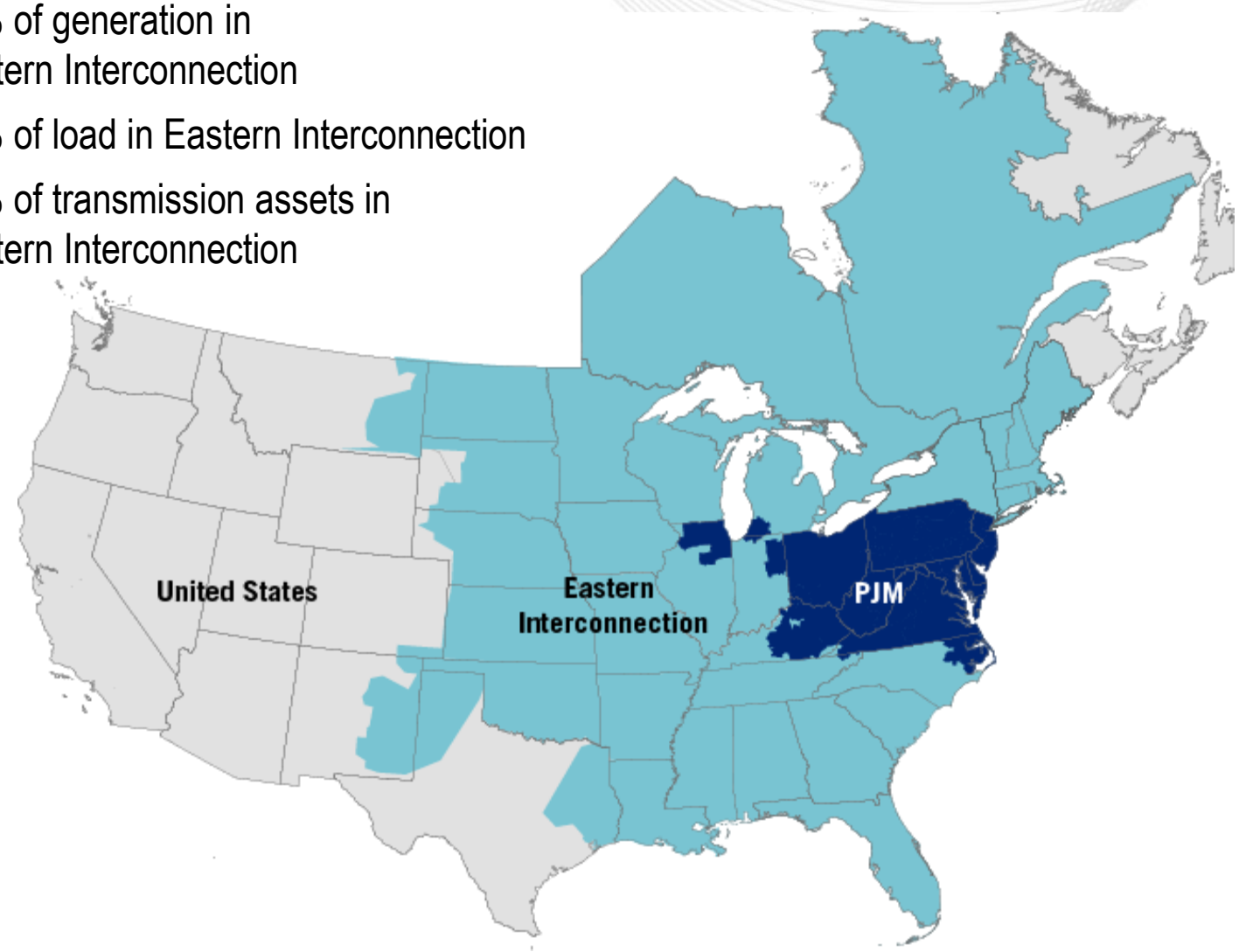
Summer 2015
PJM Reliability Assessment

Pennsylvania Public Utility Commission

June, 2015

PJM as Part of the Eastern Interconnection

- 27% of generation in Eastern Interconnection
- 28% of load in Eastern Interconnection
- 20% of transmission assets in Eastern Interconnection



