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**MSRS Report Format Documentation**

**CT Lost Opportunity Cost Forfeiture**

**Version 5**

Revision History

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| --- | --- | --- |
| **Date** | **Revision** | **Description** |
| 12/17/2015 | 1 | Initial Distribution |
| 04/01/2018 | 2 | Updated columns EPT/GMT Hour ending to EPT/GMT Interval Ending, updated references from MWh to MW where applicable, adding section to supporting calculations for 5 minute settlements |
| 10/27/2023 | 3 | Added column Secondary Reserve Adjustment MW;  Updated Summary of Changes and Special Logic to include details on Secondary Reserve Adjustment MW  Updated Supporting Calculation for MW Reduced to include Secondary Reserve Adjustment MW |
| 2/13/2024 | 4 | Additional details added to Supported Billing Line Items section regarding counterparty data visibility |
| 12/1/2024 | 5 | Added columns for Solar Forecast MW, ESR SOC MW, Hybrid Forecast MW;  Updated Supporting Calculations for MW reduced for Solar units, units in the ESR participation model, and Hybrid units |

# Report

**MSRS** Report Name: CT Lost Opportunity Cost Forfeiture

Report short name for User Interface: CT Lost Opportunity Cost Forfeiture

Download File Name Abbreviation: CTLOCFor

Data Granularity: Sub-hourly

Frequency: Updated Monthly

Range Displayed on Report: Start Date through End Date

# Supported Billing Line Items

In order to support reconciliation of the transferred Billing Line Item amount, the “To” Company of a Billing Line Item Transfer may view supporting MSRS report details pertaining to the counterparty for the period spanning the approved Billing Line Item Transfer.

* Balancing Operating Reserve Credit (2375)

# Report Content Summary

This report displays the customer account’s sub-hourly CT operating reserve lost opportunity cost credit(LOC) for each generation unit that the customer owns or jointly owns that will be forfeited due to an unreported or under reported forced outage on the generation unit. PJM credited the reported customer account with LOC during hours in which their CT cleared in the Day-Ahead Energy Market but did not run in real-time. However, the CT unit was identified as reporting a forced outage during the operational time period.

The credits in this report do not reflect the customer account’s share of jointly owned units. All owners will see the full credit assigned to the unit.

# Summary of Changes and Special Logic

* The report will provide data on a 60 day lag from the initial Operating Reserve Lost Opportunity Cost Credit settlement.
* Customers will have 15 days from the date of report issuance to submit claims to PJM to dispute their Operating Reserve Lost Opportunity Cost Credit forfeiture. PJM will provide a ruling on the submitted dispute by the end of the month that the report was issued. If PJM determines that the forfeiture of credits is valid, the action will be reflected in the next monthly billing statement.
* Each monthly issuance of the report will be final.
* Regulation MW Adjustment represents the amount the generator adjusted its output due to regulation signals. Synchronized Reserve MW adjustment represents the total amount the resource reduced its output due to Synchronized Reserve assigned to the unit. Secondary Reserve MW adjustment represents the total amount the resource reduced its output due to Secondary Reserve assigned to the unit. Offset for Reg High less than LMP desired represents the amount the unit had to reduce to fall within its regulation band. MW raised represents the amount by which the unit was asked to increase its output for Reactive Services.

# Report Columns

The following columns will appear in the body of the report:

