Integrating Energy Efficiency into System Planning

NEEP Annual EM&V Forum

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Baltimore Maryland

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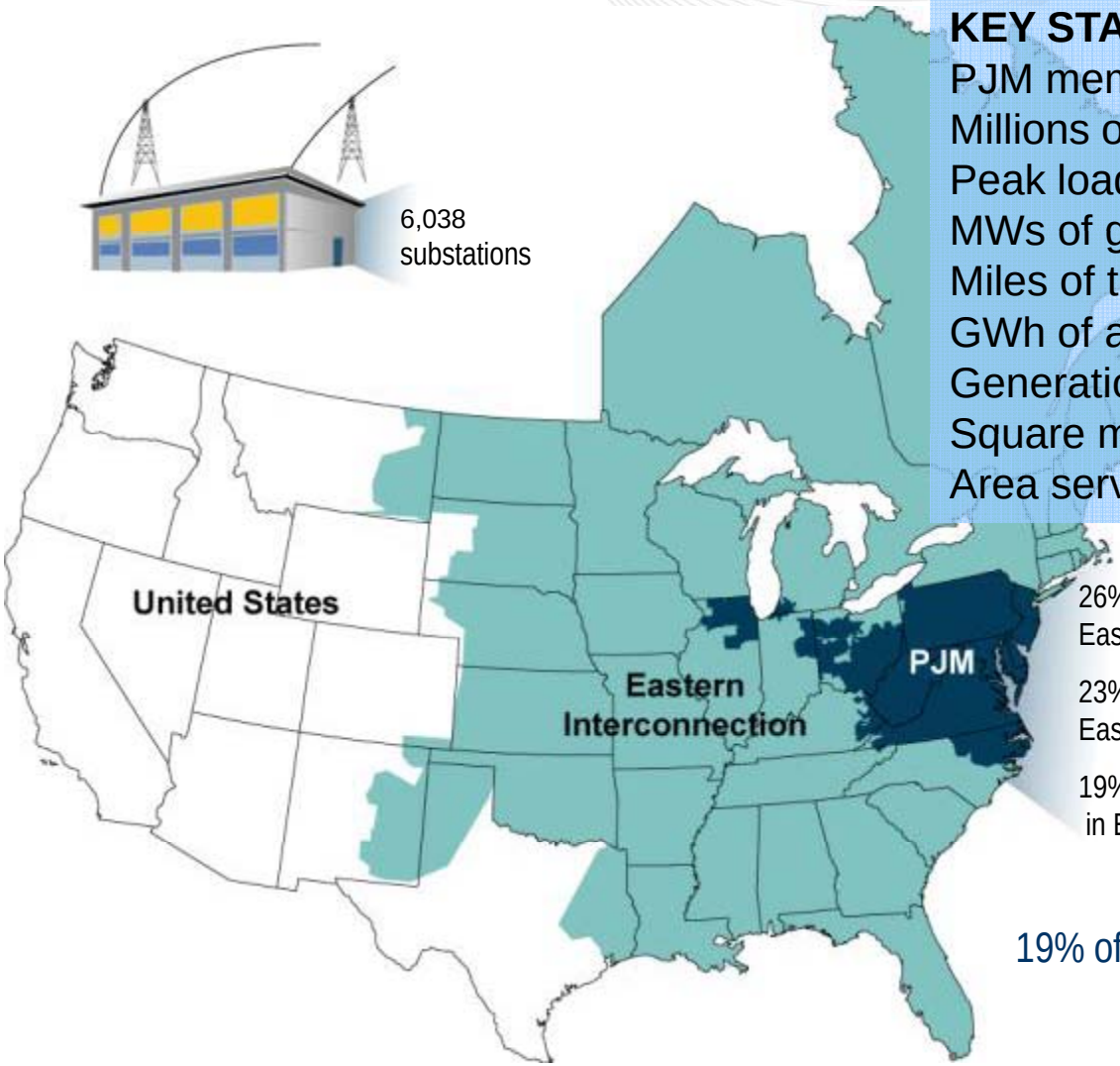
Scope – PJM Statistics

6,038
substations



KEY STATISTICS	
PJM member companies	600
Millions of people served	51
Peak load in megawatts	144,644
MWs of generating capacity	164,895
Miles of transmission lines	56,500
GWh of annual energy	709,500
Generation sources	1,325
Square miles of territory	168,500
Area served	13 states + DC

26% of generation in
Eastern Interconnection

23% of load in
Eastern Interconnection

19% of transmission assets
in Eastern Interconnection

19% of U.S. GDP produced in PJM

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Treatment of EE in PJM Capacity Market

- Energy Efficiency (EE) Programs may participate as a Resource in the PJM 3-Year Forward Capacity Market
- Requirements to participate
  - Submit Initial M&V Plan (capacity value is based on performance over defined peak summer hours)
  - May participate for up to 4 consecutive years
  - Resources that clear in the auction incur a firm commitment and are subject to financial penalty for non-compliance

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Current PJM Planning Practice

