Settlements & Billing

Configuration Guide: Resource Sufficiency Evaluation Surcharge Allocation

**CC 8088**

 Version 5.0

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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 Resource Sufficiency Evaluation (RSE) is a test that determines whether the CAISO Balancing Authority Area (BAA), each EIM BAA, and each Extended Day-Ahead Market (EDAM) BAA, has sufficient supply and reserves to meet forecasted demand and uncertainty. For the EIM RSE for BAAs within the EDAM Area, the CAISO will evaluate resource sufficiency of the BAAs in the EDAM Area. The CAISO will consider all DAM awards for Energy, Imbalance Reserves (IR), and Reliability Capacity as supply prior to testing an individual BAA in the EDAM Area for EIM resource sufficiency.

The CAISO will evaluate the EDAM Upward Pool to verify that it has sufficient Bids and Ramping capability to meet the Upward Requirement for the EDAM Upward Pool within tolerance as defined by market. The CAISO will evaluate the EDAM Downward Pool to verify that it has sufficient Bids and Ramping capability to meet the Downward Uncertainty Requirement for the EDAM Downward Pool within tolerance as defined by market. The EDAM RSE will evaluate whether RSE-eligible supply is sufficient to meet each of the upward and downward components of the requirements established for the BAA. A Balancing Authority in the EDAM Area not included in the EDAM Upward Pool or EDAM Downward Pool will be evaluated in the same manner as an individual EIM BAA. The CAISO will allocate RSE surcharges to Scheduling Coordinators in each BAA that passes the RSE upward and/or downward tests, described further below.

## Description

This Charge Code allocates RSE surcharge revenues to EDAM BAAs that pass the RSE tests on an hourly basis. For the CAISO BAA, RSE surcharge revenues will be allocated to Scheduling Coordinators based on their pro rata shares of metered demand.

# Charge Code Requirements

## Business Rules

| Bus Req ID | Business Rule |
| --- | --- |
| 1.0 | This Charge Code shall be calculated and output on an hourly Settlement Interval basis. |
| 2.0 | This charge code will allocate RSE surcharges to each EDAM Entity.  |
| 2.1 | For the CAISO BAA, the RSE surcharge revenues will be sub-allocated to Scheduling Coordinators based on their pro rata shares of metered demand. |
| 2.2 | For non-CAISO BAAs, the surcharges will be allocated to the EDAM Entity Scheduling Coordinator.  |
| 3.0 | This charge code will allocate day-ahead RSE failure surcharge revenues to EDAM Entity Scheduling Coordinators that passed the day-ahead RSE up and down tests separately. |
| 3.1.1 | **EDAM RSE Upward Failure Insufficiency Revenue Hourly Allocation:**This charge code will allocate upward surcharge revenues to the EDAM BAA scheduling coordinators with upward passed day-ahead RSE flags for all hours of the day. |
| 3.1.2 | An EDAM BAA will become ineligible for allocation of any upward surcharge revenue if it fails the EDAM RSE tests in the upward direction during any hourly interval across the day. |
| 3.1.3 | For the upward RSE test, this charge code splits revenue allocations out into on-peak and off-peak hours. |
| 3.1.3 | This charge code will allocate upward surcharge revenue hourly based pro-rata on the volume of net export transfer, including the energy transfer, imbalance reserve up (IRU), reliability capacity up (RCU), and transfer of BAA by hour. |
| 3.1.4 | In the event that no BAAs that pass the upward RSE test are net exporters, this charge code will allocate any upward surcharge revenue pro-rata to metered demand of the BAA that passed the upward test. |
| 3.2.1 | **EDAM RSE Downward Failure Insufficiency Revenue Hourly Allocation:**This charge code will allocate downward RSE surcharge revenues to the EDAM BAA scheduling coordinators with downward passed day-ahead RSE flags for all hours of the day. |
| 3.2.2 | An EDAM BAA will become ineligible for allocation of any hourly downward surcharge revenue if it fails the EDAM RSE in the downward direction during any hourly interval across the day. |
| 3.2.3 | This charge code will allocate downward surcharge revenue based pro-rata on the volume of net import transfer of the BAA, including the energy transfer, imbalance reserve down (IRD), and reliability capacity down (RCD), by BAA hourly. |
| 3.2.4 | In the event that no BAAs that pass the downward RSE test are net importers, this charge code will allocate the remaining downward surcharge revenue to the metered demand of the BAA that passed the day-ahead RSE downward test. |
| 4.0 | If no EDAM BAA avoids RSE failures in either the upward or downward directions for 24 hours in the Trade Date, this charge code will evaluate revenue allocation eligibility based on hours in which certain EDAM BAAs pass the RSE tests. |
| 4.1 | For each hour, the BAA that passed the day-ahead RSE upward test will be eligible to receive the upward surcharge revenue for the hour based pro-rata on the volume of net export transfer, including the energy transfer, IRU, RCU, and transfer of BAA by hour. |
| 4.2 | For each hour, the BAA that passed the day-ahead RSE downward test will be eligible to receive the downward surcharge revenue for the hour based pro-rata on the volume of net import transfer, including the energy transfer, IRD, RCD, and transfer of BAA by hour. |
| 4.3 | If no EDAM BAA passed the RSE tests for a given hour, then the RSE surcharges will not be collected. |
| 5.0 | Revenue and costs arising from the EDAM RSE failure surcharge(s) distributed to EDAM BAAs will be allocated to the applicable Scheduling Coordinator for any further sub-allocation. |
| 6.0 | 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. |

