5-Minute Settlements

As of October 2017
• FERC Order 825 – Sub-Hourly Settlements
  – Align settlement and dispatch intervals by:
    • Settling energy transactions in its real-time markets at the same time interval it dispatches energy
    • Settling operating reserves transactions in its real-time markets at the same time interval it prices operating reserves
    • Settling intertie transactions in the same time interval it schedules intertie transactions
  – Final Rule issued June 16, 2016
  – Compliance Filing submitted January 11, 2017
• Align prices with resource dispatch instructions and operating needs, providing appropriate incentives for resource performance
Revised Five Minute Settlements PowerMeter Business Rules have been posted. A minor change was made to the document to clarify submission screen labels, specifically the label on submission pages changed from FiveMinuteLoadValues to SubmittedMeterValues.

The documentation can be found at the following link: [http://www.pjm.com/-/media/etools/power-meter/5-minute-settlements-power-meter-business-rules.ashx?la=en](http://www.pjm.com/-/media/etools/power-meter/5-minute-settlements-power-meter-business-rules.ashx?la=en)

Information on MSRS report changes available August 1

- Comprehensive list of changes, new reports and reports that will become obsolete can be found online: [http://pjm.com/markets-and-operations/billing-settlements-and-credit/msrs-reports-documentation.aspx](http://pjm.com/markets-and-operations/billing-settlements-and-credit/msrs-reports-documentation.aspx)
- Report documentation is being posted now and will continue over the next few months.
Hourly RT and DA LMP CSV files

Available through January 31, 2018

Will no longer be published effective February 1, 2018

Production Data Miner

Hourly RT LMPs, Ancillary Service Clearing Prices, and DA LMPs available in August 2017

Hourly values will continue to be published in Data Miner after February 1, 2018

5 Minute RT LMPs and Ancillary Service Clearing Prices published on February 1, 2018
Updates from Last Meeting

• Question from June Tech Change forum
  – Question: Are there any places where member companies will have to make IT changes besides Power Meter?
  – Answer: No. There are no other areas that have been identified beyond the Power Meter changes and any changes necessary to consume modified/deleted/additional reports.
System Changes

- Market Settlement Calculation System (MSCS)
- Market Settlement Reporting System (MSRS)
  - New 5 Minute reports
  - Minimize changes to current hourly reports
- Power Meter
  - Accept 5 minute meter data (though not required)
• Some MSRS reports use 24 EPT HE columns to display data across the report
• Reports affected by 5 Minute Settlements that use 24 EPT HE columns include
  – Operating Reserve Generator Credit Details
  – Operating Reserve Generator Deviations
  – Operating Reserve for Load Response Credits
Options for 5 Minute Settlements

PJM will be implementing the following:

1. Change the EPT HE columns to EPT Interval Ending columns and expand the reports to ~308 columns
   • This allows the reports to keep the same format, just expanding the number of columns

2. Transpose the data label column into numerous report columns and add in EPT Interval Ending and GMT Interval Ending columns
   • Conserves report width, but adds more rows to report
   • Removes “Total” column
## Option 2: Transposed Data Labels

### Data Table

<table>
<thead>
<tr>
<th>Custom Code</th>
<th>Data</th>
<th>EPT Interval Ending</th>
<th>GMT Interval Ending</th>
<th>Unit ID</th>
<th>Unit Name</th>
<th>Ownership Share</th>
<th>DA Generator (LMP) ($/MWh)</th>
<th>DA Scheduled MWh</th>
<th>Dispatch Rate ($/MWh)</th>
<th>RT Generator (LMP) ($/MWh)</th>
<th>RT Schedule ID</th>
<th>DA No-Load Cost ($)</th>
<th>DA Startup Cost ($)</th>
<th>DA Value ($)</th>
<th>D4 Net Revenue ($)</th>
<th>Scheduled MWh</th>
<th>DA Energy Offset ($)</th>
<th>RT Energy Offset ($)</th>
<th>RT Startup Cost ($)</th>
<th>RT Additional Startup Cost ($)</th>
<th>Bal Value ($)</th>
<th>Bal Net Revenue ($)</th>
</tr>
</thead>
</table>

### Additional Data

<table>
<thead>
<tr>
<th>Economic</th>
<th>Economic</th>
<th>RT</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Min (MWh)</td>
<td>Max (MWh)</td>
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</tr>
</tbody>
</table>

### Footnotes

- www.pjm.com
- PJM©2017
## Existing Hourly Data: Where will data exist for an Operating Day?

<table>
<thead>
<tr>
<th>Operating Days &lt; 2/1/2018</th>
<th>Operating Days &gt;= 2/1/2018</th>
</tr>
</thead>
</table>
| **Hourly RT LMP & Ancillary Service LMP**  
(Daily and Monthly files) | **Flat files on pjm.com**  
**Data Miner 2**  
**Flat files on pjm.com**  
**Data Miner 2**  
**Consolidated into 1 data feed**  
**5-minute version only**  
**Flat files on pjm.com**  
**Data Miner 2** |
| **Hourly DA LMP**  
(Daily and Monthly Files) | **Data Miner 2**  
**Data Miner 2** |
| 
**Operational Data Page** | pjm.com** |
| 
**RT Marginal Value** | **Flat files on pjm.com**  
**Data Miner 2**  
**Data Miner 2**  
**Consolidated into 1 data feed**  
**5-minute version only** |
| **RT Transmission Constraints** | **Flat files on pjm.com**  
**Data Miner 2** |
| 
**Preliminary Billing Data** | **Flat files on pjm.com**  
**Data Miner 2**  
**Operating Reserve Rates**  
**Regulation**  
**Sync & Non-Sync Reserves**  
**DASR**  
**Flat files on pjm.com**  
**Data Miner 2** |

**3Q 2018 pjm.com flat files retirement plan and Operational Data Page changes will continue to be discussed at Tech Change Forum**
5-minute Settlements Public Data Availability

Operating Days >= 2/1/2018

<table>
<thead>
<tr>
<th>5-minute RT LMPs</th>
<th>Data Miner 2 only</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-minute Ancillary Service LMPs</td>
<td></td>
</tr>
<tr>
<td>5-minute RT Marginal Value and Transmission Constraints</td>
<td></td>
</tr>
</tbody>
</table>

- Preliminary and Final load weighted average transmission zone LMPs and residual aggregate LMPs will be available