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**MSRS Report Format Documentation**

**Operating Reserve Lost Opportunity Cost Credits**

**Version 11**

Revision History

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| --- | --- | --- |
| **Date** | **Revision** | **Description** |
| 10/01/2007 | 1 | Initial Distribution |
| 5/5/2008 | 2 | Added new Offset for Reg High < LMP Desired column |
| 5/30/2008 | 3 | Updated MWh Reduced calculation |
| 8/1/2008 | 4 | Updated XML column name for Offer at RT MWh column from OFFER\_DA\_MWH to OFFER\_RT\_MWH |
| 4/16/2012 | 5 | Add new Wind Forecast MWh column |
| 10/27/2015 | 6 | Updated Summary of Changes and Special Logic to give detail for trade dates 9/1/2015 Forward. |
| 1/21/2016 | 7 | Updated Data Type for Offer at DA MWh ($/MWh) and Offer at RT MWh ($/MWh); Updated Summary of Changes and Special Logic for details on the data type update |
| 4/1/2018 | 8 | Updated GMT/EPT hour ending to GMT/EPT interval ending, Updated references from MWh to MW where applicable, added section to supporting calculations for 5 minute settlements |
| 10/27/2023 | 9 | 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 | 10 | Additional details added to Supported Billing Line Items section regarding counterparty data visibility |
| 12/1/2024 | 11 | 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: Operating Reserve Lost Opportunity Cost Credits

Report short name for User Interface: Operating Reserve Lost Opportunity Cost Credits

Download File Name Abbreviation: ORLOCCr

Data Granularity: Sub-hourly

Frequency: Updated daily

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 operating reserve lost opportunity cost credit for each generation unit that the customer owns or jointly owns. Data will display on this report when the unit has DA Scheduled MWh or RT Generation MW and the unit is eligible for lost opportunity cost credits.

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 date range total row will only appear in the online version of the report. It will not appear in the CSV and XML versions of the report.
* 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.
* Effective for trade dates 9/1/2015 forward, Offer at RT MWh ($/MWh) will be 0 if MWh Reduced <= 0.
* Effective for trade dates 9/1/2015 forward, Offer at DA MWh ($/MWh) and Offer at RT MWh ($/MWh) will be datatype NUMBER(22,6). For trade dates prior to 9/1/2015, Offer at DA MWh ($/MWh) and Offer at RT MWh ($/MWh) will be datatype NUMBER(22,2).

# 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) |
| 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 | VARCHAR2(12) |

# CSV Report Example

See Excel file titled “Operating Reserve Lost Opportunity Cost Credits CSV Format.csv”

# XML Report Example

See XML file titled “Operating Reserve Lost Opportunity Cost Credits 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 = MAX ((RT Generator LMP/12 – DA Generator LMP/12) \* DA Scheduled MW, (RT Generator LMP/12 – Offer at DA MW/12) \* DA Scheduled MW, 0)

(2375.18) = MAX (((3000.25/12) – (3000.24/12)) \* (3000.32), ((3000.25/12) – (3000.92/12)) \* (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 – Reg High < LMP Desired

(3000.96) = MIN( (3000.34), (3001.41)) - (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 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 – Reg High < LMP Desired

(3000.96) = (3000.34) – (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

**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)