



Summer 2017 PJM Reliability Assessment

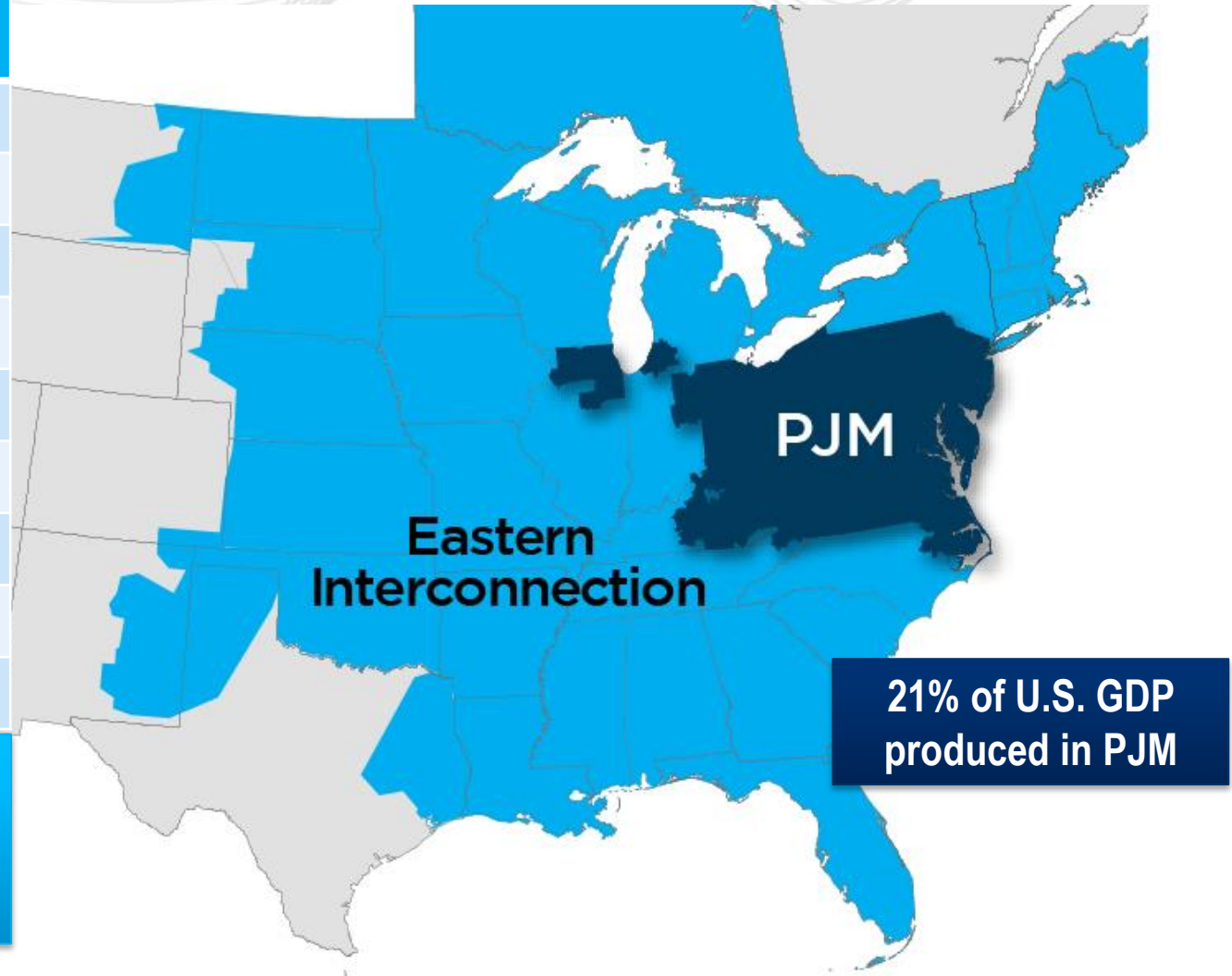
Pennsylvania Public Utility Commission
June, 2017



Key Statistics

Member companies	990+
Millions of people served	65
Peak load in megawatts	165,492
MW of generating capacity	176,569
Miles of transmission lines	82,546
2016 GWh of annual energy	792,314
Generation sources	1,304
Square miles of territory	243,417
States served	13 + DC

