

# Indiana Michigan Power Summer 2006 Preparedness

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Presentation to the  
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# I&M Presenters

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# Peak Demand – 2005

	<b>Date</b>	<b>Hour Ending EST</b>	<b>Peak Demand MW</b>
I&M	Aug. 3	1400	4,193
AEP System- East Zone	July 26	1500	20,774

# I&M Summer 2006 Peak

## Summer 2006 – Projected MW

	June	July	August
Peak Internal Demand	4,200	4,464	4,334
Committed Off-System Sales	276	207	216
<b>Total Demand</b>	<b>4,476</b>	<b>4,671</b>	<b>4,550</b>
Interruptible Demand	(226)	(226)	(226)
<b>Net Demand</b>	<b>4,250</b>	<b>4,445</b>	<b>4,324</b>

# I&M Resources to Meet 2006 Peak

	June	July	August
Installed Capability	5,044	5,042	5,042
Purchases	189	189	189
<b>Total Capability</b>	<b>5,233</b>	<b>5,231</b>	<b>5,231</b>

# I&M Resources -- Reserve Margins

Interruptible Demand = 226 MW

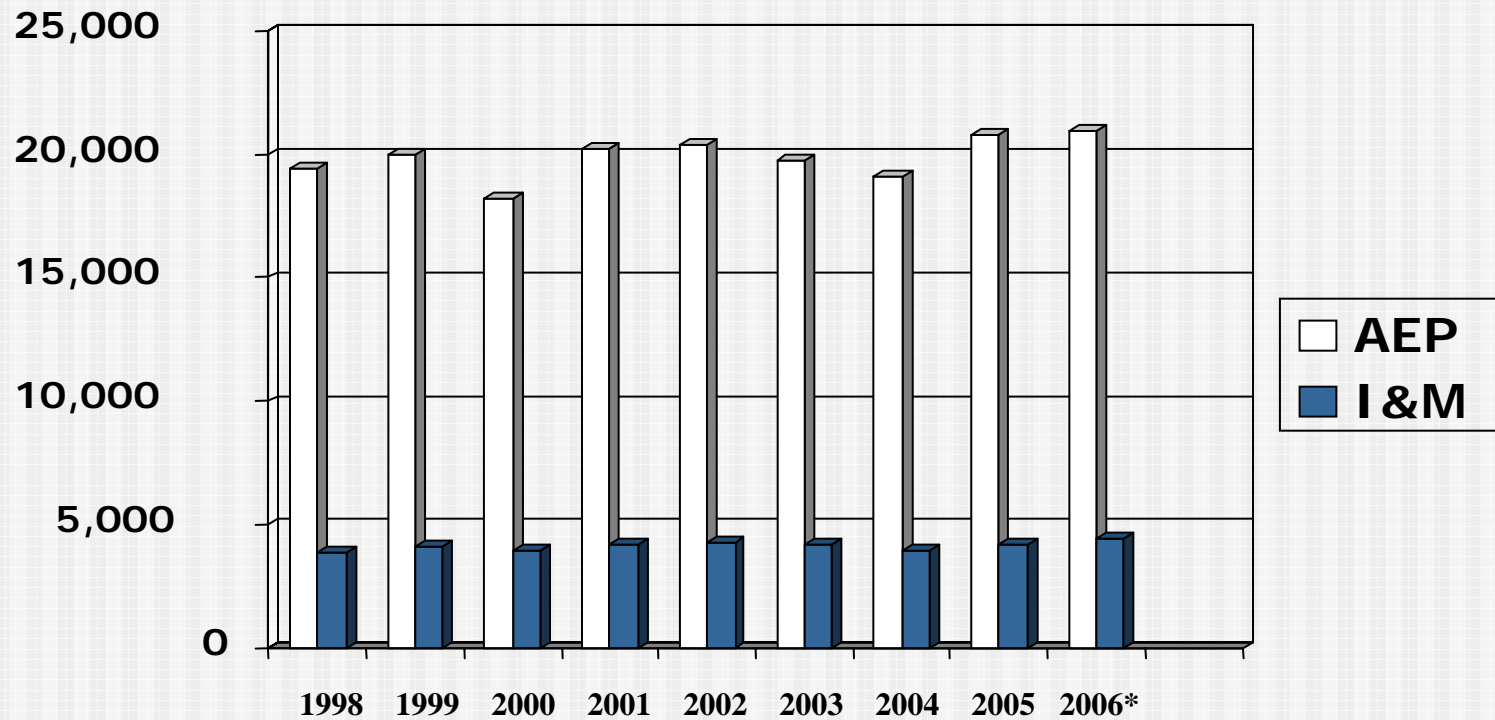
	June	July	August
Total Capability	5,233	5,231	5,231
Total System Demand	4,476	4,671	4,550
Reserve Margins Before Interruptibles (%)	757 16.9	560 12.0	681 15.0
Reserve Margins After Interruptibles (%)	983 23.1	786 17.7	907 21.0

