Settlements & Billing

 FMM Instructed Imbalance Energy Settlement

CC 6460

 Version 5.11

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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 and settles Imbalance Energy for each Settlement Interval for each resource within the CAISO Control 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)
	+ RTD Instructed Imbalance Energy Settlement (CC 6470)
* UIE – Real Time Uninstructed Imbalance Energy Settlement (CC 6475)
* UFE – Real Time Unaccounted for Energy Settlement (CC 6474)

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

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 Fifteen Minute Market and changes submitted closer to Real-Time where allowed by the contract) will be reversed in CC 6774 RT Congestion Offset. 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 a special and separate neutrality account to be distributed back to non-ETC Control Area metered Demand and exports on a per-MWh basis in Real Time Congestion Offset (CC 6774).

## Description

CC 6460 FMM Instructed Imbalance Energy 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 | For each Settlement Interval, FMM IIE consists of the following types of Energy: (1) FMM Optimal Energy; (2) FMM Minimum Load Energy; (3) FMM Exceptional Dispatch Energy; (4) FMM Derate Energy; and (5) FMM Pumping Energy. This applies to non-Load resources. |
| 1.1 | A positive Energy value indicates Incremental Energy. |
| 1.2 | A negative Energy value indicates Decremental Energy. |
| 1.3 | This Charge Code shall be calculated daily on a Settlement Interval basis. |
| 1.4 | Payments and charges for FMM IIE attributable to each resource in each Settlement Interval shall be settled by debiting or crediting, as appropriate, the specific Scheduling Coordinator’s FMM IIE Settlement Amount. |
| 2.0 | The IIE Settlement Amounts for FMM Optimal Energy, FMM Minimum Load Energy, FMM Derate Energy, and FMM Pumping Energy, and shall be calculated as the product of the sum of all of these types of Energy and the FMM LMP.  |
| 2.1 | For MSS Operators that have elected gross Settlement, regardless of whether that entity has elected to follow its Load or to participate in RUC, the FMM IIE for such entities is settled similarly to non-MSS entities as described in a previous business rule above. |
| 2.2 | For MSS Operators that have elected net Settlement, the FMM IIE Settlement Amounts for Energy dispatched through the FMM, FMM Minimum Load Energy from System Units dispatched in FMM, FMM Derate Energy, and FMM Pumping Energy shall be calculated as the product of the sum of all of these types of Energy and the FMM MSS Price. |
| 2.2.1 | The FMM MSS Price for an MSS which elected Net settlement is the FMM Interval Real Time MSS Price which is 1. the Hourly Interval Real-Time Market LAP price for the MSS LAP, if the MSS internal metered Demand exceeds the MSS internal measured Generation; or
2. the weighted average of the FMM Interval LMPs for all applicable Pnodes, PODs, or AGENs within the relevant MSS; where the weighting factors for computing the weighted average are the Metered Energy of all Generation at the corresponding Pnodes, if MSS internal metered Generation exceeds MSS internal metered Demand.
 |
| 3.0 | The remaining FMM IIE Settlement Amounts for Exceptional Dispatches are settled pursuant to Section 11.5.6, and further described in following business rules. |
| 3.1 | Settlement Amount for each non-MSS and MSS resource regardless of any MSS elections for each Settlement Interval for Exceptional Dispatch Incremental/ Decremental Energy shall be calculated as the sum of the product of the FMM Exceptional Dispatch Incremental/Decremental Energy and the relevant price. |
| 3.2 | The Exceptional Dispatch IIE Price or emergency Energy price for Exceptional Dispatch or emergency Energy Incremental or Decremental IIE with Exceptional Type of SYSEMR, TEMR, Tmodel, or NonTModel is the higher of the resource’s Resource-Specific FMM LMP, Energy Bid Price or, if applicable, the Default Energy Bid price for Energy that does not have an Energy Bid Price, or, as applicable to System Resources providing emergency Energy, the pre-established or negotiated price as recorded by the CAISO operator at the time of Dispatch. |
| 3.2.1 | For resource who have declined an CPM Designation for Supplemental Revenue assessment, the FMM Exceptional Dispatch IIE Price or emergency Energy price for FMM Exceptional Dispatch for emergency Energy Incremental IIE with Exceptional Type of SYSEMR, TEMR, TModel, or Non-TModel during the Supplemental Revenue designation period where resources supplemental Revenue does not exceed relevant CPM amount is the higher of the resource’s FMM LMP or Energy Bid Price or, if applicable, the Default Energy Bid price for Energy that does not have an Energy Bid Price, or, as applicable to System Resources providing emergency Energy, the pre-established or negotiated price as recorded by the CAISO operator at the time of Dispatch. |
| 3.2.2 | For resource who have declined an CPM Designation for Supplemental Revenue assessment, the FMM Exceptional Dispatch IIE Price or emergency Energy price for FMM Exceptional Dispatch for emergency Energy Incremental IIE with Exceptional Type of SYSEMR, TEMR, TModel, or Non-TModel during the Supplemental Revenue designation period where resources supplemental Revenue exceeds relevant CPM amount is the higher of the resource’s FMM LMP or the Default Energy Bid price for Energy.  |
| 3.3 | The Exceptional Dispatch IIE Price for Exceptional Dispatch Incremental or Decremental IIE with Exceptional Dispatch type of ASTEST or TEST is the resource’s FMM LMP except in the case when the resource has a Bid (that is higher than the FMM LMP for incremental IIE or lower than the FMM LMP for decremental IIE). |
| 3.4 | The Exceptional Dispatch Incremental IIE Price for RMRS, RMR and RMR Condition 1 and 2 units is a Resource-Specific FMM LMP and the difference between Contract Price and Resource-Specific FMM LMP is paid on the RMR Invoice |
| 3.5 | The Exceptional Dispatch Incremental or Decremental IIE Price for RMR Condition 2 units is the Contract Price on the RMR Invoice |
| 4.0 | Import schedule which has been deemed to violate Scheduling Sourcing/Sinking in Same Balancing Authority Area provision will be settled at the lower of relevant LMP of the import Scheduling Point and the relevant LMP of the associated export Scheduling Point. |
| 4.1 | The difference in Settlement between the relevant LMP of the import Scheduling Point and the relevant LMP of the associated export Scheduling Point will be assessed as part of Pass Thru Charge Adjustment Mechanism |
| 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 | For RMR resources subject to new Tariff, variable energy cost opportunity cost adders shall reduce bid cost per MWh of exceptional dispatches. |
| 6.1 | For RMR resources subject to new Tariff, market revenues in excess of qualified costs shall be subject to a true up. This excess revenue will be subtracted from capacity payments. The qualified cost is the bid cost less variable energy costs opportunity cost adder. |
| 7.0 | When an eligible resource has an interval with a negative MWh meter, CAISO will not charge for the energy of those intervals. |
| 8.0 | This for VEA. TMODEL8 will be for the competitive group and TMODEL9 will be for the non-competitive group. Exceptional Dispatch will use this new selection. |