## Predecessor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| CC 8080 – Resource Sufficiency Evaluation Surcharge Settlement |
| PC – MSS Netting |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| CC 4989 - Daily Rounding Adjustment Allocation |

## Inputs – External Systems

| Row # | Variable Name | Description |
| --- | --- | --- |
|  | BAAEDAMRSEHourlyUpPassFlag Q’mdh | Flag indicating whether a BAA in the EDAM area passed (Pass = 1) or failed (Fail = 0) the hourly RSE test in the upward direction. |
|  | BAAEDAMRSEHourlyDownPassFlag Q’mdh | Flag indicating whether a BAA in the EDAM area passed (Pass = 1) or failed (Fail = 0) the hourly RSE test in the downward direction. |
|  | PTBBARSESurchargeAllocAmt BQ’Jmdh  | PTB charge adjustment for RSE Surcharge Allocation (in $) |
|  | BAHourlyTSR\_IRUSchedQty BrtuT'I'Q'M'F'S'L'mdh | The Hourly IFM Imbalance Reserve Up Schedule Quantity for each Transfer System Resources for every hour for each trading day. |
|  | BAHourlyTSR\_IRDSchedQty BrtuT'I'Q'M'F'S'L'mdh | The Hourly IFM Imbalance Reserve Down Schedule Quantity for each Transfer System Resources for every hour for each trading day. |
|  | BAHourlyTSR\_RCUSchedQty BrtuT’I’Q’M’F’S’L’mdh | The Hourly IFM Reliability Capacity Up Schedule Quantity for each Transfer System Resources for every hour for each trading day. (MW) |
|  | BAHourlyTSR\_RCDSchedQty BrtuT’I’Q’M’F’S’L’mdh | The Hourly IFM Reliability Capacity Down Schedule Quantity for each Transfer System Resources for every hour for each trading day. (MW) |
|  | DAImportSchedule BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif | DA Import Schedule is the DA Schedule Energy quantity for MQS Expected Energy Allocation, which represents the Energy schedule in IFM to be transferred into CAISO from another Balancing Authority Area.  |
|  | DAExportSchedule BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif | DA Export Schedule is the DA Schedule Energy quantity for MQS Expected Energy Allocation, which represents the Energy schedule in IFM to be transferred out of CAISO into another Balancing Authority Area. (Export Energy Schedule quantity is a negative value). |
|  | BAEDAMEntityFlag BQ’md | Flag indicating an EIM entity that specifically participates in EDAM. |
|  | RSEPeakHourFlag mdh | A flag (1/0/NULL) that, when equal to 1, identifies an associated Trading Hour as a Peak Hour. Off-Peak is defined as any day Monday through Saturday in the off-peak hours of midnight to 6 a.m. or 10 p.m. to midnight, pacific time, and all hours on Sunday or any legal public holiday. |

## Inputs - Predecessor Charge Codes or Pre-calculations

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Predecessor Charge Code/ Pre-calc Configuration |
|  | BAEDAMRSEOnPeakUpwardFailureSurchargeAmount BQ’mdh | CC 8080 – Resource Sufficiency Evaluation Surcharge Settlement |
|  | BAEDAMRSEOffPeakUpwardFailureSurchargeAmount BQ’mdh | CC 8080 – Resource Sufficiency Evaluation Surcharge Settlement |
|  | BAEDAMRSEDownwardFailureSurchargeAmount BQ’mdh | CC 8080 – Resource Sufficiency Evaluation Surcharge Settlement |
|  | BAMeteredDemandRatio Bmdh | CC 8080 – Resource Sufficiency Evaluation Surcharge Settlement |
|  | BASettlementIntervalEIMEntityHourlyOnPeakMeteredDemand BQ'mdh | MSS Netting PC |
|  | BASettlementIntervalEIMEntityHourlyOffPeakMeteredDemand BQ'mdh | MSS Netting PC |

## CAISO Formula

**Note:** The following calculation is listed starting with the final charge calculation and progressively detailing the intermediate calculations and Settlement inputs.

BAEDAMRSESurchargeAllocAmount BQ’mdh=

 EDAMEntityRSESurchargeRevenueAllocAmount BQ’mdh + BABAARSESurchargeRevenueAllocAmount BQ’mdh + PTBBARSESurchargeAllocAmount BQ’mdh

### EDAMEntityRSESurchargeRevenueAllocAmount BQ’mdh = BAEDAMEntityFlag  BQ’md \* (EDAMEntityRSEUpwardSurchargeRevenueAllocAmount Q’mdh + EDAMEntityRSEDownwardSurchargeRevenueAllocAmount Q’mdh)

### EDAMEntityRSEUpwardSurchargeRevenueAllocAmount Q’mdh = EDAMBAARSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh + EDAMBAARSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh + EDAMBAARSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Q’mdh + EDAMBAARSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount Q’mdh

### EDAMEntityRSEDownwardSurchargeRevenueAllocAmount Q’mdh = (EDAMBAARSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh + EDAMBAARSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh)

### BABAARSESurchargeRevenueAllocAmount BQ’mdh = BABAARSEUpwardSurchargeRevenueAllocAmount BQ’mdh + BABAARSEDownwardSurchargeRevenueAllocAmount BQ’mdh

