

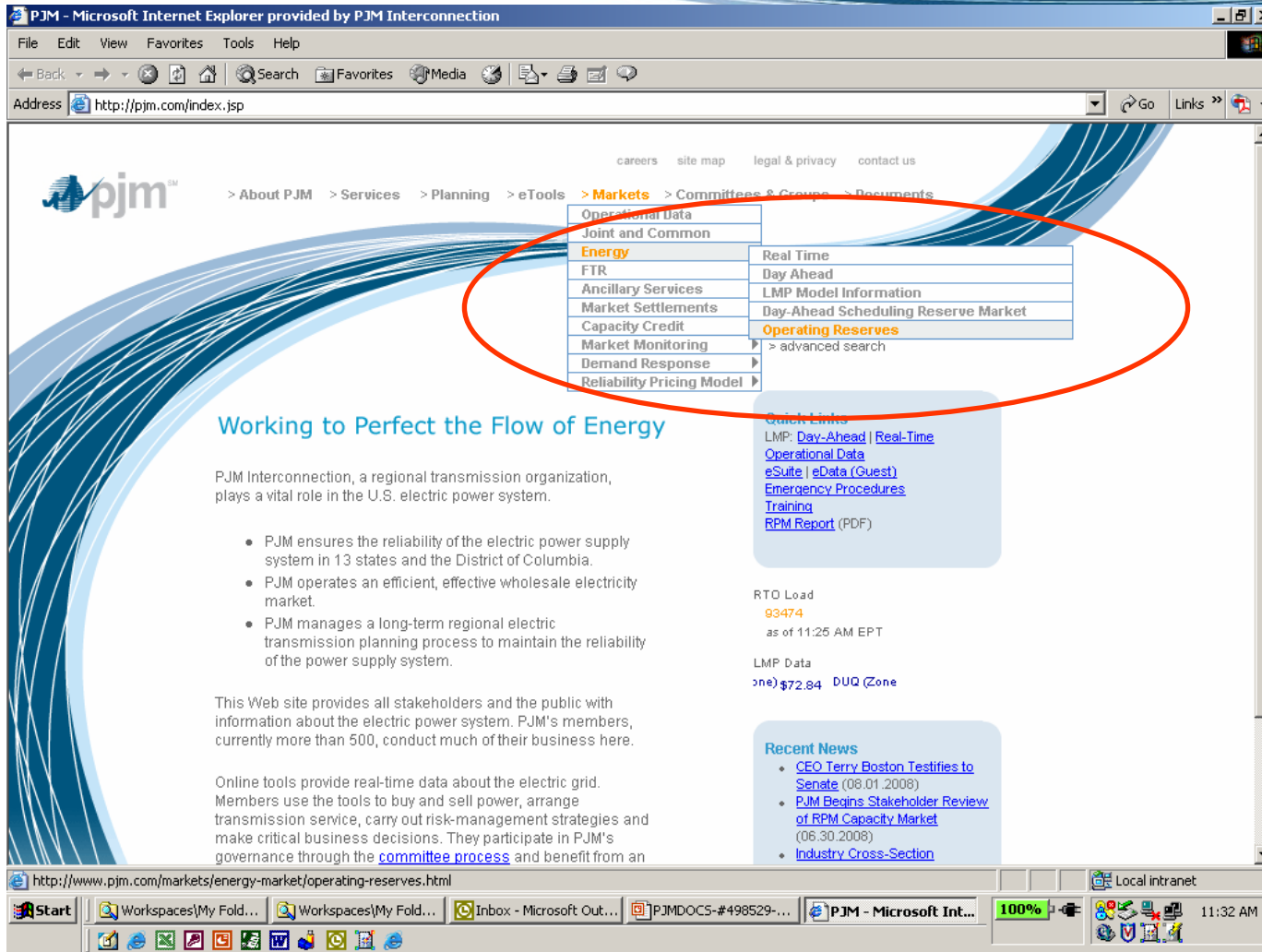


Balancing Operating Reserve Implementation Roll-out Schedule Countdown to December 1, 2008