## Predecessor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| Real Time Energy Pre-calculation |
| Real Time Price Pre-calculation |
| CC 6011 – Day-Ahead Energy, Congestion, Loss Settlement |
| Pre-calculation – Metered Demand TAC Area and CPM |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| CC 6477 – Real Time Imbalance Energy Offset |
| CC 6774 – Real Time Congestion Offset |
| CC 6788 – Real Time Congestion Credit Settlement |

## Inputs – External Systems

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Description |
|  | FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif | IIE due to an FMM Exceptional Dispatch (MWh) |
|  | FMMExceptionalDispatchIIEPrice BrtObmdhcif | Price for Exceptional Dispatch IIE ($/MWh)one of the following: (1) Bid, (2) the Default Energy Bid, (3) negotiated price, or (4) calculated price. |
|  | FMMIntervalPnodeLMP AA’Qpmdhc | The FMM Interval Locational Marginal Price (LMP) for Pricing Node (Pnode) p. ($/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 |
|  | BAHourlyResourceCASTaggedDAEnergyMW Brtmdh | Tagged MW for DA Energy for system resource as of the time when HASP solution is available to CAISO check out systemData will be positive for ITIEs and ETIEs. |
|  | PTBChargeAdjustmentBA5MFMMEnergyAmt BJmdhcif | PTB settlement adjustment amount for this Charge Code |
|  | ResourceRUCCapacityTotalIncludingDayAheadSchedule BrtT’uI’M’R’W’F’S’VL’mdh | Resource RUC Capacity Total Including Day Ahead ScheduleData will be positive for ITIEs and ETIEs |
|  | BASettlementIntervalResourceFMMExceptionalDispatchDEBQty BrtuT’ObI’AA’Q’M’R’W’F’S’VL’Pmdhcif  | Exceptional Dispatch Energy (in MWh) dispatched through FMM for the specified DEB segment and Settlement Interval. |
|  | BASettlementIntervalResourceFMMExceptionalDispatchDEBPrc BrtObmdhcif | Bid price (in $ / MWh) of FMM Exceptional Dispatch IIE Energy dispatched in the RTM for the specified DEB bid segment and Settlement Interval. |
|  | ResourcePseudoTieFlag rmd | A flag with a value of 1 created only for pseudo tie resources.  |

