Amounts for IIE, UIE, UFE, and GHG does not equal zero within the EIM Balancing Authority Area, the CAISO will assess Charges or make Payments in Real Time Imbalance Energy Offset EIM (CC 64770) for the resulting differences to EIM Entity Scheduling Coordinator ID, respectively.

In the Real-Time Market, the negative and positive Congestion Charges associated with a valid post-Day-Ahead TOR and ETC schedule change (including changes submitted to the Hour-Ahead Scheduling Process and changes submitted closer to Real-Time where allowed by the contract) will be reversed in CC 6788 RTM Congestion Credit Settlement. Because Congestion Charges are implicitly collected by the CAISO in the Real-Time settlement and there are no holders of rights to receive Real-Time Congestion revenues, all charges for Real-Time Congestion will be accumulated in special and separate Balancing Authority Area neutrality accounts. The CAISO Real-Time Congestion Charges less Virtual Bid Adjustment shall be distributed back to non-ETC Control Area metered Demand and exports in Real Time Congestion Offset (CC 6774). The EIM Balancing Authority Area Real-Time Congestion Charges shall be distributed to the applicable EIM Entity Scheduling Coordinator in Real Time Congestion Offset EIM (CC 67740).

## Description

CAISO will calculate for each BAA in the EIM Area, the Real Time Marginal Losses Offset. The Real Time Marginal Losses Offset for each BAA is the sum for each BAA of the product of the contribution of that Balancing Authority Area’s Transmission Constraints to the marginal Loss component of the Locational Marginal Price at each resource location in the EIM Area and the imbalance energy, at that resource location.

The Real Time Marginal Losses Offset amounts for EIM Area BAAs will be allocated to the relevant EIM Entity SC in CC 68950, and for the CAISO BAA in CC 6895. The Real Time Marginal Losses Offset amount for CAISO BAA shall be allocated to Measured Demand, excluding Demand associated with TOR Self-Schedules for which IFM and RTM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules were provided.

