Summer 2016
PJM Reliability Assessment

Pennsylvania Public Utility Commission

June, 2016

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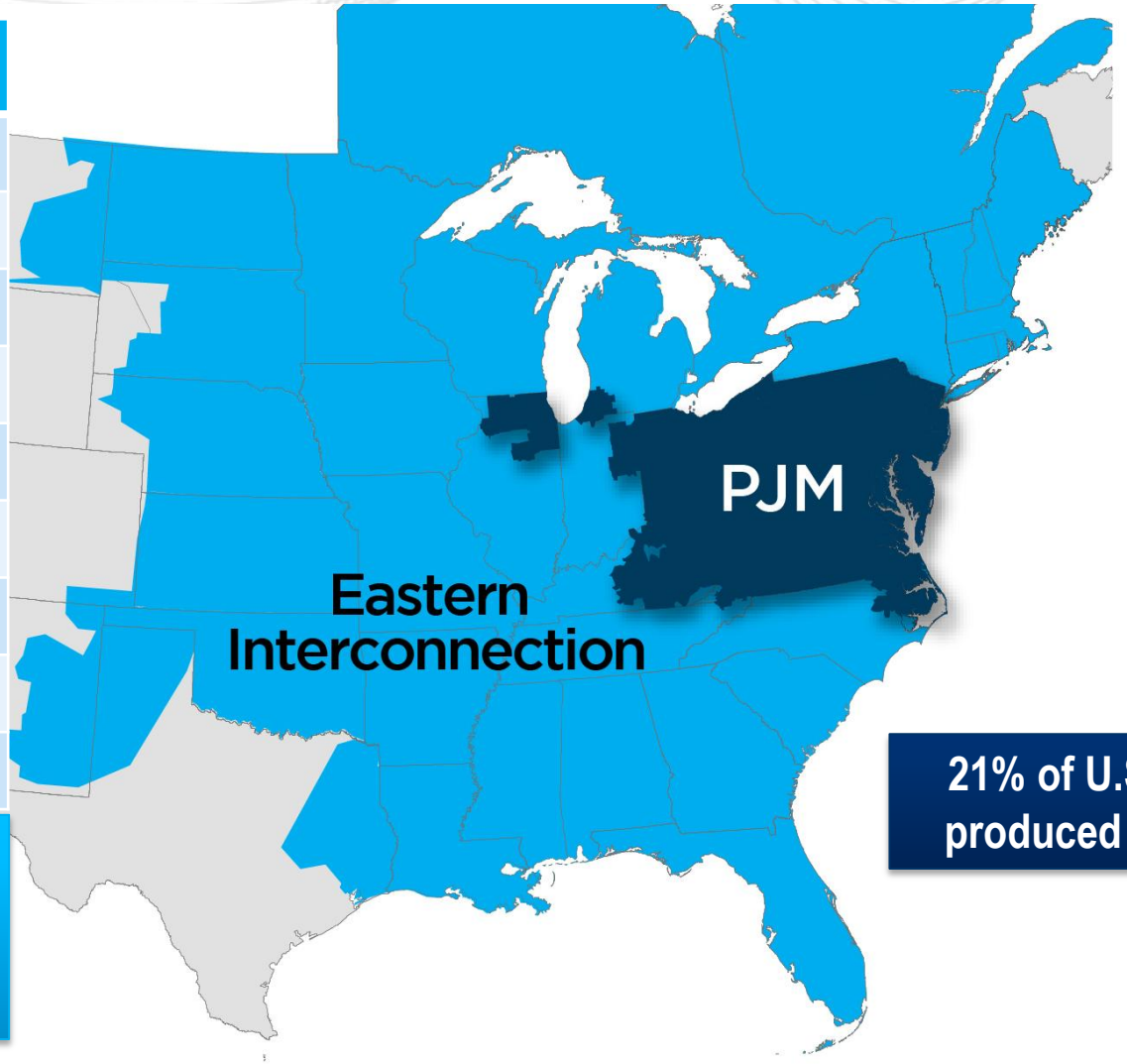
PJM as Part of the Eastern Interconnection

Key Statistics

Member companies	960+
Millions of people served	61
Peak load in megawatts	165,492
MW of generating capacity	171,648
Miles of transmission lines	72,075
2014 GWh of annual energy	792,580
Generation sources	1,304
Square miles of territory	243,417
States served	13 + DC