### BABAARSEUpwardSurchargeRevenueAllocAmount BQ’mdh = BABAARSEUpwardHourlyOnPeakSurchargeRevenueAllocAmount BQ’mdh + BABAARSEUpwardHourlyOffPeakSurchargeRevenueAllocAmount BQ’mdh + BARSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Bmdh + BARSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount Bmdh

### BABAARSEDownwardSurchargeRevenueAllocAmount BQ’mdh = BABAARSEDownwardHourlySurchargeRevenueAllocAmount BQ’mdh + BARSEDownwardBackstopSurchargeRevenueAllocAmount Bmdh

**The following formulas apply to the calculation of the hourly EDAM RSE On-Peak Upward Revenue Allocation Amount**

#### EDAMEntityRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh

 IF

####  BAAEDAMRSEUpOnPeakDailyPassFlag Q’md = 1

 THEN

 EDAMEntityRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh =

 BAAEDAMRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh

 ELSE

 EDAMEntityRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh = 0

#### EDAMBAARSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh

 Where Q’ <> ‘CISO’

#### BAAEDAMRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh

 IF

 BAAEDAMHourlyOnPeakNetExportQuantity Q’mdh > 0

 THEN

####  BAAEDAMRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh =

####  (-1 \* EDAMRSEOnPeakUpwardTotalFailureSurchargeAmount mdh ) \* BAAEDAMHourlyOnPeakNetExportTransferRatio Q’mdh

 ELSE

####  BAAEDAMRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh =

####  (-1 \* EDAMRSEOnPeakUpwardTotalFailureSurchargeAmount mdh) \* BAAEDAMHourlyOnPeakMeteredDemandRatio Q’mdh

#### EDAMRSEOnPeakUpwardTotalFailureSurchargeAmount mdh = Sum over (B, Q’) BAEDAMRSEOnPeakUpwardFailureSurchargeAmount BQ’mdh

#### BAAEDAMHourlyOnPeakNetExportTransferRatio Q’mdh = BAAEDAMHourlyOnPeakNetExportQuantity Q’mdh / EDAMHourlyOnPeakNetExportQuantity mdh

#### EDAMHourlyOnPeakNetExportQuantity mdh = sum over (Q’) BAAEDAMHourlyOnPeakNetExportQuantity Q’mdh

#### BAAEDAMHourlyOnPeakNetExportQuantity Q’mdh = sum over (B, r, t, u, T’, I’, M’, F’, S’, L’) RSEPeakHourFlag mdh \* BAAEDAMRSEUpOnPeakDailyPassFlag Q’md  \* (Max (0, BAHourlyTSR\_IRUSchedQty BrtuT'I'Q'M'F'S'L'mdh + DAHourlyExportSchedule BrtuT’I’Q’M’F’S’L’mdh + BAHourlyTSR\_RCUSchedQty BrtuT’I’Q’M’F’S’L’mdh))

#### DAHourlyExportSchedule BrtuT’I’Q’M’F’S’L’mdh = sum over (b, R’, W’, V, c, i, f) DAExportSchedule BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif

#### BAAEDAMHourlyOnPeakMeteredDemandRatio Q’mdh = Sum (B) BAAEDAMRSEUpOnPeakDailyPassFlag Q’md  \* (BASettlementIntervalEIMEntityHourlyOnPeakMeteredDemand BQ'mdh/ EDAMAreaPassBAAHourlyOnPeakMeteredDemandQuantity mdh)

#### EDAMAreaPassBAAHourlyOnPeakMeteredDemandQuantity mdh =

####  Sum over (B, Q’) BASettlementIntervalEIMEntityHourlyOnPeakMeteredDemand BQ'mdh

#### BABAARSEUpwardHourlyOnPeakSurchargeRevenueAllocAmount BQ’mdh = (-1) \* BAMeteredDemandRatio Bmdh *\** CAISOBAARSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh

#### CAISOBAARSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh

 Where Q’ = ‘CISO’

#### BAAEDAMRSEUpOnPeakDailyPassFlag Q’md

 IF

 BAAEDAMDailyOnPeakPassCount Q’md = 16

 THEN

#### BAAEDAMRSEUpOnPeakDailyPassFlag Q’md = 1

 ELSE

#### BAAEDAMRSEUpOnPeakDailyPassFlag Q’md = 0

#### BAAEDAMDailyOnPeakPassCount Q’md = Sum over (h) Min ((RSEPeakHourFlag mdh \* BAAEDAMRSEHourlyUpPassFlag Q’mdh), 16)

**The following formulas apply to the calculation of the hourly EDAM RSE Off-Peak Upward Revenue Allocation Amount.**

#### EDAMEntityRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh

####  IF

 BAAEDAMRSEUpOffPeakDailyPassFlag Q’md = 1

 THEN

 EDAMEntityRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh =

 BAAEDAMRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh

 ELSE

 EDAMEntityRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh = 0

#### EDAMBAARSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh

Where Q’ <> ‘CISO’

#### BAAEDAMRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh

 IF

 BAAEDAMHourlyOffPeakNetExportQuantity Q’mdh > 0

 THEN

####  BAAEDAMRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh =

####  (-1 \* EDAMRSEOffPeakUpwardTotalFailureSurchargeAmount mdh ) \* BAAEDAMHourlyOffPeakNetExportTransferRatio Q’mdh

 ELSE

####  BAAEDAMRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh =

####  (-1 \* EDAMRSEOffPeakUpwardTotalFailureSurchargeAmount mdh) \* BAAEDAMHourlyOffPeakMeteredDemandRatio Q’mdh

#### EDAMRSEOffPeakUpwardTotalFailureSurchargeAmount mdh = Sum over (B, Q’) BAEDAMRSEOffPeakUpwardFailureSurchargeAmount BQ’mdh

#### BAAEDAMHourlyOffPeakNetExportTransferRatio Q’mdh = BAAEDAMHourlyOffPeakNetExportQuantity Q’mdh / EDAMHourlyOffPeakNetExportQuantity mdh

#### EDAMHourlyOffPeakNetExportQuantity mdh = sum over (Q’) BAAEDAMHourlyOffPeakNetExportQuantity Q’mdh

#### BAAEDAMHourlyOffPeakNetExportQuantity Q’mdh = sum over (r, t, u, T’, I’, M’, F’, S’, L’) (1 – RSEPeakHourFlag mdh) \* BAAEDAMRSEUpOffPeakDailyPassFlag Q’md  \*

####  (Max (0, BAHourlyTSR\_IRUSchedQty BrtuT'I'Q'M'F'S'L'mdh + DAHourlyExportSchedule BrtuT’I’Q’M’F’S’L’mdh + BAHourlyTSR\_RCUSchedQty BrtuT’I’Q’M’F’S’L’mdh))

#### BAAEDAMHourlyOffPeakMeteredDemandRatio Q’mdh = Sum over (B) BAAEDAMRSEUpOffPeakDailyPassFlag Q’md  \* (BASettlementIntervalEIMEntityHourlyOffPeakMeteredDemand BQ'mdh / EDAMAreaPassBAAOffPeakHourlyMeteredDemandQuantity mdh)

#### EDAMAreaPassBAAHourlyOffPeakMeteredDemandQuantity mdh = Sum over (B, Q’) BASettlementIntervalEIMEntityHourlyOffPeakMeteredDemand BQ'mdh

#### BABAARSEUpwardHourlyOffPeakSurchargeRevenueAllocAmount BQ’mdh = (-1) \* BAMeteredDemandRatio Bmdh *\** CAISOBAARSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh

#### CAISOBAARSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh

 Where Q’ = ‘CISO’

#### BAAEDAMRSEUpOffPeakDailyPassFlag Q’md

 IF

 BAAEDAMDailyOffPeakPassCount Q’md = 8

 THEN

#### BAAEDAMRSEUpOffPeakDailyPassFlag Q’md = 1

 ELSE

#### BAAEDAMRSEUpOffPeakDailyPassFlag Q’md = 0

#### BAAEDAMDailyOffPeakPassCount Q’md = Sum over (h) Min (((1 - RSEPeakHourFlag mdh)\* BAAEDAMRSEHourlyUpPassFlag Q’mdh), 8)

**The following formulas apply to the calculation of the hourly EDAM RSE Downward Revenue Allocation Amount.**

#### EDAMEntityRSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh

####  IF

 BAAEDAMRSEDownDailyPassFlag Q’md = 1

 THEN

 EDAMEntityRSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh = BAAEDAMRSEHourlyDownwardRevenueAllocAmount Q’mdh

 ELSE

 EDAMEntityRSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh = 0

#### EDAMBAARSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh

 Where Q’ <> ‘CISO’

#### BAAEDAMRSEHourlyDownwardRevenueAllocAmount Q’mdh =

 IF

 BAAEDAMHourlyNetImportQuantity Q’mdh > 0

 THEN

####  BAAEDAMRSEHourlyDownwardRevenueAllocAmount Q’mdh =

####  (-1 \* EDAMRSEDownwardTotalFailureSurchargeAmount mdh) \* BAAEDAMHourlyNetImportTransferRatio Q’mdh

 ELSE

####  BAAEDAMRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh =

####  (-1 \* EDAMRSEDownwardTotalFailureSurchargeAmount mdh) \* BAAEDAMHourlyMeteredDemandRatio Q’mdh

#### BAAEDAMHourlyMeteredDemandRatio Q’mdh = Sum over (B) BAEDAMEntityFlag BQ’md \* BAMeteredDemandRatio Bmdh

#### EDAMRSEDownwardTotalFailureSurchargeAmount mdh = Sum over (B, Q’) BAEDAMRSEDownwardFailureSurchargeAmount BQ’mdh

####  BAAEDAMRSEDownwardFailureSurchargeAmount Q’mdh = Sum over (B) BAEDAMRSEDownwardFailureSurchargeAmount BQ’mdh

####

#### BAAEDAMHourlyNetExportTransferRatio Q’mdh = BAAEDAMHourlyNetExportQuantity Q’mdh / EDAMHourlyNetExportQuantity mdh

#### EDAMHourlyNetExportQuantity mdh = Sum over (Q’) (BAAEDAMRSEUpOnPeakDailyPassFlag Q’md + BAAEDAMRSEUpOffPeakDailyPassFlag Q’md )\* BAAEDAMHourlyNetExportQuantity Q’mdh

