**Settlements and Billing**

Configuration Guide: NPM

**Pre-calculation**

Version 5.1

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# Purpose of Document

The purpose of this document is to capture the requirements and design specification for a SaMC Charge Code in one document.

# Introduction

## Background

CAISO was to requested to provide a high-level design proposal for a Nodal Pricing Model (NPM) that can be used to clear energy supply and demand bids for an existing Balancing Authority Area (BAA) one day ahead, in addition to the existing Energy Imbalance Market.

The CAISO proposed to leverage its existing Day-Ahead Market (DAM) technology platform, full network model, and data interfaces available in the real-time Energy Imbalance Market (EIM) to provide to EIM Merchants with Day Ahead Nodal Pricing Model (DNPM). The CAISO will provide any participant that elect to utilize DNPM, advisory settlement of Day Ahead Energy and Ancillary Service Schedules.

The FERC filing related to this initiative is provided publicly in this link:

https://www.caiso.com/Documents/Dec20-2019\_NodalPricingModelAgmt\_CAISO-PacifiCorp\_ER20-664.pdf

## Description

This precalculation will include computations to be used in successor charge codes. The calculations will satisfy the identified business rules in the next section.

# Charge Code Requirements

## Business Rules

| Bus Req. ID | Business Rule |
| --- | --- |
|  | This precalculation is a daily computation generating results on a Settlement Interval, hourly or daily basis as needed. |
|  | This precalculation supports outputs for various charge codes needed for the advisory settlement related to Day-Ahead Nodal Pricing Model (DA NPM) initiative. |
|  | NPM Scheduling Coordinator (NPM SC) shall be defined with a separate Business Associate Identifier (BAID) from the BAID of an Energy Imbalance Market Scheduling Coordinator (EIM SC), eventhough this could be the same SC. This will prevent commingling of advisory and binding settlement. (Fact) |
| 3.1 | For the same resource that participates in the Day-Ahead Market (DAM) and EIM, the resource will be associated to the proper Business Associate Identifier (BAID). That is, associate the resource to the BAID for NPM in the Day-Ahead Market, and/or associate to the EIM BAID in the Energy Imbalance Market (Fifteen Minute Market or Real-Time Market). (Fact) |
| 3.2 | A resource that participates in the NPM, shall be associated to only one NPM Balancing Authority Area (NPM BAA) in the Day-Ahead Market. (Fact) |
|  | Advisory settlement shall be published to NPM SCs that participated in the NPM Day-Ahead Market. (Fact) |
|  | Any BAA entity that wants to participate in the Day-Ahead Market as NPM BAA must have a contractual agreement with CAISO prior to participation. (Fact) |

## Predecessor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| CC 6011 – Day Ahead Energy, Congestion, Loss Settlement |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| CC 6790 – CRR Balancing Account |
| CC 6947 – IFM Marginal Losses Surplus Credit Allocation |
| CC 6630 – IFM Bid Cost Recovery Settlement |
| CC 6637 – IFM Bid Cost Recovery Tier2 Allocation |

