Settlements & Billing

Configuration Guide: Real Time Instructed Imbalance Energy EIM Settlement

CC 64700

Version 5.5

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# Purpose of Document

The purpose of this document is to capture the business and functional requirements for the Real Time Instructed Imbalance Energy EIM Settlement, Charge Code 64700.

# Introduction

##  Background

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

The EIM IIE Settlement Amount per Settlement Interval for each resource shall be calculated as the sum of the Settlement Amounts for the Standard Ramping Energy, RTD Optimal Energy, RTD Minimum Load Energy, RTD Pumping Energy, Ramping Energy Deviation, RTD Derate Energy, Residual Imbalance Energy, Operational Adjustments, and RTD Manual Dispatch Energy.

The CAISO will settle IIE with the EIM Participating Resource Scheduling Coordinator for EIM Participating Resources; and, with the applicable EIM Entity Scheduling Cordinator for non-Participating Resources.

# Charge Code Requirements

## Business Rules

| **Bus Req ID** | **Business Rule** |
| --- | --- |
| 1.0 | RTD IIE is the calculated Energy expected to be produced or consumed as a result of responding to Real-Time Dispatch Instructions. |
| 1.2 | RTD IIE consists of one or more of the following components:* RTD Optimal Energy
* Ramping Energy Deviation
* Residual Imbalance Energy
* RTD Minimum Load Energy
* RTD Derate Energy
* Standard Ramping Energy
* RTD Pumping Energy
* Operational Adjustment
* RTD Manual Dispatch Energy
 |
| 1.3 | A positive Ramping Energy Deviation indicates positive deviation from Standard Ramping Energy and Scheduled Energy.  |
| 1.4 | A negative Ramping Energy Deviation indicates negative deviation from Standard Ramping Energy and Scheduled Energy. |
| 1.5 | The RTD Manual Dispatch Energy considers any RTD EIM Auto-Matched Energy, and any Energy dispatched by the EIM Entity. |
| 2.0 | The RTD IIE Settlement Amounts for the Standard Ramping Energy shall be zero |
| 2.1 | The RTD IIE Settlement Amounts for RTD Optimal Energy, RTD Minimum Load Energy, Ramping Energy Deviation, RTD Derate Energy, RTD Pumping Energy, Operational Adjustment, and RTD Manual Dispatch Energy shall be calculated as the product of the sum of all of these types of Energy and the RTD LMP. |
| 2.2 | The Residual Imbalance Energy Settlement Amount, which does not include the settlement amount for eligible intermittent resources’ RIE above forecasted output, shall be calculated as the sum of the products of the Residual Imbalance Energy quantities for the Dispatch Interval and the relevant Bid price that led to the Residual Imbalance Energy from the relevant Dispatch Interval in which the resource was dispatched. The price is qualified in the succeeding business rules. |
| 2.2.1 | For a full downward ramp, the residual imbalance energy is paid at the bid price for interval from which resource is being dispatched down at full ramp. |
| 2.2.2 | For minimum load re-rate that ends at the end of an hour, the relevant residual imbalance energy during the period of ramping up to the minimum load re-rate or down to minimum load re-rate shall be paid at the LMP. Further, this energy is classified as Derate Energy. |
| 2.2.4 | RIE settlement amount is adjusted for persistent deviation of a resource not following EIM dispatch. |
| 2.2.4.1 | If a resource deviates by six or fewer 5-minute intervals in a rolling two-hour window, adjustment is not made to the RIE settlement amount. |
| 2.2.4.2 | If a resource deviates by seven or more 5-minute intervals in a rolling two-hour window, adjustment is made to the RIE settlement amount. |
| 2.2.4.3 | The RIE settlement adjustment for persistent deviation per resource is:1. if the dispatch interval RIE MWh quantity is greater than or equal to zero, the **minimum** of the three amounts calculated by the sum across bid segments of the product of RIE bid segment with (i) default energy bid (DEB) price, (ii) reference hour final energy bid price, or (iii) LMP price;

