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**MSRS Report Format Documentation**

**Balancing Secondary Reserve Credits**

**Version 4**

Revision History

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| --- | --- | --- |
| **DATE** | **Revision** | **Description** |
| 10/1/2022 | 1 | Initial Distribution |
| 10/27/2022 | 2 | Column Number for RT LMP Desired MW changed from 3000.35 to 3000.34.  Order of columns adjusted. |
| 11/11/2022 | 3 | Supporting Calculations updated for RT Sec Reserve Opportunity Cost |
| 11/18/2022 | 4 | Supporting Calculations updated for RT Sec Reserve Capped MW |
| 12/16/2022 | 5 | Added column RT Sec Reserve LOC Deviation MW;  Updated Supporting Calculation for RT Sec Reserve Opportunity Cost  Updated Summary of Changes and Special Logic to detail supporting information for RT Sec Reserve LOC Deviation MW |
| 8/9/2024 | 6 | Updated Summary of Changes and Special Logic to detail additional supporting information for RT Sec Reserve LOC Deviation MW |

# Report

**MSRS** Report Name: Balancing Secondary Reserve Credits

Report short name for User Interface: Balancing Secondary Reserve Credits

Download File Name Abbreviation: BalSecrCr

Data Granularity: Sub-Hourly

Frequency: Updated daily

Range Displayed on Report: Start Date through End Date

# Supported Billing Line Items

* Balancing Secondary Reserve Credit (2361)

# Report Content Summary

This report displays the customer account’s owned resource’s balancing secondary reserve credit for each interval in which the credit is not equal to zero. The credits in this report do not reflect the customer account’s share of jointly owned resources. All owners will see the full credit assigned to the resources.

# Summary of Changes and Special Logic

* Total Resource RT Synch Reserve MW represents the total amount of capped self-scheduled synchronized reserve mw and capped pool scheduled synchronized reserve mw for the real-time interval as seen on the Balancing Synchronized Reserve Credits report.
* RT Condenser Energy Use will only be populated in real-time intervals where the resource was not scheduled to provide secondary reserve as a condenser in the day-ahead market.
* RT Condenser Startup Cost will represent the additional real-time starts required to provide secondary reserve as a condenser compared to what was scheduled in the day-ahead market.
* Supporting details for Sec Reserve Opportunity Cost Credit Owed and Sec Reserve MRN Offset values can be seen on the Market Revenue Neutrality Offset Details report.
* The calculation of RT Sec Reserve LOC Deviation MW is supported from data and columns not fully contained within this report. To calculate RT Sec Reserve LOC Deviation MW the following can be used:

End Point =

If resource has no DA synchronized reserve MW and no DA secondary reserve MW then End Point = RT LMP Desired MW

Else if resource has DA synchronized reserve MW or DA secondary reserve MW then

If RT Sec Reserve Max MW <> DA Sec Reserve Max MW or RT Sec Reserve Max MW <> DA Synchronized Reserve Max MW if DA Sec Reserve MW do not exist

End Point = DA Scheduled Energy MW

Else

End Point = Min(RT LMP Desired MW, RT Sec Reserve Max MW) – DA Sec Reserve PJM Scheduled MW + Max(RT Sec Reserve Max MW – RT LMP Desired MW,0) –

If Total Capped RT Synchronized Reserve MW <= Total DA Synchronized Reserve MW then Max(Total Capped RT Synchronized Reserve MW, Total DA Synchronized Reserve MW)

Else Min(Total Capped RT Synchronized Reserve MW, Total DA Synchronized Reserve MW)

The End Point calculated in all conditions above is limited to the RT LMP Desired MW.