## Inputs – External Systems

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| Row # | Variable Name | Description |
| --- | --- | --- |
|  | NPMIFMMLC BrtuT’I’M’F’S’Ymdhcif | The qualified IFM Minimum Load Costs (in $) for a given resource and Settlement Interval. For a MSG Resource, the IFM Minimum Load Costs are associated with the Configuration ID. For a non-MSG Resource, the costs are simply associated with the resource. |
|  | BADispatchIntervalResourceMSGConfigIDNPMIFMMLCostEligibleFlag BrtuT’I’M’F’S’Ymdhcif | A flag (Boolean – 0/1) that indicates whether or not IFM Minimum Load Costs (in $) for a given resource and Dispatch Interval are qualified for cost compensation.  Qualified = 1, Not qualified = 0. Attribute Y shall be NULL for a non-MSG resource.  The input shall be active (= 1) for each Settlement Interval of an IFM Commitment Period, excluding any Settlement Interval that is part of a resource’s Minimum Down Time period in the case where the resource received a DA Energy award in IFM for the Settlement Interval, and then, in the real-time market received a shutdown instruction through ADS and did not comply with the instruction (as evidenced by the resource’s meter value being nonzero) during the Settlement Interval. |
|  | BAResourceMSGConfigurationNPMIFMSUCFlag BrtuT’I’M’O’F’S’Ymdhcif | A flag (Boolean – 0/1) that indicates whether or not IFM Start-Up Costs for a given resource and Settlement Interval are qualified for cost compensation.  Qualified = 1, Not qualified = 0. |
|  | NPMIFMSUC BrtuT’I’M’F’S’mdhcif | The qualified IFM Start-Up Costs (in $) for a given resource and Settlement Interval. |
|  | NPMIFMTC BrtuT’I’M’F’S’mdhcif | For Multi-Stage Generating Units (MSG) only, the qualified IFM Transition Costs (in $) for a given Settlement Interval. |
|  | NPMIFMPumpingCost BrtuT’I’M’F’S’mdhcif | The IFM Pumping Costs for a given pump resource and Settlement Interval. |
|  | NPMIFMPumpingCostFlag BrtuT’I’M’F’S’mdhcif | A flag (Boolean – 0/1) that indicates whether or not IFM Pumping Costs are qualified for cost compensation for a given resource and Settlement Interval.  Qualified = 1, Not qualified = 0. |
|  | NPMIFMSDC BrtuT’I’M’F’S’mdhcif | The qualified IFM Shut-Down Costs (in $) for a given pump resource and Settlement Interval. |
|  | NPMIFMSDCFlag BrtuT’I’M’F’S’mdhcif | A flag (Boolean – 0/1) that indicates whether or not IFM Shut-Down Costs for a given pump resource and Settlement Interval are qualified for cost compensation.  Qualified = 1, Not qualified = 0. |
|  | NPMIFMTCConfigurationFlag BrtuT’I’M’O’F’S’Ymdhcif | A flag (Boolean – 0/1) that indicates whether or not IFM Transition Costs for a given MSG resource and Settlement Interval are qualified for cost compensation. The input is defined only for a MSG resource.  Qualified = 1, Not qualified = 0. |
|  | NPMDAEnergyBidPrice BrtuT’bI’M’VL’W’R’F’S’mdhcif | Day Ahead Energy Bid Price (in $/MWh) for a given resource and Settlement Interval. |
|  | BAHourlyResourceDayAheadLMP Brtmdh | Day Ahead Locational Marginal Price (in $/MWh) for a given resource and Trading Hour.  Prices for Resource-Specific System Resources (Tie Generators) shall be mapped to Resource-Specific Day Ahead LMP. Prices for Non-Dynamic System Resource shall be mapped to Day Ahead Intertie LMP. |
|  | NPMDAScheduleEnergyAllocationQuantity BrtuT’bI’Q’M’VL’W’R’F’S’mdhcif | The Day Ahead Expected Energy Allocation Schedule quantity (in MWh), inclusive of Minimum Load, Self-schedule, and awarded bid Energy for a given resource and Settlement Interval. |
|  | SettlementIntervalNPMIFMCAISOCommitPeriod BrtF’S’mdhcif | A flag (as a Boolean value – 0/1) that indicates for a given resource and Settlement Interval whether or not the resource was committed ON by CAISO in IFM.  ON = 1, OFF or Self-Committed = 0 |
|  | NPMDAMinimumLoadQty BrtuT’I’M’VL’W’R’F’S’mdhcif | Day Ahead Minimum Load Quantity (provided by MQS) for a given resource and Settlement Interval. |
|  | NPMDABidAwardEnergyQty BrtuT’I’M’VL’W’R’F’S’mdhcif | The Day Ahead Awarded Expected Energy Bid quantity (in MWh) above Minimum Load and Self Schedule for a given resource and Settlement Interval. |
|  | NPMDAPumpingEnergy BrtuT’I’Q’M’F’S’mdhcif | The DA Pumping Energy for NPM resource per settlement interval. (New EE) |
|  | BAResourceToNPMBAAMapFactor BrtuT’I’Q’M’F’S’md | Data which associates resource to various attributes. |
|  | NPMDALoadSchedule BrtuT’I’Q’M’F’S’mdh | The DA Energy Schedule for NPM load resources. |