|  |  |  |  |
| --- | --- | --- | --- |
| **Online and CSV Column Name** | **XML Column Name** | **Column Number** | **Data Type** |
| Customer ID | CUSTOMER\_ID | 4000.01 | INTEGER |
| Customer Code | CUSTOMER\_CODE | 4000.02 | VARCHAR2(6) |
| EPT Interval Ending | EPT\_INTERVAL\_ENDING | 4001.40 | VARCHAR2(40) mm/dd/yyyy HH24:MM format (Displays first interval of the day as hour 0 minute 05 and last interval of the day as hour 24 minute 00) |
| GMT Interval Ending | GMT\_INTERVAL\_ENDING | 4001.41 | VARCHAR2(40)  mm/dd/yyyy HH24:MM format  Displays first interval of the day in relation to EPT interval as hour 04 minute 05 or hour 05 minute 05 (EDT/EST depending) and last interval of the day as hour 04 minute 00 of the next day or hour 05 minute 00 of the next day (EDT/EST depending) |
| eGADS ID | EGADS\_ID | 4000.62 | VARCHAR2(255) |
| Unit ID | UNIT\_ID | 4000.63 | NUMBER(8,0) |
| Unit Name | UNIT\_NAME | 4000.64 | VARCHAR2(60) |
| Unit Ownership Share | UNIT\_OWNERSHIP\_SHARE | 3000.80 | NUMBER |
| Schedule ID | SCHEDULE\_ID | 4000.65 | NUMBER(22,2) |
| DA Scheduled MW | DA\_SCHEDULED\_MW | 3000.32 | NUMBER(8,1) |
| Offer at DA MW ($/MWh) | OFFER\_DA\_MW | 3000.92 | NUMBER(22,6) |
| DA Generator LMP ($/MWh) | DA\_GENERATOR\_LMP | 3000.24 | NUMBER(12,6) |
| RT Generation (MW) | RT\_GENERATION | 3000.33 | NUMBER(11,3) |
| Offer at RT MW ($/MWh) | OFFER\_RT\_MW | 3000.93 | NUMBER(22,6) |
| RT Generator LMP ($/MWh) | RT\_GENERATOR\_LMP | 3000.25 | NUMBER(12,6) |
| RT LMP Desired MW | RT\_LMP\_DESIRED\_MW | 3000.34 | NUMBER(22,3) |
| Wind Forecast MW | WIND\_FORECAST\_MW | 3001.41 | NUMBER(22,3) |
| Solar Forecast MW | SOLAR\_FORECAST\_MW | 3001.75 | NUMBER(22,3) |
| ESR SOC MW | ESR\_SOC\_MW | 3001.76 | NUMBER(22,3) |
| Hybrid Forecast MW | HYBRID\_FORECAST\_MW | 3001.77 | NUMBER(22,3) |
| Reg MW Adj | REG\_MW\_ADJ | 3000.94 | NUMBER(22,3) |
| Synch Reserve MW Adj | SYNCHRES\_MW\_ADJ | 3000.95 | NUMBER(22,3) |
| Sec Reserve MW Adj | SECRES\_MW\_ADJ | 3000.90 | NUMBER(22,3) |
| Offset for Reg High < LMP Desired (MW) | OFFSET\_REG\_HIGH\_LT\_LMP\_DESIRED | 3000.99 | NUMBER(22,3) |
| MW Reduced | MW\_REDUCED | 3000.96 | NUMBER(22,3) |
| Operating Reserve Lost Opportunity Cost Credit ($) | OPRES\_LOC\_CREDIT | 2375.18 | NUMBER(22,2) |
| Version | VERSION | 4000.07 | NUMBER |

# CSV Report Example

See Excel file titled “CT Lost Opportunity Cost Credit Forfeiture CSV Format.csv”

# XML Report Example

See XML file titled “CT Lost Opportunity Cost Credit Forfeiture XML Format.xml”

# Supporting Calculations

**Calculations for 5 Minute Settlements:**

If the unit is a CT or Diesel unit and is scheduled for PJM Day-ahead and not called on in Real-time, then:

MW Reduced (3000.96) = 0

Operating Reserve Lost Opportunity Cost Credit (2375.18) = MAX ((RT Generator LMP (3000.25) – DA Generator LMP (3000.24)) \* DA Scheduled MW (3000.32), (RT Generator LMP (3000.25) – Offer at DA MW (3000.92)) \* DA Scheduled MW (3000.32), 0)

If the unit is a Wind Farm unit, then:

MW Reduced = MIN(RT LMP Desired MW, Wind Forecast MW) – RT Generation – Reg MW Adj – Synch Reserve MW Adj – Sec Reserve MW Adj – Offset for Reg High < LMP Desired

3000.96 = MIN(3000.34, 3001.41 – 3000.33 – 3000.94 – 3000.95 – 3000.90 – 3000.99)

Operating Reserve Lost Opportunity Cost Credit = [MW Reduced \* (max(RT Generator LMP - Offer at RT MW),0)] / 12

