



# Energy Policy Implications: PJM Planning

Chicago, Illinois  
November 14, 2012

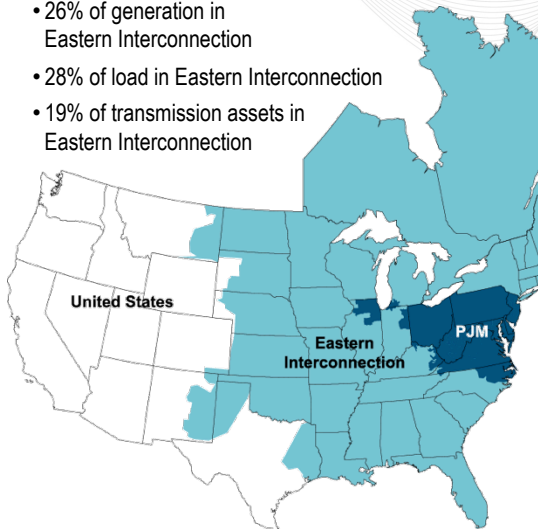
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Vice President, Planning  
PJM Interconnection

PJM02012



## PJM as Part of the Eastern Interconnection

- 26% of generation in Eastern Interconnection
- 28% of load in Eastern Interconnection
- 19% of transmission assets in Eastern Interconnection




### KEY STATISTICS

PJM member companies	800+
millions of people served	60
peak load in megawatts	163,848
MW of generating capacity	185,600
miles of transmission lines	65,441
GWh of annual energy generation sources	832,331
square miles of territory	1,365
area served	214,000
externally facing tie lines	13 states + DC
	142

**21% of U.S. GDP  
produced in PJM**

As of 1/4/2012




Planning For Public Policy

**Order 1000 Requirements:**

- Planning authority required to “consider” public policy requirements (defined as legislative and regulatory requirements)
- Order 1000 is a requirement to “*evaluate*” options to meet identified public policy requirements, *not* a requirement that PJM, on its own, order such projects be built. (Order 1000, para. 213)

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Public Policy Requirements

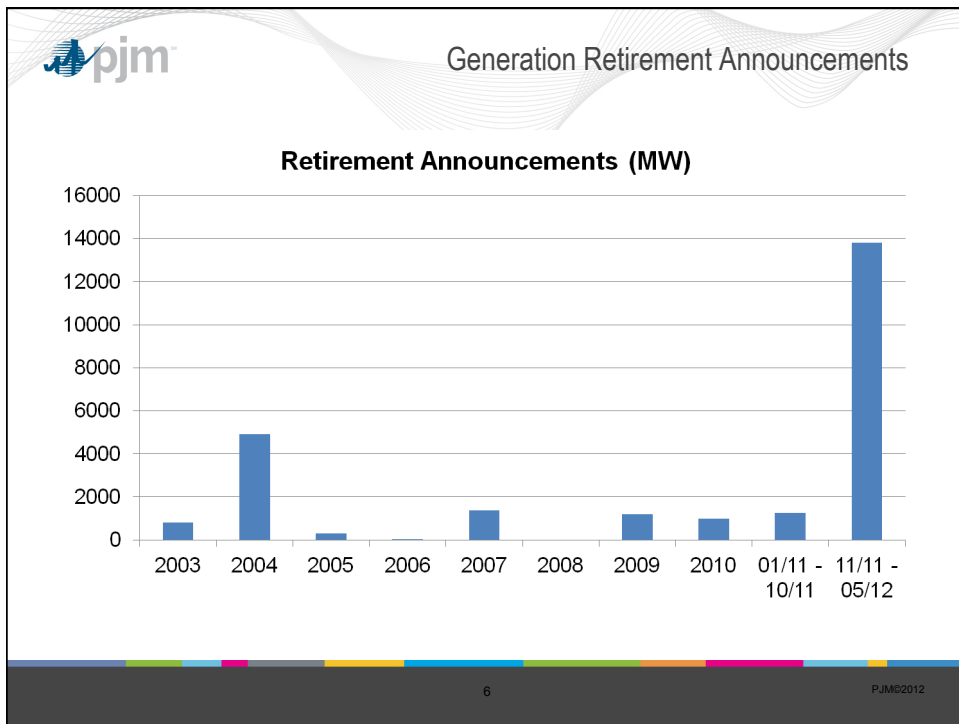
- **Generation Retirement Drivers**
  - EPA Regulations
  - HEDD Regulations
  - Other Environmental Regulations
- **Generation Addition Drivers**
  - Renewable Portfolio Standards
    - Wind Generation Development
    - Solar Generation Development
  - Marcellus Shale
- **Demand Response / Energy Efficiency Programs**