## Inputs – Predecessor Charge Codes or Pre-calculations

| Input Req. ID | Variable Name | Predecessor Charge Code/  Pre-calc Configuration |
| --- | --- | --- |
|  | BAATotalNetHourlyDAEnergyAmount **Q'mdh** | CC 6011 |
|  | BAATotalHourlyNPMDAEnergyCongAmount **Q’mdh** | CC 6011 |

## CAISO Formula

**NPM resource DA energy advisory settlement calculations:**

#### BAATotalDailyNPMDACongAmount Q’md =

Sum over (h) { BAATotalHourlyNPMDAEnergyCongAmount Q’mdh }

#### BAATotalHourlyMarginalLossSurplusAmount Q’mdh =

BAATotalNetHourlyDAEnergyAmount Q'mdh - BAATotalHourlyNPMDAEnergyCongAmount Q’mdh

#### BAHourlyTotalNPMDALoad BQ’mdh =

Sum over (r, t, u, T’, I’, M’, F’, S’) {NPMDALoadSchedule BrtuT’I’Q’M’F’S’mdh}

#### BAATotalHourlyNPMDALoadSchedule Q’mdh =

Sum over (B) {BAHourlyTotalNPMDALoad BQ’mdh}

**NPM DA congestion revenue advisory settlement calculations:**

#### BADailyTotalNPMDALoad BQ’md =

Sum over (h) {BAHourlyTotalNPMDALoad BQ’mdh}

#### BAATotalDailyNPMDALoadSchedule Q’md =

Sum over (B, h) {BAHourlyTotalNPMDALoad BQ’mdh}

#### BAADailyCongRevDAAllocationPrice Q’md =

BAATotalDailyNPMDACongAmount Q’md / BAATotalDailyNPMDALoadSchedule Q’md

#### BANPMBAADailyCongRevDAAllocationAmount BQ’md =

(-1) \* BADailyTotalNPMDALoad BQ’md \* BAADailyCongRevDAAllocationPrice Q’md

#### BANPMDailyCongRevDAAllocationAmount Bmd =

Sum over (Q’) { BANPMBAADailyCongRevDAAllocationAmount BQ’md }

**NPM DA MLS advisory settlement calculations:**

#### BAAHourlyMLSDAAllocationPrice Q’mdh =

If Abs(BAATotalHourlyNPMDALoadSchedule Q’mdh ) > 0.01

Then

(-1)\*(BAATotalHourlyMarginalLossSurplusAmount Q’mdh / BAATotalHourlyNPMDALoadSchedule Q’mdh )

Else

0

End If

#### BANPMHourlyBAAMLSDAAllocationAmount BQ’mdh =

BAHourlyTotalNPMDALoad BQ’mdh \* BAAHourlyMLSDAAllocationPrice Q’mdh

#### BAANPMHourlyMLSDAAllocationAmount Q’mdh =

Sum over (B) { BANPMHourlyBAAMLSDAAllocationAmount BQ’mdh }

Where Balancing\_Authority\_Area (Q’) <> ‘CISO’

#### BANPMHourlyMLSDAAllocationAmount Bmdh =

Sum over (Q’) { BANPMHourlyBAAMLSDAAllocationAmount BQ’mdh }

Where Q’ <> ‘CISO’

**NPM IFM Costs - Commitment (Minimum Load, Pump, Start-up, Shut-down, Transition ) and Energy Bid**

#### BASettlementIntervalResourceNPMIFMMLCBrtuT’I’M’F’S’mdhcif =

Sum over (Y) {NPMIFMMLCBrtuT’I’M’F’S’Ymdhcif  \* BADispatchIntervalResourceMSGConfigIDNPMIFMMLCostEligibleFlag BrtuT’I’M’F’S’Ymdhcif}

#### NPMAvailableIFMPumpingCost BrtuT’I’M’F’S’mdhcif =

(-1) \* NPMIFMPumpingCost BrtuT’I’M’F’S’mdhcif \* NPMIFMPumpingCostFlag BrtuT’I’M’F’S’mdhcif

#### BASettlementIntervalResourceNPMIFMSUC BrtuT’I’M’F’S’mdhcif =

Sum over (O’, Y) {NPMIFMSUC BrtuT’I’M’F’S’mdhcif \* BAResourceMSGConfigurationNPMIFMSUCFlag BrtuT’I’M’O’F’S’Ymdhcif }