#### BAAEDAMHo+urlyNetImportTransferRatio Q’mdh = BAAEDAMHourlyNetImportQuantity Q’mdh / EDAMHourlyNetImportQuantity mdh

#### EDAMHourlyNetImportQuantity mdh = sum over (Q’) BAAEDAMHourlyNetImportQuantity Q’mdh

#### BAAEDAMHourlyNetImportQuantity Q’mdh = sum over (B, r, t, u, T’, I’, M’, F’, S’, L’) BAAEDAMRSEDownDailyPassFlag Q’md  \* (Min (0, (BAHourlyTSR\_IRDSchedQty BrtuT'I'Q'M'F'S'L'mdh + DAHourlyImportSchedule BrtuT’I’Q’M’F’S’L’mdh + BAHourlyTSR\_RCDSchedQty BrtuT’I’Q’M’F’S’L’mdh)))

#### DAHourlyImportSchedule BrtuT’I’Q’M’F’S’L’mdh = Sum over (b, R’, W’, V, c, I, f) DAImportSchedule BrtuT’bI’Q’M’R’W’F’S’VL’mdhcif

#### BABAARSEDownwardHourlySurchargeRevenueAllocAmount BQ’mdh = (-1) \* BAMeteredDemandRatio Bmdh \* CAISOBAARSEDownwardHourlySurchargeRevenueAllocAmount Q’md

#### CAISOBAARSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh

 Where Q’ = ‘CISO’

#### BAAEDAMRSEDownDailyPassFlag Q’md

 IF

 BAAEDAMDailyDownPassCount Q’md = 24

 THEN

#### BAAEDAMRSEDownDailyPassFlag Q’md = 1

 ELSE

#### BAAEDAMRSEDownDailyPassFlag Q’md = 0

#### BAAEDAMDailyDownPassCount Q’md = Sum over (h) Min ( BAAEDAMRSEHourlyDownPassFlag Q’mdh), 24)

### The following formulas apply to situations in which all EDAM BAAs fail the RSE upward tests in at least one hour of the on-peak period in the trade date.

#### EDAMEntityRSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Q’mdh

####  IF

####  EDAMBAARSEDailyUpPassFlag Bmd = 0

 AND

 BAAEDAMDailyOnPeakPassCount Q’md > 0

 THEN

####  EDAMEntityRSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Q’mdh = BAAEDAMRSEUpwardOnPeakBackstopFailureSurchargeAmount Q’mdh

 ELSE

 EDAMEntityRSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Q’mdh = 0

#### CAISOBAARSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount mdh = sum over (Q’) EDAMEntityRSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Q’mdh

Where Q’ = ‘CISO’

#### EDAMBAARSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount BQ’mdh

Where Q’ <> ‘CISO’

#### BAAEDAMRSEUpwardOnPeakBackstopFailureSurchargeAmount Q’mdh =

 IF

 BAAEDAMHourlyNetExportQuantity Q’mdh > 0

 THEN

####  BAAEDAMRSEUpwardOnPeakBackstopFailureSurchargeAmount Q’mdh =

####  (-1 \* EDAMRSEUpwardOnPeakBackstopFailureSurchargeAmount mdh) \* BAAEDAMHourlyNetExportTransferRatio Q’mdh

 ELSE

####  BAAEDAMRSEUpwardOnPeakBackstopFailureSurchargeAmount Q’mdh =

####  (-1 \* EDAMRSEUpwardOnPeakBackstopFailureSurchargeAmount mdh) \* BAAEDAMHourlyMeteredDemandRatio Q’mdh

#### EDAMRSEUpwardOnPeakBackstopFailureSurchargeAmount mdh = Sum over (B, Q’) BAEDAMRSEOnPeakUpwardFailureSurchargeAmount BQ’mdh

#### BARSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Bmdh = (-1) \* BAMeteredDemandRatio Bmdh \* CAISOBAARSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount mdh

#### EDAMBAARSEDailyUpPassFlag Bmd = sum over (Q’, h) BAAEDAMRSEHourlyUpPassFlag Q’mdh

#### BAAEDAMHourlyNetExportQuantity Q’mdh = sum over (B, r, t, u, T’, I’, M’, F’, S’, L’) Max (0, BAHourlyTSR\_IRUSchedQty BrtuT'I'Q'M'F'S'L'mdh + DAHourlyExportSchedule BrtuT’I’Q’M’F’S’L’mdh + BAHourlyTSR\_RCUSchedQty BrtuT’I’Q’M’F’S’L’mdh)

### The following formulas apply to situations in which all EDAM BAAs fail the RSE upward tests in at least one hour of the off-peak period in the trade date.

#### EDAMEntityRSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount Q’mdh

####  IF

####  EDAMBAARSEDailyUpPassFlag Bmd = 0

 AND

 BAAEDAMDailyOffPeakPassCount Q’md > 0

 THEN

####  EDAMEntityRSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount Q’mdh = BAAEDAMRSEUpwardOffPeakBackstopFailureSurchargeAmount Q’mdh

 ELSE

 EDAMEntityRSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount Q’mdh = 0

#### CAISOBAARSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount mdh = sum over (Q’) EDAMEntityRSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount Q’mdh

Where Q’ = ‘CISO’

#### EDAMBAARSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount BQ’mdh

Where Q’ <> ‘CISO’

