BEFORE THE

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,	
Complainant,	DOCKETS UE-240006 & UG-240007
v.	
AVISTA CORPORATION, D/B/A AVISTA UTILITIES,	
Respondent	

EXHIBIT BGM-7

CAISO NEUTRALITY CHARGE

BUSINESS PRACTICES MANUAL

California ISO

Settlements and Billing

BPM Configuration Guide: Real Time Marginal Losses
Offset EIM

CC 69850

Version 5.2

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1.   Purpose of Document

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

2.   Introduction

2.1   Background

The CAISO calculates and accounts for Imbalance Energy for each Dispatch Interval The CAISO calculates and accounts for Imbalance Energy for each Dispatch Interval and settles Imbalance Energy for each Settlement Interval for each resource within the EIM Area and all System Resources Dispatched in Real-Time.

Imbalance Energy consists of following:

- IIE – instructed imbalance energy
  - FMM Instructed Imbalance Energy Settlement (CC 6460)
  - FMM Instructed Imbalance Energy EIM Settlement (CC 64600)
  - RTD Instructed Imbalance Energy Settlement (CC 6470)
  - RTD Instructed Imbalance Energy EIM Settlement (CC 64700)
- UIE – Uninstructed Imbalance Energy
  - Real Time Uninstructed Imbalance Energy Settlement (CC 6475)
  - Real Time Uninstructed Imbalance Energy EIM Settlement (CC 64750)
- UFE – Unaccounted for Energy
  - Real Time Unaccounted for Energy Settlement (CC 6474)
  - Real Time Unaccounted for Energy EIM Settlement (CC 64740)
- GHG - Greenhouse Gas Emission Cost Revenue (CC 491)

To the extent that the sum of the Settlement Amounts for IIE, UIE, and UFE does not equal zero within the CAISO Balancing Authority Area, the CAISO will assess Charges or make Payments in Real Time Imbalance Energy Offset (CC 6477) and in Real Time Imbalance Energy Offset EIM (CC 64770) for the resulting differences to all Scheduling Coordinators based on a pro rata share of their Measured Demand for the relevant Settlement Interval. To the extent that the sum of the Settlement Amounts for IIE, UIE, UFE, and GHG does not equal zero within the EIM Balancing Authority Area, the CAISO will assess Charges or make Payments in Real Time Imbalance Energy Offset EIM (CC 64770) for the resulting differences to EIM Entity Scheduling Coordinator ID, respectively.

In the Real-Time Market, the negative and positive Congestion Charges associated with a valid post-Day-Ahead TOR and ETC schedule change (including changes submitted to the Hour-

Ahead Scheduling Process and changes submitted closer to Real-Time where allowed by the contract) will be reversed in CC 6788 RTM Congestion Credit Settlement. Because Congestion Charges are implicitly collected by the CAISO in the Real-Time settlement and there are no holders of rights to receive Real-Time Congestion revenues, all charges for Real-Time Congestion will be accumulated in special and separate Balancing Authority Area neutrality accounts. The CAISO Real-Time Congestion Charges less Virtual Bid Adjustment shall be distributed back to non-ETC Control Area metered Demand and exports in Real Time Congestion Offset (CC 6774). The EIM Balancing Authority Area Real-Time Congestion Charges shall be distributed to the applicable EIM Entity Scheduling Coordinator in Real Time Congestion Offset EIM (CC 67740).

Likewise, Loss Charges are implicitly collected by the CAISO in the Real-Time settlement and there are no holders of rights to receive Real-Time Marginal Loss revenues, all charges for Real-Time Marginal Losses will be accumulated in special and separate Balancing Authority Area neutrality accounts. Each BAA will have Real Time Losses Offset amount which will be calculated in Real Time Marginal Losses Offset (CC 6985), and the amount will be allocated to the associated EIM Entity SC of an EIM BAA in Real Time Marginal Losses Offset EIM (CC 69850), while for CAISO, the amount will be allocated to relevant Measured Demand in CC 6985.

2.2   Description

CAISO calculates, for each BAA in the EIM Area, the RT Marginal Losses Offset amount. The RT Marginal Losses Offset for each BAA is the sum of the product of (1) the contribution of that Balancing Authority Area's Transmission Constraints to the marginal Loss component of the Locational Marginal Price at each resource location in the EIM Area and (2) the imbalance energy, at that resource location.