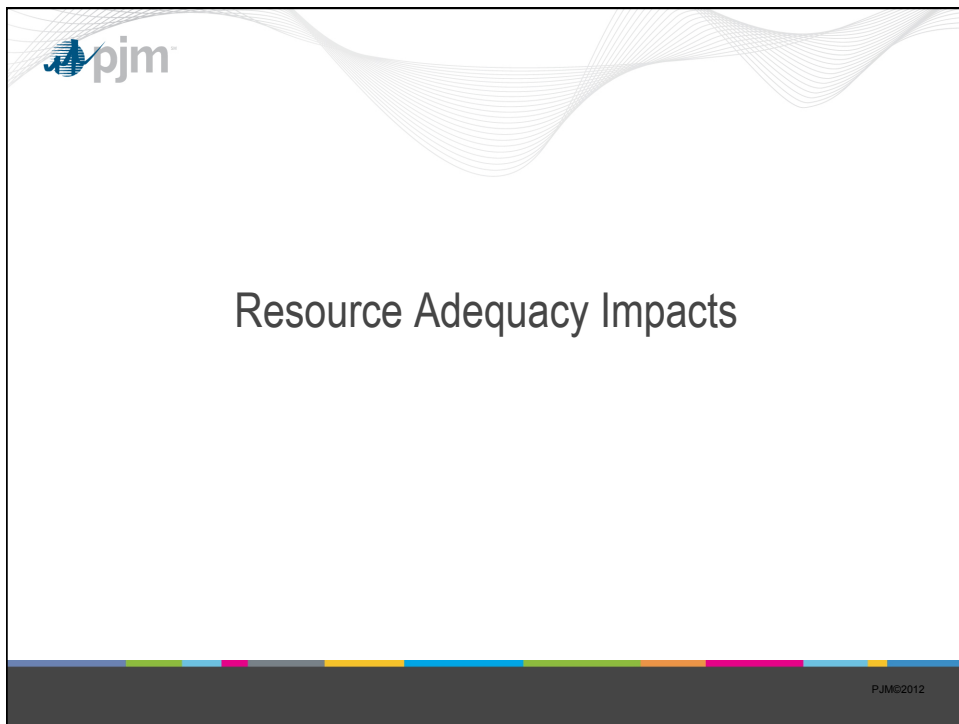
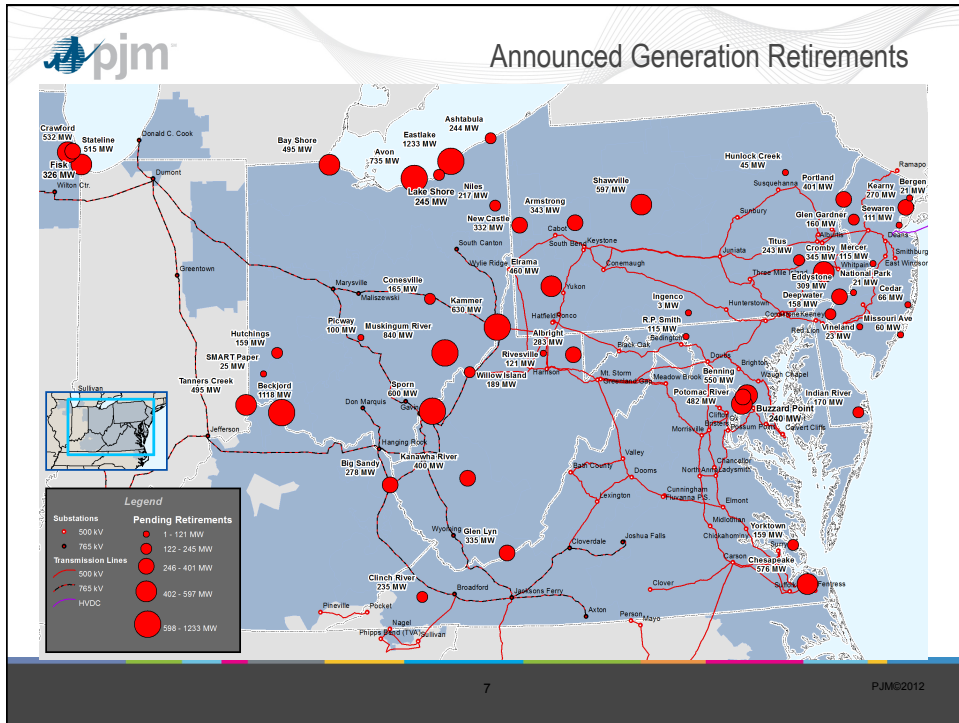
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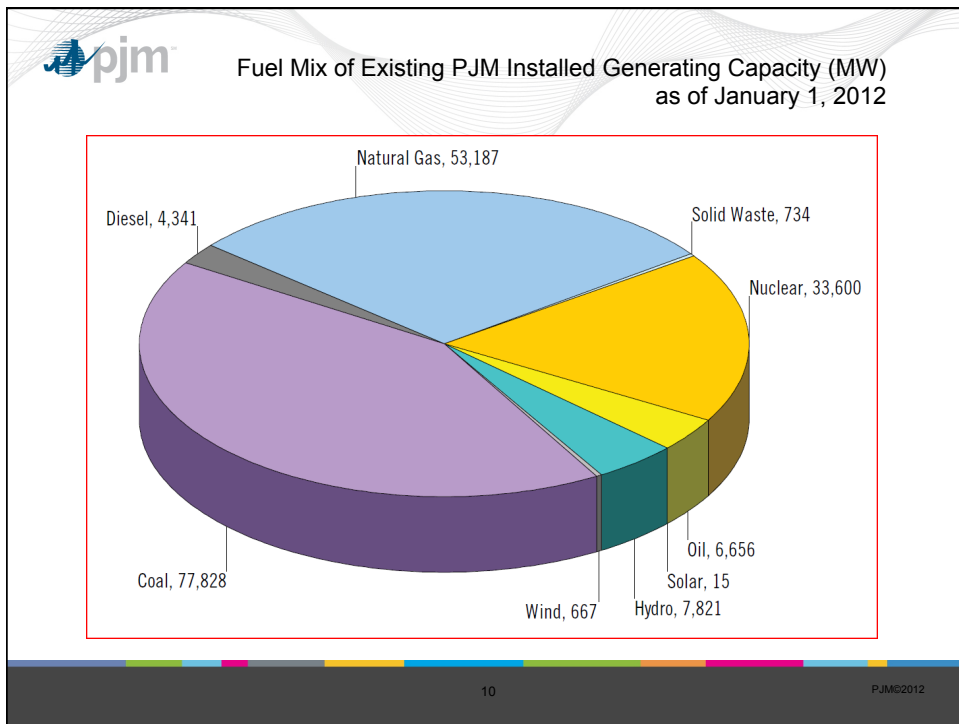
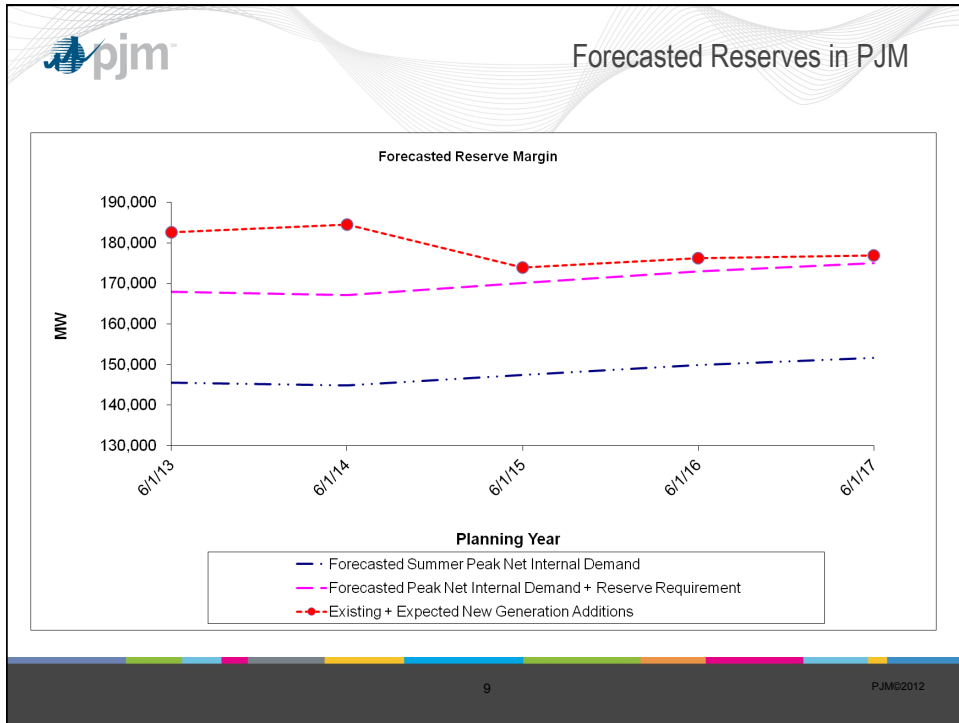
**pjm** Summary of Environmentally Related Rules