#### BASettlementIntervalResourceNPMIFMSDC BrtuT’I’M’F’S’mdhcif =

NPMIFMSDC BrtuT’I’M’F’S’mdhcif \* NPMIFMSDCFlagBrtuT’I’M’F’S’mdhcif

#### BASettlementIntervalResourceNPMIFMTC BrtuT’I’M’F’S’mdhcif =

Sum over (O’, Y) {NPMIFMTC BrtuT’I’M’F’S’mdhcif \* NPMIFMTCConfigurationFlag BrtuT’I’M’O’F’S’Ymdhcif }

#### Where Resource Type t In (GEN, ITIE)

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

Sum over (Q’, V, L’, W’, R’, b) {NPMDAScheduleEnergyAllocationQuantityBrtuT’bI’Q’M’VL’W’R’F’S’mdhcif \* NPMDAEnergyBidPrice BrtuT’bI’M’VL’W’R’F’S’mdhcif }

**Note:**

For Minimum Load DA Energy and Self-scheduled DA Energy portions of the quantity, the corresponding NPMDAEnergyBidPrice BrtuT’bI’M’VL’W’R’F’S’mdhcif is expected to equal 0 in the above formula.

**NPM IFM Revenues**

#### Where Resource Type t In (GEN, ITIE)

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

Sum over (V, L’, W’, R’) { ( NPMDAMinimumLoadQty BrtuT’I’M’VL’W’R’F’S’mdhcif \* BAHourlyResourceDayAheadLMP Brtmdh \*

SettlementIntervalNPMIFMCAISOCommitPeriod BrtF’S’mdhcif )}

#### Where MSS Energy Settlement Election I’ <> ‘NET’ And (Resource Type t In (GEN, ITIE) )

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

Sum over (V, L’, W’, R’) { (NPMDABidAwardEnergyQty BrtuT’I’M’VL’W’R’F’S’mdhcif \* BAHourlyResourceDayAheadLMP Brtmdh ) }

#### BASettlementIntervalResourceNPMIFMPumpingRevenueAmount BrtuT’I’M’F’S’mdhcif =

Sum over (Q’) {

NPMDAPumpingEnergy BrtuT’I’Q’M’F’S’mdhcif \*

BAHourlyResourceDayAheadLMP Brtmdh \*

NPMIFMPumpingCostFlag BrtuT’I’M’F’S’mdhcif }

Note:

Input NPMDAPumpingEnergy BrtuT’I’Q’M’F’S’mdhcif is assumed to exist only for cases “where Entity Component Type F’ In (PMPP, PMPST)”

**NPM IFM Total Costs**

#### NPMIFMBidCostAmount BrtuT’I’M’F’S’mdhcif =

BASettlementIntervalResourceNPMIFMMLCBrtuT’I’M’F’S’mdhcif +

NPMAvailableIFMPumpingCost BrtuT’I’M’F’S’mdhcif +

BASettlementIntervalResourceNPMIFMSUC BrtuT’I’M’F’S’mdhcif +

BASettlementIntervalResourceNPMIFMSDC BrtuT’I’M’F’S’mdhcif +

BASettlementIntervalResourceNPMIFMTC BrtuT’I’M’F’S’mdhcif +

BASettlementIntervalResourceNPMIFMEnergyBidCostAmount BrtuT’I’M’F’S’mdhcif

**NPM IFM Total Revenues**

#### NPMIFMRevenueAmount BrtuT’I’M’F’S’mdhcif =

BASettlementIntervalResourceNPMIFMMLRevenueAmount BrtuT’I’M’F’S’mdhcif +

BASettlementIntervalResourceNPMIFMDAEnergyRevenueAmount BrtuT’I’M’F’S’mdhcif +

BASettlementIntervalResourceNPMIFMPumpingRevenueAmount BrtuT’I’M’F’S’mdhcif

**NPM IFM Net Amount**

#### BASettlementIntervalNPMIFMNetAmount BrtuT’I’M’F’S’mdhcif =

NPMIFMBidCostAmount BrtuT’I’M’F’S’mdhcif – NPMIFMRevenueAmount BrtuT’I’M’F’S’mdhcif