The RT Marginal Losses Offset amounts will be computed in CC 6985 Real Time Marginal Losses Offset. Such amount will be allocated to the relevant EIM Entity SC for each EIM BAA in CC 69850, and for the CAISO BAA, its Offset amount shall be allocated to relevant Measured Demand in CC 6985.

This Charge Code CC 69850 implements the assignment of RT Marginal Losses Offset of an EIM BAA to its corresponding EIM Entity SC.

3.   Charge Code Requirements

3.1   Business Rules

Bus Req ID	Business Rule
1.0	This Charge Code allocates per settlement interval, the EIM BAA Real Time Marginal Losses Offset Amount to the associated EIM Entity SC of the EIM BAA.

Bus Req ID	Business Rule
1.1	This Charge Code shall be calculated daily on an hourly basis.
1.2	This allocation can be a payment or a charge.
2.0	The Real Time Marginal Losses Offset EIM Amount, where Balancing Authority Area does not equal 'CISO', shall be calculated as the sum of • Balancing Authority Area FMM Nodal Marginal Loss Amount • Balancing Authority Area RTD Nodal Marginal Loss Amount • Balancing Authority Area RTD LAP UIE Marginal Loss Amount • EIM RTM UFE Marginal Loss Amount
2.1	Balancing Authority Area FMM Nodal Marginal Loss Amount shall be calculated as the product of Total Nodal FMM IIE Quantity and the FMM Interval Marginal Cost of Losses Price, where Balancing Control Area does not equal "CISO". (Fact)
2.2	Balancing Authority Area RTD Nodal Marginal Loss Amount shall be calculated as the product of the sum of Total Nodal RTD IIE Quantity plus the Total Nodal UIE Quantity and Dispatch Interval Marginal Cost of Losses Price, where Balancing Control Area does not equal "CISO". (Fact)
2.3	Balancing Authority Area RTD LAP UIE Marginal Loss Amount shall be calculated as the product of Total Nodal LAP Load UIE Quantity and the Hourly RTM LAP MCL Price, where Balancing Control Area does not equal "CISO". (Fact)
2.4	The EIM BAA Real Time Market UFE Marginal Loss Amount shall be calculated as the product EIM BAA Total UFE Quantity and the Hourly UFE UDC Marginal Cost of Loss Price, where Balancing Control Area does not equal "CISO". (Fact)
3.0	The loss contribution from base ETSRs that elected imbalance energy settlement at the BAA level, shall be reflected in this charge code.

3.2   Predecessor Charge Codes

Charge Code/ Pre-calc Name
CC 6985 – Real Time Marginal Losses Offset

3.3   Successor Charge Codes

Charge Code/ Pre-calc Name
CC 64770 – Real Time Imbalance Energy Offset EIM

3.4 Inputs – External Systems

Row #	Variable Name	Description
1	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.

3.5 Inputs - Predecessor Charge Codes or Pre-calculations

Row #	Variable Name	Predecessor Charge Code/ Pre-calc Configuration
1	BAAFMMNodalMarginalLossAmount $_{Q'mdhcif}$	CC 6985 – Real Time Marginal Losses Offset
2	BAARTDNodalMarginalLossAmount $_{Q'mdhcif}$	CC 6985 – Real Time Marginal Losses Offset
3	BAARTDLAPUIEMarginalLossAmount $_{Q'mdhcif}$	CC 6985 – Real Time Marginal Losses Offset
4	EIMBAARTMUFEMarginalLossAmount $_{Q'mdhcif}$	CC 6985 – Real Time Marginal Losses Offset
5	EIMSettlementIntervalRTDETSRLossAmount $_{Q'mdhcif}$	CC 6985 – Real Time Marginal Losses Offset
6	EIMSettlementIntervalFMMETSRLossAmount $_{Q'mdhcif}$	CC 6985 – Real Time Marginal Losses Offset

3.6 CAISO Formula

3.6.1 EIMEntitySCRTMarginalLossesOffsetAllocation $_{BQ'mdhcif}$ =

$$(-1)*\text{EIMBAARTMarginalLossesOffsetAmount}_{Q'mdhcif} * \text{EIMEntitySCFlag}_{BQ'}$$