## Inputs - Predecessor Charge Codes or Pre-calculations

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Predecessor Charge Code/ Pre-calc Configuration |
|  | SettlementIntervalTotalFMMPart1Qty BrtuT’I’Q’M’F’S’mdhcif | RT Energy Pre-calculation |
|  | FMMIntervalMSSPrice uM’mdhc | RT Price Pre-Calculation |
|  | FMMExceptionalDispatchIIELessVECPriceBrtObmdhcif | RT Price Pre-Calculation |
|  | FMMExceptionalDispatchIIECostAboveLMPPrice BrtObmdhcif | RT Price Pre-Calculation |
|  |  |  |
|  |  |  |
|  | BAHourlyResourceDABalancedTotalContractUsage Brtmdh | CC 6011 – Day-Ahead Energy, Congestion, Loss SettlementData will be positive for ITIEs and negative for ETIEs |
|  | FMMIntervalLMPPrice BrtuM’mdhc | RT Price Pre-Calculation |
|  | BAAResourceSettlementIntervalFMMEIMTransferFromQuantityBrQ’AA’Qpmdhcif | RT Energy Pre-Calculation |
|  | BAAResourceSettlementIntervalFMMEIMTransferToQuantity BrQ’AA’Qpmdhcif | RT Energy Pre-Calculation |
|  | BAFMMIntervalResourceImportHASPReversalPrice BrtuQ’T’I’M’F’S’mdhc | RT Price Pre-Calculation |
|  | BAFMMIntervalResourceExportHASPReversalPrice BrtuT’I’M’F’S’mdhc | RT Price Pre-Calculation |
|  | BAHourlyResourceImportHASPReversalMW BrtuQ’T’I’M’F’S’mdh | RT Energy Pre-calculation |
|  | BAHourlyResourceExportHASPReversalMW BrtuQ’T’I’M’F’S’mdh | RT Energy Pre-calculation |
|  | BASettlementIntervalResourceSurplusSupplementalRevenueFlag Brtmdhcif  | Pre-calculation – Metered Demand TAC Area and CPM |
|  | ResourceWholesaleExemptionFlag *rmdhcif* | RT Energy Pre-calculation |

## CAISO Formula

BA5MResourceFMMIIESettlementAmount BrtuT’I’M’F’S’mdhcif =

IF

ResourceWholesaleExemptionFlag *rmdhcif* = 0

THEN

BA5MResourceFMMIIESettlementAmount BrtuT’I’M’F’S’mdhcif = BA5MResourceFMMIIEAssessmentAmount BrtuT’I’M’F’S’mdhcif

*+* SettlementIntervalFMMEDEIncAmount BrtuT’I’M’F’S’mdhcif

*+* SettlementIntervalFMMEDEDecAmount BrtuT’I’M’F’S’mdhcif

+ BAHourlyResourceImportHASPReversalAmount BrtuT’I’M’F’S’mdh /12

+ BAHourlyResourceExportHASPReversalAmount BrtuT’I’M’F’S’mdh  /12

ELSE

BA5MResourceFMMIIESettlementAmount BrtuT’I’M’F’S’mdhcif = 0

BASettlementIntervalFMMEnergyPrice BrtuT’I’Q’M’F’S’mdhcif =

IF

SettlementIntervalTotalFMMPart1Qty BrtuT’I’Q’M’F’S’mdhcif attribute (T’) = MSS and attribute (I’) = Net Settlement Election

 THEN

BASettlementIntervalFMMEnergyPrice BrtuT’I’Q’M’F’S’mdhcif =

FMMIntervalMSSPrice uM’mdhc

 ELSE

BASettlementIntervalFMMEnergyPrice BrtuT’I’Q’M’F’S’mdhcif =

 FMMIntervalLMPPrice BrtuM’mdhc

Note: The SettlementIntervalTotalFMMPart1Qty BrtuT’I’Q’M’F’S’mdhcif is the business driver and its attributes will be inherited by the output charge type. Both of the 15-minute inputs will be replicated in each corresponding three 5-minute intervals of the output charge type.