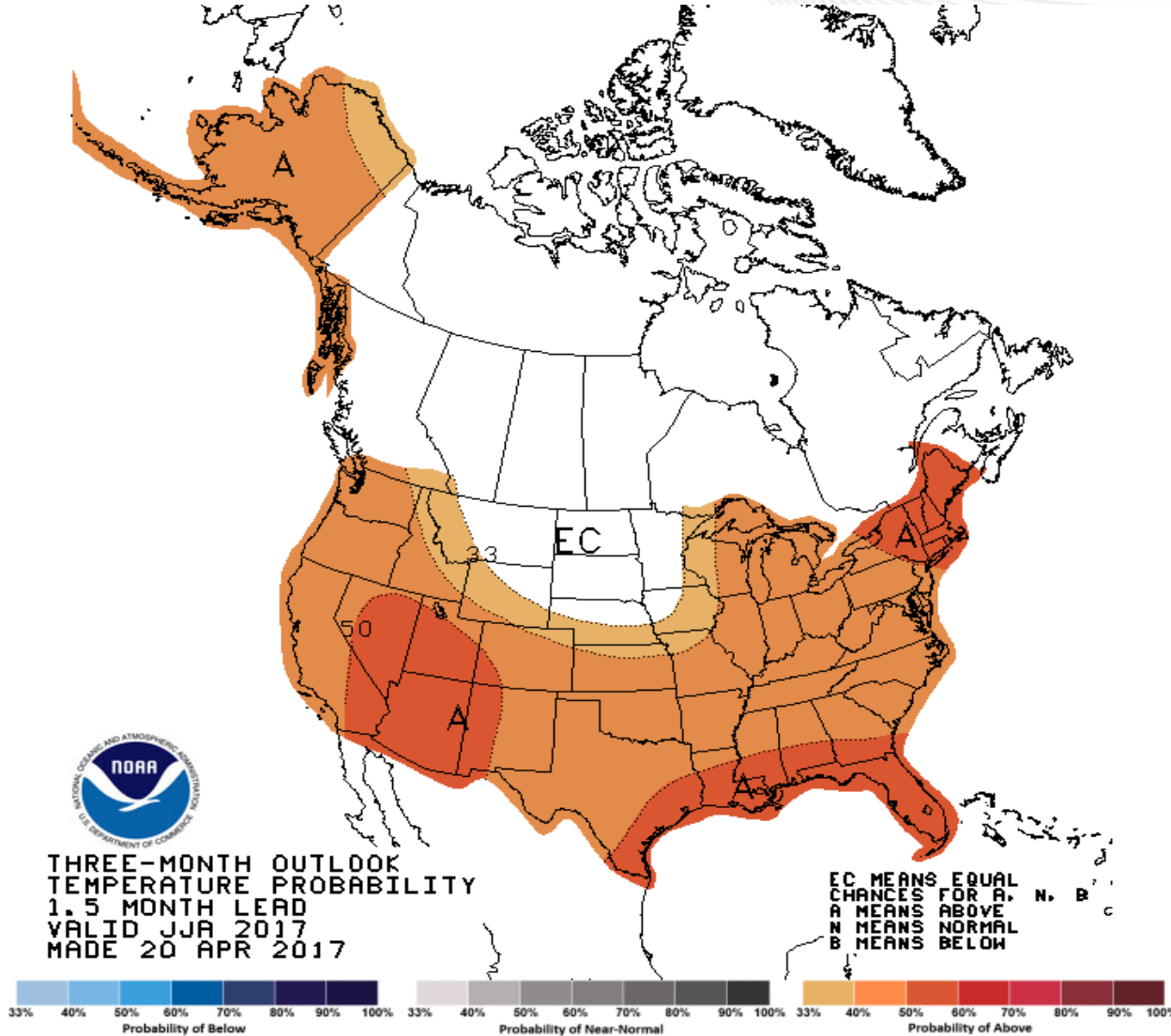
- 27% of generation in Eastern Interconnection
- 28% of load in Eastern Interconnection
- 20% of transmission assets in Eastern Interconnection