3.6.2 EIMBAARTMarginalLossesOffsetAmount $_{Q'mdhcif}$ =
BAAFMMNodalMarginalLossAmount $_{Q'mdhcif}$ + BAARTDNodalMarginalLossAmount $_{Q'mdhcif}$ + BAARTDLAPUIEMarginalLossAmount $_{Q'mdhcif}$ +

EIMBAARTMUFEMarginalLossAmount $_{Q'mdhcif}$

Where Q' <> 'CISO'

3.7 Outputs

Output Req ID	Name	Description
1	In addition to any outputs listed below, all inputs shall be included as outputs.	All inputs.
2	EIMEntitySCRTMarginalLossesOffsetAllocation $_{BQ'mdhcif}$	The Real-Time Losses Offset amount per BAA and assigned to the relevant EIM Entity SC.
3	EIMBAARTMarginalLossesOffsetAmount $_{Q'mdhcif}$	The Real Time Marginal Loss Amount by Balancing Authority (Q')

4. Charge Code Effective Date

Charge Code/ Pre-calc Name	Document Version	Effective Start Date	Effective End Date	Version Update Type
CC 69850 – Real Time Marginal Losses Offset EIM	5.0	10/01/14	4/3/18	Configuration Changes
CC 69850 – Real Time Marginal Losses Offset EIM	5.1	4/4/18	1/31/21	Configuration Changes
CC 69850 – Real Time Marginal Losses Offset EIM	5.2	2/1/21	Open	Configuration Changes

Settlements and Billing

Configuration Guide: Real Time Imbalance Energy Offset EIM

CC 64770

Version 5.3

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1. Purpose of Document

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

2. Introduction

2.1 Background

The CAISO calculates and accounts for Imbalance Energy for each Dispatch Interval and settles Imbalance Energy for each Settlement Interval for each resource within the EIM Area and all System Resources Dispatched in Real-Time.

Imbalance Energy consists of following:

- IIE – instructed imbalance energy
  - ○ FMM Instructed Imbalance Energy Settlement (CC 6460)
  - ○ FMM Instructed Imbalance Energy EIM Settlement (CC 64600)
  - ○ RTD Instructed Imbalance Energy Settlement (CC 6470)
  - ○ RTD Instructed Imbalance Energy EIM Settlement (CC 64700)
- UIE – Uninstructed Imbalance Energy
  - ○ Real Time Uninstructed Imbalance Energy Settlement (CC 6475)
  - ○ Real Time Uninstructed Imbalance Energy EIM Settlement (CC 64750)
- UFE – Unaccounted for Energy
  - ○ Real Time Unaccounted for Energy Settlement (CC 6474)
  - ○ Real Time Unaccounted for Energy EIM Settlement (CC 64740)
- GHG - Greenhouse Gas Emission Cost Revenue (CC 491)

To the extent that the sum of the Settlement Amounts for IIE, UIE, and UFE does not equal zero within the CAISO Balancing Authority Area, the CAISO will assess Charges or make Payments in Real Time Imbalance Energy Offset (CC 6477) and in Real Time Imbalance Energy Offset EIM (CC 64770)for the resulting differences to all Scheduling Coordinators based on a pro rata share of their Measured Demand for the relevant Settlement Interval. To the extent that the sum of the Settlement Amounts for IIE, UIE, UFE, and GHG does not equal zero within the EIM Balancing Authority Area, the CAISO will assess Charges or make Payments in Real Time Imbalance Energy Offset EIM (CC 64770)for the resulting differences to EIM Entity Scheduling Coordinator ID, respectively.

In the Real-Time Market, the negative and positive Congestion Charges associated with a valid post-Day-Ahead TOR and ETC schedule change (including changes submitted to the Hour-Ahead Scheduling Process and changes submitted closer to Real-Time where allowed by the

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contract) will be reversed in CC 6788 RTM Congestion Credit Settlement. Because Congestion Charges are implicitly collected by the CAISO in the Real-Time settlement and there are no holders of rights to receive Real-Time Congestion revenues, all charges for Real-Time Congestion will be accumulated in special and separate Balancing Authority Area neutrality accounts. The CAISO Real-Time Congestion Charges less Virtual Bid Adjustment shall be distributed back to non-ETC Control Area metered Demand and exports in Real Time Congestion Offset (CC 6774). The EIM Balancing Authority Area Real-Time Congestion Charges shall be distributed to the applicable EIM Entity Scheduling Coordinator in Real Time Congestion Offset EIM (CC 67740).

