



2016 Tennessee State Report Tables

July 2017



1. Planning

- Generation Portfolio Analysis
- Transmission Analysis
- Load Forecast

2. Markets

- Capacity Market Results
- Market Analysis

3. Operations

- Emissions Data

- **Existing Capacity:** There is no installed capacity in the part of Tennessee served by PJM.
- **Interconnection Requests:** The only 2016 interconnection request in Tennessee is for 45 MW of Biomass fuel.
- **Deactivations:** No generating units in Tennessee deactivated in 2016. This compares to 392 MW deactivated RTO-wide in 2016.
- **RTEP 2016:** Tennessee has no RTEP 2016 projects.
- **Load Forecast:** Tennessee load growth is nearly flat, averaging between .4 and .5 percent per year over the next 10 years. This aligns with PJM RTO load growth projections.

- **2020/21 Capacity Market:** Compared to the RTO footprint, Tennessee's distribution of generation is less than PJM, demand response is higher, and energy efficiency is similar to PJM.
- **6/1/14 – 5/31/17 Performance:** Tennessee's average daily locational marginal prices were consistently at or below PJM average daily LMPs. Imported resources represent 87 percent of generation produced in the PJM region of Tennessee.
- **Emissions:** 2015 carbon dioxide, nitrogen oxide, and sulfur dioxide emissions are slightly down from 2014. 2016 emissions are not available.



PJM Service Area – Tennessee

(December 31, 2016)



Planning

Generation Portfolio Analysis

Tennessee – Existing Installed Capacity

(MW submitted to eRPM, December 31, 2016)

Summary:

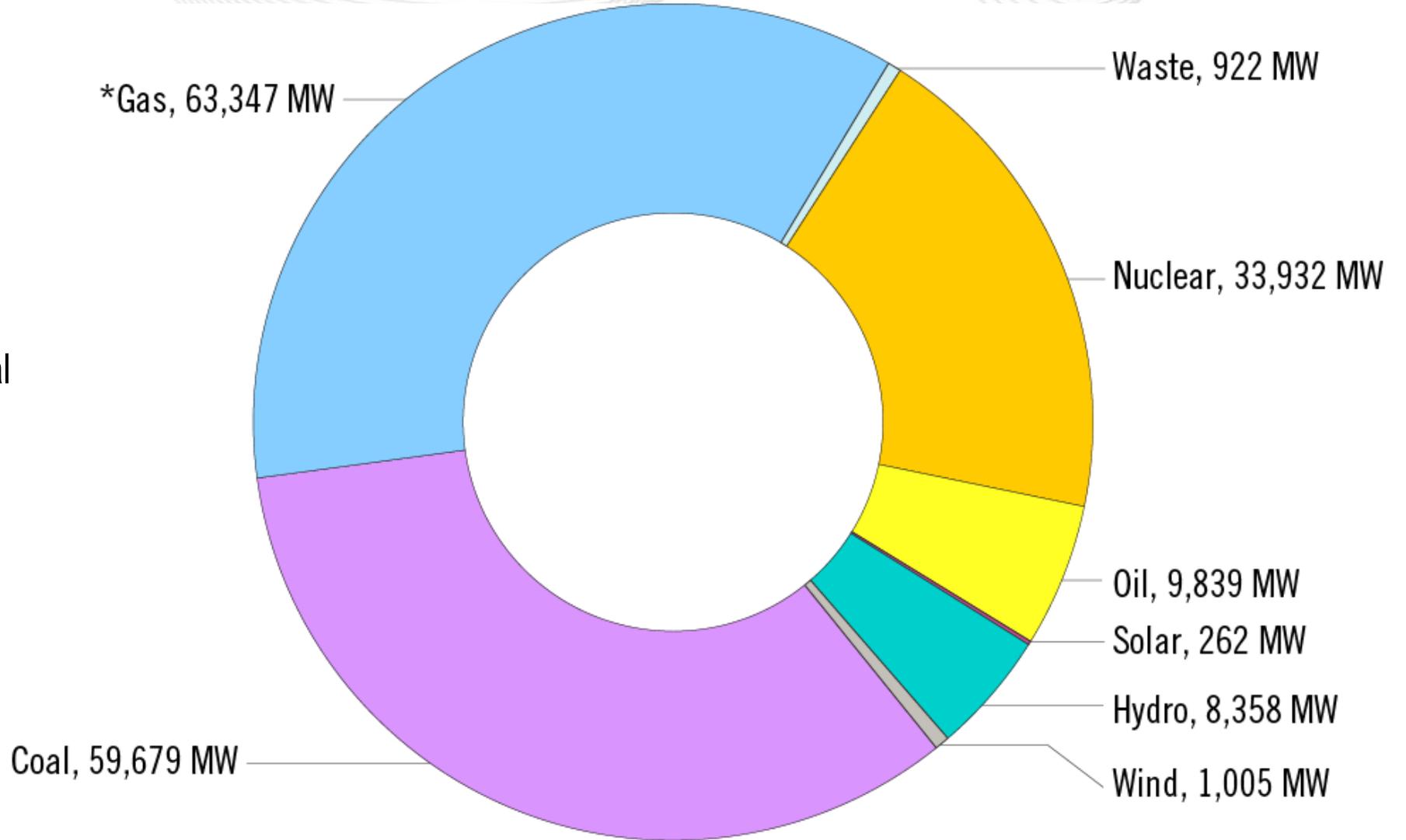
No installed capacity in
the part of Tennessee
served by PJM

