Settlements & Billing

Configuration Guide: GMC EIM Transaction Charge

**CC 4564**

 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

The Energy Imbalance Market (EIM) administrative charge was derived through by evaluating the components of existing administrative charges and determining what aspects of the services provided are attributable to EIM functions. The EIM Administrative Charge rate represents the amount all users of these real-time services pay – it is not a new charge but rather a way to evaluate the actual costs of running the elements of the ISO market that the ISO will be offering as EIM functions. The rate is driven by the volume for the entire market, including California, that gets the services that the EIM participants will be purchasing.

## Description

This EIM administrative cost covers staff and portions of ISO systems used to support EIM functionality. EIM revenue will be applied to the ISO GMC components which reduces the costs that need to be recovered from ISO market participants.

# Charge Code Requirements

## Business Rules

| Bus Req ID | Business Rule |
| --- | --- |
|  | In General. The CAISO will charge EIM Market Participants an EIM Administrative Charge consisting of an EIM Market Services Charge and an EIM System Operations Charge. |
| 1.1 | The EIM Market Service Charge shall be the product of the EIM Market Services Charge Rate and the sum of Gross FMM Instructed Imbalance Energy (excluding FMM Manual Dispatch Energy) and Gross RTD Instructed Imbalance Energy (excluding RTD Manual Dispatch Energy Standard Ramping Deviation, Ramping Energy Deviation, Residual Imbalance Energy, and Operational Adjustments). |
| 1.2 | The EIM System Operations Charge shall be the product of the System Operations RTD Charge Rate and the absolute difference between metered energy and the EIM Base Schedules. |
| 1.3 | Resources identified not to receive GMC EIM Fee will be exempted from EIM Systems Operations charge and EIM Market Services charge.Such exemptions must be authorized through approved regulatory contractual agreements with CAISO. |
| 2.0 | The CAISO will calculate the minimum EIM Administrative Charge as the product of the sum of the EIM Market Service Charge and the EIM System Operations Charge and:(A) five percent of the total gross absolute value of Supply of all EIM Market Participants; plus(B) five percent of the total gross absolute value of Demand of all EIM Market Participants. |
| 2.1 | **Withdrawing EIM Entity.** If the EIM Entity notifies the CAISO of its intent to terminate participation in the Energy Imbalance Market and requests suspension of the Energy Imbalance Market in its Balancing Authority Area, the CAISO will charge the EIM Entity the minimum EIM Administrative Charge during the notice period. |
| 2.2 | Resources identified not to receive GMC EIM Fee will not contribute towards the minimum Administrative charge during the notice period for a Withdrawing EIM entity.Such exemptions must be authorized through approved regulatory contractual agreements with CAISO. |
| 3.0 | The CAISO will apply revenues received from the EIM Administrative Charge against the costs to be recovered through the Grid Management Charge |
| 4.0 | For adjustments to the Charge Code that cannot be accomplished by correction of upstream data inputs, recalculation or operator override, Pass Through Bill Charge adjustment shall be applied. |

## Predecessor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| MSS Netting PC  |
| Real-Time Energy Pre-calculation |
| CC 64600 FMM Instructed Imbalance Energy EIM Settlement |
| System Resource Deemed Delivered PC |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| None |

## Inputs - External Systems

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Description |
|  | EIMMinimumVolumePercentage | Applied to both total gross absolute value of Supply of all EIM Market Participants and total gross absolute value of Demand of all EIM Market Participants. Currently 5% |
|  | EIMEntitySCFlag BQ’ | A flag input that, when = 1, relates an EIM Balancing Authority Area (EIM BAA) with the associated Business Associate of the Scheduling Coordinator ID |
|  | PTBChargeAdjustmentGMCEIMTransactionChargeAmount BQ’Jmdhcif  | PTB adjustment variable for this Charge Code, with amount per SC (in $) |
|  | EIMGMCMarketServicesChargeRate md | EIM GMC Market Services Charge Rate |
|  | CAISOGMCSystemOperationsRTDChargeRate md | FERC-approved GMC System Operations RTD charge rate. The input data is available from the SaMC standing data based on applicable start and end dates. |
|  | EIMEntitySeparationFlag BQ’ | Flag which reflects that an EIM Entity has notified CAISO of its intent to terminate participation in EIM at which point the only charge assessed up to the end of the notice period (when EIM Entity SC is terminated in system) is the *EIM Entity SC* specific minimum EIM Administrative Charge |
|  | DailyResourceEIMGMCFeeExemptFlag rmd | Has value of 1 if an EIM resource is exempt from EIM GMC Fee |