2.2 Description

The calculation of Real-Time Imbalance Energy Offset EIM also includes the settlement of Greenhouse Gas Compensation. Additional adjustments are calculated to subtract congestion and transmission losses, and adjust for participation in the Energy Imbalance Market.

To the extent that the sum of the Settlement Amounts for EIM Financial Transfer, Greenhouse Gas Compensation, IIE, UIE, and UFE, less the RT Energy Congestion revenues computed within Real-Time Congestion Offset (from CC 67740) less the Real-Time Marginal Cost of Losses Offset (from CC 69850) and EIM Transfer Adjustment does not equal zero, the CAISO will assess Charges or make Payments in Real Time Imbalance Energy Offset (CC 64770) for the resulting differences to the EIM Entity Scheduling Coordinator.

3.   Charge Code Requirements

3.1 Business Rules

Bus Req ID	Business Rule
1.0	This Charge Code shall be calculated and output on a 5-minute Settlement Interval basis.
2.0	The Initial Real-Time Imbalance Energy Offset for each EIM Balancing Authority Area in the EIM Area as the sum of the financial value of EIM Transfers and the Settlement amounts for FMM Instructed Imbalance Energy, RTD Instructed Imbalance Energy, Uninstructed Imbalance Energy, and Unaccounted for Energy, less Real-Time Congestion Offset and less the Real-Time Marginal Cost of Losses Offset.
3.0	The Financial Value of EIM Transfers shall be the product of the MWh, and the System Marginal Economic Cost. (Fact)
3.1	EIM Transfers from Base EIM Transfer System Resources that elected settlement, for both FMM and RTD (inclusive of updates after RTM schedules through e-tags) deviations with respect to their base schedules, will not be included in the computation of financial value of EIM Transfers as those are already settled RT Imbalance Energy charge code(s). (Fact)
3.2	A Master File – resident flag (value defaults as Yes) shall indicate an ETSR is required to participate in imbalance energy settlement. (Fact)
4.0	The Initial Real Time Imbalance Energy Offset Amount shall be adjusted by the

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Bus Req ID	Business Rule
	BAA Total Financial Value Credit Amount
4.1	The BAA Total Financial Value Credit Amount is calculated as the sum of BAA FMM GHG Credit Amount, BAA RTD GHG Credit Amount, and BAA ETSR Transfer Operation Adjustment Credit Amount
4.2	FMM GHG Credit Amount is calculated is the product FMM GHG Credit Quantity and BAA FMM Greenhouse Gas Marginal Costs
4.3	FMM GHG Credit Quantity is calculated is the FMM Net EIM Transfer Quantity less BAA FMM Total Greenhouse Gas Obligation
4.4	RTD GHG Credit Amount is calculated is the product RTD GHG Credit Quantity and BAA RTD Greenhouse Gas Marginal Costs
4.5	RTD GHG Credit Quantity is calculated is the RTD Net EIM Transfer Quantity less FMM Net EIM Trasnfer Quantity less the difference of BAA RTD Total Greenhouse Gas Obligation and BAA FMM Greenhouse Gas Obligation
4.6	BAA ETSR Transfer Deviation Credit Amount is calculated is the product BAA Net ETSR Operation Adjustment Quantity and EIM Area Greenhouse Gas Marginal Costs
5.0	The allocation of the Real-Time Imbalance Energy Offset for EIM Entity Balancing Authority shall be to the EIM Entity Scheduling Coordinator.

3.2 Predecessor Charge Codes

Charge Code/ Pre-calc Name
RT Energy Pre-calculation
CC 491 – Greenhouse Gas Emission Cost Revenue
CC 64600 - FMM Instructed Imbalance Energy EIM (FMM IIE)
CC 64700 - Real Time Instructed Imbalance Energy EIM Settlement (RTM IIE)
CC 64740 – Real Time Unaccounted for Energy EIM Settlement (UFE)
CC 64750 - Real Time Uninstructed Imbalance Energy EIM Settlement (UIE)
CC 67740 – Real Time Congestion Offset EIM
CC 69850 – Real Time Losses Offset EIM