Market Implementation Committee
September 11, 2008

- Implementation Details
- Stakeholder Training
- Parameter Limited Schedules

- **Implementation Date**
 - December 1, 2008
- **FERC Filing**
 - PJM will be filing approved changes by the end of September with FERC
- **Sandbox Availability**
 - Sandboxes are targeted to be available by the end of October.
 - MKT: Testing XML for uploading schedules
 - MSRS: Revised OR reports
 - Stakeholders will notified when sandboxes are available



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Working to Perfect the Flow of Energy

PJM Interconnection, a regional transmission organization, plays a vital role in the U.S. electric power system.

- PJM ensures the reliability of the electric power supply system in 13 states and the District of Columbia.
- PJM operates an efficient, effective wholesale electricity market.
- PJM manages a long-term regional electric transmission planning process to maintain the reliability of the power supply system.

This Web site provides all stakeholders and the public with information about the electric power system. PJM's members, currently more than 500, conduct much of their business here.

Online tools provide real-time data about the electric grid. Members use the tools to buy and sell power, arrange transmission service, carry out risk-management strategies and make critical business decisions. They participate in PJM's governance through the [committee process](#) and benefit from an

Quick Links

LMP: [Day-Ahead](#) | [Real-Time](#)
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[Training](#)
[RPM Report](#) (PDF)

RTO Load
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LMP Data
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Recent News

- [CEO Terry Boston Testifies to Senate](#) (08.01.2008)
- [PJM Begins Stakeholder Review of RPM Capacity Market](#) (06.30.2008)
- [Industry Cross-Section](#)

http://www.pjm.com/markets/energy-market/operating-reserves.html

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Address <http://www.pjm.com/markets/energy-market/operating-reserves.html> Go Links

Operating Reserves

In the current PJM market design, pool-scheduled generation resources that operate as requested by PJM are guaranteed to fully recover their daily day-ahead offer amounts in order to ensure adequate Operating Reserves and to support the PJM Real-Time ("Balancing") Energy Market. Day-ahead and real-time operating reserve credits are paid to generation owners; these credits are paid by PJM market participants as operating reserve charges.

Related Links
[Reserve Markets Working Group \(RMWG\)](#)
[Training](#)

The Market Implementation Committee (MIC) created the Reserve Markets Working Group to develop proposed modifications to the Operating Reserve mechanism. The working group identified a set of modifications that could improve the Operating Reserve mechanism. Revised business rules were endorsed by the Members Committee in November 2007. They are scheduled for implementation in Fall 2008, pending FERC approval.

The modified Operating Reserve Business Rules are designed to:

- Provide incentives for participants to bid their day-ahead quantities as closely as possible to what they expect in the Real-Time Market, thereby leading to increased convergence between day-ahead and real-time prices and enhanced market efficiency;
- Provide incentives for generators to follow PJM dispatch instructions while offering flexibility, thus increasing market efficiency and system reliability; and
- Collect the costs of balancing operating reserves and appropriately allocate the costs to transactions in the areas that contribute to the costs.