- PJM produces an “unrestricted” load forecast and separate forecasts for Demand Resources (DR) and Energy Efficiency (EE)
  - Existing energy efficiency is in the unrestricted load forecast to the extent it is captured in historical metered loads
- DR and EE “forecasts” are based on amount cleared in forward capacity auctions
- DR and EE held constant beyond Year 3

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Current PJM Planning Practice

- PJM planning studies set

  Load = Unrestricted load – MW of EE

- Planning studies that examine summer capacity emergency conditions further reduce load by DR
- Procedures in place to ensure DR and EE are not counted as both a load reducer and a resource

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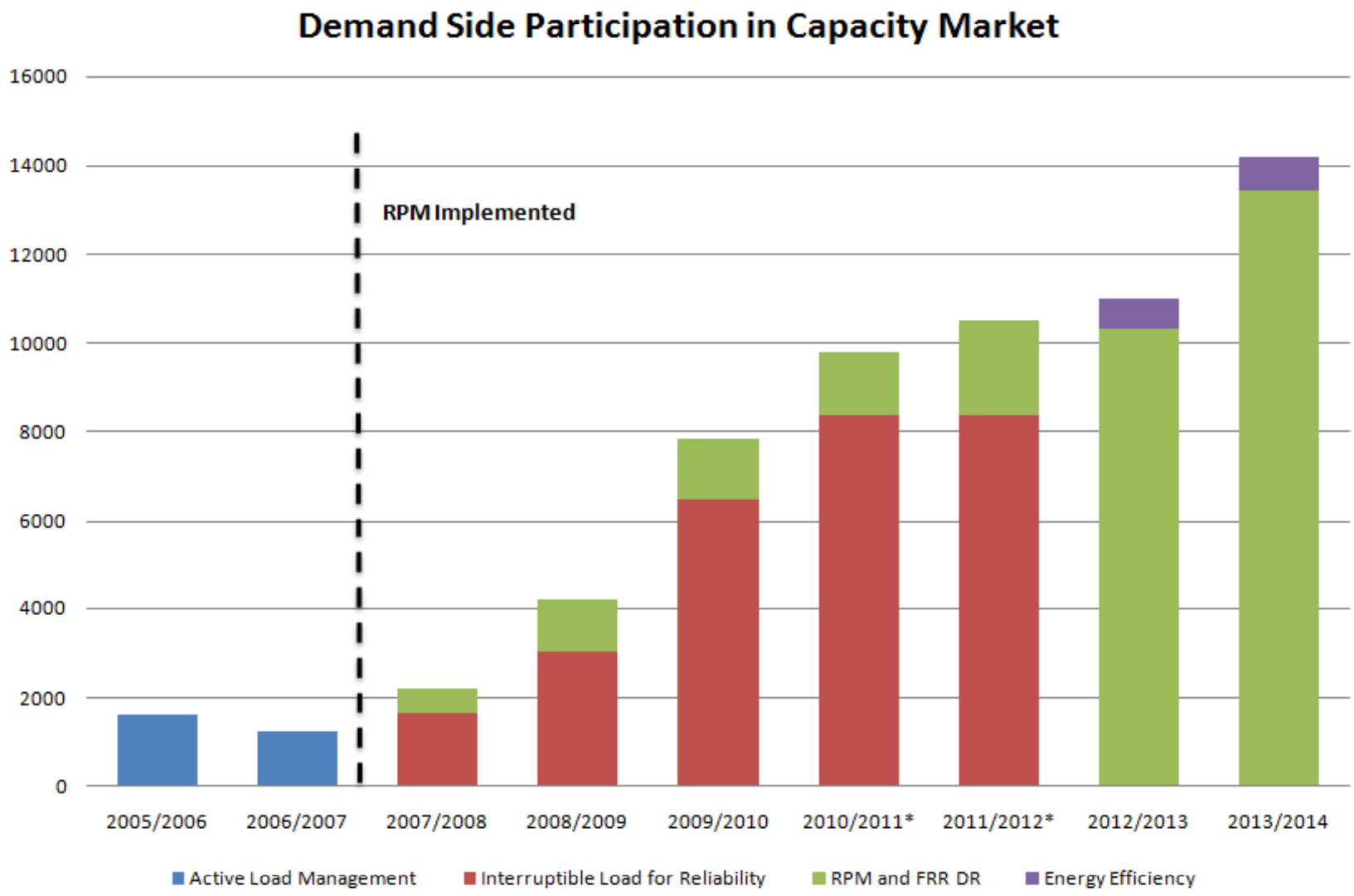
Growth of PJM Demand Side Products



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- In addition to baseline study, PJM performed sensitivity analyses to assess potential impact of three public policy initiatives:
  - Renewable Portfolio Standards
  - Environmental Regulations
  - State Goals for DR and EE
- Results were for informational purposes only

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Future Challenges

- Current regional planning process is reliability-based with explicit definition of study assumptions and criteria
- PJM stakeholder process is working on expanding planning criteria to recognize public policy initiatives. The criteria must:
  - Recognize the degree of certainty associated with each initiative
  - Be monitored and modified as circumstances change
- Investigate possible changes to PJM load forecast model to produce a true forecast of DR and EE
  - Need to identify drivers of DR and EE

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