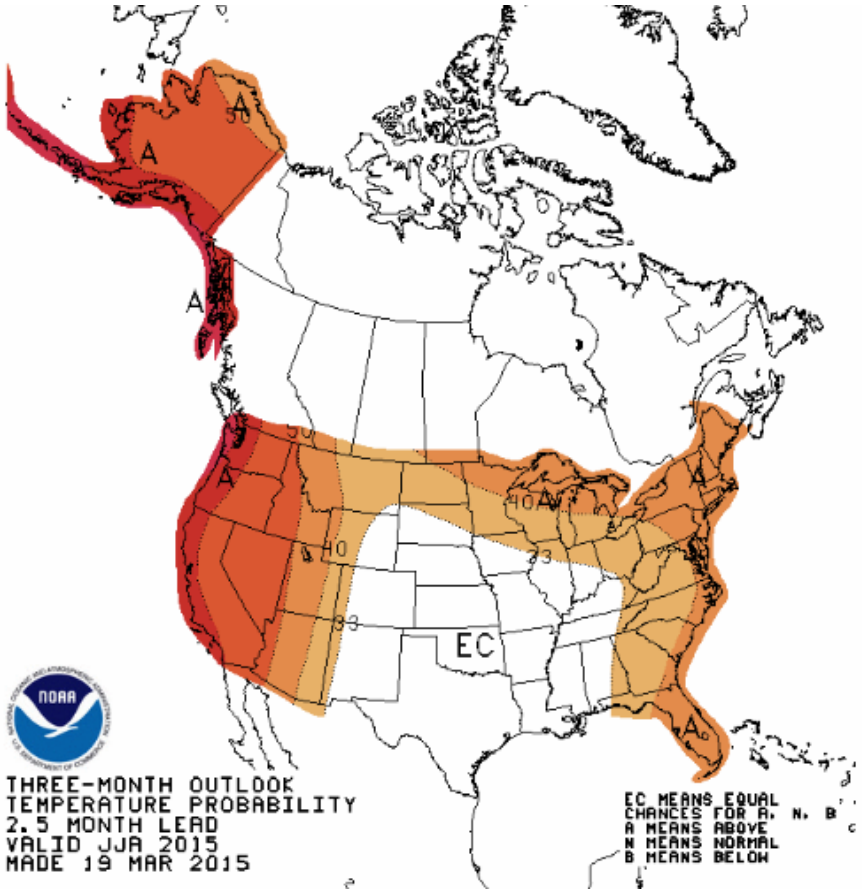
KEY STATISTICS	
PJM member companies	925+
millions of people served	61
peak load in megawatts	165,492
MWs of generating capacity	183,604
miles of transmission lines	62,556
2014 GWh of annual energy	797,461
generation sources	1,376
square miles of territory	243,417
area served	13 states + DC
externally facing tie lines	191