or1. if the dispatch interval RIE MWh quantity is less than zero, the **maximum** of the three amounts calculated by the sum across bid segments of the product of RIE bid segment with (i) default energy bid (DEB), (ii) reference hour final energy bid, or (iii) LMP prices.
 |
| 2.3 | The settlement amount for eligible intermittent resource RIE above forecasted output shall be the product of the MWh of such RIE and the applicable RTD Locational Marginal Price. |
| 2.3.1 | The settlement amount from the previous rule shall not be subject to the application of Persistent Deviation Metric. |
| 3.0 | RTD IIE Settlement Amounts will be settled with the EIM Participating Resource Scheduling Coordinator for EIM Participating Resources. |
| 3.1 | RTD IIE Settlement Amounts will be settled with the applicable EIM Entity Scheduling Cordinator for non-Participating Resources. |
| 3.2 | Each EIM Entity will receive financially binding settlements of energy transfer schedule changes, which will be referenced from the Day-Ahead Schedule for the Extended Day-Ahead Market (EDAM) Transfer.  |
| 3.3 | RTM transfers are deviation settlements from the IFM energy transfer. |
| 3.4 | The RTD transfers shall settle as the deviation from real time at the LMP of the SP-tie between WEIM BAAs. |
| 4.0 | The Settlement System shall support RTD Instructed Energy (IIE), including Operating Adjustment (OA), settlement for a BASE EIM Transfer System Resource (Base ETSR) that has elected to participate in imbalance energy settlement. |
| 4.1 | A Master File – resident flag (Yes / No) shall indicate whether (Yes) or not (No) an ETSR has elected to participate in imbalance energy settlement. |
| 4.3 | Base ETSR RTD IIE and Base ETSR OA shall be settled as BAAResourceSettlementIntervalRTDTransferToQuantity and BAAResourceSettlementIntervalRTDTransferFromQuantity by applying the LMP price at the financial node of the resource, where the energy is based on the resource’s Base Schedule and the tagged real-time base schedule changes submitted later than 40 minutes prior to the start of the Trading Hour. |
| 4.4 | The Base ETSR settled amounts for an ETSR that has elected to settle shall be excluded from the financial value of the real-time imbalance offset. (Fact) |
| 5.0 | For adjustments to the Charge Code that cannot be accomplished by correction of upstream data inputs/recalculation or operator override Pass Through Bill Charge logic will be applied. |
| 6.0 | When an eligible resource has an interval with a negative MWh meter, CAISO will not charge for the energy of those intervals. |

## Predecessor Charge Codes

| **Charge Code/ Pre-calc Name** |
| --- |
| Real-Time Energy Quantity |
| Real-Time Price Pre-calculation |
| Metered Energy Adjustment Factor Pre-calculation |

## Successor Charge Codes

| **Charge Code/ Pre-calc Name** |
| --- |
| Real Time Unaccounted for Energy EIM Settlement (CC 64740) |
| Real Time Uninstructed Imbalance Energy EIM Settlement (CC 64750) |
| Real Time Imbalance Energy EIM Offset (CC 64770) |
| RTM Transfer Revenue Settlement (CC ####) |