PJM – Existing Installed Capacity

(MW submitted to eRPM, December 31, 2016)

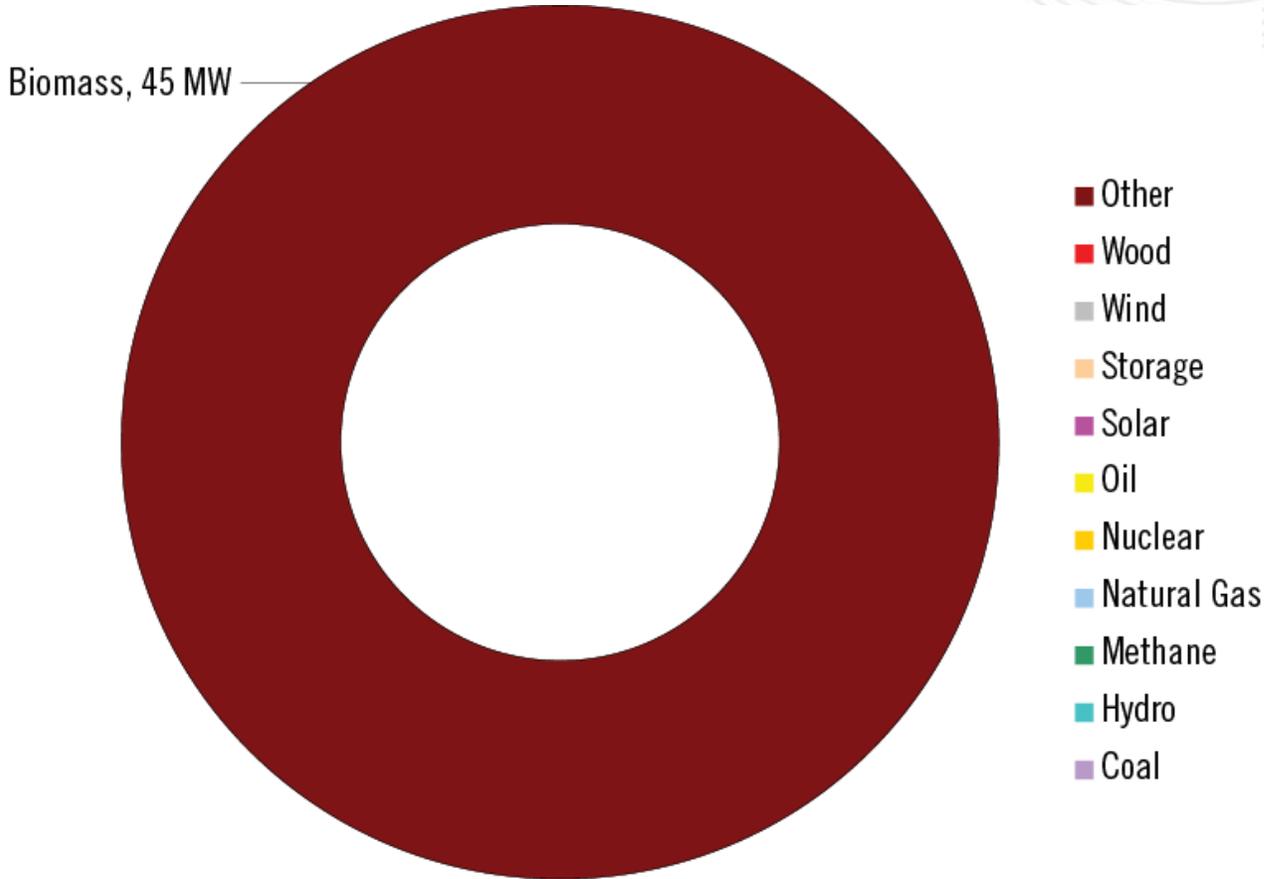
In PJM, natural gas and coal make up nearly 70 percent total installed capacity.