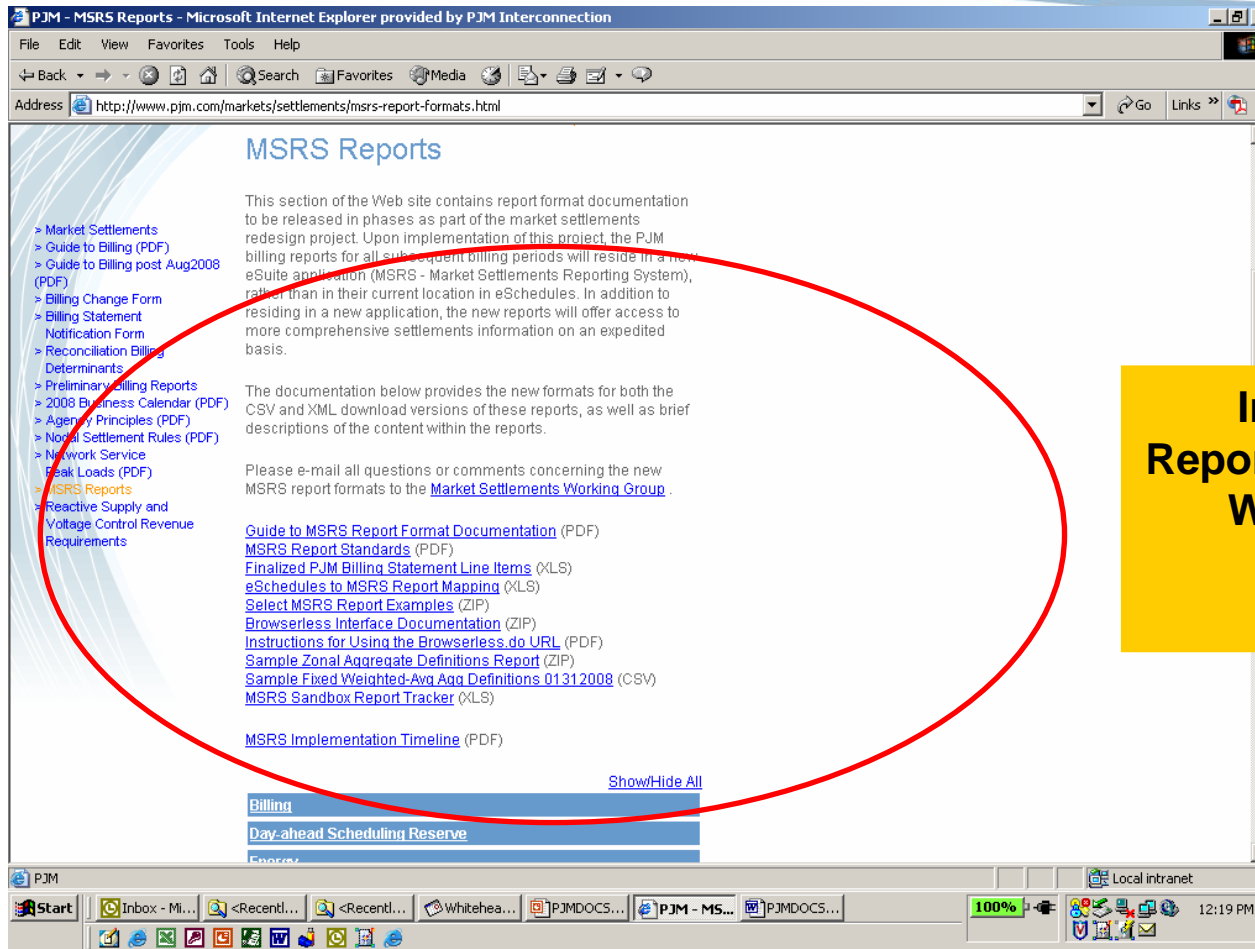
Postings **Posting Date**

[OA Revisions for Balancing Operating Reserve MC NOV-2007](#) (PDF) 04.11.2008

Information on the Implementation Of Operating Reserves Can be found On this page

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Address <http://www.pjm.com/markets/settlements/msrs-report-formats.html>

MSRS Reports

This section of the Web site contains report format documentation to be released in phases as part of the market settlements redesign project. Upon implementation of this project, the PJM billing reports for all subsequent billing periods will reside in a new eSuite application (MSRS - Market Settlements Reporting System), rather than in their current location in eSchedules. In addition to residing in a new application, the new reports will offer access to more comprehensive settlements information on an expedited basis.

The documentation below provides the new formats for both the CSV and XML download versions of these reports, as well as brief descriptions of the content within the reports.

Please e-mail all questions or comments concerning the new MSRS report formats to the [Market Settlements Working Group](#).