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



21% of U.S. GDP produced in PJM

As of 1/2016

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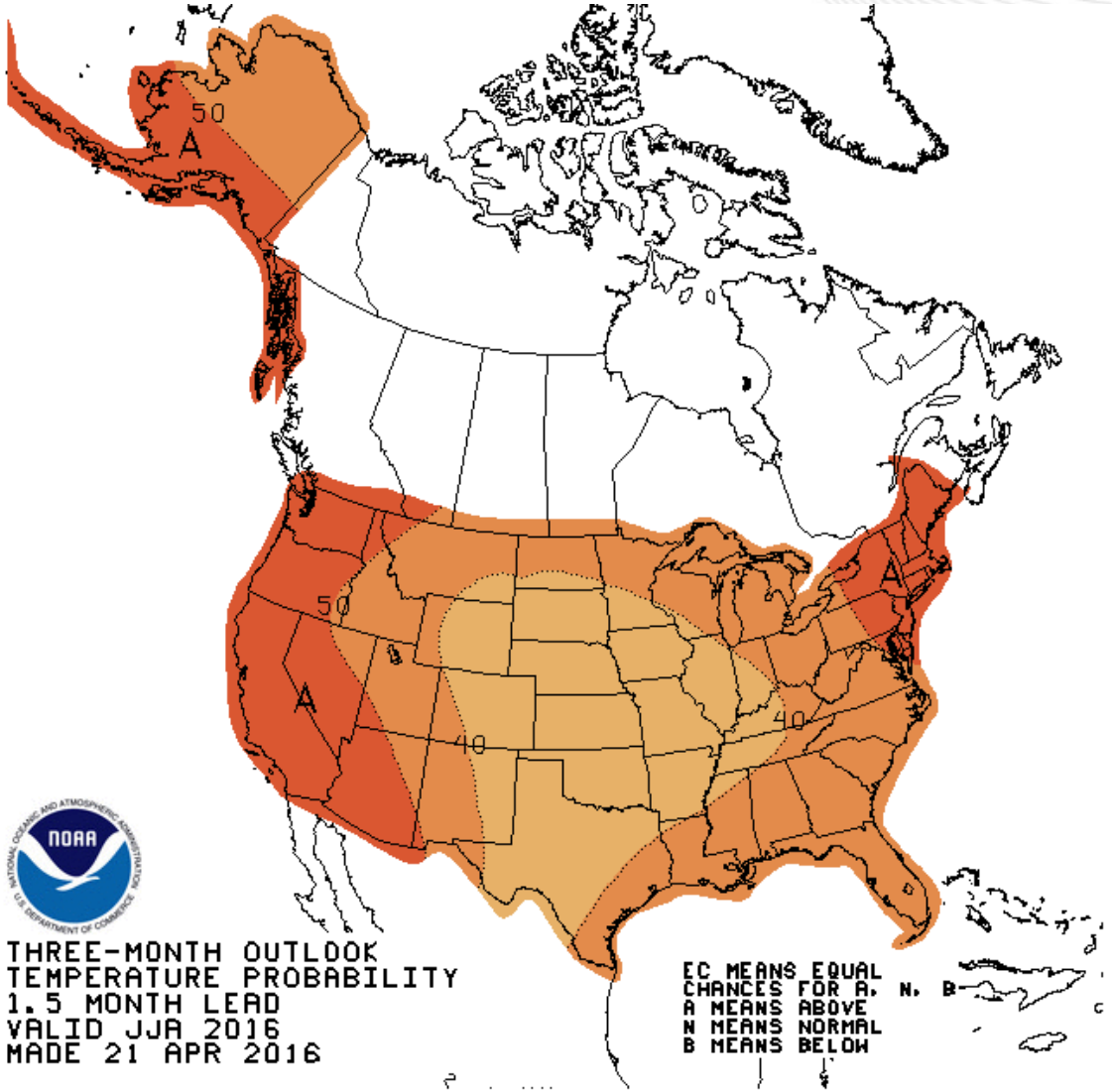
2016 Summer Weather Projections