All numbers are MW except where indicated.

# Summer 2006 Peak AEP System-East Zone

Summer 2006 – Projected MW			
	June	July	August
<b>Total Demand</b>	<b>21,261</b>	<b>21,439</b>	<b>20,421</b>
Interruptible Demand	(469)	(469)	(469)
<b>Net Demand</b>	<b>20,792</b>	<b>20,970</b>	<b>19,952</b>

# Summer Peaks AEP System-East Zone /I&M



\* Projected



# Resources and Reserve Margins AEP System-East Zone

Interruptible Demand = 469 MW

	June	July	August
Total Capability + Purchases	25,555	24,803	24,802
Total System Demand	21,261	21,439	20,421
Reserve Margins Before Interruptibles (%)	4,294 20.2	3,364 15.7	4,381 21.5
Reserve Margins After Interruptibles (%)	4,763 22.9	3,833 18.3	4,850 24.3

All numbers are MW except where indicated.

# Purchase Power Agreements AEP System-East Zone

	June	July	August
OVEC	951	951	951
Summersville	80	80	80
Mone	90	90	90
<b>Total</b>	<b>1,121</b>	<b>1,121</b>	<b>1,121</b>

Additional purchases from market resources, which include Indiana merchant plants, may be made if a need arises. But the amounts and types of transactions will not be known until the specific circumstances are identified.