## Inputs - Predecessor Charge Codes or Pre-calculations

| Row # | Variable Name | Predecessor Charge Code/ Pre-calc Configuration |
| --- | --- | --- |
| 1 | SettlementIntervalDeemedDeliveredInterchangeEnergyQuantity BrtEuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’OVvHn’L’mdhcif | System Resource Deemed Delivered PC |
| 2 | BASettlementIntervalResEntityEIMEntityMeteredGenerationQuantity BrtuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’VvHn’L’mdhcif | MSS Netting PC |
| 3 | BASettlementIntervalResEIMEntityMeterDemandQuantity BrtuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’VvHn’L’mdhcif | MSS Netting PC |
| 4 | SettlementIntervalFMMOptimalIIE BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | RT Energy Pre-Calc |
| 5 | DispatchIntervalFMMRerateEnergy BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | RT Energy Pre-calc |
| 6 | DispatchIntervalFMMMinimumLoadEnergy BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | RT Energy Pre-calc |
| 7 | DispatchIntervalFMMPumpingEnergy BrtuT’I’Q’M’R’W’F’S’VL’mdhcif | RT Energy Pre-calc |
| 8 | SettlementIntervalRTDOptimalIIE BrtQ’uT’I’M’R’W’F’S’VL’mdhcif  | RT Energy Pre-calc |
| 9 | DispatchIntervalIIEMinimumLoadEnergy BrtQ’uT’I’M’R’W’F’S’VL’mdhcif | RT Energy Pre-calc |
| 10 | DispatchIntervalRerateEnergy BrtQ’uT’I’M’R’W’F’S’VL’mdhcif | RT Energy Pre-calc |
| 11 | DispatchIntervalRTPumpingEnergy BrtQ’uT’I’M’R’W’F’S’VL’mdhcif | RT Energy Pre-calc |
| 12 | SettlementIntervalRealTimeImbalanceEnergyBrtuT’I’Q’M’F’S’mdhcif | RT Energy Pre-calc |

## CAISO Formula

The five minute settlement of GMC EIMTransaction Charge for each resource is as follows:

### If

BalancingAuthorityAreaEIMSeparationFlag Q’ = 1

### Then

BASettlementIntervalGMCEIMTransactionChargeQuantity BQ’mdhcif =

### ((BAASettlementIntervalGrossEIMSupplyAbsoluteValueQuantity Q’mdhcif \* EIMMinimumVolumePercentage) +( BAASettlementIntervalGrossEIMDemandAbsoluteValueQuantity Q’mdhcif \* EIMMinimumVolumePercentage)) \* EIMEntitySCFlag BQ’

Else

BASettlementIntervalGMCEIMTransactionChargeQuantity BQ’mdhcif =

((BAASystemOperationsCharge BQ’mdhcif / EIMGMCMarketServicesChargeRate md) + (BAAMarketServicesCharge BQ’mdhcif / CAISOGMCSystemOperationsRTDChargeRate md))

### If

BalancingAuthorityAreaEIMSeparationFlag Q’ = 1

Then

EIMAdministrativeCharge BQ’mdhcif =BASettlementIntervalEIMMinimumAdministrativeChargeAmount BQ’mdhcif

Else

EIMAdministrativeCharge BQ’mdhcif = (BAASystemOperationsCharge BQ’mdhcif + BAAMarketServicesCharge BQ’mdhcif)

### BalancingAuthorityAreaEIMSeparationFlag Q’ = EIMEntitySeparationFlag BQ’

### BAAMarketServicesCharge BQ’mdhcif =  EIMMarketServicesCharge BrtQ’mdhcif

### BAASystemOperationsCharge BQ’mdhcif = EIMSystemOperationsCharge BrtQ’mdhcif

### BASettlementIntervalEIMMinimumAdministrativeChargeAmount BQ’mdhcif = ((BAASettlementIntervalGrossEIMSupplyAbsoluteValueQuantity Q’mdhcif \* EIMMinimumVolumePercentage) +( BAASettlementIntervalGrossEIMDemandAbsoluteValueQuantity Q’mdhcif \* EIMMinimumVolumePercentage))\*( EIMGMCMarketServicesChargeRate md + CAISOGMCSystemOperationsRTDChargeRate md) \*EIMEntitySCFlag BQ’

### BAASettlementIntervalGrossEIMDemandAbsoluteValueQuantity Q’mdhcif =  (1-DailyResourceEIMGMCFeeExemptFlag rmd)\* (BASettlementIntervalResEIMMeterDemandQuantity BrtQ’mdhcif + BASettlementIntervalEIMInterchangeExportQuantity BrtQ’mdhcif )

### BASettlementIntervalResEIMMeterDemandQuantity BrtQ’mdhcif = ABS(BASettlementIntervalResEIMEntityMeterDemandQuantity BrtuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’VvHn’L’mdhcif)