Begin Point =

If RT Sec Reserve Max MW < DA Sec Reserve Max or RT Sec Reserve Max MW < DA Synchronized Reserve Max MW (if DA Sec Reserve MW does not exist) and Total Capped RT Synchronized Reserve MW > Total DA Synchronized Reserve MW,

Begin Point = RT Synchronized Reserve Begin Point MW + Total Capped RT Synchronized Reserve MW

Else

Begin Point = Max(Min(RT LMP Desired MW, RT Sec Reserve Max MW) – (RT Sec Reserve Capped MW + Min(RT LMP Desired MW – RT Sec Reserve Max MW, 0)) – Min(Total DA Synchronized Reserve MW , Total Capped RT Synchronized Reserve MW) ,0)

RT Sec Reserve LOC Deviation MW = End Point – Begin Point

# 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)) |
| Market Resource ID | MRKT\_RESRC\_ID | 4001.16 | NUMBER(15,0) |
| Market Resource Name | MRKT\_RESRC\_NAME | 4001.17 | VARCHAR2(60) |
| Market Resource Type | MRKT\_RESRC\_TYPE | 4001.18 | VARCHAR2(10) |
| Resource Ownership Share | RESRC\_OWN\_SHARE | 4001.19 | NUMBER |
| Subzone | SUBZONE | 4000.34 | VARCHAR2(50) |
| DA Sec Reserve PJM Scheduled MW | DA\_SECR\_MW | 2367.12 | NUMBER |
| DA SECRMCP Credit ($) | DA\_SECRMCP\_CR | 2367.13 | NUMBER |
| RT Sec Reserve PJM Scheduled MW | RT\_SECR\_SCHED\_MW | 2361.11 | NUMBER |
| RT Sec Reserve PJM Added MW | RT\_SECR\_ADDED\_MW | 2361.12 | NUMBER |
| RT Settlement Revenue MW | RT\_SET\_REV\_MW | 3003.31 | NUMBER |
| Total Resource RT Synch Reserve MW | TOT\_RESRC\_RT\_SYNC\_MW | 2360.63 | NUMBER |
| RT Economic Max MW | RT\_ECO\_MAX\_MW | 3003.33 | NUMBER |
| RT Sec Reserve Max MW | RT\_SEC\_RES\_MAX\_MW | 3003.34 | NUMBER |
| RT Sec Reserve Capped MW | RT\_SEC\_RES\_CAP\_MW | 2361.13 | NUMBER |
| Sec Reserve Shortfall MW | SEC\_RES\_SF\_MW | 2361.14 | NUMBER |
| RT SECRMCP ($/MWh) | RT\_SECRMCP | 3000.62 | NUMBER |
| RT LMP ($/MWh) | RT\_LMP | 3000.25 | NUMBER |
| RT LMP Desired MW | RT\_LMP\_DESIRED\_MW | 3000.34 | NUMBER |
| Bal SECRMCP Credit ($) | BAL\_SECRMCP\_CR | 2361.15 | NUMBER |
| RT Energy Offer Amount ($) | RT\_ENERGY\_OFFER\_AMT | 3001.88 | NUMBER |
| Hydro Spill Indicator | HYDRO\_SPILL\_INDICATOR | 4000.67 | VARCHAR2(2) |
| Hydro Average LMP | HYDRO\_AVG\_LMP | 3003.35 | NUMBER |
| RT Condenser Energy Use (MWh) | RT\_COND\_ENERGY\_MW | 3003.36 | NUMBER |
| RT Condenser Energy Use Cost ($) | RT\_COND\_ENERGY\_COST | 3003.37 | NUMBER |
| RT Condenser Startup Cost ($) | RT\_COND\_STARTUP\_COST | 3003.38 | NUMBER |
| RT Sec Reserve LOC Deviation MW | RT\_SECR\_LOC\_DEV\_MW | 2361.27 | NUMBER |
| DA Sec Reserve Opportunity Cost ($) | DA\_SEC\_RES\_OPP\_COST | 2367.14 | NUMBER |
| RT Sec Reserve Opportunity Cost ($) | RT\_SEC\_RES\_OPP\_COST | 2361.16 | NUMBER |
| Sec Reserve Opportunity Cost Credit Owed ($) | SECR\_OPP\_COST\_CR\_OWED | 2361.17 | NUMBER |
| Sec Reserve MRN Offset ($) | SECR\_MRN\_OFFSET | 2361.18 | NUMBER |
| Sec Reserve Lost Opportunity Cost Credit ($) | SEC\_RES\_LOC\_CR | 2361.19 | NUMBER |
| Version | VERSION | 4000.07 | VARCHAR2(12) |