# Reducing Peak Demand

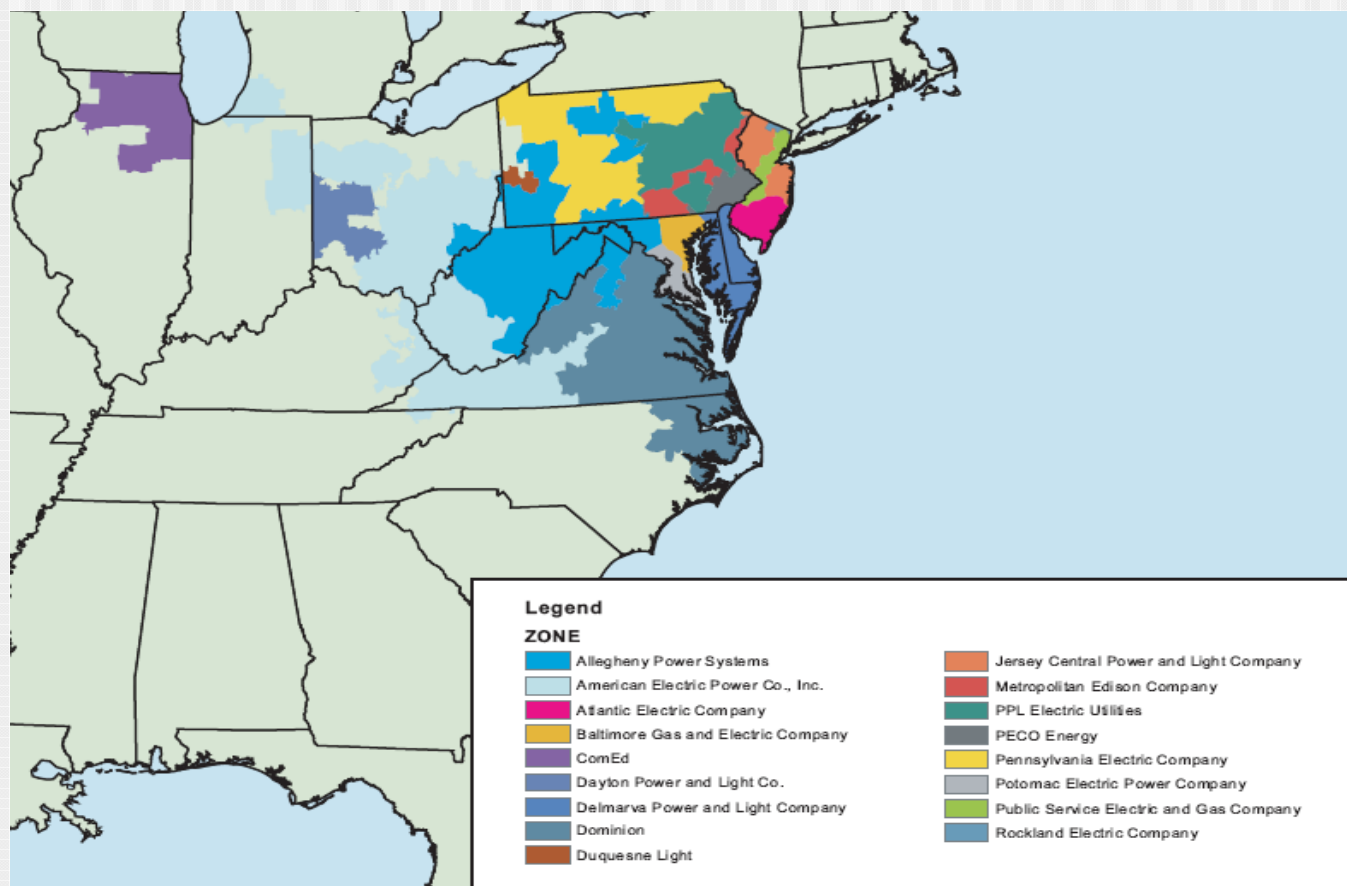
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- Interruptible Loads (Indiana 226 MW at peak)
  - Contract Service Interruptible Power tariff
- Load Management Services
  - Emergency Curtailable Service
  - Price Curtailable Service
- Time-of-Day Rates
  - 2,600 Indiana customers
  - 16,500 Off-peak water heating systems

# Life in PJM

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# PJM



# Talking points

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- AEP and PJM
- Capacity Requirement
- Economic Dispatch
- Congestion Management
- PJM/MISO Coordination

## AEP & PJM Interaction

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- AEP works with PJM and other stakeholders on a daily basis, providing guidance in the areas of Operations and Markets.
- AEP continually analyzes how PJM operates their market and operational systems
  - AEP advocates Operational and Market improvements

# Capacity Requirement

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- AEP continues to meet its 15% installed reserve margin requirement within PJM
- New capacity construct on horizon – Reliability Pricing Model
  - 4-year look-ahead commitment
  - Possible self-supply option
  - Proposed implementation in June 2007



# Economic Dispatch

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PJM uses a security-constrained economic dispatch.

AEP offers energy and ancillary services to PJM.

PJM dispatches the lowest cost solution to meet the energy requirements of the PJM footprint.

Ensures AEP customers have access to low-cost energy.

# Financial Transmission Rights

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Used as a financial hedging mechanism to offset congestion costs between generation and load.

Not a physical right to use the transmission system

# Financial Transmission Rights



$$\text{Congestion Cost} = [\$30 - \$25] = \$5 / \text{MWh}$$

$$\text{FTR Revenue} = \$5 / \text{MWh} \times 100 \text{ MW} = \$500 / \text{hr}$$

# PJM & MISO Coordination

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PJM and MISO work together to ensure the safe, reliable use of the transmission system.

PJM and MISO compute the effects of transactions and internal schedules on their respective transmission system.