### BASettlementIntervalEIMInterchangeExportQuantity BrtQ’mdhcif =

###  ABS(SettlementIntervalDeemedDeliveredInterchangeEnergyQuantity BrtEuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’OVvHn’L’mdhcif)

Where Q’ <> ‘CISO’ and t = ‘ETIE’

### BAASettlementIntervalGrossEIMSupplyAbsoluteValueQuantity Q’mdhcif =  (1-DailyResourceEIMGMCFeeExemptFlag rmd)\* (BASettlementIntervalResEIMMeteredGenerationQuantity BrtQ’mdhcif +BASettlementIntervalEIMInterchangeImportQuantity BrtQ’mdhcif )

### BASettlementIntervalResEIMMeteredGenerationQuantity BrtQ’mdhcif = ABS(BASettlementIntervalResEntityEIMEntityMeteredGenerationQuantity BrtuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’VvHn’L’mdhcif)

### BASettlementIntervalEIMInterchangeImportQuantity BrtQ’mdhcif =

###  ABS(SettlementIntervalDeemedDeliveredInterchangeEnergyQuantity BrtEuT’I’Q’M’AA’F’R’pPW’QS’d’Nz’OVvHn’L’mdhcif)

### Where Q’ <> ‘CISO’ and t = ‘ITIE’

### EIMSystemOperationsCharge BrtQ’mdhcif = (1-DailyResourceEIMGMCFeeExemptFlag rmd)\*CAISOGMCSystemOperationsRTDChargeRate md

###  \* ABS(SettlementIntervalRealTimeImbalanceEnergyBrtuT’I’Q’M’F’S’mdhcif)

Where Q’ <> ‘CISO’

### EIMMarketServicesCharge BrtQ’mdhcif = (1-DailyResourceEIMGMCFeeExemptFlag rmd)\*EIMGMCMarketServicesChargeRate md \*( SettlementIntervalMarketServicesEIMGrossRTDIIEQuantity BrtQ’mdhcif + SettlementIntervalMarketServicesEIMGrossFMMQuantity BrtQ’mdhcif)

### SettlementIntervalMarketServicesEIMGrossRTDIIEQuantity BrtQ’mdhcif = ABS(SettlementIntervalRTDOptimalIIE BrtQ’uT’I’M’R’W’F’S’VL’mdhcif+ DispatchIntervalRerateEnergy BrtQ’uT’I’M’R’W’F’S’VL’mdhcif + DispatchIntervalIIEMinimumLoadEnergy BrtQ’uT’I’M’R’W’F’S’VL’mdhcif + DispatchIntervalRTPumpingEnergy BrtQ’uT’I’M’R’W’F’S’VL’mdhcif)

Where Q’ <> ‘CISO’

### SettlementIntervalMarketServicesEIMGrossFMMQuantity BrtQ’mdhcif =  ABS(SettlementIntervalFMMOptimalIIE BrtuT’I’Q’M’R’W’F’S’VL’mdhcif + DispatchIntervalFMMRerateEnergy BrtuT’I’Q’M’R’W’F’S’VL’mdhcif + DispatchIntervalFMMMinimumLoadEnergy BrtuT’I’Q’M’R’W’F’S’VL’mdhcif + DispatchIntervalFMMPumpingEnergy BrtuT’I’Q’M’R’W’F’S’VL’mdhcif)

Where Q’ <> ‘CISO’