#### BASettlementIntervalResourceNPMIFMNetAmount BruT’I’M’F’mdhcif =

Sum over (t, S’) { BASettlementIntervalNPMIFMNetAmount BrtuT’I’M’F’S’mdhcif }

#### BADailyResourceNPMIFMNetAmount BruT’I’M’F’md =

Sum over (h, c, i, f) { BASettlementIntervalResourceNPMIFMNetAmount BruT’I’M’F’mdhcif }

#### TradingDayNPMIFMBCRUpliftAmount BruT’I’M’F’md =

(-1) \* Max (0, BADailyResourceNPMIFMNetAmount BruT’I’M’F’md)

#### BAResTradingDayNPMIFMBCRUpliftAmount BrQ’uT’I’M’F’md =

Sum over (t, S’) {BAResourceToNPMBAAMapFactor BrtuT’I’Q’M’F’S’md \* TradingDayNPMIFMBCRUpliftAmount BruT’I’M’F’md }

**Hourly Breakdown of NPM IFM BCR costs to be allocated:**

#### NPMHourlyTotalIFMUpliftAllocationAmount Q’mdh =

Sum over (c, i, f) {NPMTotalIFMUpliftAllocationAmountQ’mdhcif }

#### NPMTotalIFMUpliftAllocationAmount Q’mdhcif =

NPMBAATotalIFMShortfallAmount Q’mdhcif \* NPMIFMUpliftRatio Q’md

#### NPMIFMUpliftRatio Q’md =

If Abs(NPMBAATotalIFMPositiveUplift Q’md ) < 0.01

Then

0

Else

(NPMBAATotalIFMBCRUpliftAmount Q’md / NPMBAATotalIFMPositiveUplift Q’md )

End If

#### NPMBAATotalIFMPositiveUplift Q’md =

Sum over (h,c, i, f) {NPMBAATotalIFMShortfallAmount Q’mdhcif }

#### NPMBAATotalIFMBCRUpliftAmount Q’md =

#### Sum over (B) { BADailyBAATotalNPMIFMBCRAmount BQ’md}

#### TradingDayNPMIFMBCRUpliftFlag BrQ’md =

#### IfBADailyResourceBAANPMIFMNetAmount BrQ’md> 0

Then 1

Else 0

End If

#### NPMBAASettlementIntervalIFMUpliftAssessmentAmount Q’mdhcif =

Sum over (B, r) {BASettlementIntervalResLevelNPMIFMNetAmount BrQ’mdhcif \* TradingDayNPMIFMBCRUpliftFlag BrQ’md}

#### NPMBAATotalIFMShortfallAmount Q’mdhcif =

#### Max (0, NPMBAASettlementIntervalIFMUpliftAssessmentAmount Q’mdhcif )

**NPM IFM Total BCR costs per BAA, and Allocation**

#### BASettlementIntervalBAAResourceNPMIFMNetAmount BrtuT’I’Q’M’F’S’mdcif =

{ BAResourceToNPMBAAMapFactor BrtuT’I’Q’M’F’S’md \* BASettlementIntervalNPMIFMNetAmount BrtuT’I’M’F’S’mdhcif }

#### BASettlementIntervalBAAResourceFilterNPMIFMNetAmount BrtQ’F’S’mdhcif =

Sum over (u, T’, I’, M’) { BASettlementIntervalBAAResourceNPMIFMNetAmount BrtuT’I’Q’M’F’S’mdcif }

#### BASettlementIntervalResLevelNPMIFMNetAmount BrQ’mdhcif =

Sum over (t, F’, S’) { BASettlementIntervalBAAResourceFilterNPMIFMNetAmount BrtQ’F’S’mdhcif }

#### BADailyResourceBAANPMIFMNetAmount BrQ’md =

Sum over (c, i, f) { BASettlementIntervalResLevelNPMIFMNetAmount BrQ’mdhcif }

#### BADailyResourceBAANPMIFMBCRAmount BrQ’md =

Max(0, BADailyResourceBAANPMIFMNetAmount BrQ’md)