3.3 Successor Charge Codes

Charge Code/ Pre-calc Name
None

3.4 Inputs – External Systems

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Row #	Variable Name	Description
1.	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.
2.	BAAFMMGHGPrice $_{Q'mdhc}$	The fourth component in the (LMPs) of EIM Entity BAAs (-). Real Time Pre-Dispatch
3.	BAARTDGHGPrice $_{Q'mdhcif}$	The fourth component in the (LMPs) of EIM Entity BAAs (-). Real Time Dispatch
4.	BAResourceEIMFMMGHGQuantity $_{BrtQ'F'S'mdhc}$	Net export (MW) to the ISO BAA for each EIM resource for GHG payment (+).Real Time Pre-Dispatch

3.5 Inputs - Predecessor Charge Codes or Pre-calculations

Row #	Variable Name	Predecessor Charge Code/ Pre-calc Configuration
1.	RTBAACongestionRevenueAmount $_{Q'mdhcif}$	Real Time Congestion PC
2.	BA_EIMBAA_SettlementInterval_UnaccountedforEnergy_SettlementAmount $_{BuQ'mdhcif}$	CC 64740 - Real Time Unaccounted for EIM Energy Settlement (UFE).
3.	EIMSettlementIntervalUIESettlementAmount $_{BrtuT'l'Q'M'mdhcif}$	CC 64750 - Real Time Uninstructed Imbalance Energy EIM Settlement (UIE)
4.	EIMBA5MResourceFMMIIESettlementAmount $_{BrtuQ'M'mdhcif}$	CC 64600 – FMM Instructed Imbalance Energy EIM Settlement (FMM IIE)
5.	EIMSettlementIntervalIIEAmount $_{BrtQ'mdhcif}$	CC 64700 - Real Time Instructed Imbalance Energy Settlement (IIE)
6.	BAResourceEIMGHGPaymentAmount $_{BrtQ'F'S'mdhcif}$	CC 491 – Greenhouse Gas Emission Cost Revenue
7.	BAAFMMFinancialValueTransfer $_{Q'mdhcif}$	CC 6477 – Real-Time Imbalance Energy Offset
8.	BAARTDFinancialValueTransfer $_{Q'mdhcif}$	CC 6477 – Real-Time Imbalance Energy Offset
9.	EIMBAARTMarginalLossesOffsetAmount $_{Q'mdhcif}$	CC 69850 - Real Time Loss Offset EIM.
10.	BAResourceEIMRTDGHGObligationQuantity $_{BrtQ'F'S'mdhcif}$	CC 491 – Greenhouse Gas Emission Cost Revenue
11.	BAAFMMETSRFinancialValueFrom	CC 6477 – Real-Time Imbalance Energy Offset

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Row #	Variable Name	Predecessor Charge Code/ Pre-calc Configuration
	Quantity Q'_{mdhcif}	
12.	BAAFMMETSRFinancialValueToQuantity Q'_{mdhcif}	CC 6477 – Real-Time Imbalance Energy Offset
13.	BAAResourceRTDScheduleTransferFromQuantity $rQ'_{AA'}Q_{pmdhcif}$	Real Time Energy PC
14.	BAAResourceRTDScheduleTransferToQuantity $rQ'_{AA'}Q_{pmdhcif}$	Real Time Energy PC
15.	BAAResourceSettlementIntervalRTDTransferDevFromQuantity $rQ'_{AA'}Q_{pmdhcif}$	Real Time Energy PC
16.	BAAResourceSettlementIntervalRTDTransferDevToQuantity $rQ'_{AA'}Q_{pmdhcif}$	Real Time Energy PC

3.6 CAISO Formula

3.6.1 EIMEntityRealTimeImbalanceEnergyOffsetAllocationAmount BQ'_{mdhcif}

EIMEntityRealTimeImbalanceEnergyOffsetAllocationAmount BQ'_{mdhcif} =
(-1) * EIMBAATotalRTIEOSettlementAmount Q'_{mdhcif} * EIMEntitySCFlag BQ'

3.6.2 EIMBAATotalRTIEOSettlementAmount Q'_{mdhcif}

EIMBAATotalRTIEOSettlementAmount Q'_{mdhcif} =
EIMBAAInitialRealTimeImbalanceEnergyOffsetSettlementAmount Q'_{mdhcif}
Where Q' <> 'CISO'