- [Guide to MSRS Report Format Documentation](#) (PDF)
- [MSRS Report Standards](#) (PDF)
- [Finalized PJM Billing Statement Line Items](#) (XLS)
- [eSchedules to MSRS Report Mapping](#) (XLS)
- [Select MSRS Report Examples](#) (ZIP)
- [Browserless Interface Documentation](#) (ZIP)
- [Instructions for Using the Browserless do URL](#) (PDF)
- [Sample Zonal Aggregate Definitions Report](#) (ZIP)
- [Sample Fixed Weighted-Avg Agg Definitions 01/31/2008](#) (CSV)
- [MSRS Sandbox Report Tracker](#) (XLS)

[MSRS Implementation Timeline](#) (PDF)

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- [Billing](#)
- [Day-ahead Scheduling Reserve](#)
- [Energy](#)

Information on Report and File changes Will be available On MSRS page

Settlement Questions?

mSWG@pjm.com

Market Operations Questions?

Markets_hotline@pjm.com

- Implementation Details
- Stakeholder Training
- Parameter Limited Schedules

- The Balancing Operating Reserve Changes training course will be separated into two sessions
- Morning session
 - will emphasize the changes with respect to generator credits and deviation calculations
- Afternoon session
 - will emphasize changes with respect to Load Serving Entity (LSE) impacts and charge allocations.

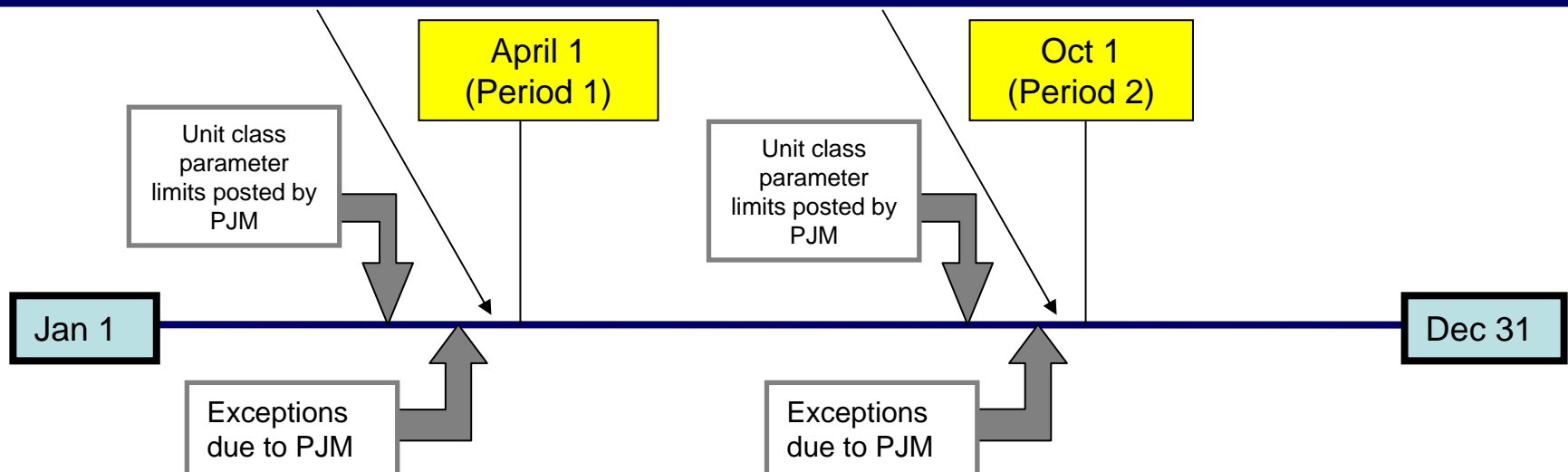
Date	Activity
October 7, 2008	In Person Training – King of Prussia, PA
October 14, 2008	In Person Training – King of Prussia, PA
October 21, 2008	In Person Training – Houston, TX
Nov 17, 2008	Webex Training
Dec 1, 2008	Go - Live