BA5MResourceFMMIIEAssessmentAmount BrtuT’I’M’F’S’mdhcif =

 ( (-1) \* BASettlementIntervalFMMEnergyPrice BrtuT’I’Q’M’F’S’mdhcif \*

 SettlementIntervalTotalFMMPart1Qty BrtuT’I’Q’M’F’S’mdhcif ) + BA5MSettlementIntervalFMMETSRSTLMTAmount BrQ’mdhcif

Where Q’ = ‘CISO’

BASettlementIntervalFMMIIEAmount Bmdhcif =

** BA5MResourceFMMIIESettlementAmount BrtuT’I’M’F’S’mdhcif

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.

CAISOSettlementIntervalTotalFMMIIEAmount mdhcif =

** BASettlementIntervalFMMIIEAmount Bmdhcif

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.

***FMM Exceptional Dispatch calculations:***

SettlementIntervalFMMEDE1IncAmount BrtOuT’I’M’F’S’mdhcif =

Where

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif attribute Exceptional Dispatch Type (O) is in (SYSEMR, SYSEMR1, TEMR, TMODEL, TMODEL1, TMODEL2, TMODEL3, TMODEL4, TMODEL5, TMODEL6, TMODEL7, TMODEL8, TMODEL9,TORETC, TORETC1, RMRR, RMRS, RMRT, SLIC, and OTHER)

SettlementIntervalFMMEDE1IncAmount BrtOuT’I’M’F’S’mdhcif =

 (-1) \* (Max(FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif, 0) \* FMMIntervalLMPPrice BrtuM’mdhc

NOTE: For implementation purpose the following Exceptional Dispatch Types will be excluded: Exceptional Dispatch Type O NOT in (NONTMOD, ASTEST, TEST, BS, VS, RMRRC2)

SettlementIntervalFMMEDE2IncAmount BrtOuT’I’M’F’S’mdhcif =

Where

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif attribute Exceptional Dispatch Type (O) is in ( NONTMOD, ASTEST, TEST)

IF

BASettlementIntervalResourceSurplusSupplementalRevenueFlag Brtmdhcif = 1

THEN

SettlementIntervalFMMEDE2IncAmount BrtOuT’I’M’F’S’mdhcif =

      (-1) \* (Max (BASettlementIntervalResourceFMMExceptionalDispatchDEBQty BrtuT’ObI’AA’Q’M’R’W’F’S’VL’Pmdhcif, 0) \* Max (FMMIntervalLMPPrice BrtuM’mdhc , BASettlementIntervalResourceFMMExceptionalDispatchDEBPrc BrtObmdhcif)

ELSE

SettlementIntervalFMMEDE2IncAmount BrtOuT’I’M’F’S’mdhcif =

      (-1) \* (Max(FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif , 0) \* Max (FMMIntervalLMPPrice BrtuM’mdhc, FMMExceptionalDispatchIIELessVECPrice BrtObmdhcif )

SettlementIntervalFMMEDE3IncAmount BrtOuT’I’M’F’S’mdhcif =

Where

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif attribute Exceptional Dispatch Type (O) is in ( RMRRC2)

SettlementIntervalFMMEDE3IncAmount BrtOuT’I’M’F’S’mdhcif =

      

(-1) \* (Max(FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif , 0) \*

FMMExceptionalDispatchIIELessVECPrice BrtObmdhcif )

SettlementIntervalFMMEDEIncAmount BrtuT’I’M’F’S’mdhcif =

(SettlementIntervalFMMEDE1IncAmount BrtOuT’I’M’F’S’mdhcif  + SettlementIntervalFMMEDE2IncAmount BrtOuT’I’M’F’S’mdhcif +

SettlementIntervalFMMEDE3IncAmount BrtOuT’I’M’F’S’mdhcif )

