



# RPM Training Review Session #4 Market Mitigation in RPM

May, 2007



- **Purpose:**
  - Identify the LDAs in which Capacity Market Sellers must provide the data for the Delivery Year and for the entire Region
- For each LDA, the Preliminary Market Structure Screen is based on
  - 1) Unforced Capacity available for the Delivery Year
  - 2) LDA Reliability Requirement and PJM Reliability Requirement

- The LDA **fails** the PMSS if any of the three (3) conditions is met:
  1. The market share of any Capacity Market Seller exceeds 20%
  2. The HHI for all such sellers is 1800 or higher
  3. Three Pivotal Supplier (TPS) Test - there are not more than 3 jointly pivotal suppliers

**RESULT: Capacity Market Sellers owning and controlling any Generation Capacity Resources in LDA or region, must submit data.**

- Market Power Mitigation measures are applied to any Base Residual Auction or Incremental Auction for any LDA, that **without mitigation**, would have a Locational Price Adder greater than zero, but only in the event :
  - the cost-based Sell Offers would be cleared in the Auction to resolve a locational constraint giving rise to the Locational Price Adder; and
  - All cost-based Sell Offers made at a price less than or equal to 150% of the clearing price determined in the Auction that would help resolve such constraint remaining available but unaccepted by the clearing, collectively fail the Market Structure Test

- If LDA or PJM region fails the Market Structure Test, and mitigation is applied
  - It shall be applied to all jointly pivotal suppliers (including all Affiliates, all third party supply in the LDA controlled by suppliers by contract), if there are not more than three jointly pivotal suppliers.

- Market Seller Offer Cap for Base Offer Segment:
  - Expressed in \$/MW-year
  - Applies to price-quantity offers within the Base Offer Segment
  - Equals the following:

$$\begin{array}{ccccc}
 \text{Market Seller Offer Cap for Unit} & = & \text{Avoidable Cost Rate} & - & \text{Projected PJM Market Revenues}
 \end{array}$$

- Market Seller Offer Cap for EFORd Offer Segment:
  - Expressed in \$/MW-year
  - Equals the Net Cost of New Entry

If applicable, the Sell Offer Cap may be the Opportunity Cost

|  |   |
|--|---|
| <p>Existing<br/>Generation<br/>Resources</p> | <p>Mitigation Applied if Sell Offer is :</p> <ol style="list-style-type: none"> <li>1. Greater than Sell Offer Cap; and</li> <li>2. Absent mitigation would increase the Resource Clearing Price</li> </ol> <p><b>RESULT: Sell Offer = Sell Offer Cap</b></p>   |
| <p>Planned<br/>Generation<br/>Resources</p>  | <p>Will be presumed to be competitive but sell offers may be <b><u>rejected</u></b> if deemed uncompetitive.</p> <p>Planned Generation Resource is <b>competitive</b> if:</p> <ol style="list-style-type: none"> <li>1. UCAP quantity in all sell offers is equal to or greater than 2X the incremental quantity of new entry required to meet the LDA Reliability Requirement</li> <li>2. At least two unaffiliated suppliers have submitted Sell Offers for Planned Generation Resources in applicable LDA</li> </ol> <p><b>RESULT: If Planned Generation Resource is deemed <u>non-competitive</u>, the Sell Offer is analyzed to determine if it rejected (refer to Section 6.7 of Attachment DD of PJM’s Tariff)</b></p> |

|  |   |
|--|---|
| <p>Planned<br/>Demand<br/>Resources</p>  | <p>Sell Offer Caps shall not be applied to Sell Offers of Planned Demand Resources</p>  |
| <p>Existing<br/>Demand<br/>Resources</p> | <p>When the Market Structure Test is failed, any Sell Offers of existing Demand Resources shall not be considered in determining the Resource Clearing Price for any RPM Auction for the market for which such test was failed.</p> |

- All Unforced Capacity of all existing Generation Capacity Resources located in the PJM Region shall be offered in the Base Residual Auction for Delivery Year
  - a) EFORd used is less than or equal to the EFORd for the 12 months ending on the September 30 that last precedes the submission of Sell Offers (steady state)
  - b) A Capacity Market Seller may include an EFORd Offer Segment to address risk of change in EFORd