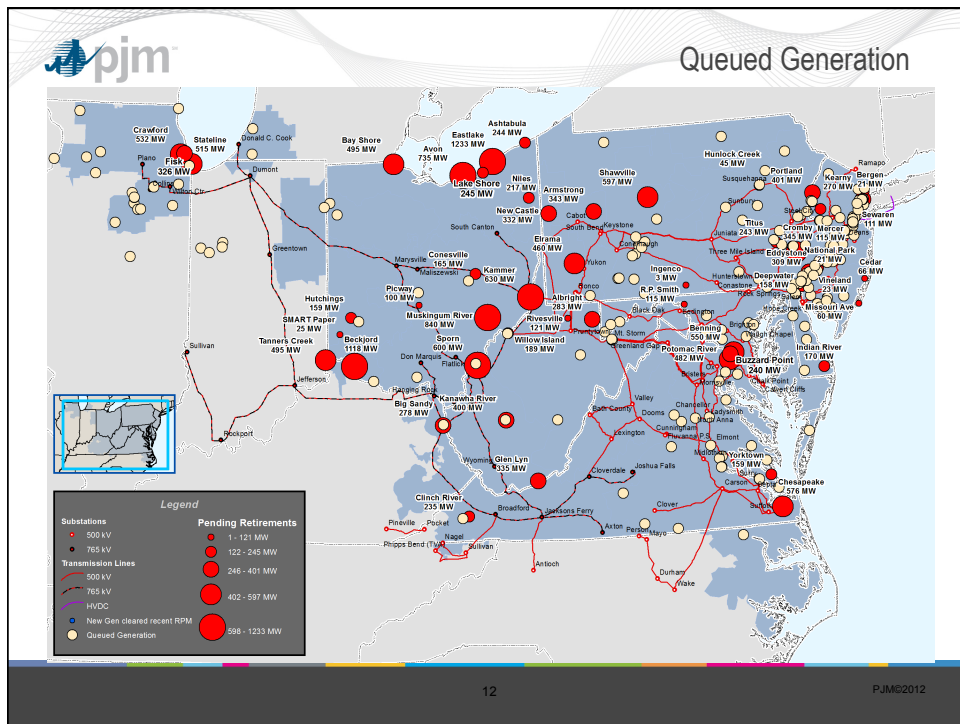
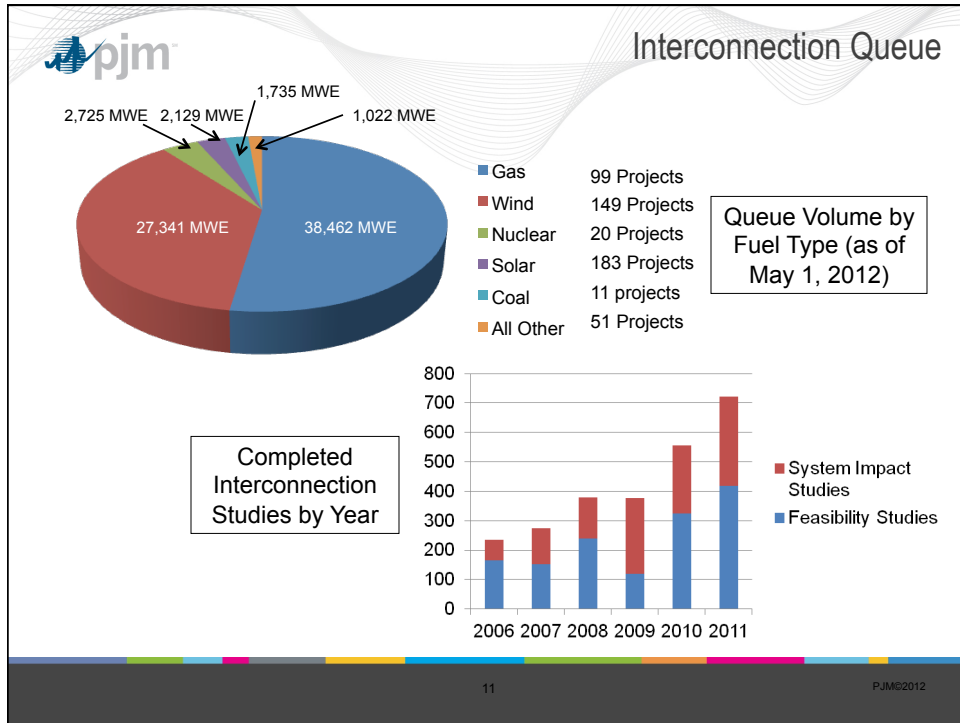
	GHG Tailoring Rule and Proposed NSPS	Cross State Air Pollution Rule (vacated)	Mercury & Air Toxics Standards	Clean Water Act 316(b)	New Jersey High Electric Demand Day	Renewable Portfolio Standards
<b>Pollutant or target issue</b>	CO <sub>2</sub> and other GHGs	•SO <sub>2</sub> and NO <sub>x</sub> annual caps •NO <sub>x</sub> seasonal cap	Mercury, other Heavy Metals, and Acid Gases	Cooling water intake structures	Ozone formation from NO <sub>x</sub> on hot days	Ensure a certain percentage of renewables
<b>Relevant Dates</b>	1/1/2011 – reporting, Mid-2013 – emission limits	•1/1/2012: Phase 1 •1/1/2014: Phase 2 •Vacated by DC Circuit Court	4/16/2015, extension possible under safety valve	2012 final rule 2015-2018	Phase 1 - current Phase 2 - May 1, 2015	various
<b>Units impacted</b>	All fossil units	All fossil units Primarily coal	Coal and oil, primarily coal	All existing units	Peaking units	All units
<b>Standard</b>	BACT case-by-case. CO <sub>2</sub> – 1,000 lb/MWh	Limited cap & trade. Use of FGD or DSI and SCR likely	MACT to be defined, likely FGD or DSI, ACI, fabric filter	BTA to be defined, likely not once thru cooling. Case-by-case	NO <sub>x</sub> rate standard. Use of SCR and other controls likely	Mandated percentage of electricity sales from renewables
<b>Impact on Units</b>	<b>Mostly fixed costs</b>	<b>Fixed Costs Variable Costs -- allowance prices</b>	<b>Mostly fixed costs, but also some VOM</b>	<b>Mostly fixed costs</b>	<b>Mostly fixed costs</b>	<b>Reduced net energy market revenues for non-RPS units</b>