3.6.3 EIMBAAInitialRealTimeImbalanceEnergyOffsetSettlementAmount Q'_{mdhcif}

EIMBAAInitialRealTimeImbalanceEnergyOffsetSettlementAmount Q'_{mdhcif} =
EIMBAATotalFinancialValueTransfer Q'_{mdhcif} +
EIMBAATotalGHGCompensation Q'_{mdhcif} +
EIMBAATotalRealTimeIIESettlementAmount Q'_{mdhcif} +
EIMBAATotalFMMIIEAmount Q'_{mdhcif} +
EIMBAATotalRealTimeUIESettlementAmount Q'_{mdhcif} +
EIMBAATotalUFESettlementAmount Q'_{mdhcif} -
EIMBAATotalRTEnergyCongestionAmt Q'_{mdhcif} -
EIMBAARTLossOffsetAmount Q'_{mdhcif}

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3.6.4 EIMBAATotalFinancialValueTransfer $_{Q'mdhcif}$

EIMBAATotalFinancialValueTransfer $_{Q'mdhcif}$ =
(BAAFMMFinancialValueTransfer $_{Q'mdhcif}$ + BAARTDFinancialValueTransfer $_{Q'mdhcif}$
+ BAATotalFinancialValueCreditAmount $_{Q'mdhcif}$)
Where Q' <> 'CISO'

3.6.5 BAATotalFinancialValueCreditAmount

BAATotalFinancialValueCreditAmount $_{Q'mdhcif}$ = (BAAFMMGHGCreditAmount $_{Q'mdhcif}$ +
BAARTDGHGCreditAmount $_{Q'mdhcif}$ + BAAETSRTransferDevCreditAmount $_{Q'mdhcif}$)

3.6.6 BAAFMMGHGCreditAmount

BAAFMMGHGCreditAmount $_{Q'mdhcif}$ = (BAAFMMETSRGHGCreditQuantity $_{Q'mdhcif}$ *
BAA15MFMMGHGPrice $_{Q'mdhcif}$)

3.6.7 BAAFMMETSRGHGCreditQuantity

BAAFMMETSRGHGCreditQuantity $_{Q'mdhcif}$ =
((BAAFMMETSRFinancialValueFromQuantity $_{Q'mdhcif}$ - BAA5MTotalFMMGHGQuantity $_{Q'mdhcif}$) - BAAFMMETSRFinancialValueToQuantity $_{Q'mdhcif}$)

Where exist

BAA15MFMMGHGPrice $_{Q'mdhcif}$

3.6.8 BAA5MTotalFMMGHGQuantity

BAA5MTotalFMMGHGQuantity $_{Q'mdhcif}$ = sum over (B,r,t,F'S')
IntDuplicate(BAResourceEIMFMMGHGQuantity $_{BrtQ'F'S'mdhc}$)/12

3.6.9 BAA15MFMMGHGPrice

BAA15MFMMGHGPrice $_{Q'mdhcif}$ = BAAFMMGHGPrice $_{Q'mdhc}$

)

3.6.10 BAARTDGHGCreditAmount

BAARTDGHGCreditAmount $_{Q'mdhcif}$ = BAARTDETSRGHGCreditQuantity $_{Q'mdhcif}$ *
BAARTDGHGPrice $_{Q'mdhcif}$

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3.6.11 BAARTDETSRGHGCreditQuantity

BAARTDETSRGHGCreditQuantity $_{Q'mdhcif}$ = ((BAARTDETSRTransferFromQuantity $_{Q'mdhcif}$ - BAA5MTotalRTDGHGQuantity $_{Q'mdhcif}$) - BAARTDETSRTransferToQuantity $_{Q'mdhcif}$)

Where exist

BAARTDGHGPrice $_{Q'mdhcif}$

3.6.12 BAARTDETSRTransferFromQuantity

BAARTDETSRTransferFromQuantity $_{Q'mdhcif}$ = Sum over (r,A,A',Q,p) (BAAResourceRTDScheduleTransferFromQuantity $_{rQ'AA'Qpmdhcif}$ * (1 - ResourceETSRElectSettlementFlag $_{rmd}$))

3.6.13 BAARTDETSRTransferToQuantity

BAARTDETSRTransferToQuantity $_{Q'mdhcif}$ = Sum over (r,A,A',Q,p) (BAAResourceRTDScheduleTransferToQuantity $_{rQ'AA'Qpmdhcif}$ * (1 - ResourceETSRElectSettlementFlag $_{rmd}$))