##  Inputs – External Systems

| **Input Req ID** | **Variable Name** | **Description** |
| --- | --- | --- |
|  | DispatchIntervalResidualIIE BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif | Residual Imbalance Energy is IIE produced or consumed at the start or end of a Trading Hour outside the hourly schedule-change band for resource r. (MWh)This does not include for eligible intermittent resources their RIE above forecasted output. |
|  | DispatchIntervalResidualIEBidPrice BrtbQ’mdhcif | Bid Price for Dispatch Interval Residual IIE for resource r and bid segment number b. ($/MWh) |
|  | DispatchIntervalRIEAboveForecast BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif | Residual Imbalance Energy that is classified above forecasted output of eligible intermittent resources. (MWh) |
|  | PTBChargeAdjustmentEIMSettlementIntervalIIEAmount Bjmdhcif | Real Time Instructed Imbalance Energy Settlement Amount PTB Charge Adjustment Amount for Business Associate B, PTB Id J, Trading Hour h, and Settlement Interval i. $ |
|  | ResidualImbalanceEnergyBidPriceFlag BrtubM’mdhcif  | Flag that identifies when Residual Imbalance Energy Bid Price has been scheduled.Bid Price is present = ‘1’. Flag = ‘0’ when Bid Price is Null and SC is a price taker. |
|  | RTMDefaultRIEBidBasedPrice BrtuT’bI’Q’M’VL’W’R’F’S’mdhcif | Real-time Energy Bid Price (in $/MWh) based on the Default Energy Bid (DEB) applicable for RIE. The input is provided by MQS as an output of expected energy allocation quantity. |
|  | DispatchIntervalDEBBasisRIE BrtuT’bI’Q’M’VL’W’R’F’S’mdhcif | Incremental or Decremental Residual Imbalance Energy (in MWh) provided by MQS as an expected energy allocation quantity based on the Default Energy Bid (DEB).  |
|  | ResourceBaseETSRFlag BrtuQ’M’AA’Qpmd | Flag (1/NULL) that indicates (when = 1) that the ETSR is a Base ETSR. The input should = 1 for both Q’ (BAA) values (To BAA and From BAA) that are associated with the resource r, where the Business Associate ID (B) attribute presents the BA ID value of the EIM Schedulting Coordinator for each of the two (2) BAAs. |
|  | DispatchIntervalRTDNodeLMPAA’Qpmdhcif | The Dispatch Interval RTD Locational Marginal Price (LMP) for Aggregated Pricing Node and Pricing Node (Pnode) p. ($/MWh) |
|  | ResourceETSRElectSettlementFlag rmd | Flag (1/NULL) that indicates (when = 1) that the specified ESTR resource is an EIM Transfer System Resource (ETSR) that has selected to settle its ETSR IIE and OA at the real-time LMP. |

## Inputs – Predecessor Charge Codes or Pre-calculations

|  |  |  |
| --- | --- | --- |
| **Input Req ID** | **Variable Name** | **Predecessor Charge Code/ Pre-calc Configuration** |
| 1 | SettlementIntervalRealTimeLMP BrtuM’mdhcif | Real-Time Price Pre-Calculation |
| 2 | SettlementIntervalTotalIIE1BrtuT’I’Q’M’F’S’mdhcif | Real-Time Energy Pre-calculation |
| 3 | SettlementIntervalOAEnergy BrtuT’I’Q’M’F’S’mdhcif  | Real-Time Energy Pre-calculation  |
| 4 | BA5MResourceTotalRTDManualDispatchEnergyQuantity BrtuT’I’Q’M’F’S’mdhcif | Real-Time Energy Pre-calculation |
| 5 | BAHourlyResourcePersistentDeviationFlag BrtuT’I’M’F’S’mdh | Metered Energy Adjustment Factor Pre-calculation |
| 6 | BAAResourceSettlementIntervalRTDTransferFromQuantityBrQ’AA’Qpmdhcif | Real-Time Energy Pre-calculation |
| 7 | BAAResourceSettlementIntervalRTDTransferToQuantity BrQ’AA’Qpmdhcif | Real-Time Energy Pre-calculation |
| 8 | ResourceWholesaleExemptionFlag *rmdhcif* | Real-Time Energy Pre-calculation |

## CAISO Formula

### **EIMSettlementIntervalIIEAmount** BrtQ’mdhcif

IF

ResourceWholesaleExemptionFlag *rmdhcif* = 0

THEN

EIMSettlementIntervalIIEAmount BrtQ’mdhcif= EIMSettlementIntervalTotalIIEPart1Amount BrtQ’mdhcif + EIMSettlementIntervalOAEnergyAmount BrtQ’mdhcif + EIMSettlementIntervalResidualIEAmount BrtQ’mdhcif + BASettlementIntervalRTDETSRSTLMTAmount BrtQ’mdhcif

ELSE

EIMSettlementIntervalIIEAmount BrtQ’mdhcif= 0

EIMSettlementIntervalTotalIIEPart1Amount BrtQ’mdhcif

EIMSettlementIntervalTotalIIEPart1Amount BrtQ’mdhcif = (-1)\*( SettlementIntervalRealTimeLMP BrtuM’mdhcif \* (SettlementIntervalTotalIIE1 BrtuT’I’Q’M’F’S’mdhcif +BA5MResourceTotalRTDManualDispatchEnergyQuantity BrtuT’I’Q’M’F’S’mdhcif))

Where Q’ <> ‘CISO’