SettlementIntervalFMMEDE1DecAmount BrtOuT’I’M’F’S’mdhcif =

Where

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif attribute Exceptional Dispatch Type (O) is in (TEMR, TMODEL, TMODEL1, TMODEL2, TMODEL3, TMODEL4, TMODEL5, TMODEL6, TMODEL7, TMODEL8, TMODEL9,TORETC, TORETC1, RMRR, RMRS, RMRT, SLIC, and OTHER)

SettlementIntervalFMMEDE1DecAmount BrtOuT’I’M’F’S’mdhcif =

(-1) \* (Min(FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif ,0) \* FMMIntervalLMPPrice BrtuM’mdhc )

NOTE: For implementation purpose the following Exceptional Dispatch Types will be excluded: Exceptional Dispatch Type O NOT in (NONTMOD, ASTEST, TEST, BS, VS, RMRRC2, SYSEMR, SYSEMR1)

SettlementIntervalFMMEDE2DecAmount BrtOuT’I’M’F’S’mdhcif =

Where

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif attribute Exceptional Dispatch Type (O) is in (NONTMOD, ASTEST, TEST, SYSEMR, SYSEMR1)

SettlementIntervalFMMEDE2DecAmount BrtOuT’I’M’F’S’mdhcif =

(-1) \* (Min(FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif ,0) \* Min (FMMIntervalLMPPrice BrtuM’mdhc , FMMExceptionalDispatchIIELessVECPrice BrtObmdhcif ))

SettlementIntervalFMMEDE3DecAmount BrtOuT’I’M’F’S’mdhcif =

Where

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif attribute Exceptional Dispatch Type (O) is in (RMRRC2)

SettlementIntervalFMMEDE3DecAmount BrtOuT’I’M’F’S’mdhcif =

(-1) \* (Min(FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif ,0) \* FMMExceptionalDispatchIIELessVECPrice BrtObmdhcif))

SettlementIntervalFMMEDEDecAmount BrtuT’I’M’F’S’mdhcif =

 (SettlementIntervalFMMEDE1DecAmount BrtOuT’I’M’F’S’mdhcif  +

 SettlementIntervalFMMEDE2DecAmount BrtOuT’I’M’F’S’mdhcif +

SettlementIntervalFMMEDE3DecAmount BrtOuT’I’M’F’S’mdhcif )

BAASettlementIntervalTotalFMMEDEQuantity BrtuT’I’Q’M’F’S’mdhcif =

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif

SettlementIntervalTotalFMMEDEQuantity BrtuT’I’M’F’S’mdhcif =

BAASettlementIntervalTotalFMMEDEQuantity BrtuT’I’Q’M’F’S’mdhcif

***HASP reversal settlement calculations:***

BAHourlyResourceImportHASPReversalAmount BrtuT’I’M’F’S’mdh = Sum over (Q’)

(1- ResourcePseudoTieFlag rmd)\*(BAHourlyResourceImportHASPReversalMW BrtuQ’T’I’M’F’S’mdh \*

 (BAFMMIntervalResourceImportHASPReversalPrice BrtuQ’T’I’M’F’S’mdhc /4)) WHERE Q’ = ‘CISO’

BAHourlyResourceExportHASPReversalAmount BrtuT’I’M’F’S’mdh = Sum over (Q’)

 (1- ResourcePseudoTieFlag rmd)\*(BAHourlyResourceExportHASPReversalMW BrtuQ’T’I’M’F’S’mdh \*

( BAFMMIntervalResourceExportHASPReversalPrice BrtuT’I’M’F’S’mdhc /4))

WHERE Q’ = ‘CISO’

***Transfer settlement calculations:***

BA5MSettlementIntervalFMMETSRSTLMTAmount BrQ’mdhcif

 BA5MSettlementIntervalFMMETSRSTLMTAmount BrQ’mdhcif = ResourceETSRElectSettlementFlag rmd \* SettlementIntervalFMMETSRSTLMTAmount BrQ’mdhcif

SettlementIntervalFMMETSRSTLMTAmount BrQ’mdhcif

 SettlementIntervalFMMETSRSTLMTAmount BrQ’mdhcif = **((-1) \* FMMIntervalPnodeLMP AA’Qpmdhc \* (BAAResourceSettlementIntervalFMMEIMTransferToQuantity BrQ’AA’Qpmdhcif - BAAResourceSettlementIntervalFMMEIMTransferFromQuantity BrQ’AA’Qpmdhcif)) Where Q’ = ‘CISO’