# Charge Code Requirements

## Business Rules

| Bus Req ID | Business Rule |
| --- | --- |
| 1.0 | This Charge Code shall be calculated and output on a 5-minute Settlement Interval basis. |
| 1.1 | This charge code shall calculate the Real Time Loss Offset Amount for EIM Area BAAs and allocate the Real Time Loss Offset Allocation Amount |
| 1.2 | This charge code shall allocate the CAISO Real Time Loss Offset Allocation Amount to Measured Demand, excluding Demand associated with TOR Self-Schedules for which IFM and RTM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules were provided. |
| 2.0 | The Real Time Loss Offset Amount, where Balancing Authority Area equals ‘CISO’, shall be calculated as the sum of   * Settlement Interval RTM Net Marginal Loss Assessment Amount * Balancing Authority Area FMM Nodal Marginal Loss Amount * Balancing Authority Area RTD Nodal Marginal Loss Amount * Balancing Authority Area RTD LAP UIE Marginal Loss Amount * FMM Net MSS Marginal Loss Amount * RTD Net MSS Marginal Loss Amount * RTM UFE Marginal Loss Amount * Real Time Marginal Loss Neutrality Load Amount * Hourly Real Time Market Virtual Marginal Loss Amount |
| 2.1 | Balancing Authority Area FMM Nodal Marginal Loss Amount shall be calculated as the product of Total Nodal FMM IIE Quantity and the FMM Interval Marginal Cost of Losses Price, where Balancing Control Area equals “CISO”. |
| 2.2 | Balancing Authority Area RTD Nodal Marginal Loss Amount shall be calculated as the product of the sum of Total Nodal RTD IIE Quantity plus the Total Nodal UIE Quantity and Dispatch Interval Marginal Cost of Losses Price, where Balancing Control Area equals “CISO”. |
| 2.3 | FMM Net MSS Marginal Loss Amount shall be calculated as the product of the total Nodal FMM Net MSS IIE Quantity and the FMM Interval MSS Marginal Cost Of Losses Price |
| 2.4 | RTD Net MSS Marginal Loss Amount shall be calculated as the product of the total Nodal RTD Net MSS IIE Quantity and the Settlement Interval MSS Marginal Cost Of Losses Price |
| 2.5 | The CAISO Real Time Market UFE Marginal Loss Amount shall be calculated as the product CAISO Total UFE Quantity and the Hourly UFE UDC Marginal Cost of Loss Price |
| 2.6 | CAISO Real Time Marginal Loss Neutrality Load Amount is calculated as the product of :  (1) Day Ahead Load Schedule, and  (2) the summed product of (i) Hourly Real Time Lap MCL normalized to the member PNodes based on metered demand, and (ii) the change in Day Ahead Load Distribution Factors and Real Time Load Distribution Factor. |
| 2.7 | CAISO Hourly Real Time Market Virtual Award Marginal Loss Amount shallbe calculated as the product of:   1. BA Hourly Da Virtual Award Nodal Quantity, and 2. Hourly Real Time MCL Price   Or the product   1. BA Hourly Da Virtual Award Nodal Quantity, and 2. FMM Hourly Average Pnode Price |
| 2.8 | Balancing Authority Area RTD LAP UIE Marginal Loss Amount shall be calculated as the product of Total Nodal LAP Load UIE Quantity and the Hourly RTM LAP MCL Price, where Balancing Control Area equals “CISO”. |
| 3.0 | The Real Time Loss Offset EIM Settlement Amount (CC 69850), where Balancing Authority Area does not equals ‘CISO’, shall be calculated as the sum of   * Balancing Authority Area FMM Nodal Marginal Loss Amount * Balancing Authority Area RTD Nodal Marginal Loss Amount * Balancing Authority Area RTD LAP UIE Marginal Loss Amount * EIM RTM UFE Marginal Loss Amount |
| 3.1 | Balancing Authority Area FMM Nodal Marginal Loss Amount shall be calculated as the product of Total Nodal FMM IIE Quantity and the FMM Interval Marginal Cost of Losses Price, where Balancing Control Area does not equal “CISO”. |
| 3.2 | Balancing Authority Area RTD Nodal Marginal Loss Amount shall be calculated as the product of the sum of Total Nodal RTD IIE Quantity plus the Total Nodal UIE Quantity and Dispatch Interval Marginal Cost of Losses Price, where Balancing Control Area does not equal “CISO”. |
| 3.3 | Balancing Authority Area RTD LAP UIE Marginal Loss Amount shall be calculated as the product of Total Nodal LAP Load UIE Quantity and the Hourly RTM LAP MCL Price, where Balancing Control Area does not equal “CISO”. |
| 3.4 | The EIM BAA Real Time Market UFE Marginal Loss Amount shall be calculated as the product EIM BAA Total UFE Quantity and the Hourly UFE UDC Marginal Cost of Loss Price, where Balancing Control Area does not equal “CISO”. |
| 4.0 | To show the loss contribution from base ETSRs that elected imbalance energy settlement at the BAA level, this value shall be calculated in this charge code.  The contribution per BAA is the sum product of (a) the difference of transfer to and transfer from, and (b) the applicable resource MCL price; among all resources under the same BAA. |
| 5.0 | The CAISO Will allow an EIM Entity using a load derivation approach the following two options: elect to settle Unaccounted for Energy (UFE), or elect not to settle UFE. |
| 5.1 | Settlements shall calculate the UFE amount but settle as zero value if an EIM entity elect not to settle UFE. |

## Predecessor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| MSS Netting Pre-Calculation |
| ETC/TOR/CVR Quantity Pre-Calculation |
| Measured Demand Over Control Area Pre-calculation |
| Real Time Price Pre-Calculation |
| Real Time Energy Pre-Calculation |
| CC 6475 – RT Uninstructed Imbalance Energy Settlement |
| CC 6984 – RTM Net Marginal Loss Assessment per CAISO Agreement |
| CC 6473 – Convergence Bidding RT Energy, Congestion, and Loss Settlement |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| CC 6477 - Real Time Imbalance Energy Offset |
| CC 64770 - Real Time Imbalance Energy EIM Offset |
| CC 69850 – Real Time Marginal Loss EIM Offset |
| CC 6478 - Real Time System Imbalance Energy Offset |