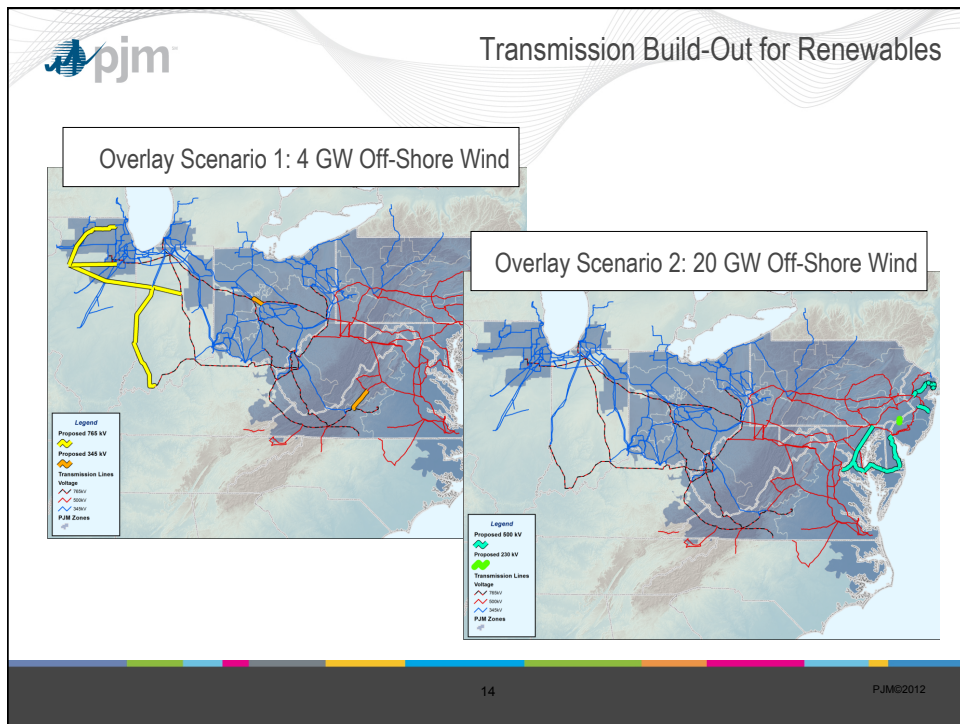
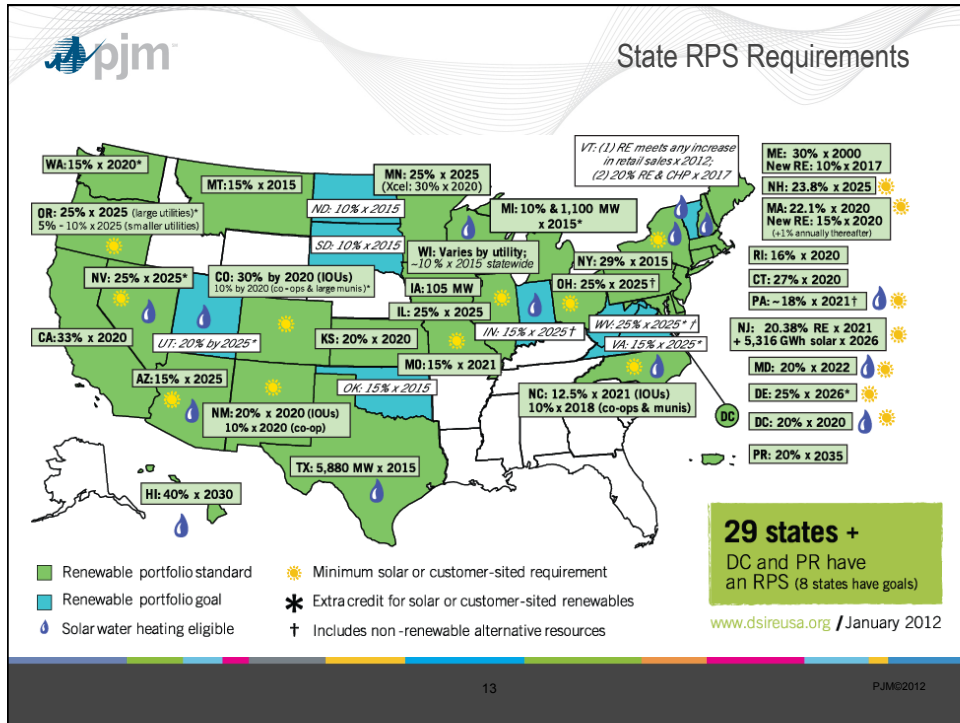
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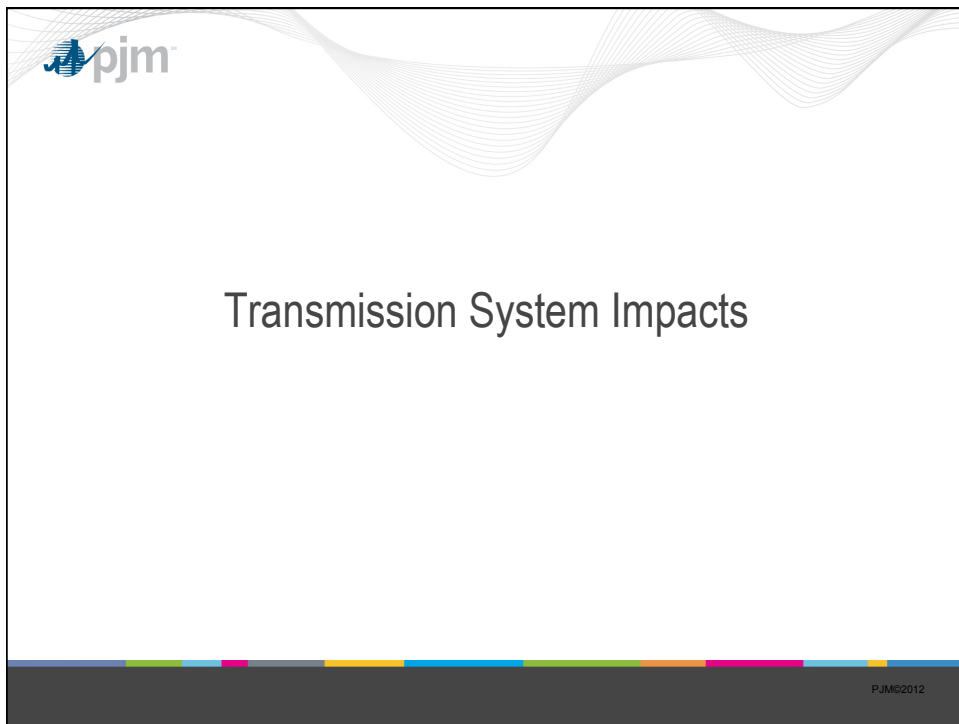
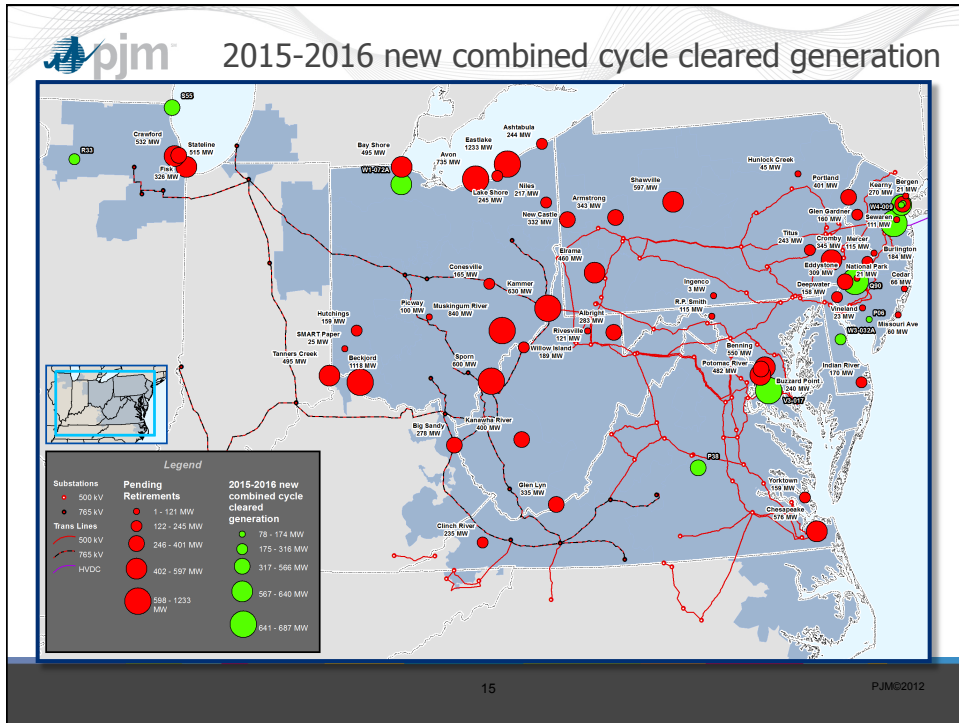