- Any Existing Generation Resource located in the PJM Region that is not offered in the **Base Residual Auction** for the Delivery Year and does not meet any exception specified in Section 6.6 of Attachment DD:
  1. May not participate in subsequent Auctions for Delivery Year
  2. Shall not receive payments for Delivery Year
  3. Shall not be permitted to satisfy any LSE's UCAP Obligation, or any entity's obligation to obtain commitment of Capacity Resources, for Delivery Year.

- Any Existing Generation Resource located in the PJM Region that is offered in the Base Residual Auction for the Delivery Year but does not clear, and does not offer in any of the Incremental Auctions for the Delivery Year.
  1. May not participate in subsequent Auctions for Delivery Year
  2. Shall not receive payments for Delivery Year
  3. Shall not be permitted to satisfy any LSE's UCAP Obligation , or any entity's obligation to obtain commitment of Capacity Resources, for Delivery Year.

- Avoidable costs
- Opportunity costs
- PJM energy and ancillary services market revenues
- Unit-specific energy and ancillary services bilateral revenues
- Unit-specific energy and ancillary services bilateral costs
- General unit data

Generation owners should provide 2006 data. If 2006 data is not available in a timely manner to meet the February deadline, 2005 data may be escalated by using the appropriate escalation factor from the RPM Default Summary document posted on the PJM website.

***More detailed definitions can be found in Section 6.7 of Attachment DD of PJM's tariff***

Avoidable Cost Rate\* =

$$(1.10^* (\text{AOML} + \text{AAE} + \text{AME} + \text{AVE} + \text{ATFI} + \text{ACC} + \text{ACLE})) + \text{APIR}$$