#### BAAEDAMRSEUpwardOffPeakBackstopFailureSurchargeAmount Q’mdh =

 IF

 BAAEDAMHourlyNetExportQuantity Q’mdh > 0

 THEN

####  BAAEDAMRSEUpwardOffPeakBackstopFailureSurchargeAmount Q’mdh =

####  (-1 \* EDAMRSEUpwardOffPeakBackstopFailureSurchargeAmount mdh) \* BAAEDAMHourlyNetExportTransferRatio Q’mdh

 ELSE

####  BAAEDAMRSEUpwardOffPeakBackstopFailureSurchargeAmount Q’mdh =

####  (-1 \* EDAMRSEUpwardOffPeakBackstopFailureSurchargeAmount mdh) \* BAAEDAMHourlyMeteredDemandRatio Q’mdh

#### EDAMRSEUpwardOffPeakBackstopFailureSurchargeAmount mdh = Sum over (B, Q’) BAEDAMRSEOffPeakUpwardFailureSurchargeAmount BQ’mdh

#### BARSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount Bmdh = (-1) \* BAMeteredDemandRatio Bmdh \* CAISOBAARSEUpwardOffPeakBackstopSurchargeRevenueAllocAmount mdh

### The following formulas apply to situations in which all EDAM BAAs fail the RSE downward tests in at least one hour of the trade date.

#### EDAMEntityRSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh

####  Sum over (B)

####  IF

####  EDAMBAADailyDownPassFlag Bmd = 0

 AND

 BAAEDAMRSEHourlyDownPassFlag Q’mdh = 1

 THEN

####  EDAMEntityRSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh = BAAEDAMRSEDownwardBackstopRevenueAllocAmount Q’mdh

 ELSE

 EDAMEntityRSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh = 0

#### EDAMBAARSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh = EDAMEntityRSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh

WHERE Q’ <> ‘CISO’

#### BAAEDAMRSEDownwardBackstopRevenueAllocAmount Q’mdh =

 IF

 BAAEDAMHourlyNetImportQuantity Q’mdh > 0

 THEN

####  BAAEDAMRSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh =

####  (-1 \* BAAEDAMRSEDownwardFailureSurchargeAmount Q’mdh) \* BAAEDAMHourlyNetImportTransferRatio Q’mdh

 ELSE

####  BAAEDAMRSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh =

####  (-1 \* BAAEDAMRSEDownwardFailureSurchargeAmount Q’mdh) \* BAAEDAMHourlyMeteredDemandRatio Q’mdh

#### BARSEDownwardBackstopSurchargeRevenueAllocAmount Bmdh = (-1) \* BAMeteredDemandRatio Bmdh \* CAISORSEDownwardBackstopSurchargeRevenueAllocAmount mdh

#### CAISORSEDownwardBackstopSurchargeRevenueAllocAmount mdh = sum over (Q’) EDAMEntityRSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh

WHERE Q’ = ‘CISO’