# Predetermined Subzone values: PJM RTO, PJM Mid Atlantic Dominion (MAD), Non PJM Mid Atlantic Dominion (MAD), PJM Baltimore Pepco Dominion (BPD), Non PJM Baltimore Pepco Dominion (BPD)

# CSV Report Example

See Excel file titled “Balancing Secondary Reserve Credits CSV Format.csv”

# XML Report Example

See XML file titled “Balancing Secondary Reserve Credits XML Format.xml”

# Supporting Calculations

RT Sec Reserve Capped MW = Min(RT Sec Reserve PJM Scheduled MW + RT Sec Reserve PJM Added MW, Max(Min(RT Economic Max MW, RT Sec Reserve Max MW) – (RT Settlement Revenue MW – Total Resource RT Synch Reserve MW), 0))

2361.13 = Min(2361.11 + 2361.12, Max(Min(3003.33, 3003.34) – (3003.31 – 2360.63), 0))

Bal SECRMCP Credit = ((RT Sec Reserve Capped MW - Sec Reserve Shortfall MW) – DA Sec Reserve MW) \* RT SECRMCP / 12

2361.15 = ((2361.13 – 2361.14) - 2367.12) \* 3000.62 / 12

If RT Sec Reserve Capped MW <= DA Sec Reserve MW then RT Sec Reserve Opportunity Cost = 0

Else

For Hydroelectric resources:

If Hydro Spill Indicator = Y then:

RT Sec Reserve Opportunity Cost = Max(RT Sec Reserve Capped MW – DA Sec Reserve MW) \* RT LMP / 12, 0)

2361.16 = Max(2361.13 – 2367.12) \* 3000.24 / 12 , 0)

If Hydro Spill Indicator = N and Resource has no DA scheduled energy MW then:

RT Sec Reserve Opportunity Cost = 0

If Hydro Spill Indicator = N and Resource has DA scheduled energy MW > 0 then:

RT Sec Reserve Opportunity Cost = Max(RT LMP – Hydro Average LMP)/12 \* (RT Sec Reserve Capped MW – DA Sec Reserve MW), 0)

2361.16 = Max(3000.24 – 3003.35) / 12 \* (2361.13 – 2367.12), 0)

For resources operating as synchronous condensers:

If Total Resource RT Synch Reserve MW > 0 then:

RT Sec Reserve Opportunity Cost = 0

If Total Resource RT Synch Reserve MW = 0 then:

RT Sec Reserve Opportunity Cost = RT Condenser Energy Use Cost + RT Condenser Startup Cost

2361.16 = 3003.37 + 3003.38

For all other generation resources:

If RT Settlement Revenue MW <= 0 then:

RT Sec Reserve Opportunity Cost = 0

else

If RT Sec Reserve Max MW – RT LMP Desired MW – Total Resource RT Synch Reserve MW >= RT Sec Reserve Capped MW then:

RT Sec Reserve Opportunity Cost = 0

else

RT Sec Reserve Opportunity Cost = {(RT LMP \* RT Sec Reserve LOC Deviation MW) – RT Energy Offer Amount} / 12

2361.16 = {(3000.24 \* 2361.27 – 2367.12]) – 3001.88} / 12

For Load Response resources:

RT Sec Reserve Opportunity Cost = 0

Sec Reserve Lost Opportunity Cost Credit = (DA Sec Reserve Opportunity Cost/12 + RT Sec Reserve Opportunity Cost) – (DA SECRMCP Credit/12 + Bal SECRMCP Credit + Sec Reserve Opportunity Cost Credit Owed + Sec Reserve MRN Offset)

2361.19 = (2367.14/12 + 2361.16) – (2367.13/12 + 2361.15 + 2361.17 + 2361.18)

For use on the Market Revenue Neutrality Increased Revenue Offsets report:

Sec Reserve Cost above DA Revenue = (DA Sec Reserve Opportunity Cost – DA SECRMCP Credit) / 12

2361.24 = (2367.14 – 2367.13) / 12