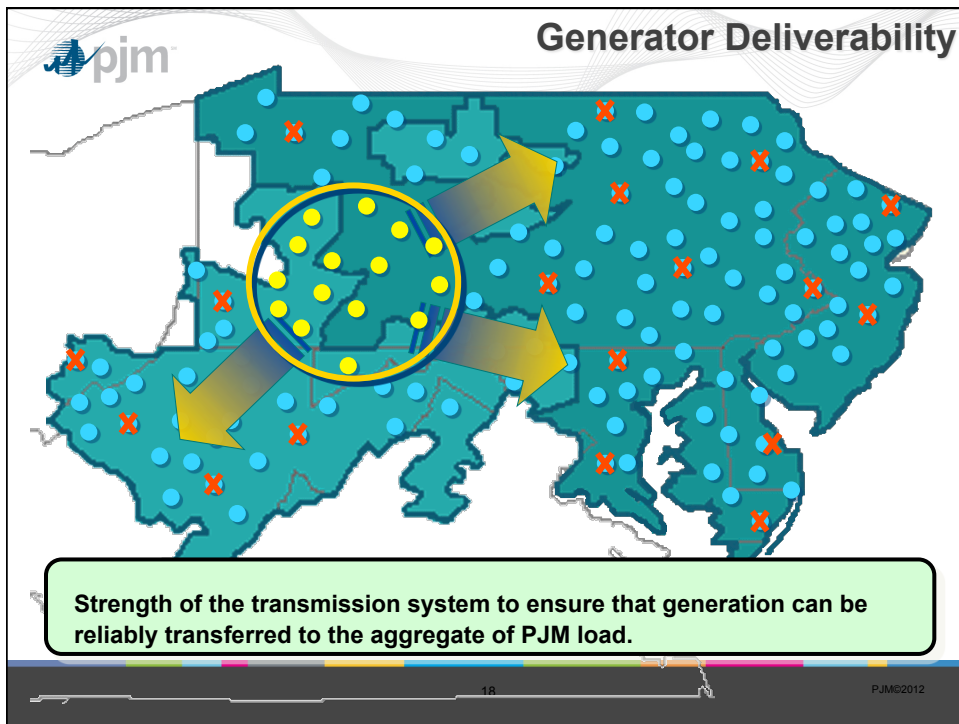
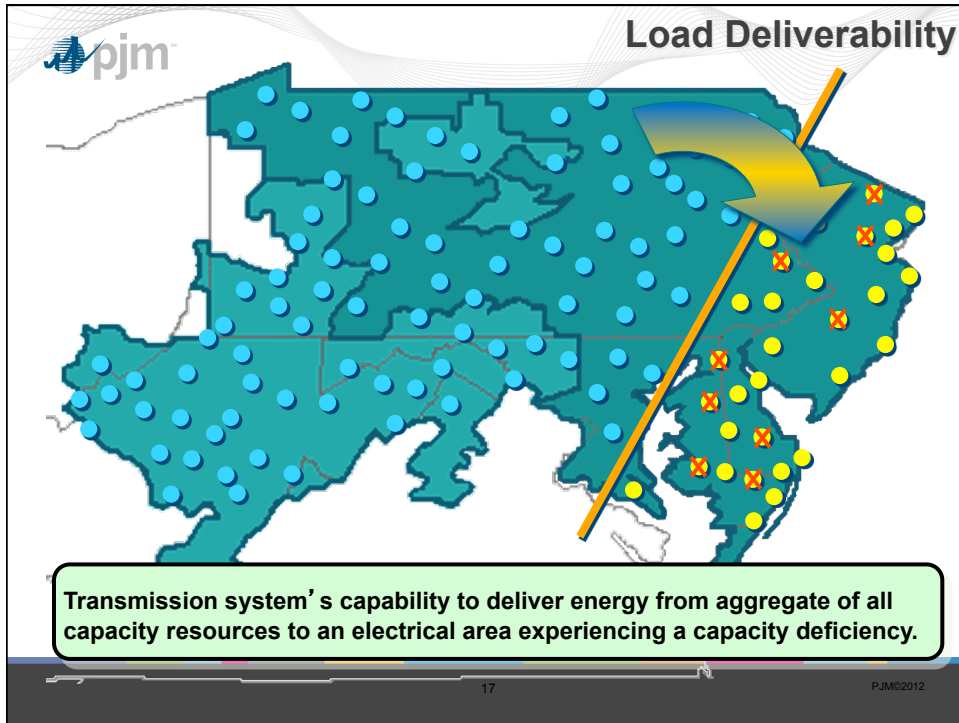
