2375.18 = [3000.96 \* (max(3000.25 - 3000.93),0)] / 12

If the unit is a Solar unit, then:

MW Reduced = MIN(RT LMP Desired MW, Solar Forecast MW) – RT Generation – Reg MW Adj – Synch Reserve MW Adj – Sec Reserve MW Adj – Reg High < LMP Desired

(3000.96) = MIN( (3000.34), (3001.75)) - (3000.33) – (3000.94) – (3000.95) – (3000.90) – Reg High < (3000.99)

Operating Reserve Lost Opportunity Cost Credit = [MW Reduced \* (MAX(RT Generator LMP – Offer at RT MW), 0)] / 12

(2375.18) = [(3000.96) \* (max((3000.25) – (3000.93)), 0)] / 12

If the unit is in the ESR participation model, then:

MW Reduced = MIN(RT LMP Desired MW, ESR SOC MW) – RT Generation – Reg MW Adj – Synch Reserve MW Adj – Sec Reserve MW Adj – Reg High < LMP Desired

(3000.96) = MIN( (3000.34), (3001.76)) - (3000.33) – (3000.94) – (3000.95) – (3000.90) – Reg High < (3000.99)

Operating Reserve Lost Opportunity Cost Credit = [MW Reduced \* (MAX(RT Generator LMP – Offer at RT MW), 0)] / 12

(2375.18) = [(3000.96) \* (max((3000.25) – (3000.93)), 0)] / 12

If the unit is a Hybrid unit, then:

MW Reduced = MIN(RT LMP Desired MW, Hybrid Forecast MW) – RT Generation – Reg MW Adj – Synch Reserve MW Adj – Sec Reserve MW Adj – Reg High < LMP Desired

(3000.96) = MIN( (3000.34), (3001.77)) - (3000.33) – (3000.94) – (3000.95) – (3000.90) – Reg High < (3000.99)

Operating Reserve Lost Opportunity Cost Credit = [MW Reduced \* (MAX(RT Generator LMP – Offer at RT MW), 0)] / 12

(2375.18) = [(3000.96) \* (max((3000.25) – (3000.93)), 0)] / 12

Else:

MW Reduced = RT LMP Desired MW – RT Generation – Reg MW Adj – Synch Reserve MW Adj – Sec Reserve MW Adj – Offset for Reg High < LMP Desired

3000.96 = 3000.34 – 3000.33 – 3000.94 – 3000.95 – 3000.97 – 3000.99

Operating Reserve Lost Opportunity Cost Credit = MW Reduced \* (max(RT Generator LMP – Offer at RT MW), 0)/12

2375.18 = 3000.96 \* MAX(3000.25 – 3000.93 , 0)/12

**Calculations for pre-5 Minute Settlements:**

If the unit is a CT or Diesel unit and is scheduled for PJM Day-ahead and not called on in Real-time, then:

MWh Reduced (3000.96) = 0

Operating Reserve Lost Opportunity Cost Credit (2375.18) = MAX ((RT Generator LMP (3000.25) – DA Generator LMP (3000.24)) \* DA Scheduled MWh (3000.32), (RT Generator LMP (3000.25) – Offer at DA MWh (3000.92)) \* DA Scheduled MWh (3000.32), 0)

If the unit is a Wind Farm unit, then:

MWh Reduced (3000.96) = MIN(RT LMP Desired MWh (3000.34), Wind Forecast MWh (3001.41)) – RT Generation (3000.33) – Reg MWh Adj (3000.94) – Synch Reserve MWh Adj (3000.95) – Reg High < LMP Desired (3000.99)

Operating Reserve Lost Opportunity Cost Credit (2375.18) = MWh Reduced (3000.96) \* (max(RT Generator LMP (3000.25) – Offer at RT MWh (3000.93)), 0)

Else:

MWh Reduced (3000.96) = RT LMP Desired MWh (3000.34) – RT Generation (3000.33) – Reg MWh Adj (3000.94) – Synch Reserve MWh Adj (3000.95) – Reg High < LMP Desired (3000.99)

Operating Reserve Lost Opportunity Cost Credit (2375.18) = MWh Reduced (3000.96) \* (max(RT Generator LMP (3000.25) – Offer at RT MWh (3000.93)), 0)