EIMSettlementIntervalOAEnergyAmount BrtQ’mdhcif

EIMSettlementIntervalOAEnergyAmount BrtQ’mdhcif = (-1) \*( SettlementIntervalRealTimeLMP BrtuM’mdhcif \* SettlementIntervalOAEnergy BrtuT’I’Q’M’F’S’mdhcif)

Where Q’ <> ‘CISO’

### **EIMSettlementIntervalResidualIEAmount BrtQ’mdhcif**

**EIMSettlementIntervalResidualIEAmount BrtQ’mdhcif =** (EIMBASettlementIntervalResourceResidualIEAmountBrtuT’I’Q’M’R’W’F’S’VL’mdhcif + EIMSettlementIntervalRIEAboveForecastAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif )

### EIMBASettlementIntervalResourceResidualIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

*IF*

*BAHourlyResourcePersistentDeviationFlag BrtuT’I’M’F’S’mdh = 1*

*THEN*

EIMBASettlementIntervalResourceResidualIEAmountBrtuT’I’Q’M’R’W’F’S’VL’mdhcif = EIMBASettlementIntervalResourceWithPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

*ELSE*

*EIMBASettlementIntervalResourceResidualIEAmountBrtuT’I’Q’M’R’W’F’S’VL’mdhcif =*

EIMBASettlementIntervalResourceWithoutPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

*END IF*

### EIMBASettlementIntervalResourceWithoutPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

#### IF

ResidualImbalanceEnergyBidPriceFlag BrtubM’mdhcif = 1

THEN

EIMBASettlementIntervalResourceWithoutPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif=  (-1) \* (DispatchIntervalResidualIIEBrtuT’bI’Q’M’R’W’F’S’VL’mdhcif \* DispatchIntervalResidualIEBidPriceBrtbQ’mdhcif )

Where Q’ <> ‘CISO’

ELSE

EIMBASettlementIntervalResourceWithoutPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif= (-1) \*  (DispatchIntervalResidualIIEBrtuT’bI’Q’M’R’W’F’S’VL’mdhcif \* SettlementIntervalRealTimeLMPBrtuM’mdhcif)

Where Q’ <> ‘CISO’

END IF

### EIMBASettlementIntervalResourceWithPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

EIMBASettlementIntervalResourceWithPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif = (-1)\*Min(EIMSettlementIntervalDEBEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif, EIMSettlementIntervalFinalBidEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif, EIMSettlementIntervalLMPEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif)

### EIMSettlementIntervalResourceResidualIIE BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

EIMSettlementIntervalResourceResidualIIE BrtuT’I’Q’M’R’W’F’S’VL’mdhcif =  DispatchIntervalResidualIIEBrtuT’bI’Q’M’R’W’F’S’VL’mdhcif

Where Q’ <> ‘CISO’

### EIMSettlementIntervalDEBEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

EIMSettlementIntervalDEBEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif=

*( DispatchIntervalDEBBasisRIE* *BrtuT’bI’Q’M’VL’W’R’F’S’mdhcif \* RTMDefaultRIEBidBasedPrice BrtuT’bI’Q’M’VL’W’R’F’S’mdhcif )*

Where Q’ <> ‘CISO’

### EIMSettlementIntervalFinalBidEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

EIMSettlementIntervalFinalBidEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif = ** (DispatchIntervalResidualIIE BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif \* DispatchIntervalResidualIEBidPrice BrtbQ’mdhcif)

Where Q’ <> ‘CISO’

### EIMSettlementIntervalLMPEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

*EIM****SettlementIntervalLMPEligibleRIEAmount*** *BrtuT’I’Q’M’R’W’F’S’VL’mdhcif* ***=***

*(DispatchIntervalResidualIIE BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif \* SettlementIntervalRealTimeLMP BrtuM’mdhcif)*

Where Q’ <> ‘CISO’

### EIMSettlementIntervalRIEAboveForecastAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

***EIMSettlementIntervalRIEAboveForecastAmount*** *BrtuT’I’Q’M’R’W’F’S’VL’mdhcif* ***=***

*(-1) \* ( DispatchIntervalRIEAboveForecast BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif \* SettlementIntervalRealTimeLMP BrtuM’mdhcif)*