RTEP Summary

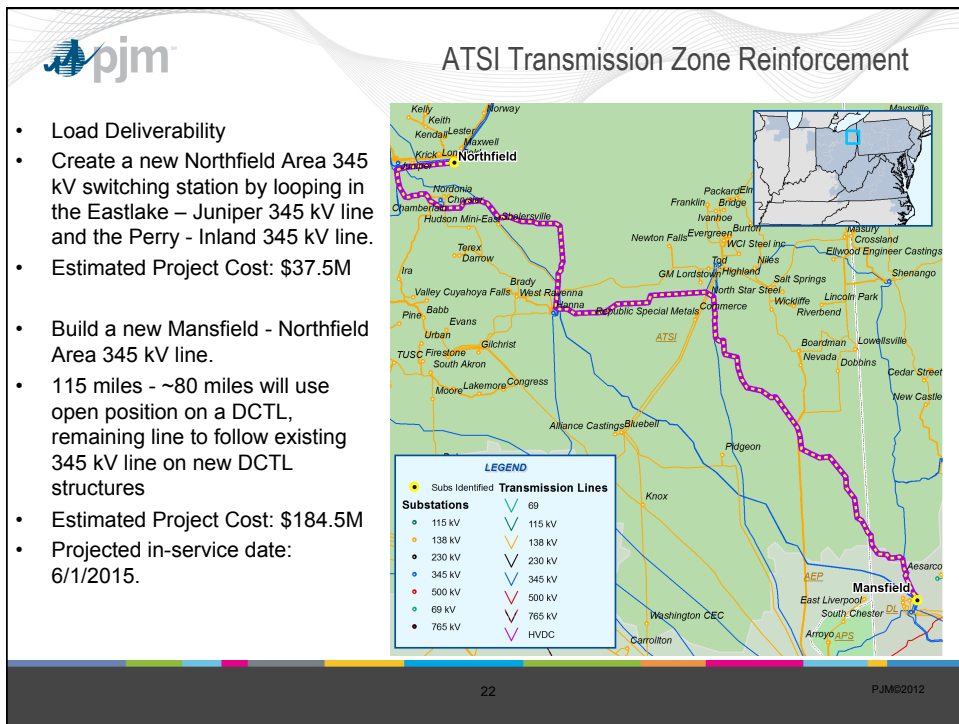
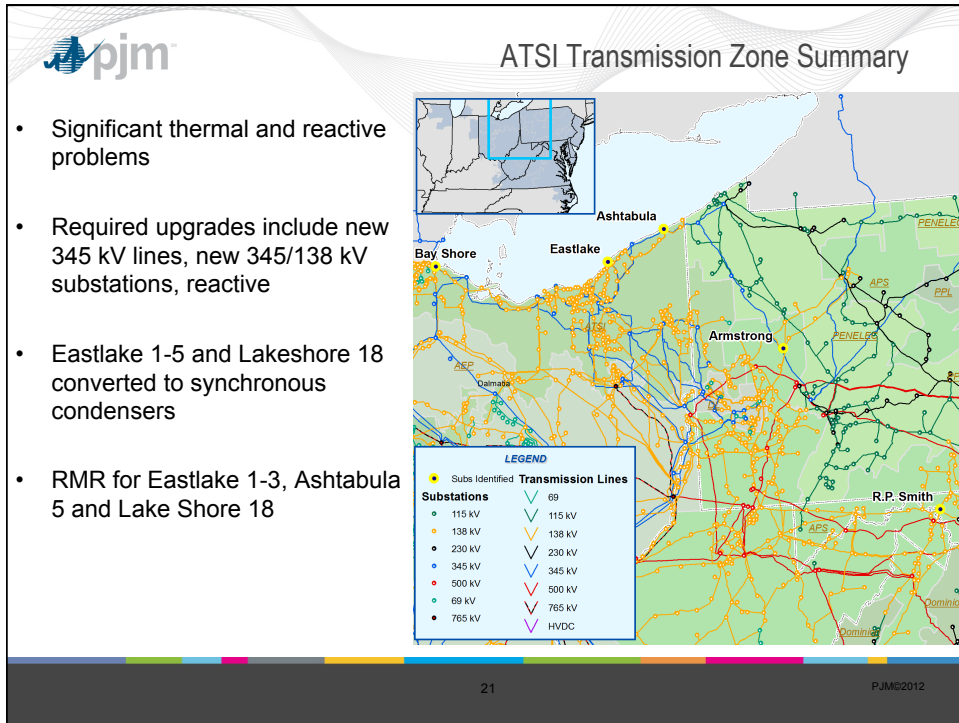
- Year to date the PJM Board of Managers has approved 147 projects totaling over \$2.4 Billion to address transmission issues related to the recent generator deactivation notices
  - 27 projects in the Mid-Atlantic area of PJM
  - 20 projects in the Southern area of PJM
  - 100 projects in PJM West
    - Over \$1 Billion in the ATSI transmission zone
    - Over \$500 Million in AEP