## Inputs – External Systems

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Description |
|  | DispatchIntervalRTDNodeMCL AA’Qpmdhcif | The Dispatch Interval RTD Marginal Cost of Losses Price (MCL) for Aggregated Pricing Node A and Pricing Node (Pnode) p or Pnode/Apnode in combination with intertie ID Q. ($/MWh) |
|  | FMMIntervalPnodeMCL AA’Qpmdhc | The FMM Interval Marginal Cost of Losses (MCL) for Apnode A or Pricing Node (Pnode) p or Pnode/Apnode in combination with intertie ID Q. ($/MWh) |
|  | BAHourlyDAVirtualAwardNodalQuantity BQ’AA’Qpay’mdh | The input provides the DA Virtual Award cleared Energy quantity in association with Business Associate B (MW) |
|  | HourlyRTMLAPMCLPrice AA’mdh | Hourly Real Time Market LAP Marginal Cost of Losses (MCL) for Apnode A. |
|  | BAAEIMEntityUFEElectSettlementFlag uQ’md | Flag (1/0) that indicates whether the specified EIM entity has elected to settle Unaccounted for Energy (UFE) or not. The flag value defaults to be 1, indicating that the EIM entity settles UFE. If the flag value is set to zero, it indicates that the EIM entity has elected not to settle UFE. (Note: do not suppress zero.) |

## Inputs - Predecessor Charge Codes or Pre-calculations

| Row # | Variable Name | Predecessor Charge Code/ Pre-calc Configuration |
| --- | --- | --- |
|  | BASettlementIntervalMeasuredDemandMinusBalancedTORLossQuantity\_EX\_RTM\_IMBOFF Bmdhcif | Measured Demand Over Control Area Pre-calculation |
|  | CAISOSettlementIntervalMeasuredDemandMinusBalancedTORLossQuantity\_EX\_RTM\_IMBOFF mdhcif | Measured Demand Over Control Area Pre-calculation |
|  | BASettlementIntervalRTMNetMarginalLossAssessmentSettlementAmount Bmdhcif | CC 6984 – RTM Net Marginal Loss Assessment per CAISO Agreement |
|  | BAANodalQuantityFlag Q’AA’Qpmdhcif | Real Time Energy PC |
|  | BAANodalTotalRTDIIEandETSRQuantity Q’AA’Qpmdhcif | Real Time Energy Pre-Calculation |
|  | BAANodalTotalFMMIIEandETSRQuantity Q’AA’Qpmdhcif | Real Time Energy Pre-Calculation |
|  | BAANodalTotalUIEQuantity Q’AA’Qpmdhcif | Real Time Energy PC |
|  | NodalTotalFMMNETMSSIIEQuantity uM’mdhcif | Real Time Energy PC |
|  | NodalTotalRTDNETMSSIIEQuantity uM’mdhcif | Real Time Energy PC |
|  | NodalTotalLAPLoadUIEQuantity AA’mdhcif | Real Time Energy PC |
|  | CAISOTotalUFEQuantity umdhcif | Real Time Congestion PC |
|  | EIMBAASettlementIntervalUFEQuantity uQ’mdhcif | Real Time Congestion PC |
|  | HourlyUFEUDCMCL umdh | Real Time Price PC |
|  | FMMIntervalMSSMCLPrice uM’mdhc | Real Time Price PC |
|  | SettlementIntervalRealTimeMSSMCLPrice uM’mdhcif | Real Time Price PC |
|  | HourlyNodalLDFChangeDAtoRT uM’AA’pmdh | CC 6475 – RT Uninstructed Imbalance Energy Settlement |
|  | HourlyDefaultLAPDALoadSchedule uM’AA’mdh | Real Time Congestion PC |
|  | SettlementIntervalNodalMeteredCAISODemandQuantity\_MDOverCA uM’AA’mdhcif | Measured Demand over Control Area Pre-calculation |
|  | BAResEntitySettlementIntervalMeteredCAISODemandQuantity BrtuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’VvHn’L’mdhcif | MSS Netting Pre-calculation |
|  | HourlyRealTimeMCLpmdh | Real Time Price PC |

## CAISO Formula

BASettlementIntervalRTLossOffsetAllocationAmount

BASettlementIntervalRTLossOffsetAllocationAmount Bmdhcif = (BASettlementIntervalMeasuredDemandMinusBalancedTORLossQuantity\_EX\_RTM\_IMBOFF Bmdhcif \* CAISOSettlementIntervalRTLossOffsetPrice mdhcif)

Where CAISOSettlementIntervalRTLossOffsetPrice **mdhcif**

IF CAISOSettlementIntervalMeasuredDemandMinusBalancedTORLossQuantity\_EX\_RTM\_IMBOFF mdhcif <> 0

THEN

CAISOSettlementIntervalRTLossOffsetPrice mdhcif*=* (-1) \* (CAISOTotalRTLossOffsetAmount mdhcif / CAISOSettlementIntervalMeasuredDemandMinusBalancedTORLossQuantity\_EX\_RTM\_IMBOFF mdhcif)