#### EDAMBAADailyDownPassFlag Bmd = sum over (Q’, h) BAAEDAMRSEHourlyDownPassFlag Q’mdh

### PTBBARSESurchargeAllocAmount BQ’mdh =

###  Sum (J) PTBBARSESurchargeAllocAmt BQ’Jmdh

## Outputs

| Output Req ID | Name | Description |
| --- | --- | --- |
|  | In addition to any outputs listed below, all inputs shall be included as outputs. |  |
| 1 | BAEDAMRSESurchargeAllocAmount BQ’mdh | The total RSE surcharge amount to be allocated to the Scheduling Coordinator within BAAs outside of the CAISO BAA that passed the RSE tests. **($)** |
| 2 | EDAMEntityRSESurchargeRevenueAllocAmount BQ’mdh | For EDAM BAAs excluding the CISO BAA, the total RSE surcharge amount to be allocated to the EDAM BAA that passed the RSE tests. **($)** |
| 3 | EDAMEntityRSEUpwardSurchargeRevenueAllocAmount Q’mdh | For EDAM BAAs excluding the CISO BAA, the total RSE surcharge amount to be allocated to the EDAM BAA that passed the RSE upward tests. **($)** |
| 4 | EDAMEntityRSEDownwardSurchargeRevenueAllocAmount Q’mdh | For EDAM BAAs excluding the CISO BAA, the total RSE surcharge amount to be allocated to the EDAM BAA that passed the RSE downward test. **($)** |
| 5 | BABAARSESurchargeRevenueAllocAmount BQ’mdh | The total RSE surcharge amount to be allocated to the Scheduling Coordinator within the CISO BAA that passed the RSE tests. **($)** |
| 6 | BABAARSEUpwardSurchargeRevenueAllocAmount BQ’mdh | The total RSE surcharge amount to be allocated to the Scheduling Coordinator within the CISO BAA that passed the RSE upward test. **($)** |
| 7 | BABAARSEDownwardSurchargeRevenueAllocAmount BQ’mdh | The total RSE surcharge amount to be allocated to the Scheduling Coordinator within the CISO BAA that passed the RSE downward test. **($)** |
| 8 | EDAMEntityRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh | The RSE upward hourly on-peak revenue allocation amount. EDAM BAAs that pass the RSE upward test in all hours of the trade date are eligible to receive this allocation. **($)** |
| 9 | CAISOBAARSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh | For the CISO BAA, the RSE upward hourly on-peak revenue allocation amount. **($)**  |
| 10 | EDAMBAARSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh | For EDAM BAAs outside the CISO BAA, the RSE upward hourly on-peak revenue allocation amount. **($)** |
| 11 | BAAEDAMRSEUpwardOnPeakHourlySurchargeRevenueAllocAmount Q’mdh | The allocation amount for EDAM BAAs that pass the RSE upward test in all hours of the trade date. **($)** |
| 12 | EDAMRSEOnPeakUpwardTotalFailureSurchargeAmount mdh | The total RSE surcharge revenues collected from EDAM BAAs that failed the RSE upward test during on-peak hours within the trade date. **($)** |
| 13 | BAAEDAMHourlyOnPeakNetExportTransferRatio Q’mdh | The pro rata export transfer ratio by EDAM BAA, accounting for energy transfers, IRU, and RCU. |
| 14 | EDAMHourlyOnPeakNetExportQuantity mdh | The total hourly on-peak export transfers, including energy, IRU, and RCU, for the entire EDAM area. **(MW)** |
| 15 | BAAEDAMHourlyOnPeakNetExportQuantity Q’mdh | The total hourly on-peak export transfers, including energy, IRU, and RCU, for the EDAM BAA. **(MW)** |
| 16 | DAHourlyExportSchedule BrtuT’I’Q’M’F’S’L’mdh | The day-ahead hourly export schedule. **(MW)** |
| 17 | BAAEDAMHourlyOnPeakMeteredDemandRatio Q’mdh | The EDAM hourly on-peak metered demand ratio for the EDAM BAAs that pass the RSE tests in all hours of the trade date. |
| 18 | EDAMAreaPassBAAHourlyOnPeakMeteredDemandQuantity mdh | The total hourly metered demand quantity of all EDAM BAAs that pass the RSE test in all hours of the trade date. **(MW)** |
| 19 | BAAEDAMRSEUpOnPeakDailyPassFlag BQ’md | Flag indicating whether the EDAM BAA passes the RSE upward test for all on-peak hours of the trade date. A pass equals 1 and a failure equals 0. |
| 20 | BAAEDAMDailyOnPeakPassCount Q’md | The sum of the count of hours in which the BAA passes the RSE on-peak up test for the trade date. |
| 21 | BABAARSEUpwardHourlyOnPeakSurchargeRevenueAllocAmount BQ’mdh | The allocation amount of RSE upward hourly revenues to Scheduling Coordinators in the CAISO BAA. This is calculated pro rata to metered demand of Scheduling Coordinators in the CAISO BAA. **($)** |
| 22 | EDAMEntityRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh  | The RSE upward hourly off-peak revenue allocation amount. EDAM BAAs that pass the RSE upward test in all off-peak hours of the trade date are eligible to receive this allocation. **($)** |
| 23 | CAISOBAARSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh | For the CISO BAA, the RSE upward hourly off-peak revenue allocation amount. **($)** |
| 24 | EDAMBAARSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh | For EDAM BAAs excluding the CISO BAA, the RSE upward hourly off-peak revenue allocation amount. EDAM BAAs that pass the RSE upward test in all hours of the trade date are eligible to receive this allocation. **($)** |
| 25 | BAAEDAMRSEUpwardOffPeakHourlySurchargeRevenueAllocAmount Q’mdh  | The allocation amount for EDAM BAAs that pass the RSE upward test in all off-peak hours of the trade date. **($)** |
| 26 | EDAMRSEOffPeakUpwardTotalFailureSurchargeAmount mdh | The total RSE surcharge revenues collected from EDAM BAAs that failed the8RSE upward test during off-peak hours within the trade date. **($)** |
| 27 | BAAEDAMHourlyOffPeakNetExportTransferRatio Q’mdh | The pro rata export transfer ratio by BAA for off-peak hours in which the EDAM BAA passed the RSE test, accounting for energy transfers, IRU, and RCU. |
| 28 | EDAMHourlyOffPeakNetExportQuantity mdh | The total EDAM Area net exports, summing net exports in each EDAM BAA that passed the off-peak RSE upward test in all hours of the trade date. **(MW)** |
| 29 | BAAEDAMHourlyOffPeakNetExportQuantity Q’mdh | The net exports for off-peak hours for EDAM BAAs that passed the RSE tests in all off-peak hours for that trade date. **(MW)** |