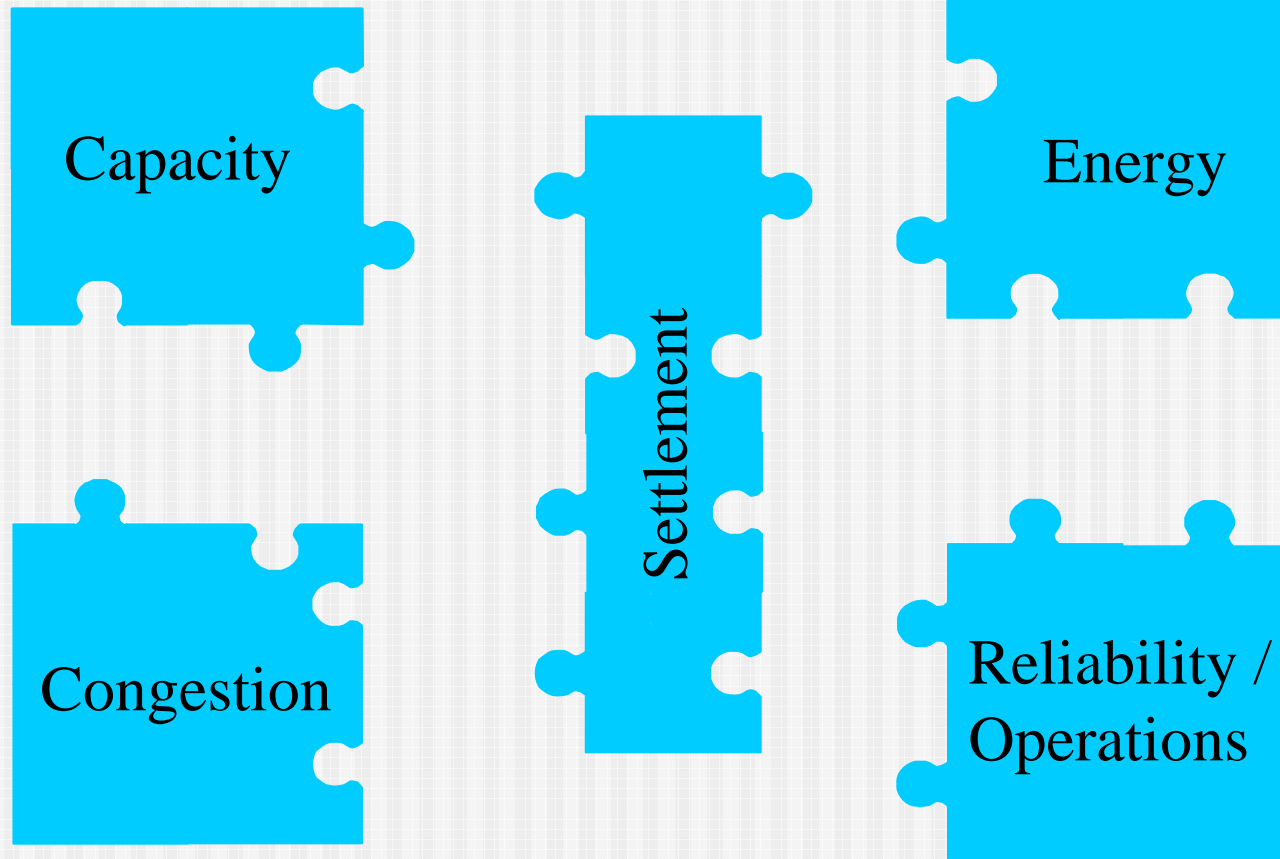
PJM and MISO use “shadow prices” to dispatch units in both markets to alleviate flows across certain congested transmission elements.

# MISO Day 2

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- No significant impact on Indiana Michigan Power's operations as a result of MISO Day 2 start-up
- No impact on AEP's capacity obligation or its available supply
- No impact on AEP's pool operation and settlement
- MISO and PJM are now using a market-to-market approach to congestion management
  - ✓ No noticeable impact on congestion patterns that impact operations
- Transactions between AEP East and AEP West are now subject to congestion across MISO but AEP received an FTR to hedge the congestion

# The Elements Fit Together



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Questions?