#### BADailyBAATotalNPMIFMBCRAmount BQ’md =

Sum over (r) { BADailyResourceBAANPMIFMBCRAmount BrQ’md }

#### BAAHourlyNPMIFMBCRTier2AllocationPrice Q’mdh=

(-1) \* (NPMHourlyTotalIFMUpliftAllocationAmountQ’mdh / BAATotalHourlyNPMDALoadSchedule Q’mdh )

#### BANPMHourlyBAAIFMBCRTier2AllocationAmount BQ’mdh =

(-1) \* BAHourlyTotalNPMDALoad BQ’mdh \* BAAHourlyNPMIFMBCRTier2AllocationPrice Q’mdh

#### BANPMHourlyIFMBCRTier2AllocationAmount Bmdh =

Sum over (Q’) { BANPMHourlyBAAIFMBCRTier2AllocationAmount BQ’mdh }

**NPM BA Settlement Flag:**

#### DailyBANPMSettlementFlag Bmd =

Average over (r, t, u, T’, I’, Q’, M’, F’, S’) { BAResourceToNPMBAAMapFactor BrtuT’I’Q’M’F’S’md }

Note: This variable will be used at hierarchy level calculations for various charge codes that suppress settlement amounts and enforce the NPM resources’ settlement as advisory only.