3.6.14 BAA5MTotalRTDGHGQuantity

BAA5MTotalRTDGHGQuantity $_{Q'mdhcif}$ =

sum over (B,r,t,F'S') BAResourceEIMRTDGHGObligationQuantity $_{BrtQ'F'S'mdhcif}$

3.6.15 BAAETSRTransferDevCreditAmount

BAAETSRTransferDevCreditAmount $_{Q'mdhcif}$ = (BAARTDETSRTransferDevQuantity $_{Q'mdhcif}$ * EIMAreaRTDMarginalGHGCreditPrice $_{mdhcif}$)

3.6.16 EIMAreaRTDMarginalGHGCreditPrice

EIMAreaRTDMarginalGHGCreditPrice $_{mdhcif}$ = Average over (Q') BAARTDGHGPrice $_{Q'mdhcif}$

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3.6.17 BAARTDETSRTransferDevQuantity

BAARTDETSRTransferDevQuantity $_{Q'mdhcif}$ = Sum over (r,A,A',Q,p) ((BAAResourceSettlementIntervalRTDTransferDevFromQuantity $_{rQ'AA'Qpmdhcif}$ - BAAResourceSettlementIntervalRTDTransferDevToQuantity $_{rQ'AA'Qpmdhcif}$) * (1 - ResourceETSRElectSettlementFlag $_{rmd}$))

3.6.18 EIMBAATotalGHGCompensation $_{Q'mdhcif}$

EIMBAATotalGHGCompensation $_{Q'mdhcif}$ =

$$\sum_B \sum_r \sum_t \sum_{F'} \sum_{S'} \text{BAResourceEIMGHGPaymentAmount}_{BrtQ'F'S'mdhcif}$$

Note: This calculation is being performed in the hierarchy of Charge Code 491

3.6.19 EIMBAATotalRealTimeIIESettlementAmount $_{Q'mdhcif}$

EIMBAATotalRealTimeIIESettlementAmount $_{Q'mdhcif}$ =

$$\sum_B \sum_r \sum_t \text{EIMSettlementIntervalIIEAmount}_{BrtQ'mdhcif}$$

Note: This calculation is being performed in the hierarchy of Charge Code 64700

3.6.20 EIMBAATotalFMMIIEAmount $_{Q'mdhcif}$

EIMBAATotalFMMIIEAmount $_{Q'mdhcif}$ =

$$\sum_B \sum_r \sum_t \sum_u \sum_{M'} \text{EIMBA5MResourceFMMIIESettlementAmount}_{BrtuQ'M'mdhcif}$$

Note: This calculation is being performed in the hierarchy of Charge Code 64600

3.6.21 EIMBAATotalRealTimeUIESettlementAmount $_{Q'mdhcif}$

EIMBAATotalRealTimeUIESettlementAmount $_{Q'mdhcif}$ =

$$\sum_B \sum_r \sum_t \sum_u \sum_{T'} \sum_{I'} \sum_{M'} \text{EIMSettlementIntervalUIESettlementAmount}_{BrtuT'I'Q'M'mdhcif}$$

Note: This calculation is being performed in the hierarchy of Charge Code 64750

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3.6.22 EIMBAATotalUFESettlementAmount $_{Q'mdhcif}$

EIMBAATotalUFESettlementAmount $_{Q'mdhcif}$ =

$$\sum_B \sum_u BA\_EIMBAA\_SettlementInterval\_UnaccountedforEnergy\_SettlementAmount$$

BuQ'mdhcif

Note: This calculation is being performed in the hierarchy of Charge Code 64740

3.6.23 EIMBAATotalRTEnergyCongestionAmt $_{Q'mdhcif}$

EIMBAATotalRTEnergyCongestionAmt $_{Q'mdhcif}$ =

RTBAACongestionRevenueAmount $_{Q'mdhcif}$
Where Balancing Authority Area <> 'CISO'

