Settlements & Billing

Configuration Guide: Greenhouse Gas Emission Cost Revenue

**CC 491**

 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 Charge Code in one document.

# Introduction

## Background

Imports of energy into California and generation of energy within California from CO2 emitting resources, result in an obligation for the market participant to surrender compliance instruments to the California Air Resources Board (CARB) for the greenhouse gas emissions associated with the energy pursuant to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanism Regulation. Energy generated outside of California that is not imported into California is not subject to this obligation.

The Energy Imbalance Market (EIM) will account for this through the following:

It will incorporate the cost of the greenhouse gas compliance obligation into its dispatch of generation within an EIM Entity to serve ISO load, but not consider this cost when it dispatches this generation to serve load outside the ISO.

## Description

As a result of the imbalance energy settlement, the ISO will collect GHG compliance revenue for the net imbalance energy export from all EIM Entity BAAs at the respective net imbalance energy export allocation constraint shadow price, similarly to the congestion revenue

GHG compliance costs are reflected through the net imbalance energy export allocation shadow prices in the locational marginal prices (LMPs) in the EIM Entity BAAs through a fourth component that is the same for all locations in these BAAs. This LMP component is negative and can be seen as a cost adder to the marginal energy component to reflect the marginal cost of GHG compliance in EIM Entity BAAs for energy exported to ISO. This fourth LMP component is absent for locations in ISO because in these cases the cost of GHG compliance is included in the energy bids; hence it is already reflected in the marginal energy component.

The CAISO will report to each EIM Participating Resource

Scheduling Coordinator the portion of the FMM Energy Schedule and the portion of RTD

Energy Dispatch that is associated with Energy deemed to have been imported to the

CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areas in

California from all EIM Resources as part of the Real-Time Market results publication

from each of its EIM Resources.

# Charge Code Requirements

## Business Rules

| Bus Req ID | Business Rule |
| --- | --- |
|  | The CAISO will compensate the EIM Participating Resource SchedulingCoordinator for any Energy that is deemed to have been imported into the CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areasat the marginal EIM Bid Adder price |
|  | The Greenhouse Gas marginal GHG price shall be included as a component in the Locational Marginal Prices for GHG Regulation Area. |
|  | Settle GHG payment as the Greenhouse Gas Obligation Quantity to ISO \* EIM Greenhouse Gas Bid Adder Price  |
|  | The system shall calculate and broadcast net export to the GHG Regulation Area for each EIM resource for GHG payment  |
|  | The term net export is from the perspective of the EIM Entity Area to the GHG Regulation Area (fact) |
|  | 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 8310 Day Ahead Green House Gas Emission Cost Revenue |

## Successor Charge Codes

| Charge Code/ Pre-calc Name |
| --- |
| CC 64770 Real Time Imbalance Energy EIM Imbalance Energy Offset |
| RTM Net Amount PC |

## Inputs - External Systems

|  |  |  |
| --- | --- | --- |
| Row # | Variable Name | Description |
| 1 | PTBDayGHGEmissionCostRevenueAdjustmentAmount BJmd | PTB Charge Adjustment for this charge code. |
| 2 | FMMMarginalGHGPrc BrtQ’G’’mdhc | The GHG component of GHG Regulation Areas (+). Real Time Pre-Dispatch |
| 3 | RTDMarginalGHGPrc BrtQ’G’’mdhcif | The GHG component of GHG Regulation Areas (+). Real Time Dispatch |
| 4 | BAResourceEIMRTDGHGQuantity BrtQ’F’S’mdhcif | Net export (MW) to the ISO BAA for each EIM resource for GHG payment (+).Real Time Dispatch |
| 5 | BAResourceEIMFMMGHGQuantity BrtQ’F’S’mdhc | Net export (MW) to the ISO BAA for each EIM resource for GHG payment (+).Real Time Pre-Dispatch |

## Inputs - Predecessor Charge Codes or Pre-calculations

| Row # | Variable Name | Predecessor Charge Code/ Pre-calc Configuration |
| --- | --- | --- |
| 1 | BAResourceEDAMGHGQuantity BrtQ’F’S’mdh | Day Ahead Green House Gas Emission Cost Revenue CC 8310 |

## CAISO Formula

The daily uplift settlement of Greenhouse Gas Emission Cost Revenue for each resource is as follows:

### BAResourceEIMGHGPaymentAmount BrtQ’F’S’G’’mdhcif = BAResourceEIMRTDGHGPaymentAmount BrtQ’F’S’G’’mdhcif + BAResourceEIMFMMGHGPaymentAmount BrtQ’F’S’G’’mdhcif