ELSE

CAISOSettlementIntervalRTLossOffsetPrice mdhcif= 0

END IF

CAISOTotalRTLossOffsetAmount

CAISOTotalRTLossOffsetAmount mdhcif= CAISOSettlementIntervalRTMNetMarginalLossAssessmentAmount mdhcif*+* CAISORTMIIEUIEMarginalLossAmount mdhcif*+* FMMNETMSSMarginalLossAmountmdhcif *+* RTDNETMSSMarginalLossAmountmdhcif *+* CAISORTMUFEMarginalLossAmount mdhcif *+* CAISORTMarginalLossNeutralityLoadAmount mdhcif *+* {(1/12) \*CAISOHrlyRTMVirtualAwardMarginalLossAmount mdh}

##### Where

CAISOSettlementIntervalRTMNetMarginalLossAssessmentAmount mdhcif =  BASettlementIntervalRTMNetMarginalLossAssessmentSettlementAmount Bmdhcif

##### CAISORTMIIEUIEMarginalLossAmount

##### CAISORTMIIEUIEMarginalLossAmount mdhcif = (BAAFMMNodalMarginalLossAmount Q’mdhcif + BAARTDNodalMarginalLossAmount Q’mdhcif + BAARTDLAPUIEMarginalLossAmount Q’mdhcif )

##### Where Balancing Authority Area (Q’) = ‘CISO’

***Real Time Market Marginal Loss Amounts:***

### BAAFMMNodalMarginalLossAmount

#### BAAFMMNodalMarginalLossAmount Q’mdhcif = (-1) \* (BAANodalTotalFMMIIEandETSRQuantity Q’AA’Qpmdhcif \* FMMIntervalPnodeMCL AA’Qpmdhc)

### FMMNetMSSMarginalLossAmount

FMMNetMSSMarginalLossAmount mdhcif =   
(-1) \* (NodalTotalFMMNETMSSIIEQuantity M’mdhcif \* FMMIntervalMSSMCLPrice M’mdhc )

### BAARTDNodalMarginalLossAmount

#### BAARTDNodalMarginalLossAmount Q’mdhcif = (-1) \* ((BAANodalTotalRTDIIEandETSRQuantity Q’AA’Qpmdhcif + BAANodalTotalUIEQuantity Q’AA’Qpmdhcif )\* DispatchIntervalRTDNodeMCL AA’Qpmdhcif)

### BAARTDLAPUIEMarginalLossAmount

#### BAARTDLAPUIEMarginalLossAmount Q’mdhcif = (-1) \* (NodalTotalLAPLoadUIEQuantity AA’mdhcif \* HourlyRTMLAPMCLPrice AA’mdh)

#### Note: Where BAANodalQuantityFlag Q’AA’Qpmdhcif exists.

### RTDNETMSSMarginalLossAmount

#### RTDNETMSSMarginalLossAmount mdhcif = (-1) \* (NodalTotalRTDNETMSSIIEQuantity M’mdhcif \* SettlementIntervalRealTimeMSSMCLPrice M’mdhcif)

### CAISORTMUFEMarginalLossAmount

#### CAISORTMUFEMarginalLossAmount mdhcif = CAISOTotalUFEQuantity umdhcif \* HourlyUFEUDCMCL umdh

### EIMBAARTMUFEMarginalLossAmount

#### EIMBAARTMUFEMarginalLossAmount Q’mdhcif = BAAEIMEntityUFEElectSettlementFlag uQ’md \* EIMBAASettlementIntervalUFEQuantity uQ’mdhcif \* HourlyUFEUDCMCL umdh

***CAISO Real Time Marginal Losses Neutrality Load Amount***

CAISORTMarginalLossNeutralityLoadAmount

CAISORTMarginalLossNeutralityLoadAmount mdhcif = BAResMarginalLossNeutralityLoadAmount BrtuT’I’M’F’S’mdhcif

#### Where Resource type (t) = ‘LOAD’ and Entity Component Subtype (S’) = ‘NPL’ OR ’GL’

BAResMarginalLossNeutralityLoadAmount BrtuT’I’M’F’S’mdhcif *=*  (RTMarginalLossNeutralityAllocation uM’AA’mdhcif \*