 **Note:** The same value of FMMIntervalPnodeLMP AA’Qpmdhc applies to each Settlement Interval (f) of FMM Interval (c).

### BA5MSettlementIntervalFMMETSRAdvisorySTLMTAmount BrQ’mdhcif

 BA5MSettlementIntervalFMMETSRAdvisorySTLMTAmount BrQ’mdhcif = ResourceETSRElectSettlementFlag rmd \* SettlementIntervalFMMETSRAdvisorySTLMTAmount BrQ’mdhcif

### SettlementIntervalFMMETSRAdvisorySTLMTAmount BrQ’mdhcif SettlementIntervalFMMETSRAdvisorySTLMTAmount BrQ’mdhcif = ((-1) \* FMMIntervalPnodeLMP AA’Qpmdhc\* (BAAResourceSettlementIntervalFMMEIMTransferToQuantity BrQ’AA’Qpmdhcif - BAAResourceSettlementIntervalFMMEIMTransferFromQuantity BrQ’AA’Qpmdhcif)) Where Q’ = ‘CISO’

###  **Note:** The same value of FMMIntervalPnodeLMP AA’Qpmdhc applies to each Settlement Interval (f) of FMM Interval (c).

**RMR Related Calculations:**

RMRSettlementIntervalFMMEDE2IncTrueUpAmount BrtOmdhcif =

Where

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif attribute Exceptional Dispatch Type (O) is in ( NONTMOD, ASTEST, TEST)

RMRSettlementIntervalFMMEDE2IncTrueUpAmount BrtOmdhcif =

Sum over (u, b, T’, I’, Q’, M’, A, A’, R’, W’, F’, S’, P, V, L’)

(-1) \* Max(FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif , 0) \* Min (0, FMMExceptionalDispatchIIECostAboveLMPPrice BrtObmdhcif )

RMRSettlementIntervalFMMEDE2DecTrueUpAmount BrtOmdhcif =

Where

FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif attribute Exceptional Dispatch Type (O) is in ( NONTMOD, ASTEST, TEST)

RMRSettlementIntervalFMMEDE2DecTrueUpAmount BrtOuT’I’M’F’S’mdhcif =

Sum over (u, b, T’, I’, Q’, M’, A, A’, R’, W’, F’, S’, P, V, L’)

 (-1) \* (Min(FMMExceptionalDispatchIIE BrtuT’ObI’Q’M’AA’R’W’F’S’PVL’mdhcif ,0) \* Max (0, FMMExceptionalDispatchIIECostAboveLMPPrice BrtObmdhcif ))

RMRDailyFMMEDE2TrueUpAmount Brmd =

Sum over (t, O, h, c, i, f)

RMRSettlementIntervalFMMEDE2IncTrueUpAmount BrtOmdhcif + RMRSettlementIntervalFMMEDE2DecTrueUpAmount BrtOmdhcif