Upcoming Summer

- Warmer than “normal”
- Dryer than normal

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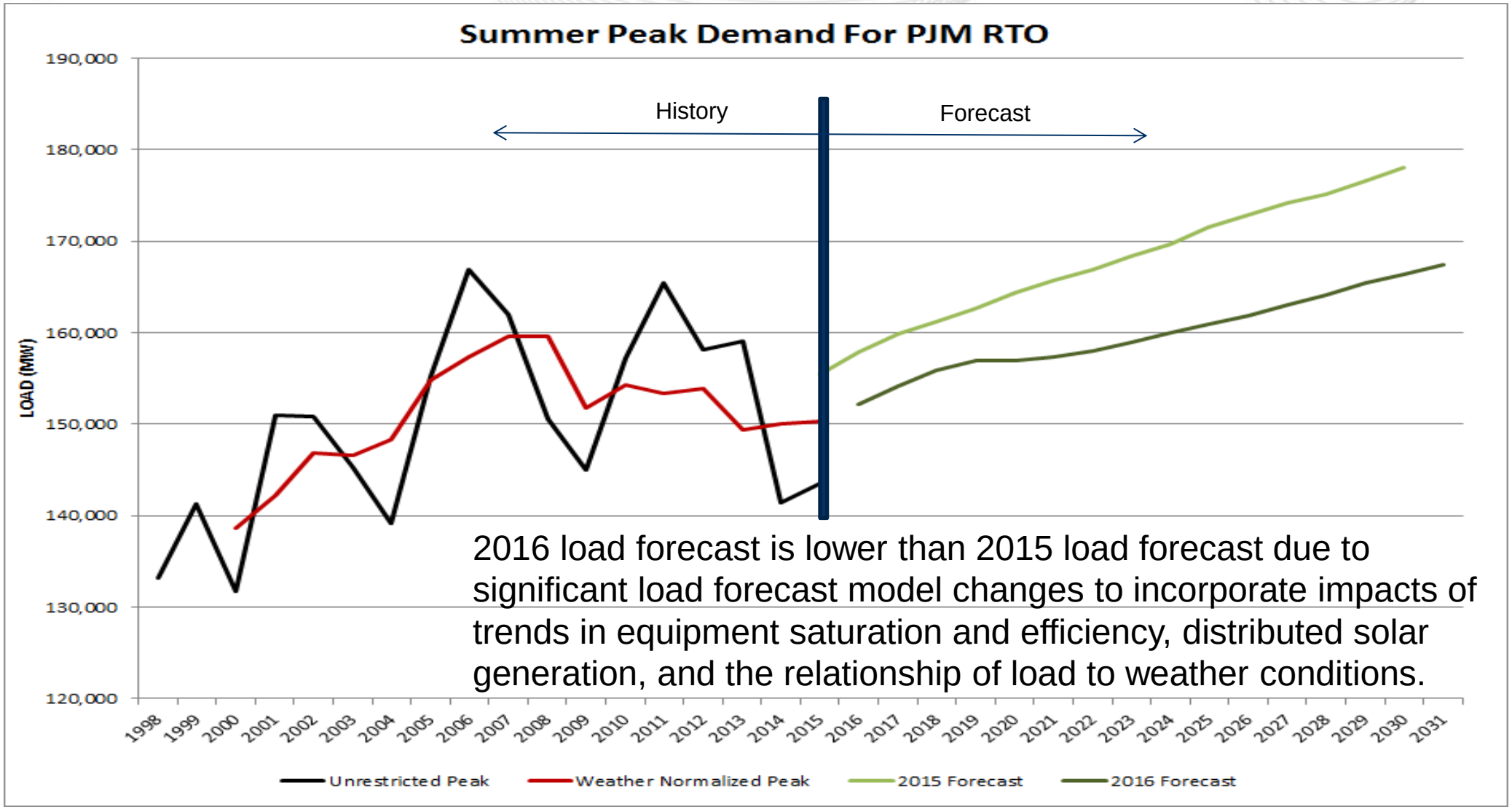
2015 vs. 2016 PJM Load Forecast



2016 load forecast is lower than 2015 load forecast due to significant load forecast model changes to incorporate impacts of trends in equipment saturation and efficiency, distributed solar generation, and the relationship of load to weather conditions.

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PJM Load and Capacity Comparison: 2015 vs. 2016

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

2016

Forecast Load (MW) Total	Demand Response (MW)	Forecast Load Less Demand Response (MW)	Installed Generation Capacity (MW)	Reserve Margin (MW)	Reserve Margin	Required Reserve Margin
152,131	8,777[1] (est.)	143,354	183,912	40,558	28.3%	16.4%

[1]DR estimate is based on methodology used in RTEP and described in PJM Manual 19

2015 (Actual Peak Load: 143,447 MW on 7/28/15 at HE 17)

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Glossary for Load and Capacity Summary Slide

Forecast Load – Expected peak demand, based on normal peak day 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 – The MW sum of two groups of generators: All generators in PJM that have capacity interconnection rights and are not committed to serve external load plus all external generators that cleared in RPM and are committed to serve PJM load

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)

The **Reserve Margin (%)** must exceed the **Required Reserve Margin (%)** to satisfy the reliability requirement.

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2016 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
- 7,021 MW of wind generation in the PJM markets
  - 1,327 MW in Pennsylvania
- 623 MW of solar-powered generation in the PJM markets
  - 19.5 MW in Pennsylvania
- 2,464 MW of solar-powered distributed generation in the PJM territory
  - 214 MW in Pennsylvania

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PJM Summer Preparations

- PJM Operations Assessment Task Force (OATF) Summer Operating Study
- Reliability*First* Summer Assessment (May, 2016)
- Joint MISO/PJM/NPCC Operations Coordination Meeting (May, 2016)
- SERC Operating Committee / VACAR Pre-summer coordination Meetings (May, 2016)
- PJM Spring Operator Seminar (9 sessions – over 800 operators attended)
- PJM Emergency Procedures Drill – May 10, 2016

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Summary

- PJM expects to be able to reliably serve expected peak loads—peak loads are expected to be higher this summer than in summer 2015 which had relatively mild weather. The projected summer 2016 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.

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