



# Market Monitoring in PJM

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Market Monitoring Unit

- Energy Markets
  - Day Ahead
  - Real Time
- Capacity Credits Markets
  - Daily
  - Long-Term
- Financial Transmission Rights Market
  - Auction Options
- Ancillary Services
  - Regulation Market
  - Spinning Reserve Market
  - Blackstart Service
  - Reactive Services

- Monitor **compliance with rules**, standards, procedures and practices of PJM.
- Monitor **actual or potential design flaws** in rules, standards, procedures and practices of PJM.
- Monitor **structural problems** in the PJM market that may inhibit a robust and competitive market.
- Monitor the potential of Market Participants to **exercise undue market power**.

- Develop/modify market rules to **facilitate competition**
  - Provide **incentives to competitive behavior**
  - limit the ability to exercise market power

- **Discussion of issues** with relevant Market Participants; informal resolution of issues.
- **Issue referral to FERC** notifying of rule violations.
  - FERC Market Monitoring will evaluate and decide on corrective actions.
- **Recommend modifications to rules**, standards, procedures and practices of PJM.
  - **Make recommendations** to PJM Committees or to PJM Board.
  - **Make regulatory filings** to address market issues and seek remedial measures.
- **Evaluate additional enforcement mechanisms.**

- Include diverse staff expertise
  - Economics/Engineering
  - Generation
  - Transmission
  - Power markets
  - Database/IT
- Build understanding of detailed market structure: macro/micro
- Build understanding of physical infrastructure
- Build understanding of operations
- Build in MMU data access/storage to RTO data designs
- Confidentiality protocols
- Complaint protocols

- Interaction with market participants is critical to understanding real markets
- Interaction with state Commissions is critical to understanding retail/wholesale interaction issues
- Interaction with RTO staff is critical to understanding real markets
- Coordination with FERC is essential to efficient monitoring and mitigation

- Market design
  - Market design critical for effective monitoring
  - Good market design does not obviate need for monitoring
- Market structure
  - Aggregate, supply-side market structure conditions not adequate to ensure competition
  - Transmission constraints limit competition in unpredictable ways
  - Full demand side participation a prerequisite - complex regulatory interactions to create required infrastructure
- Need to define market power as clearly as possible
  - Communicate definition to participants
  - Explain specific examples as they arise
- Need to define consequences of exercising market power
  - Explain specific examples as they arise



- Subtle and complex ways to exercise market power
- Generally not aggregate market issue
- Operating reserves
- Bid parameters
- Retirements/mothballing
- Loop flows
- FTR/Inc/Dec
- Creation of congestion

Table 2-5 Annual offer-capping statistics: Calendar years 2002 to 2006

	Real Time		Day Ahead	
	Unit Hours Capped	MW Capped	Unit Hours Capped	MW Capped
2002	1.6%	0.3%	0.7%	0.1%
2003	1.1%	0.3%	0.4%	0.2%
2004	1.3%	0.4%	0.6%	0.2%
2005	1.8%	0.4%	0.2%	0.1%
2006	1.0%	0.2%	0.4%	0.1%

Table 2-8 Three pivotal supplier test details for regional constraints:  
March 1, to December 31, 2006

Constraint	Period	Average Constraint Relief (MW)	Average Effective Supply (MW)	Average Number Owners	Average Number Owners Passing	Average Number Owners Failing
5004/5005 Interface	Peak	110	397	17	14	3
	Off Peak	107	376	17	14	3
Bedington - Black Oak	Peak	57	220	12	9	3
	Off Peak	63	239	12	9	2
Kammer	Peak	83	285	17	13	4
	Off Peak	77	301	15	12	3
AP South	Peak	101	271	16	10	6
	Off Peak	97	306	15	9	6
West	Peak	138	829	17	17	0
	Off Peak	140	739	16	15	1



Table 2-50 Components of annual PJM load-weighted, average LMP: Calendar year 2006

Element	Contribution to LMP	Percent
Coal	\$20.67	38.7%
Gas	\$17.23	32.3%
Oil	\$2.65	5.0%
Uranium	\$0.00	0.0%
Wind	\$0.01	0.0%
NOX	\$1.53	2.9%
SO2	\$5.39	10.1%
VOM	\$2.67	5.0%
Markup	\$1.54	2.9%
Constrained Off	\$1.06	2.0%
NA	\$0.59	1.1%

Table 2-36 Comparison of exempt and non-exempt markup component: Calendar year 2006

	<b>Units Marginal</b>	<b>Markup Component</b>
Non-Exempt Units	667	\$0.98
Exempt Units	43	\$0.56

Table 2-39 Markup contribution of exempt and non-exempt units: Calendar year 2006

	Exempt Markup Component	Non-exempt Markup Component	Total
High-Load Days	\$0.11	\$0.49	\$0.60
Balance of Year	\$0.45	\$0.49	\$0.94
<b>Total</b>	<b>\$0.56</b>	<b>\$0.98</b>	<b>\$1.54</b>