| 30 | BAAEDAMHourlyOffPeakMeteredDemandRatio Q’mdh | The EDAM hourly metered demand ratio for the EDAM BAAs that pass the RSE tests in all off-peak hours of the trade date. **(MW)** |
| 31 | EDAMAreaPassBAAHourlyOffPeakMeteredDemandQuantity mdh | The total hourly metered demand quantity of all EDAM BAAs that pass the RSE test in all off-peak hours of the day. **(MW)** |
| 32 | BAAEDAMRSEUpOffPeakDailyPassFlag Q’md | Flag indicating whether the EDAM BAA passes the RSE upward test for all off-peak hours of the trade date. A pass equals 1 and a failure equals 0. |
| 33 | BAAEDAMDailyOffPeakPassCount BQ’md | The sum of the count of hours in which the BAA passes the RSE off-peak up test for the trade date. |
| 34 | BABAARSEUpwardHourlyOffPeakSurchargeRevenueAllocAmount BQ’md | The allocation amount of RSE upward off-peak hourly revenues to Scheduling Coordinators in the CISO BAA. This is calculated pro rata to metered demand of Scheduling Coordinators in the CAISO BAA. **($)** |
| 35 | EDAMEntityRSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh  | For EDAM BAAs the RSE downward hourly revenue allocation amount. EDAM BAAs that pass the RSE downward test in all hours of the trade date are eligible to receive this allocation. **($)** |
| 36 | CAISOBAARSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh | For the CISO BAA, the RSE downward hourly revenue allocation amount. **($)** |
| 37 | EDAMBAARSEDownwardHourlySurchargeRevenueAllocAmount Q’mdh | For EDAM BAAs excluding the CISO BAA, the RSE downward hourly revenue allocation amount. **($)** |
| 38 | BAAEDAMRSEHourlyDownwardRevenueAllocAmount Q’mdh | The allocation amount for EDAM BAAs that pass the RSE downward test. **($)** |
| 39 | BAAEDAMHourlyMeteredDemandRatio Q’mdh | The metered demand ratio for EDAM BAAs. |
| 40 | EDAMRSEDownwardTotalFailureSurchargeAmount mdh | The total RSE surcharge revenues collected from EDAM BAAs that failed the RSE downward test during in hours within the trade date. **($)** |
| 41 | BAAEDAMRSEDownwardFailureSurchargeAmount Q’mdh | The EDAM BAA-level downward failure surcharge amount. ($) |
| 42 | BAAEDAMHourlyNetImportTransferRatio Q’mdh | The pro rata transfer of imports ratio by BAA, accounting for energy transfers, IRD, and RCD. |
| 43 | EDAMHourlyNetImportQuantity mdh | The total daily import transfers, including energy, IRD, and RCD, for the entire EDAM area. **(MW)** |
| 44 | BAAEDAMHourlyNetImportQuantity Q’mdh | The total daily import transfers, including energy, IRD, and RCD, for the EDAM BAA. **(MW)** |
| 45 | DAHourlyImportSchedule BrtuT’I’Q’M’F’S’L’mdh | The day-ahead hourly import schedule. **(MW)** |
| 46 | BAAEDAMRSEDownDailyPassFlag Q’md | Flag indicating whether the EDAM BAA passes the RSE downward test for all hours of the trade date. A pass equals 1 and a failure equals 0. |
| 47 | BAAEDAMDailyDownPassCount Q’md | The sum of the count of hours in which the BAA passes the RSE down test for the trade date. |
| 48 | BABAARSEDownwardHourlySurchargeRevenueAllocAmount BQ’mdh | The allocation amount of RSE downward hourly revenues to Scheduling Coordinators in the CISO BAA. This is calculated pro rata to metered demand of Scheduling Coordinators in the CISO BAA. **($)** |
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|  |  |  |
|  |  |  |
| 49 | BARSEUpwardOnPeakBackstopSurchargeRevenueAllocAmount Bmdh | The allocation amount for Scheduling Coordinators in the CAISO BAA that pass the hourly RSE upward test. **($)** |
| 50 | EDAMBAARSEDailyUpPassFlag Bmd | Flag indicating whether the entire EDAM area passes or fails the RSE daily upward test. A pass equals 1 and a failure equals 0. A failure triggers the opportunity for EDAM BAAs to receive allocations for the hours of the trade date in which they pass the RSE upward tests. |
| 51 | BAAEDAMHourlyNetExportQuantity Q’mdh | The total daily export transfers, including energy, IRU, and RCU, for the EDAM BAA. **(MW)** |
| 52 | EDAMEntityRSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh | In the event all EDAM BAAs fail at least one hour of the RSE downward test within a trade date, this the allocation amount to EDAM BAAs for hours of the trade date in which the BAA passed the RSE downward test. **($)** |
| 53 | CAISORSEDownwardBackstopSurchargeRevenueAllocAmount mdh | In the event all EDAM BAAs fail at least one hour of the RSE downward test within a trade date, this the allocation amount to the CAISO BAA for hours of the trade date in which the CAISO BAA passed the RSE downward test. **($)** |
| 54 | EDAMBAARSEDownwardBackstopSurchargeRevenueAllocAmount Q’mdh | In the event all EDAM BAAs fail at least one hour of the RSE downward test within a trade date, this the allocation amount to EDAM BAAs excluding the CISO BAA for hours of the trade date in which the BAA passed the RSE downward test. **($)** |
| 55 | BAAEDAMRSEDownwardBackstopRevenueAllocAmount Q’mdh | The allocation amount for EDAM BAAs that pass the RSE hourly downward test. **($)** |
| 56 | BARSEDownwardBackstopSurchargeRevenueAllocAmount Bmdh | The allocation amount for Scheduling Coordinators in the CAISO BAA that pass the hourly RSE downward test in an hour of the trade date. **($)** |
| 57 | EDAMBAADailyDownPassFlag Bmd | Flag indicating whether the entire EDAM area passes or fails the RSE daily downward test. A pass equals 1 and a failure equals 0. A failure triggers the opportunity for Scheduling Coordinators to receive allocations for the hours of the trade date in which they passed the RSE downward test. |
| 58 | PTBBARSESurchargeAllocAmount BQ’mdh | The pass-through bill amount for RSE surcharge allocation amounts by BA. **($)** |

# Charge Code Effective Dates

| Charge Code/Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type |
| --- | --- | --- | --- | --- |
| CC 8088 – Resource Sufficiency Evaluation Surcharge Allocation | 5.0 | 5/1/26 | Open | Configuration impacted |