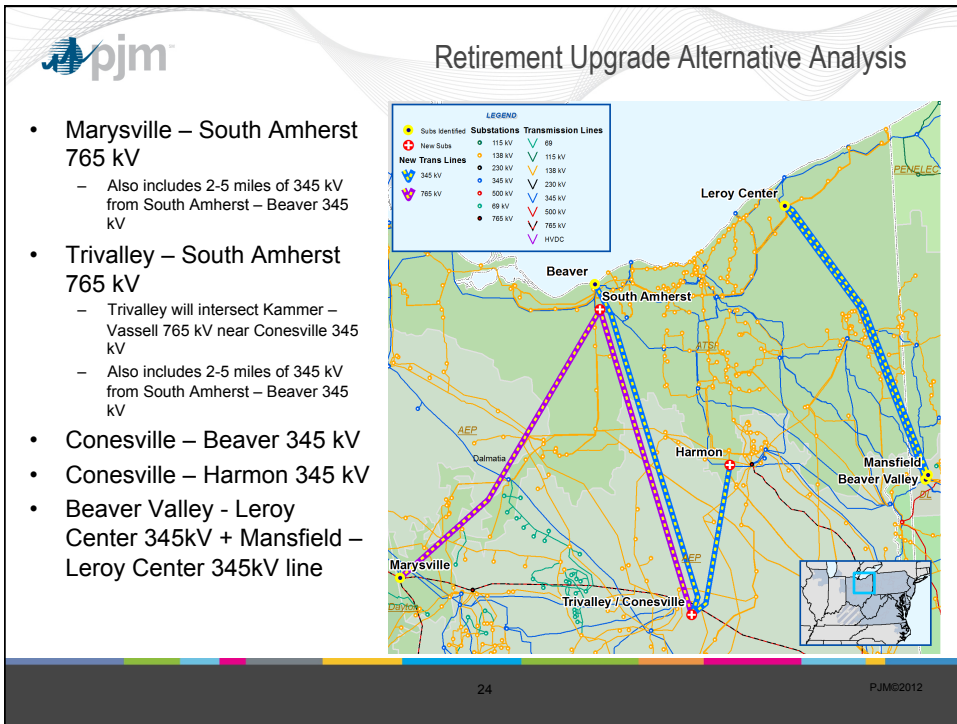
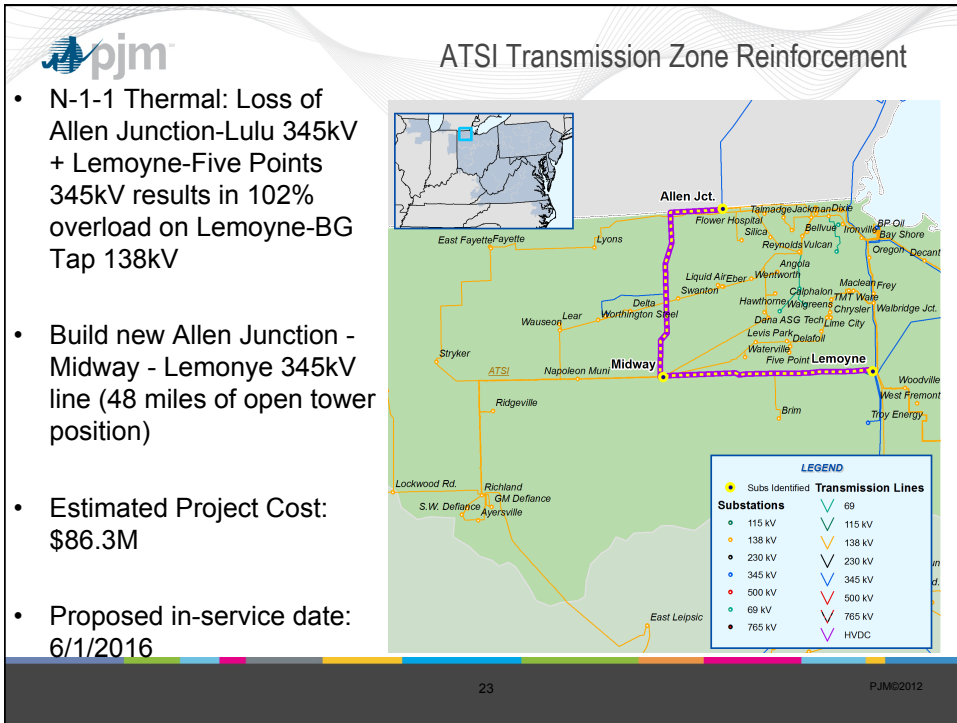
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## Ohio Area Upgrades