## Outputs

| Row # | Name | Description |
| --- | --- | --- |
|  | In addition to any outputs listed below, all inputs shall be included as outputs. |  |
| 1 | BASettlementIntervalEIMInterchangeImportQuantity BrtQ’mdhcif | Import subcomponent required for deriving total gross absolute value of Supply of all EIM Market Participants |
| 2 | BASettlementIntervalResEIMMeteredGenerationQuantity BrtQ’mdhcif | Generation subcomponent required for deriving total gross absolute value of Supply of all EIM Market Participants. Input reflects Resource Type (t) = ‘GEN’ or ‘DYN’ |
| 3 | BAASettlementIntervalGrossEIMSupplyAbsoluteValueQuantity Q’mdhcif | Total gross absolute value of Supply of all EIM Market Participants associated with a specific EIM Balancing Authority AreaResources having DailyResourceEIMGMCFeeExemptFlag rmd = 1, will have zero contribution to this quantity; in other words, excluded from this quantity. |
| 4 | BASettlementIntervalEIMInterchangeExportQuantity BrtQ’mdhcif | Export subcomponent required for deriving total gross absolute value of Demand of all EIM Market Participants |
| 5 | BASettlementIntervalResEIMMeterDemandQuantity BrtQ’mdhcif | Meter subcomponent required for deriving total gross absolute value of Demand of all EIM Market Participants. Input reflects the sum of EIM Entity metered load and EIM NGR Demand Quantity. Input reflects Q’ <> ‘CISO’ |
| 6 | BAASettlementIntervalGrossEIMDemandAbsoluteValueQuantity Q’mdhcif | Total gross absolute value of Demand of all EIM Market Participants associated with a specific EIM Balancing Authority AreaResources having DailyResourceEIMGMCFeeExemptFlag rmd = 1, will have zero contribution to this quantity; in other words, excluded from this quantity. |
| 7 | BASettlementIntervalGMCEIMTransactionChargeQuantity BQ’mdhcif | GMC EIM Transaction Charge Quantity for EIM Entity Scheduling Coordinator |
| 8 | SettlementIntervalMarketServicesEIMGrossFMMQuantity BrtQ’mdhcif  | Gross FMM Instructed Imbalance Energy (excluding FMM Manual Dispatch Energy) |
| 9 | SettlementIntervalMarketServicesEIMGrossRTDIIEQuantity BrtQ’mdhcif | Gross RTD Instructed Imbalance Energy (excluding RTD Manual Dispatch Energy Standard Ramping Deviation, Ramping Energy Deviation, Residual Imbalance Energy, and Operational Adjustments) |
| 10 | EIMMarketServicesCharge BrtQ’mdhcif | The EIM Market Service Charge shall be the product of the EIM Market Services Charge Rate and the sum of Gross FMM Instructed Imbalance Energy (excluding FMM Manual Dispatch Energy) and Gross RTD Instructed Imbalance Energy (excluding RTD Manual Dispatch Energy Standard Ramping Deviation, Ramping Energy Deviation, Residual Imbalance Energy, and Operational Adjustments).Resources having DailyResourceEIMGMCFeeExemptFlag rmd = 1, will have zero value under this charge, in other words, exempted from this charge. |
| 11 | EIMSystemOperationsCharge BrtQ’mdhcif | The EIM System Operations Charge shall be the product of the EIM System Operations Charge Rate and the absolute difference between metered energy and the EIM Base Schedules.Resources having DailyResourceEIMGMCFeeExemptFlag rmd = 1, will have zero value under this charge, in other words, exempted from this charge. |
| 12 | BASettlementIntervalEIMMinimumAdministrativeChargeAmount BQ’mdhcif | The CAISO will calculate the minimum EIM Administrative Charge as the product of the sum of the EIM Market Service Charge and the EIM System Operations Charge and— (A) five percent of the total gross absolute value of Supply of all EIM Market Participants; plus(B) five percent of the total gross absolute value of Demand of all EIM Market Participants. |
| 13 | BAASystemOperationsCharge BQ’mdhcif | Exists solely to sum over attributes which would otherwise conflict with existing business driver in a subsequent equation |
| 14 | BAAMarketServicesCharge BQ’mdhcif | Exists solely to sum over attributes which would otherwise conflict with existing business driver in a subsequent equation |
| 15 | BalancingAuthorityAreaEIMSeparationFlag Q’ | Summation over attribute (B) is required to ensure that in the event a BAA separates from the EIM that regardless of whether a Systems Operations or Market Services charge is being assessed to an EIM SC or an EIM Entity SC that those two charges cease being assessed to both classes of SC in a subsequent equation. Remember, this flag is associated only with the EIM Entity SC. |
| 16 | EIMAdministrativeCharge BQ’mdhcif | This formula conforms to the tariff requirement to assess System Operations and Market Services charges up until an EIM Entity notifies CAISO of its intent to terminate participation in EIM at which point the only charge assessed up to the end of the notice period (when EIM Entity SC is terminated in system) is the EIM Entity SC specific minimum EIM Administrative Charge |

# Charge Code Effective Dates

| Charge Code/Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type |
| --- | --- | --- | --- | --- |
| CC 4564 – GMC-EIM Transaction Charge | 5.0 | 10/01/2014 | 1/14/15 | Configuration Impacted |
| CC 4564 – GMC-EIM Transaction Charge | 5.1 | 1/15/15 | 11/3/15 | Configuration Impacted |
| CC 4564 – GMC-EIM Transaction Charge | 5.2 | 11/4/15 | 4/3/18 | Configuration Impacted |
| CC 4564 – GMC-EIM Transaction Charge | 5.3 | 4/4/18 | 12/31/25 | Configuration Impacted |
| CC 4564 – GMC-EIM Transaction Charge | 5.4 | 1/1/26 | Open | Configuration Impacted |