*Where Q’ <> ‘CISO’*

BASettlementIntervalRTDETSRSTLMTAmount BrQ’mdhcif

 BASettlementIntervalRTDETSRSTLMTAmount BrQ’mdhcif = ResourceETSRElectSettlementFlag rmd \* EIMSettlementIntervalRTDETSRSTLMTAmount BrQ’mdhcif

### EIMSettlementIntervalRTDETSRSTLMTAmount BrQ’mdhcif

EIMSettlementIntervalRTDETSRSTLMTAmount BrtQ’mdhcif = sum over (A, A’, Q, p) ((-1) \* DispatchIntervalRTDNodeLMPAA’Qpmdhcif\* (BAAResourceSettlementIntervalRTDTransferToQuantity rQ’AA’Qpmdhcif – BAAResourceSettlementIntervalRTDTransferFromQuantity rQ’AA’Qpmdhcif))

Where Q’ <> ‘CISO’

### BASettlementIntervalRTDETSRAdvisorySTLMTAmount BrtQ’mdhcif

###  BASettlementIntervalRTDETSRAdvisorySTLMTAmount BrtQ’mdhcif = ResourceETSRElectSettlementFlag rmd \* EIMSettlementIntervalRTDETSRAdvisorySTLMTAmount BrtQ’mdhcif

### EIMSettlementIntervalETSRAdvisorySTLMTAmount BrtQ’mdhcif

EIMSettlementIntervalETSRAdvisorySTLMTAmount BrtQ’mdhcif =  ((-1) \* DispatchIntervalRTDNodeLMPAA’Qpmdhcif\* (BAAResourceSettlementIntervalRTDTransferToQuantity rQ’AA’Qpmdhcif – BAAResourceSettlementIntervalRTDTransferFromQuantity rQ’AA’Qpmdhcif))

Where Q’ <> ‘CISO’

### The following equations below are created as reporting BDs that are not used in any charge code calculations but rather created to calculate the Current Quantity of the charge code’s hierarchy.

### EIMBA5MResourceTotalRTDEnergyAndETSRQuantity BrtQ’mdhcif =

EIMSettlementIntervalResourceInstructedIEReporting BrtQ’mdhcif +

EIMSettlementIntervalRTDETSRQuantity BrtQ’mdhcif

### EIMSettlementIntervalResourceInstructedIEReporting BrtQ’mdhcif =

Sum(T’uI’M’F’S’)

EIMSettlementIntervalResourceResidualIIEReporting BrtuT’I’Q’M’F’S’mdhcif + SettlementIntervalTotalIIE1 BrtuT’I’Q’M’F’S’mdhcif +

SettlementIntervalOAEnergy BrtuT’I’Q’M’F’S’mdhcif + BA5MResourceTotalRTDManualDispatchEnergyQuantity BrtuT’I’Q’M’F’S’mdhcif

*Where Q’ <> ‘CISO’*

### EIMSettlementIntervalRTDETSRQuantity BrtQ’mdhcif =

Sum(u M’AA’Qp)ResourceETSRElectSettlementFlag rmd \* (BAAResourceSettlementIntervalRTDTransferToQuantity rQ’AA’Qpmdhcif – BAAResourceSettlementIntervalRTDTransferFromQuantity rQ’AA’Qpmdhcif)

### Where ExistsResourceBaseETSRFlag BrtuQ’M’AA’Qpmd

### EIMSettlementIntervalResourceResidualIIEReporting BrtuT’I’Q’M’F’S’mdhcif =

Sum(R’W’VL’)

EIMSettlementIntervalResourceResidualIIE BrtuT’I’Q’M’R’W’F’S’VL’mdhcif + EIMDispatchIntervalRIEAboveForecast BrtuT’I’Q’M’R’W’F’S’VL’mdhcif

*Where Q’ <> ‘CISO’*

### EIMDispatchIntervalRIEAboveForecast BrtuT’I’Q’M’R’W’F’S’VL’mdhcif =

### Sum (b)

 DispatchIntervalRIEAboveForecast BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif