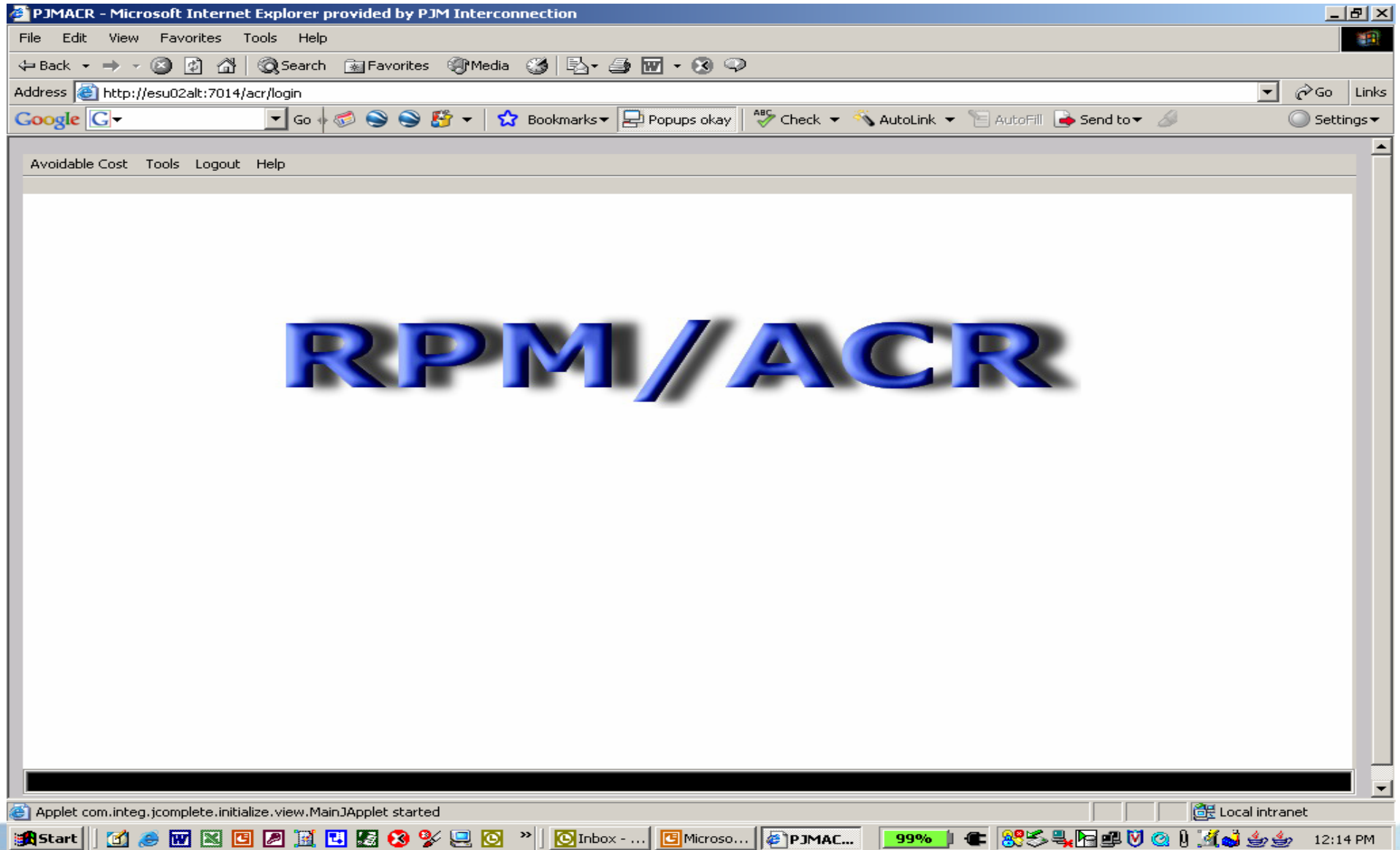
| Avoidable Expenses Categories |  |
|-------------------------------|--|
| <b>AOML</b>                   | Avoidable Operations and Maintenance Labor |
| <b>AAE</b>                    | Avoidable Administration Expenses          |
| <b>AME</b>                    | Avoidable Maintenance Expenses             |
| <b>AVE</b>                    | Avoidable Variable Expenses                |
| <b>ATFI</b>                   | Avoidable Taxes, Fees and Insurance        |
| <b>ACC</b>                    | Avoidable Carrying Charges                 |
| <b>ACLE</b>                   | Avoidable Corporate Level Expenses         |
| <b>APIR</b>                   | Avoidable Project Investment Recovery Rate |

*\*expressed in \$/MW-year*

***More detailed definitions can be found in Section 6.7 of Attachment DD of PJM's tariff***

- Any capacity market seller who intends to submit a non-zero offer price for a resource in an LDA that fails the Preliminary Market Structure Screen (PMSS)
- Participants in resource classes determined by the MMU as not likely to include the marginal price-setting resources are provisionally exempt from this data submission requirement

|   | <b>2007/08</b> | <b>2008/09</b> | <b>2009/10</b> | <b>2010/11</b> |
|---|----------------|----------------|----------------|----------------|
| Post results of PMSS  | 02/02/07       | 04/02/07       | 07/02/07       | 10/01/07       |
| Data Submittal to MMU if submitting non-zero sell offer price for resource in LDA that fails PMSS | 02/16/07       | 05/01/07       | 08/03/07       | 11/02/07       |
| MMU to notify Capacity Market Sellers of Market Seller Offer Caps                                 | 03/02/07       | 06/01/07       | 09/03/07       | 12/03/07       |



PJM - Market Messages - Microsoft Internet Explorer provided by PJM Interconnection