- Implementation Details
- Stakeholder Training
- Parameter Limited Schedules

- PJM posts unit class specific parameter limits 30 days prior to bi-annual enrollment period
- Generator Suppliers submitting schedules for units with physical operational limitations (exceptions) need to submit 20 days prior to bi-annual enrollment period
 - Operational limitations include
 - Restrictions due to age & long term degradation
 - Modifications due to life extension program
 - Environmental permit limitations (non-emergency conditions)

Submit request for new exception to ParametersExceptions@pjm.com

All Parameter-Limited Schedules must be submitted in eMKT 7 days prior to the bi-annual enrollment period



- **Exception Process**
 - Participants should begin the process of requesting exceptions by emailing ParametersExceptions@pjm.com
- **Final Parameter Limited Schedules will need to be entered into eMKT 7 days prior go live date (December 1, 2008)**

PJM Unit Parameter Matrix Summary

Turn Down Ratio = Economic Maximum MW / Economic Minimum MW

Parameter	Minimum Down Time (Hrs)	Minimum Run Time (Hrs)	Maximum Daily Starts	Maximum Weekly Starts	Turn Down Ratio
Small Frame CT and Aero CT Units - Up to 29 MW ICAP	2.0 or Less	2.0 or Less	2 or More	14 or More	1.0 or More
Medium Frame CT and Aero CT Units - 30 MW to 65 MW ICAP	2.0 or Less	3.0 or Less	2 or More	14 or More	1.0 or More
Medium-Large Frame CT Units - 65 MW to 125 MW ICAP	3.0 or Less	5.0 or Less	2 or More	14 or More	1.0 or More
Large Frame CT Units - 135 MW to 180 MW ICAP	4.0 or Less	5.0 or Less	2 or More	14 or More	1.0 or More
Combined Cycle Units	4.0 or Less	6.0 or Less	2 or More	11 or More	1.5 or More
Petroleum and Natural Gas Steam Units - Pre-1985	7.0 or Less	8.0 or Less	1 or More	7 or More	3.0 or More
Petroleum and Natural Gas Steam Units - Post-1985	3.5 or Less	5.5 or Less	2 or More	11 or More	2.0 or More
Sub-Critical Coal Units	9.0 or Less	15.0 or Less	1 or More	5 or More	2.0 or More
Super-Critical Coal Units	84.0	24.0 or Less	1 or More	2 or More	1.5 or More



Package of Balancing Operating Reserve Change

Business Rule Change	Impact	Description
Segmented Make-Whole Payments	Generator Credits	Segment Make-Whole Payments as a function of the greater of the DA Schedule, or Min Run Time
Minimum Generator Operating Parameters – Parameter Limited Schedules	Generator Credits	Define operator objectives and the associated relevant market for solutions. Apply the defined market power test to the defined market. Apply market power mitigation rules only when the test indicates the potential to exercise market power.
Use Ramp-Limited Desired MW to determine deviations	Generator Deviations	PJM will determine whether a generator is following dispatch and calculate the deviation based on a new calculation incorporating ramp limited desired MW
Supplier Netting at the Bus (Plant)	Generator Deviations	Generators that deviate from RT dispatch may offset deviations by another generator at the same bus.
Regional Balancing Operating Reserve Allocation	Charge Allocation	Allocate OR charges that were accrued for local constraints to the regions, creating “regional” rates for Balancing Operating Reserve charges.
Netting (by Zone, Interface, Hub)	Charge Allocation	Demand bucket should be netted <u>locationally</u> by zone, hub, or interface. Supply bucket should be netted <u>locationally</u> by zone, hub, or interface.
Balancing Operating Reserve Cost Allocation	Charge Allocation	<p>For the purposes of allocation of Balancing Operating Reserve charges, PJM will determine and identify the reasons for which operating reserve credits are earned.</p> <p>The results of this determination will identify the resources for which Balancing Operating Reserve credits will be allocated to Real-time deviations from Day-Ahead schedules and identify the resources for which Balancing Operating Reserve credits will be allocated to real-time load share plus export</p>