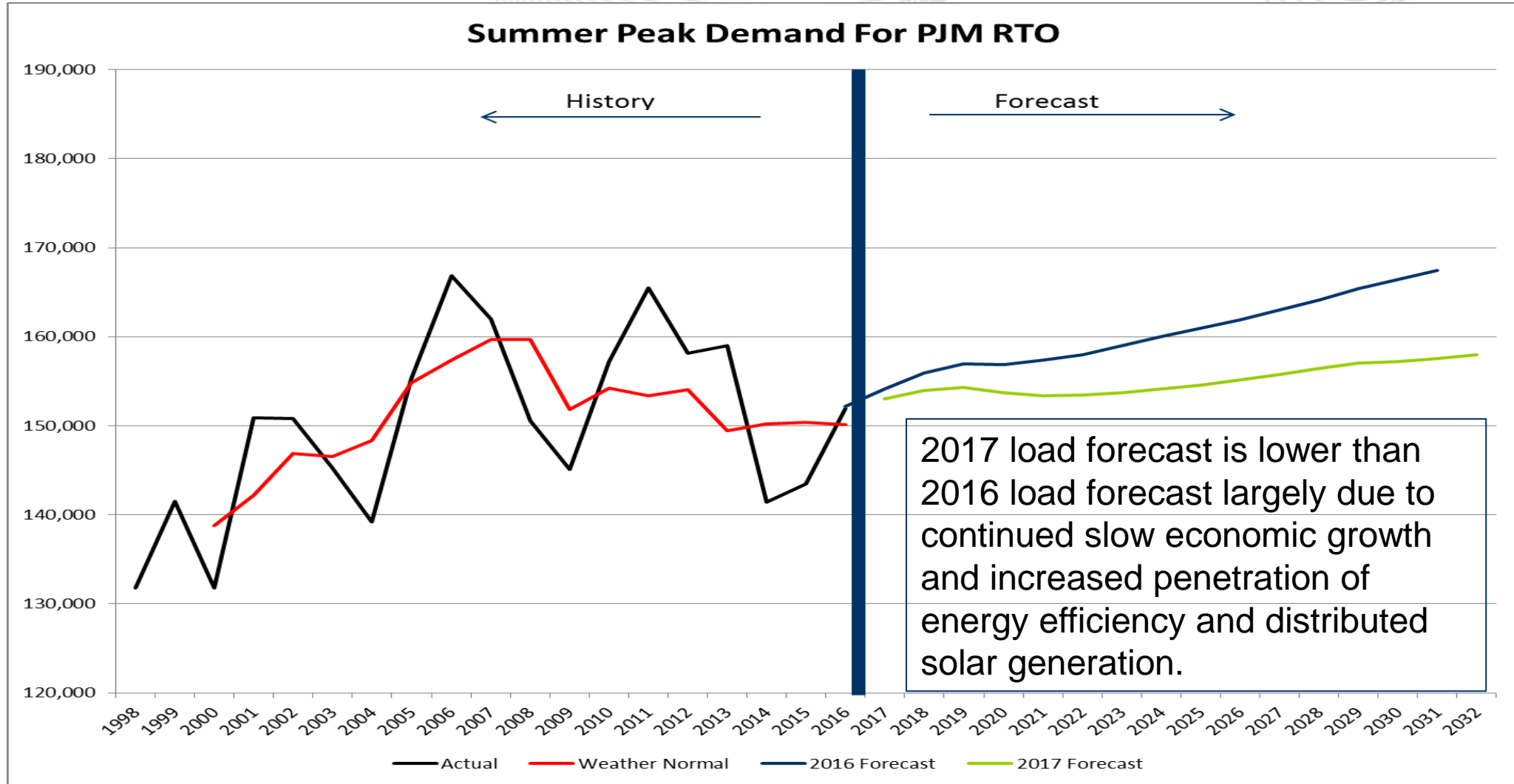
As of 2/2017

Upcoming Summer

- Warmer than “normal”



2016 vs. 2017 PJM Load Forecast





PJM Load and Capacity Comparison: 2016 vs. 2017

2016

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
152,131	9,346	142,785	183,912	41,127	28.8%	16.4%

2017

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
152,999	9,120 ¹ (est.)	143,879	185,804	41,925	29.1%	16.6%

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

2016 (Actual Peak Load: 151,907 MW on 8/11/16 at HE 17)



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.

- 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
- 7,409 MW of wind generation in the PJM markets
 - 1,367 MW in Pennsylvania
- 982 MW of solar-powered generation in the PJM markets
 - 19.5 MW in Pennsylvania
- 3,385 MW of solar-powered distributed generation in the PJM territory
 - 265 MW in Pennsylvania

- PJM Operations Assessment Task Force (OATF) Summer Operating Study
- Reliability *First* Summer Assessment (May, 2017)
- Joint MISO/PJM/NPCC Operations Coordination Meeting (May, 2017)
- SERC Operating Committee / VACAR Pre-summer coordination Meetings (May, 2017)
- PJM Spring Operator Seminar (9 sessions – over 800 operators attended)
- PJM Emergency Procedures Drill – May, 2017

- PJM expects to be able to reliably serve expected peak loads—peak loads are expected to be slightly higher this summer than in summer 2016 which had close to average peak day weather. The projected summer 2017 reserve margin exceeds the required reserve margin.
- PJM generation (including firm external purchases) saw a net increase of 1,800 MW between 2016 and 2017.
- The transmission system is expected to perform adequately based on applicable reliability criteria.