 *Where Q’ <> ‘CISO’*

## Outputs

| **Output ID** | **Name** | Description |
| --- | --- | --- |
|  | In addition to the outputs below, all inputs are required to be accessible for review by analysts and report on Settlement statements. |  |
|  | EIMSettlementIntervalIIEAmount BrtQ’mdhcif | The RTD IIE Settlement Amount for Resource r. (Total IIE Part 1 Amount, OA Amount, MSS IIE Amount, Residual IIE Amount, and Exceptional Dispatch Amounts) ($) |
|  | EIMSettlementIntervalTotalIIEPart1Amount BrtQ’mdhcif | Settlement Interval Total IIE Part 1 (Optimal, Minimum Load, Ramping Energy Deviation, Rerate, Real-Time self-Schedule) Amount for resource r. ($) |
|  | EIMSettlementIntervalOAEnergyAmount BrtQ’mdhcif | Amount of Operational Adjustments for Resource r. ($) |
|  | EIMSettlementIntervalResidualIEAmount BrtQ’mdhcif | Settlement Interval Residual Imbalance Energy Settlement Amount for Resource r. This amount includes settlement for all types of RIE, including that classified as RIE above forecasted output for eligible intermittent resources. |
|  | EIMBASettlementIntervalResourceResidualIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | Settlement Interval Residual Imbalance Energy Settlement amount. ($)This does not include RIE above forecasted output for eligible intermittent resources. |
|  | EIMBASettlementIntervalResourceWithoutPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | The RIE amount where persistent deviation is not assessed. ($) |
|  | EIMBASettlementIntervalResourceWithPD\_RIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | The RIE amount where persistent deviation is assessed for resource r. ($) |
|  | EIMSettlementIntervalResourceResidualIIE BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | Resource level Settlement interval RIE quantity, summed across bid segments. (MWh) |
|  | EIMSettlementIntervalDEBEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | The RIE Amount in case default energy bid price is applied to RIE. ($) |
|  | EIMSettlementIntervalFinalBidEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | The RIE Amount in case reference hour final energy bid price for RIE is applied to RIE. ($) |
|  | EIMSettlementIntervalLMPEligibleRIEAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | The RIE Amount in case LMP price is applied to RIE. ($) |
|  | EIMSettlementIntervalRIEAboveForecastAmount BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | Settlement Interval Residual Imbalance Energy Settlement amount for RIE above forecasted output of eligible intermittent resource. ($) |
|  | BASettlementIntervalRTDETSRSTLMTAmount BrtQ’mdhcif | Settlement Interval amount for a Transfer associated with the specified BAA and an ETSR that has not elected to settle its IIE and OA at the real-time LMP, ($) |
|  | EIMSettlementIntervalRTDETSRSTLMTAmount BrtQ’mdhcif | Settlement Interval amount for an EIM ETSR Transfer associated with the specified BAA and a Base ETSR that has elected to settle its IIE and OA at the real-time LMP. ($) |
|  | BASettlementIntervalRTDETSRAdvisorySTLMTAmount BrtQ’mdhcif | Settlement Interval amount for a Transfer associated with the specified BAA and an ETSR that has not elected to settle its IIE and OA at the real-time LMP, ($) |
|  | EIMSettlementIntervalETSRAdvisorySTLMTAmount BrtQ’mdhcif | Settlement Interval amount for an EIM ETSR Transfer associated with the specified BAA and a Base ETSR that has not elected to settle its IIE and OA at the real-time LMP, ($) |

# Charge Code Effective Dates

| Charge Code/Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version update Type |
| --- | --- | --- | --- | --- |
| Real Time Instructed Imbalance EIM Energy Settlement (CC 64700) | 5.0 | 10/01/14 | 9/30/16 | Configuration Impacted |
| Real Time Instructed Imbalance EIM Energy Settlement (CC 64700) | 5.1 | 10/01/16 | 4/3/18 | Configuration Impacted |
| Real Time Instructed Imbalance EIM Energy Settlement (CC 64700) | 5.2 | 4/4/18 | 9/30/20 | Configuration Impacted |
| Real Time Instructed Imbalance EIM Energy Settlement (CC 64700) | 5.3 | 10/1/20 | 10/31/22 | Configuration Impacted |
| Real Time Instructed Imbalance EIM Energy Settlement (CC 64700) | 5.4 | 11/1/22 | 4/30/26 | Configuration Impacted |
| Real Time Instructed Imbalance EIM Energy Settlement (CC 64700) | 5.5 | 5/1/26 | Open | Configuration Impacted |