## Outputs

| Output Req ID | Name | Description |
| --- | --- | --- |
|  | In addition to any outputs listed below, all inputs shall be included as outputs. |  |
|  | BA5MResourceFMMIIESettlementAmount BrtuT’I’M’F’S’mdhcif | FMM IIE settlement amount **($)** |
|  | BASettlementIntervalFMMEnergyPrice BrtuT’I’Q’M’F’S’mdhcif | Applicable LMP price for FMM IIE. |
|  | BA5MResourceFMMIIEAssessmentAmount BrtuT’I’M’F’S’mdhcif | LMP Assessment amount for FMM IIE, intermediate calculation. |
|  | BASettlementIntervalFMMIIEAmount Bmdhcif | The BA total FMM IIE Settlement Amount **($)** |
|  | CAISOSettlementIntervalTotalFMMIIEAmount mdhcif | The CAISO Total FMM IIE Settlement Amount **($)** |
|  | SettlementIntervalFMMEDE1IncAmount BrtOuT’I’M’F’S’mdhcif | Intermediate amount for specific exceptional dispatch type |
|  | SettlementIntervalFMMEDE2IncAmount BrtOuT’I’M’F’S’mdhcif | Intermediate amount for specific exceptional dispatch type |
|  | SettlementIntervalFMMEDE3IncAmount BrtOuT’I’M’F’S’mdhcif | Intermediate amount for specific exceptional dispatch type |
|  | SettlementIntervalFMMEDEIncAmount BrtuT’I’M’F’S’mdhcif | Total incremental exceptional dispatch assessment amount at Settlement interval |
|  | SettlementIntervalFMMEDE1DecAmount BrtOuT’I’M’F’S’mdhcif | Intermediate amount for specific exceptional dispatch type |
|  | SettlementIntervalFMMEDE2DecAmount BrtOuT’I’M’F’S’mdhcif | Intermediate amount for specific exceptional dispatch type |
|  | SettlementIntervalFMMEDE3DecAmount BrtOuT’I’M’F’S’mdhcif | Intermediate amount for specific exceptional dispatch type |
|  | SettlementIntervalFMMEDEDecAmount BrtuT’I’M’F’S’mdhcif | Total decremental exceptional dispatch assessment amount at Settlement interval |
|  | SettlementIntervalTotalFMMEDEQuantity BrtuT’I’M’F’S’mdhcif | Total FMM EDE quantity. (MW) |
|  |  |  |
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|  | BAHourlyResourceImportHASPReversalAmount BrtuT’I’M’F’S’mdh | The amount assessed for the FMM reversal settlement rule. This is for a resource of type t = “ITIE”. ($)This will always be a charge to the SC. |
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|  | BAHourlyResourceExportHASPReversalAmount BrtuT’I’M’F’S’mdh | The amount assessed for the HASP reversal settlement rule. This is for a resource of type t = “ETIE”. ($)This will always be a charge to the SC. |
|  | BA5MSettlementIntervalFMMETSRSTLMTAmount BrQ’mdhcif | Settlement Interval FMM amount for a transfer resource associated with the CISO BAA that has elected to settle its IIE at the FMM LMP. ($) |
|  | SettlementIntervalFMMETSRSTLMTAmount BrQ’mdhcif  | Settlement Interval FMM amount for a transfer associated with the CISO BAA and an ETSR that has elected to settle its IIE at the FMM LMP. ($) |
|  | BA5MSettlementIntervalFMMETSRAdvisorySTLMTAmount BrQ’mdhcif | Settlement Interval FMM amount for a transfer resource associated with the CISO BAA that has elected to settle its IIE at the FMM LMP. ($) |
|  | SettlementIntervalFMMETSRAdvisorySTLMTAmount BrQ’mdhcif | Settlement Interval FMM amount for a transfer associated with the CISO BAA and an ETSR that has elected to settle its IIE at the FMM LMP. ($) |
|  | BAASettlementIntervalTotalFMMEDEQuantity BrtuT’I’Q’M’F’S’mdhcif | Total FMM EDE per BAA. |
|  |  |  |
|  | RMRSettlementIntervalFMMEDE2IncTrueUpAmount BrtOmdhcif | RMR true up for FMM for incremental ED of type NONTMOD, ASTEST, TEST. |
|  | RMRSettlementIntervalFMMEDE2DecTrueUpAmount BrtOmdhcif | RMR true up for FMM for decremental ED of type NONTMOD, ASTEST, TEST. |
|  | RMRDailyFMMEDE2TrueUpAmount Brmd | RMR daily total true up for FMM ED of type NONTMOD, ASTEST, TEST. |

# Charge Code Effective Dates

| Charge Code/Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Update Version Type |
| --- | --- | --- | --- | --- |
|  CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.0 | 05/01/14 | 4/30/14 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.1 | 5/01/14 | 9/30/14 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.2 | 10/01/14 | 2/09/15 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.3 | 11/4/15 | 11/3/15 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.4 | 11/1/16 | 10/31/16 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.5 | 2/10/15 | 11/3/15 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.6 | 11/4/15 | 10/31/16 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.7 | 11/1/16 | 12/31/19 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.8 | 1/1/20 | 9/30/20 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.9 | 10/1/20 | 10/31/21 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.10 | 11/1/21 | 4/30/26 | Configuration Impacted |
| CC 6460 – FMM Instructed Imbalance Energy Settlement | 5.11 | 5/1/26 | Open | Configuration Impacted |