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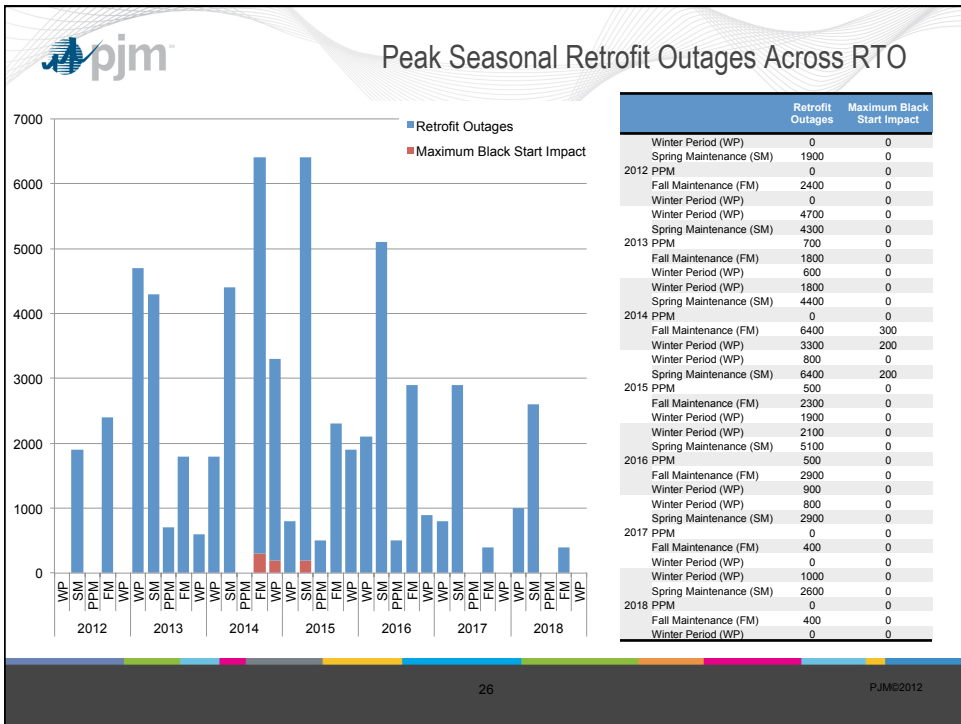


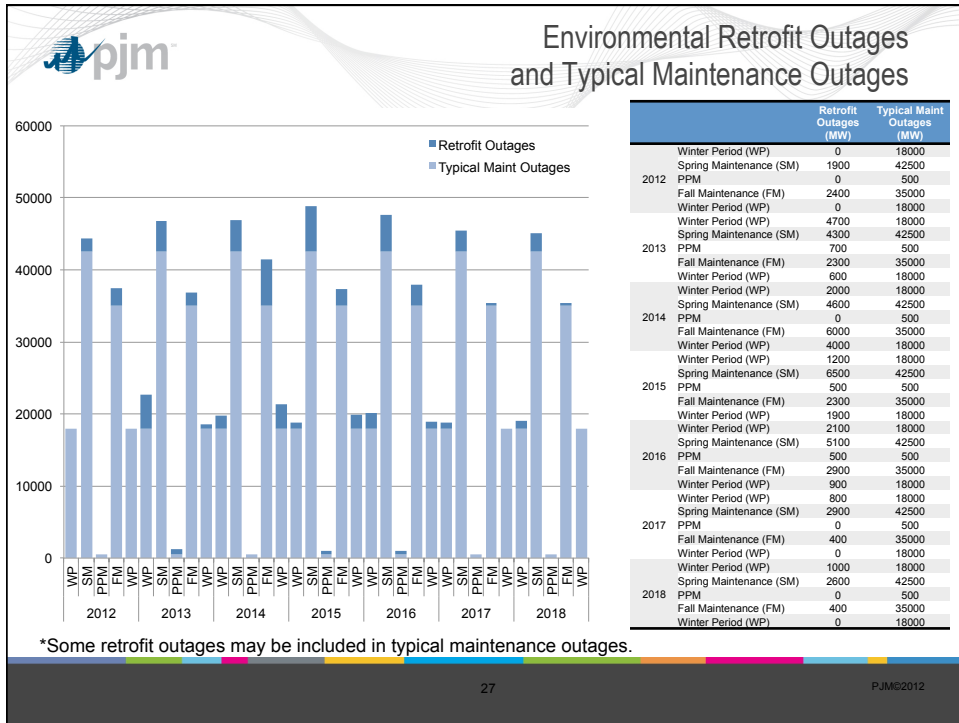




# Operational Issues

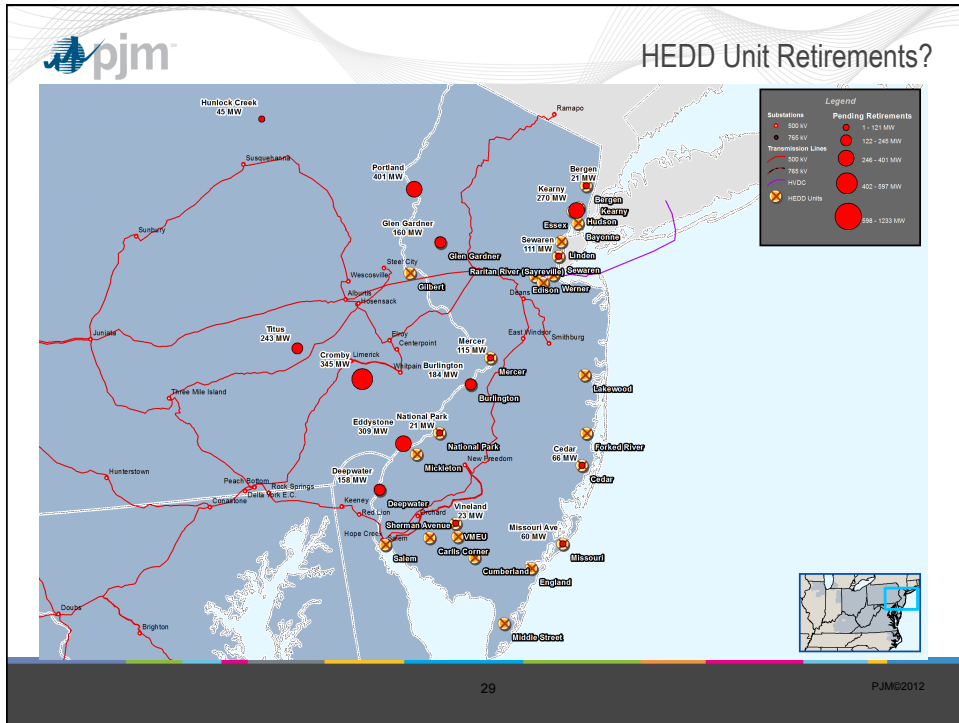
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**What's Next?**

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Questions?

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