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## Market Messages

- > State of the Market
- > Plan (PDF)
- > FERC Order (PDF)
- > Market Indices
- > Complaints (PDF)
- > Reports
- > Data
- > Market Messages
- > Presentations

| Message   | Date       |
|---|------------|
| <a href="#">Letter re: Rehearing Order for Exemption of Post-1996 Units from Offer-Capping Rule</a> (PDF) | 07.18.2005 |
| <a href="#">Letter to NJBPU re request for analysis of PSEG-Exelon Merger</a> (PDF)                       | 04.22.2005 |
| <a href="#">Letter re: Exemption of Post-1996 Units from Offer-Capping Rule</a> (PDF)                     | 03.11.2005 |
| <a href="#">Interim LMPMWG Solution Letter</a> (PDF)  | 04.22.2003 |
| <a href="#">PJM External Pricing Policy Rev3 LTR</a> (PDF)  | 02.24.2003 |
| <a href="#">PJM External Pricing Policy Rev2 LTR</a> (PDF)  | 01.09.2003 |
| <a href="#">PJM External Pricing Policy Rev1 LTR</a> (PDF)  | 08.28.2002 |
| <a href="#">PJM External Pricing Policy LTR</a> (PDF)   | 08.01.2002 |
| <a href="#">Fuel Cost Data Request- MC</a> (PDF)  | 06.14.2002 |

| RPM Materials   | Date       |
|---|------------|
| <a href="#">RPM 2007/2008 Aggregate Supply and Aggregate Demand Curves</a> (PDF)                      | 05.16.2007 |
| <a href="#">RPM Simplified Default ACR Proxy Plants Spreadsheet</a> (XLS)                             | 02.02.2007 |
| <a href="#">Net Energy and Ancillary Services Revenue Offset for PJM and Subregions</a> (PDF)         | 01.24.2007 |
| <a href="#">RPM Default ACR Proxy Plants</a> (PDF)  | 11.22.2006 |
| <a href="#">RPM Default Summary</a> (PDF)   | 11.22.2006 |
| <a href="#">RPM Avoidable Costs Template Instructions Rev1</a> (PDF)                                  | 12.15.2006 |
| <a href="#">Default Avoidable Cost Rate Proxy Spreadsheet- CC, 2 on 1 Frame F v4</a> (XLS)            | 12.15.2006 |
| <a href="#">Default Avoidable Cost Rate Proxy Spreadsheet- CC, 2 on 1 Frame F Simplified v4</a> (XLS) | 12.15.2006 |

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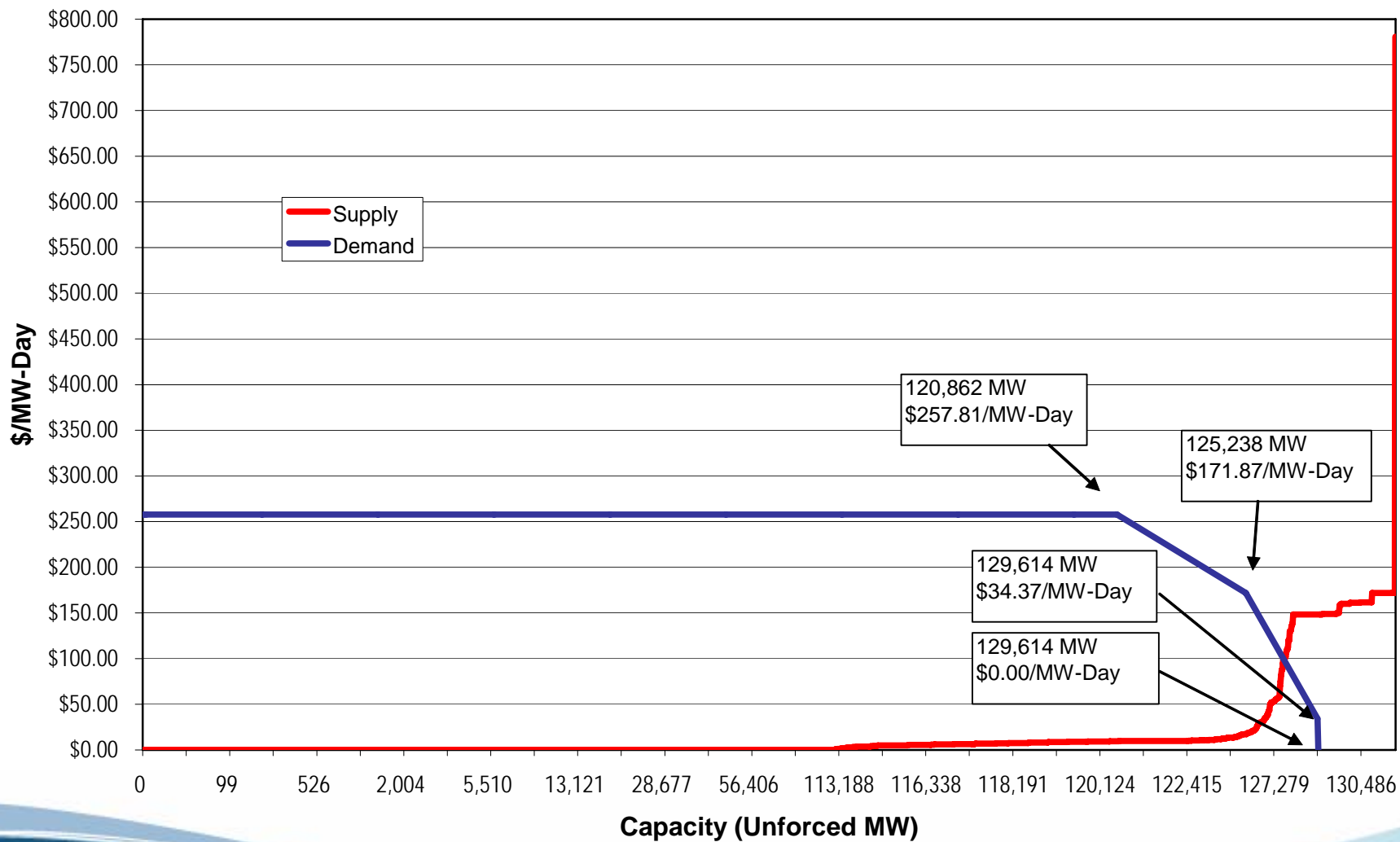
**RPM Preliminary Market Structure Screen**  
**Based on eCapacity Data @ 6/01/2008 and LDA Reliability Requirements**