(BAResEntitySettlementIntervalMeteredCAISODemandQuantity BrtuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’VvHn’L’mdhcif / SettlementIntervalNodalMeteredCAISODemandQuantity\_MDOverCA uM’AA’mdhcif))

#### RTMarginalLossNeutralityAllocation

RTMarginalLossNeutralityAllocation uM’AA’mdhcif =

(-1) \* (1/12) \* HourlyDefaultLAPDALoadSchedule uM’AA’mdh \* SettlementIntervalDefaultLAPNeutralityMCLPrice AA’mdhcif

#### SettlementIntervalDefaultLAPNeutralityMCLPrice

SettlementIntervalDefaultLAPNeutralityMCLPrice AA’mdhcif =

 HourlyRealTimeMCLpmdh \* HourlyNodalLDFChangeDAtoRT uM’AA’pmdh

***CAISO FMM Virtual Bid Marginal Loss Amount***

### CAISOHrlyRTMVirtualAwardMarginalLossAmount

### CAISOHrlyRTMVirtualAwardMarginalLossAmount mdh = sum(B,Q’,A,Q,p) (BAHrlyRTMVirtualDemandMarginalLossAmount BQ’AQpmdh + BAHrlyRTMVirtualSupplyMarginalLossAmount BQ’AQpmdh)

### BAHrlyRTMVirtualDemandMarginalLossAmount

#### IF

BAHourlyDAVirtualAwardNodalQuantity BQ’AA’Qpay’mdh APnode Type = ‘DEFAULT’ or ‘CUSTOM’

THEN

#### BAHrlyRTMVirtualDemandMarginalLossAmount BQ’AQpmdh = (BAHourlyDAVirtualAwardNodalQuantity BQ’AA’Qpay’mdh \* HourlyRTMLAPMCLPrice

#### AA’mdh)

#### ELSE

#### BAHrlyRTMVirtualDemandMarginalLossAmount BQ’AQpmdh = (BAHourlyDAVirtualAwardNodalQuantity BQ’AA’Qpay’mdh \* FMMHrlyAveragePnodePrice AA’Qpmdh)

Where a = ‘DMND’

### BAHrlyRTMVirtualSupplyMarginalLossAmount

#### BAHrlyRTMVirtualSupplyMarginalLossAmount BQ’AQpmdh =

#### (BAHourlyDAVirtualAwardNodalQuantity BQ’AA’Qpay’mdh \* FMMHrlyAveragePnodePrice AA’Qpmdh)

Where a = ‘SUP’

#### FMMHrlyAveragePnodePrice

#### FMMHrlyAveragePnodePrice AA’Qpmdh = Average FMMIntervalPnodeMCL AA’Qpmdhc

**CAISO Total Real-Time Marginal Losses Offset Allocation Amount**

### CAISOTotalRealTimeMarginalLossOffsetAllocationAmount

#### CAISOTotalRealTimeMarginalLossOffsetAllocationAmount mdhcif = BASettlementIntervalRTLossOffsetAllocationAmount Bmdhcif

Note: CAISOTotalRealTimeMarginalLossOffsetAllocationAmount mdhcif will be calculated as part of the Hierarchy.