21% of U.S. GDP produced in PJM

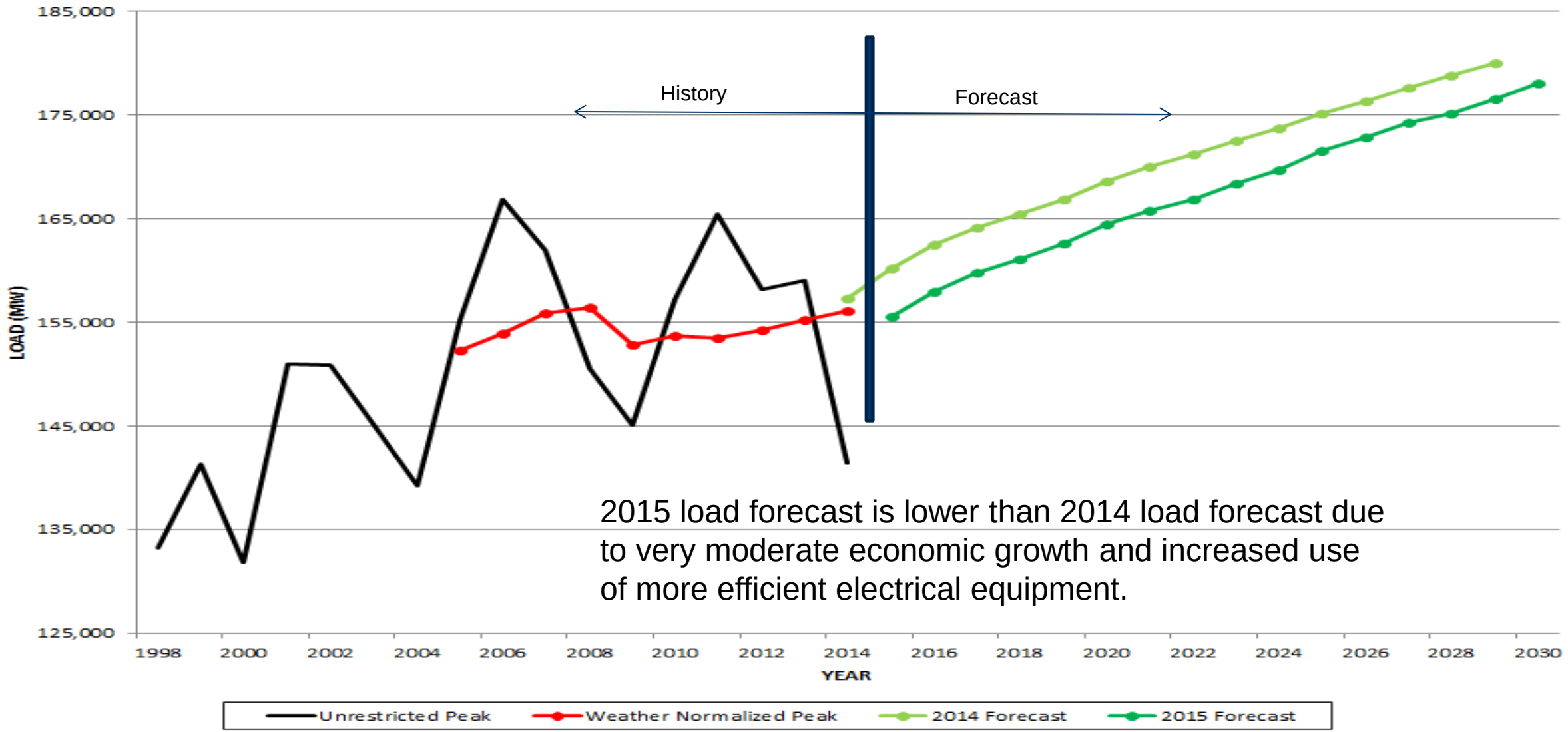
As of 04/2015

Summer Weather Outlook

- The latest forecast released by the Climate Prediction Center for the months of June, July and August 2015 (right) depicts a chance of **above average temperatures** for much of the footprint, but especially in Pennsylvania, New Jersey, Delaware and down the eastern seaboard.
  - Darker shading indicates a greater probability of higher than normal temperatures.
- Hurricane season begins on June 1 and runs through the end of November. Current model projections suggest that the current El Niño conditions will continue through 2015 which would result in **below average hurricane development** in the Atlantic.



2014 vs. 2015 PJM Load Forecast



2015 load forecast is lower than 2014 load forecast due to very moderate economic growth and increased use of more efficient electrical equipment.

PJM Load and Capacity Comparison: 2014 vs. 2015

2014

Forecast Load (MW) Total	Demand Response and Energy Efficiency (MW)	Forecast Load Less Demand Response (MW)	Installed Generation Capacity (MW)	Reserve Margin (MW)	Reserve Margin	Required Reserve Margin
157,279	11,160[1] (est.)	146,119	183,220	37,101	25.4%	16.2%

[1]Includes 522 MW of Energy Efficiency

2015

Forecast Load (MW) Total	Demand Response and Energy Efficiency (MW)	Forecast Load Less Demand Response (MW)	Installed Generation Capacity (MW)	Reserve Margin (MW)	Reserve Margin	Required Reserve Margin
155,544	8,543[1] (est.)	147,001	177,650	30,649	20.8%	15.6%

[1]Includes 763 MW of Energy Efficiency

2014 (Actual Peak Load: 141,867MW on 6/17/14 at HE 18)

Glossary for Load and Capacity Summary Slide

Forecast Load – Expected peak demand, based on normal weather (Total Internal Demand-TID)

Demand Response – Contractually interruptible load and other customer load willing to be interrupted at the direction of PJM. Compliance check is performed at end of summer.

Forecast Load Less Load Management – Expected peak demand after demand response has been implemented (Net Internal Demand-NID)

Installed Generation Capacity – Total MW output of all of the generators that cleared in RPM and are committed to serve PJM load (Installed Capacity)

Reserve (MW) – Installed Generation Capacity minus Net Internal Demand

Reserve Margin (%) – Reserve expressed as a percent of Net Internal Demand

Required Reserve Margin (%) – PJM required planning reserve, as determined by the RPM process (Installed Reserve Margin-IRM)