|                   | <b>Highest<br/>Market Share</b> | <b>HHI</b> | <b>Pivotal<br/>Suppliers</b> | <b>Pass/Fail</b> |
|-------------------|---------------------------------|------------|------------------------------|------------------|
| RTO               | 18.5%                           | 879        | 1                            | Fail             |
| Eastern MAAC      | 33.1%                           | 2180       | 1                            | Fail             |
| Southwestern MAAC | 47.5%                           | 4290       | 1                            | Fail             |

Market Structure Screen (Three Pivotal Supplier Test)  
RPM 2007-2008 Base Residual Auction Auction

|                   | $RSI_1$ | $RSI_2$ | $RSI_3$ |
|-------------------|---------|---------|---------|
| RTO               | 0.83    | 0.69    | 0.59    |
| Eastern MAAC      | 0.12    | 0.03    | 0.01    |
| Southwestern MAAC | 0.06    | 0.00    | 0.00    |

## 2007-2008 RPM RTO Supply/Demand Curves Unconstrained



- **Aggregate supply curve**
  - Shows all offers included in the auction process
  - Includes all areas and LDAs
  - Excludes FRR resources
  - Offer prices reflect offer capping
- **Aggregate demand curve**
  - Shows total demand for entire RTO
  - Includes all areas and LDAs
  - Excludes FRR related demand

- Intersection of aggregate supply and demand curves
  - The intersection defines the price (\$100 per MW-day) that would have resulted if the entire RTO had cleared as a single market
  - This price of \$100 per MW-day is greater than the clearing price for the unconstrained part of the RTO
  - This price of \$100 per MW-day is less than the clearing prices for the constrained LDAs

1. What type of unit (gas, coal, etc.) was the marginal unit that cleared in EMAAC.....and in SWMAAC?
2. Was the price of the marginal unit mitigated in each of the LDAs?
3. How many suppliers were mitigated in each of the LDAs?

4. How many generation MWs in EMAAC and SWMAAC delisted/had off-system sales?
  
5. Did all MWs that bid in actually clear in each LDA? If not, how much did not clear in EMAAC and SWMAAC?