3.6.24 EIMBAATotalRTLossOffsetAmt $_{Q'mdhcif}$

EIMBAATotalRTLossOffsetAmt $_{Q'mdhcif}$ =

EIMBAARTMarginalLossesOffsetAmount $_{Q'mdhcif}$

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3.7

3.7 Outputs

Output ID	Name	Description
	In addition to any outputs listed below, all inputs shall be included as outputs.	
1.	EIMEntityRealTimeImbalanceEnergyOffsetAllocationAmount BQ'mdhcif	Total Real Time Imbalance Energy Offset Settlement Amount for an EIM Entity Scheduling Coordinator by Balancing Authority Area.
2.	EIMBAATotalRTIEOSettlementAmount Q'mdhcif	Total Real Time Imbalance Energy Offset Amount for EIM Balancing Authority Area.
3.	EIMBAAInitialRealTimeImbalanceEnergyOffsetSettlementAmount Q'mdhcif	Initial Calculation of EIM Balancing Authority Area's Real Time Imbalance Energy Offset Amount.
4.	EIMBAATotalFinancialValueTransfer Q'mdhcif	Balancing Authority Area's Financial EIM transfer from the fifteen minute and real time market.
5.	EIMBAATotalGHGCompensation Q'mdhcif	EIM Balancing Authority Area Greenhouse Gas Compensation.
6.	EIMBAATotalRealTimeIIESettlementAmount Q'mdhcif	EIM Balancing Authority Area Real Time Instructed Imbalance Energy.
7.	EIMBAATotalFMMIIEAmount Q'mdhcif	EIM Balancing Authority Area Fifteen Minute Market Instructed Imbalance Energy.
8.	EIMBAATotalRealTimeUIESettlementAmount Q'mdhcif	EIM Balancing Authority Area Uninstructed Imbalance Energy.
9.	EIMBAATotalUFESettlementAmount Q'mdhcif	EIM Balancing Authority Area Unaccounted for Energy.
10.	EIMBAATotalRTEnergyCongestionAmt Q'mdhcif	EIM Balancing Authority Area Real-Time Energy Congestion.
11.	EIMBAATotalRTLossOffsetAmt Q'mdhcif	EIM Balancing Authority Area Real-Time Energy Loss.
12.	BAATotalFinancialValueCreditAmount Q'mdhcif	Balancing Authority Area Total Financial Value Credit Amount ($)
13.	BAAFMMGHGCreditAmount Q'mdhcif	Balancing Authority Area FMM Greenhouse Gas Credit Amount ($)
14.	BAAFMMETSRGHGCreditQuantity Q'mdhcif	Balancing Authority Area FMM Greenhouse Gas Credit Quantity (MWh)
15.	BAA5MTotalFMMGHGQuantity Q'mdhcif	Balancing Authority Area Total FMM Greenhouse Gas Obligation Quantity (MWh)
16.	BAA15MFMMGHGPrice Q'mdhcif	Balancing Authority Area FMM Marginal

Output ID	Name	Description
		Greenhouse Gas Price
17.	BAARTDGHGCreditAmount Q'mdhcif	Balancing Authority Area RTD Greenhouse Gas Credit Amount ($)
18.	BAARTDETSRGHGCreditQuantity Q'mdhcif	Balancing Authority Area RTD Greenhouse Gas Credit Quantity (MWh)
19.	BAARTDETSRTransferFromQuantity Q'mdhcif	Balancing Authority Area RTD ETSR Transfer From Quantity
20.	BAARTDETSRTransferToQuantity Q'mdhcif	Balancing Authority Area RTD ETSR Transfer To Quantity
21.	BAA5MTotalRTDGHGQuantity Q'mdhcif	Balancing Authority Area Total FMM Greenhouse Gas Obligation Quantity (MWh)
22.	BAAETSRTransferDevCreditAmount Q'mdhcif	Balancing Authority Area ETSR Transfer Deviation Credit Amount
23.	BAARTDETSRTransferDevQuantity Q'mdhcif	Balancing Authority Area ETSR Transfer Deviation Credit Quantity
24.	EIMAreaRTDMarginalGHGCreditPrice mdhcif	EIM Area RTD Marginal GHG Credit Price

4. Charge Code Effective Dates

Charge Code/ Pre-calc Name	Document Version	Effective Start Date	Effective End Date	Version Update Type
CC 64770 – Real Time Imbalance Energy Offset EIM	5.0	10/01/14	11/3/15	Initial Version
CC 64770 – Real Time Imbalance Energy Offset EIM	5.1	11/4/15	4/3/18	Configuration Impacted
CC 64770 – Real Time Imbalance Energy Offset EIM	5.1a	4/4/18	7/31/19	Documentation Only
CC 64770 – Real Time Imbalance Energy Offset EIM	5.2	8/1/19	4/30/21	Configuration Impacted
CC 64770 – Real Time Imbalance Energy Offset EIM	5.3	5/1/21	Open	Configuration Impacted