## Outputs

| Output ID | Name | Description |
| --- | --- | --- |
|  | In addition to any outputs listed below, all inputs shall be included as outputs. |  |
|  | BASettlementIntervalRTLossOffsetAllocationAmount Bmdhcif | Settlement Interval Real Time Marginal Losses Offset Allocation Amount by Business Associate B |
|  | CAISOSettlementIntervalRTLossOffsetPrice mdhcif | CAISO Settlement Interval Real Time Marginal Loss Offset Price |
|  | CAISOTotalRTLossOffsetAmountmdhcif | CAISO Settlement Interval Total Real Time Marginal Loss Offset Amount |
|  | CAISOSettlementIntervalRTMNetMarginalLossAssessmentAmount mdhcif | Total RTM Net Marginal Loss Assessment for the CAISO Control Area. |
|  | CAISORTMIIEUIEMarginalLossAmount mdhcif | The Total Real Time Market Total IIE and UIE marginal Loss Amount |
|  | FMMNETMSSMarginalLossAmount mdhcif | The total FMM Marginal Loss Amount for Metered Sub-systems that elect “Net” Settlement |
|  | RTDNETMSSMarginalLossAmount mdhcif | The total RTD Marginal Loss Amount for Metered Sub-systems that elect “Net” Settlement |
|  | CAISORTMUFEMarginalLossAmount mdhcif | The Total Real Time Market UFE Marginal Loss Amount for CAISO Balancing Authority Area |
|  | CAISORTMarginalLossNeutralityLoadAmount mdhcif | The Total Real Time Marginal Loss Load Neutrality Amount due to Load Distribution Factor changes between Day Ahead Market and Real Time Market |
|  | CAISOHrlyRTMVirtualAwardMarginalLossAmount mdh | The Hourly total Real Time Market Virtual Marginal Loss Amount |
|  | BAAFMMNodalMarginalLossAmount Q’mdhcif | The FMM Nodal Marginal Loss Amount for EIM Area by Balancing Authority Area (Q’) |
|  | BAARTDNodalMarginalLossAmount Q’mdhcif | The RTD Nodal Marginal Loss Amount for EIM Area by Balancing Authority Area (Q’) |
|  | BAARTDLAPUIEMarginalLossAmount Q’mdhcif | The RTD UIE Marginal Loss Amount for EIM Area by Balancing Authority Area (Q’) |
|  | EIMBAARTMUFEMarginalLossAmount Q’mdhcif | The Total Real Time Market UFE Marginal Loss Amount by Balancing Authority Areas (Q’)  Where Q’ <> ‘CISO’ |
|  | BAResMarginalLossNeutralityLoadAmount BrtuT’I’M’F’S’mdhcif | The total Marginal Loss Load Neutrality Amount for resource r |
|  | SettlementIntervalDefaultLAPNeutralityMCLPrice AA’mdhcif | Settlement Interval Default LAP Neutrality Marginal Cost of Loss Price by Apnode A |
|  | RTMarginalLossNeutralityAllocation uM’AA’mdhcif | Real Time Marginal Loss Neutrality Allocation Amount for UDC ID u and Apnode A. |
|  | BAHrlyRTMVirtualDemandMarginalLossAmount BQ’AQpmdh | The Total Hourly Real Time Market Virtual Demand Marginal Loss Amount for Business Associate B  Reasoning behind addition of Q’ attribute as part of DAME EDAM Project:  For the first year of EDAM, EDAM BAAs have the option to allow virtual bidding in their BAAs.  After the first year, there is no option.  In other words, virtual bids will apply to all BAAs in the Day Ahead market (EDAM is part a Day Ahead Market) |
|  | BAHrlyRTMVirtualSupplyMarginalLossAmount BQ’AQpmdh | The Total Hourly Real Time Market Virtual Supply Marginal Loss Amount for Business Associate B  Reasoning behind addition of Q’ attribute as part of DAME EDAM Project:  For the first year of EDAM, EDAM BAAs have the option to allow virtual bidding in their BAAs.  After the first year, there is no option.  In other words, virtual bids will apply to all BAAs in the Day Ahead market (EDAM is part a Day Ahead Market) |
|  | FMMHrlyAveragePnodePrice AA’Qpmdh | The FMM Hourly Average Pnode Price for Apnode A and Pricing Node p or Pnode/Apnode in combination with intertie ID Q. |
|  | CAISOTotalRealTimeMarginalLossOffsetAllocationAmount mdhcif | Total Settlement Interval Real Time Marginal Losses Offset Allocation Amount |

# Charge Code Effective Dates

| Charge Code/  Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type |
| --- | --- | --- | --- | --- |
| CC 6985 – Real Time Marginal Losses Offset | 5.0 | 10/1/14 | 9/30/14 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.1 | 10/1/14 | 9/30/14 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.1a | 10/1/14 | 11/30/15 | Documentation Only |
| CC 6985 – Real Time Marginal Losses Offset | 5.2 | 12/1/15 | 11/30/15 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.2.1 | 12/1/15 | 4/3/18 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.3 | 4/4/18 | 4/3/18 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.3.1 | 4/4/18 | 7/31/18 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.3.5 | 8/1/18 | 10/31/18 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.4 | 11/1/18 | 10/31/18 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.4.1 | 11/1/18 | 10/31/18 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.4.2 | 11/1/18 | 1/31/21 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.5 | 2/1/21 | 1/31/214/30/21 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.5.1 | 2/1/21 | 4/30/21 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.6 | 5/1/21 | 10/31/21 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.7 | 11/1/21 | 4/30/2026 | Configuration Impacted |
| CC 6985 – Real Time Marginal Losses Offset | 5.8 | 5/1/2026 | Open | Configuration Impacted |