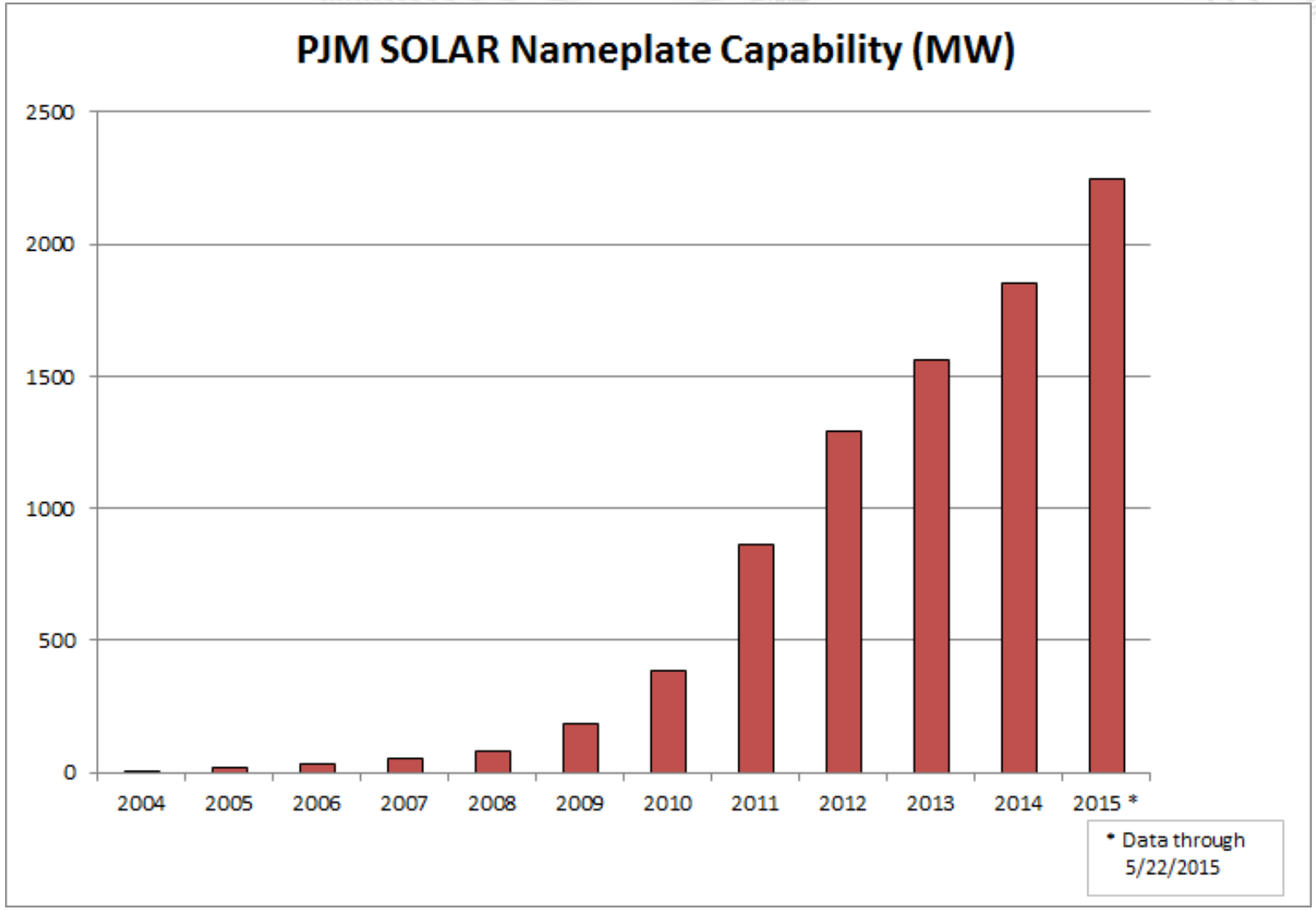
Total Installed Generation is all capacity within PJM plus external capacity that has committed through RPM or all capacity within PJM (regardless of commitment in RPM) plus external capacity that has committed through RPM

The Reserve Margin based on Committed Resources uses as its numerator the Total Installed Generation above and subtracts out internal uncommitted generation (the MW of the numerator is not in the slides…just the resulting reserve percentage.) This percentage of 20.8% is what must exceed the required reserve margin of 15.6%.

2015 Summer Capacity

- Historically about 7% of PJM capacity is “forced out” of service during the peak summer period
- Scheduled generator maintenance is coordinated to minimize peak period impacts
- Water levels are expected to be normal for hydro units
- Projected to have 353 MW of solar-powered generation in the PJM markets on 6/1/2015
- Projected to have 6,677 MW of wind generation in PJM on 6/1/2015
  - 1,338 MW in Pennsylvania

Solar PV Continues to Grow in PJM



PJM Summer Preparations

- PJM Operations Assessment Task Force (OATF) Summer Operating Study
- Reliability*First* Summer Assessment (May 12-13, 2015)
- Joint MISO/PJM/NPCC Operations Coordination Meeting (May 6-7, 2015)
- SERC Operating Committee / VACAR Pre-summer coordination Meetings (May 20, 2015)
- PJM Spring Operator Seminar (9 sessions – over 800 operators attended)
- PJM Emergency Procedures Drill – May 12, 2015

Summary

- PJM expects to be able to reliably serve expected peak loads—peak loads are expected to be higher this summer than in summer 2014 which had extremely mild weather. The projected summer 2015 reserve margin exceeds the required reserve margin.

- A lower load forecast, coupled with the addition of demand response and energy efficiency programs, help to offset the impact of generator retirements.

- The transmission system is expected to perform adequately based on applicable reliability criteria.