### BAResourceEIMGHGObligationPrice BrtQ’F’S’G’’mdhcif = BAResourceEIMGHGPaymentAmount BrtQ’F’S’G’’mdhcif / BAResourceEIMGHGObligationQuantity BrtQ’F’S’mdhcif

Note: This formula exists solely to assist in deriving the Current Price Reporting Structure

### BAResourceEIMGHGObligationQuantity BrtQ’F’S’mdhcif = BAResourceEIMRTDGHGObligationQuantity BrtQ’F’S’mdhcif + (BAResourceEIMFMMGHGObligationQuantity BrtQ’F’S’mdhcif)

Note: This formula exists solely to assist in deriving the Current Quantity Reporting Structure

### EIMSettlementIntervalBARTMEntityGHGPaymentAmount BrQ’F’mdhcif = Sum (t,S’,G’’) BAResourceEIMGHGPaymentAmount BrtQ’F’S’G’’mdhcif

### BAResourceEIMRTDGHGPaymentAmount BrtQ’F’S’G’’mdhcif = BAResourceEIMRTDGHGObligationQuantity BrtQ’F’S’mdhcif \* RTDMarginalGHGPrc BrtQ’G’’mdhcif

### BAResourceEIMRTDGHGObligationQuantity BrtQ’F’S’mdhcif = (BAResourceEIMRTDGHGQuantity BrtQ’F’S’mdhcif/12) – (BAResourceEIMFMMGHGObligationQuantity BrtQ’F’S’mdhcif)

### BAResourceEIMFMMGHGPaymentAmount BrtQ’F’S’G’’mdhcif = BAResourceEIMFMMGHGObligationQuantity BrtQ’F’S’mdhcif \* FMMMarginalGHGPrc BrtQ’G’’mdhc

### BAResourceEIMFMMGHGObligationQuantity BrtQ’F’S’mdhcif =

BAResourceEIMFMMGHGQuantity BrtQ’F’S’mdhc/4 – BAResourceEDAMGHGQuantity BrtQ’F’S’mdh/12

## Outputs

| Row # | Name | Description |
| --- | --- | --- |
|  | In addition to any outputs listed below, all inputs shall be included as outputs. |  |
| 1 | BAResourceEIMGHGPaymentAmount BrtQ’F’S’G’’mdhcif | The cost of the greenhouse gas compliance obligation related to an EIM Entity dispatch of generation serving GHG Region load |
| 2 | BAResourceEIMGHGObligationPrice BrtQ’F’S’G’’mdhcif | The Average Price across both the FMM and RTD. This formula exists solely to assist in deriving the Current Price Reporting Structure |
| 3 | BAResourceEIMGHGObligationQuantity BrtQ’F’S’mdhcif | (MWh) The sum of FMM and RTD GHG Obligation quantities. This formula exists solely to assist in deriving the Current Quantity Reporting Structure |
| 4 | EIMSettlementIntervalBARTMEntityGHGPaymentAmount BrQ’F’mdhcif | The cost defrayal amount (in $) for the greenhouse gas compliance obligation by Balancing Authority Area Q’. |
| 5 | BAResourceEIMRTDGHGPaymentAmount BrtQ’F’S’G’’mdhcif | The RTD cost of the greenhouse gas compliance obligation related to an EIM Entity dispatch of generation serving GHG Region load |
| 6 | BAResourceEIMRTDGHGObligationQuantity BrtQ’F’S’mdhcif | (MWh) The Real Time Dispatch GHG Obligation Quantity subtracts out the FMM GHG Obligation Quantity which itself is inclusive of final Base Schedules for generation resources in an EIM Balancing Authority Area |
| 7 | BAResourceEIMFMMGHGPaymentAmount BrtQ’F’S’G’’mdhcif | The FMM cost of the greenhouse gas compliance obligation related to an EIM Entity dispatch of generation serving GHG Region load |
| 8 | BAResourceEIMFMMGHGObligationQuantity BrtQ’F’S’mdhcif | FMM deviation quantity (MWh) from Day Ahead Market |
|  |  |  |

# Charge Code Effective Dates

| Charge Code/Pre-calc Name | Document Version | Effective Start Date | Effective End Date | Version Update Type |
| --- | --- | --- | --- | --- |
| CC 491 – Greenhouse Gas Emission Cost Revenue | 5.0 | 10/01/14 | 4/30/26 | Configuration Impacted |
| CC 491 – Greenhouse Gas Emission Cost Revenue | 5.1 | 5/1/26 | Open | Configuration Impacted |