## Outputs

| ID | Name | Description |
| --- | --- | --- |
| -- | In addition to any outputs listed below, all inputs shall be included as outputs. |  |
|  | BAATotalDailyNPMDACongAmount Q’md | Daily total amount of contribution from congestion for the NPM BAA. |
|  | BAATotalHourlyMarginalLossSurplusAmount Q’mdh | Hourly total amount of marginal loss surplus overcollection for the NPM BAA. |
|  | BAHourlyTotalNPMDALoad BQ’mdh | Hourly total NPM load for the BA across its load resources. |
|  | BAATotalHourlyNPMDALoadSchedule Q’mdh | Hourly total NPM load within the BAA. |
|  | BADailyTotalNPMDALoad BQ’md | Daily total NPM load for the BA across its load resources. |
|  | BAATotalDailyNPMDALoadSchedule Q’md | Daily total NPM load within the BAA. |
|  | BAADailyCongRevDAAllocationPrice Q’md | Allocation price for congestion. |
|  | BANPMBAADailyCongRevDAAllocationAmount BQ’md | Per BAA allocation of congestion amount to BA’s total daily load. |
|  | BANPMDailyCongRevDAAllocationAmount Bmd | Allocation of congestion amount to BA’s total daily load. |
|  | BANPMHourlyBAAMLSDAAllocationAmount BQ’mdh | Per BAA allocation of marginal loss surplus overcollection amount to BA’s total daily load. |
|  | BANPMHourlyMLSDAAllocationAmount Bmdh | Allocation of marginal loss surplus overcollection amount to BA’s total daily load. |
|  | BAANPMHourlyMLSDAAllocationAmount Q’mdh | Allocation of marginal loss surplus overcollection amount to BAA’s total daily load. |
|  | BAAHourlyMLSDAAllocationPrice Q’mdh | Allocation price for marginal loss surplus overcollection. |
|  | BASettlementIntervalResourceNPMIFMMLCBrtuT’I’M’F’S’mdhcif | IFM minimum load cost. |
|  | NPMAvailableIFMPumpingCost BrtuT’I’M’F’S’mdhcif | IFM pumping cost. |
|  | BASettlementIntervalResourceNPMIFMSUC BrtuT’I’M’F’S’mdhcif | IFM start-up cost. |
|  | BASettlementIntervalResourceNPMIFMSDC BrtuT’I’M’F’S’mdhcif | IFM shut down cost. |
|  | BASettlementIntervalResourceNPMIFMTC BrtuT’I’M’F’S’mdhcif | IFM transition cost for MSG resource. |
|  | BASettlementIntervalResourceNPMIFMEnergyBidCostAmount BrtuT’I’M’F’S’mdhcif | IFM energy bid cost. |
|  | BASettlementIntervalResourceNPMIFMMLRevenueAmount BrtuT’I’M’F’S’mdhcif | IFM minimum load revenue. |
|  | BASettlementIntervalResourceNPMIFMDAEnergyRevenueAmount BrtuT’I’M’F’S’mdhcif | IFM day ahead energy revenue. |
|  | BASettlementIntervalResourceNPMIFMPumpingRevenueAmount BrtuT’I’M’F’S’mdhcif | IFM pumping revenue. |
|  | NPMIFMBidCostAmount BrtuT’I’M’F’S’mdhcif | Total IFM bid costs, includes commitment costs and energy bid costs. |
|  | NPMIFMRevenueAmount BrtuT’I’M’F’S’mdhcif | Total IFM revenues. |
|  | BASettlementIntervalNPMIFMNetAmount BrtuT’I’M’F’S’mdhcif | IFM Cost minus IFM revenue, also known as IFM net amount. |
|  | BASettlementIntervalResourceNPMIFMNetAmount BruT’I’M’F’mdhcif | IFM net amount with select attributes. |
|  | BADailyResourceNPMIFMNetAmount BruT’I’M’F’md | Daily total IFM net amount. |
|  | TradingDayNPMIFMBCRUpliftAmount BruT’I’M’F’md | Daily IFM BCR per resource. |
|  | BAResTradingDayNPMIFMBCRUpliftAmount BrQ’uT’I’M’F’md | Daily IFM BCR per resource. |
|  | BASettlementIntervalBAAResourceNPMIFMNetAmount BrtuT’I’Q’M’F’S’mdcif | IFM net amount with BAA attribute included. |
|  | BASettlementIntervalBAAResourceFilterNPMIFMNetAmount BrtQ’F’S’mdhcif | IFM net amount with non-essential attributes removed. |
|  | BASettlementIntervalResLevelNPMIFMNetAmount BrQ’mdhcif | IFM net amount with resource, BAA and BA focus. |
|  | BADailyResourceBAANPMIFMNetAmount BrQ’md | Daily IFM net amount with resource, BAA and BA focus. |
|  | BADailyResourceBAANPMIFMBCRAmount BrQ’md | Daily IFM BCR amount for the resource. |
|  | BADailyBAATotalNPMIFMBCRAmount BQ’md | Total Daily IFM BCR amount for the BA from its NPM resources. |
|  | BANPMHourlyBAAIFMBCRTier2AllocationAmount BQ’mdh | Per BAA, hourly cost allocation amount of IFM BCR. |
|  | BANPMHourlyIFMBCRTier2AllocationAmount Bmdh | Hourly cost allocation amount of IFM BCR. |
|  | BAAHourlyNPMIFMBCRTier2AllocationPrice Q’mdh | Hourly cost allocation price of IFM BCR. |
|  | NPMHourlyTotalIFMUpliftAllocationAmount Q’mdh | Hourly cost allocation total per BAA. |
|  | NPMTotalIFMUpliftAllocationAmount Q’mdhcif | Settlement Interval cost allocation total per BAA. |
|  | NPMIFMUpliftRatio Q’md | Daily uplift ratio per BAA for IFM BCR. |
|  | NPMBAATotalIFMPositiveUplift Q’md | Daily total positive uplift amount per BAA for IFM BCR. |
|  | NPMBAATotalIFMBCRUpliftAmount Q’md | Daily total IFM BCR uplift that needs to be cost allocated per BAA. |
|  | TradingDayNPMIFMBCRUpliftFlag BrQ’md | Daily IFM BCR uplift per BA. |
|  | NPMBAASettlementIntervalIFMUpliftAssessmentAmount Q’mdhcif | Settlement interval contributions from resources with daily IFM BCR uplift. This is BAA total and will subsequently be identified as shortfall or surplus per interval. |
|  | NPMBAATotalIFMShortfallAmount Q’mdhcif | Settlement interval IFM shortfall amount. |
|  | DailyBANPMSettlementFlag Bmd | Identifier for owner of NPM resources that require advisory settlement only. |

# Charge Code Effective Dates

| Charge Code/  Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type |
| --- | --- | --- | --- | --- |
| NPM Pre-calculation | 5.0 | 01/01/21 | 4/30/26 | Configuration Impacted |
| NPM Pre-calculation | 5.1 | 5/01/26 | Open | Configuration Impacted |