* Gas Contains	
Natural Gas	62,941 MW
Other Gas	405 MW



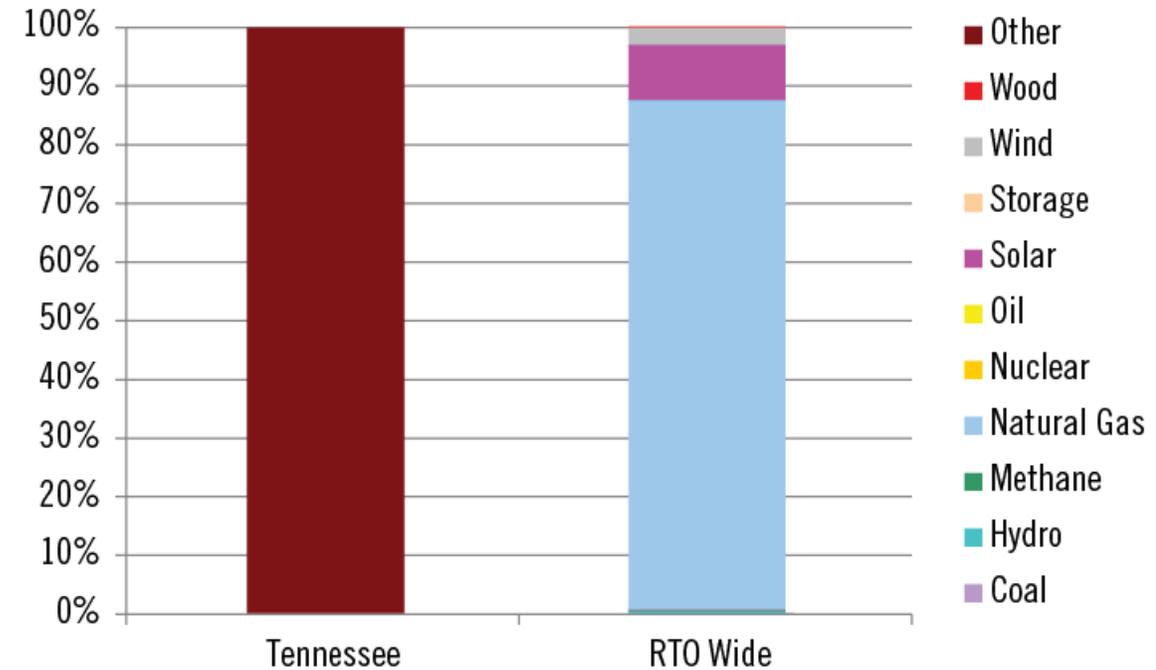
(Requested Capacity Rights, December 31, 2016)

Total MW Capacity by Fuel Type



	MW	# of projects
Active	0	0
Under Construction	45	1
Suspended	0	0
Total	45	1

Fuel as a Percentage of Projects in Queue





Tennessee – Interconnection Requests

Fuel	Active		In Service		Suspended		Under Construction		Withdrawn		Total Sum	
	MW	# of Projects	MW	# of Projects	MW	# of Projects	MW	# of Projects	MW	# of Projects	MW	# of Projects
Biomass			45.0	1			45.0	1			90.0	2
Coal									75.0	1	75.0	1
Total	0.0	0	45.0	1	0.0	0	45.0	1	75.0	1	165.0	3

Tennessee – Progression History Interconnection Requests

(Requested Capacity Rights, 2004 - 2016)



Following Final Agreement execution 0 MW of capacity withdrew from PJM's interconnection process. Another 45 MW have executed agreements but were not in service as of December 31, 2016 (*Suspended or Under Construction*). Overall, 27% of requested capacity in Tennessee reaches commercial operation.

Tennessee – 2016 Actual Generation Deactivations

Unit	MW Capacity	TO Zone	Age	Actual Deactivation Date

Summary:

- No generating units in Tennessee deactivated in 2016
- Across PJM, 11 generating units totaling 392 MW of capacity deactivated in 2016

Unit	MW Capacity	TO Zone	Age	Projected Deactivation Date

Summary:

- No generators submitted generator deactivation notifications in 2016
- Across PJM, 23 generating units submitted notification to deactivate, ranging in date from 2016 - 2020.

Planning

Transmission Infrastructure Analysis



Tennessee – RTEP Baseline Projects

(Greater than \$5 million)

TN Baseline Project Driver

Map ID	Project ID	Project	Baseline Load Growth/ Deliverability & Reliability	Congestion Relief - Economic	Operational Performance	Generator Deactivation	TO Criteria Violation	Required Date	Cost (\$M)	Designated Entity*	2016 TEAC Review
		None									

Note: Baseline upgrades are those that resolve a system reliability criteria violation.



Tennessee – RTEP Network Projects

(Greater than \$5 million)

			TN Network Project Drivers						
Map ID	Project ID	Project	Generation Interconnection	Merchant Transmission Interconnection	Long-term Firm Transmission Service	Required Date	Cost (\$M)	TO Zone(s)	2016 TEAC Review
		None							

Note: Network upgrades are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission or long term firm transmission service requests.



Tennessee – TO Supplemental Projects

(Greater than \$5 million)

Map ID	Project ID	Project	Required Date	Cost (\$M)	TO Zone(s)	2016 TEAC Review
		None				

Note: Supplemental projects are transmission expansions or enhancements that are used as inputs to RTEP models, but are not required for reliability, economic efficiency or operational performance criteria, as determined by PJM.



Tennessee – Merchant Transmission Project Requests

Queue	Project Name	MFO	Status	In Service Date	TO
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None

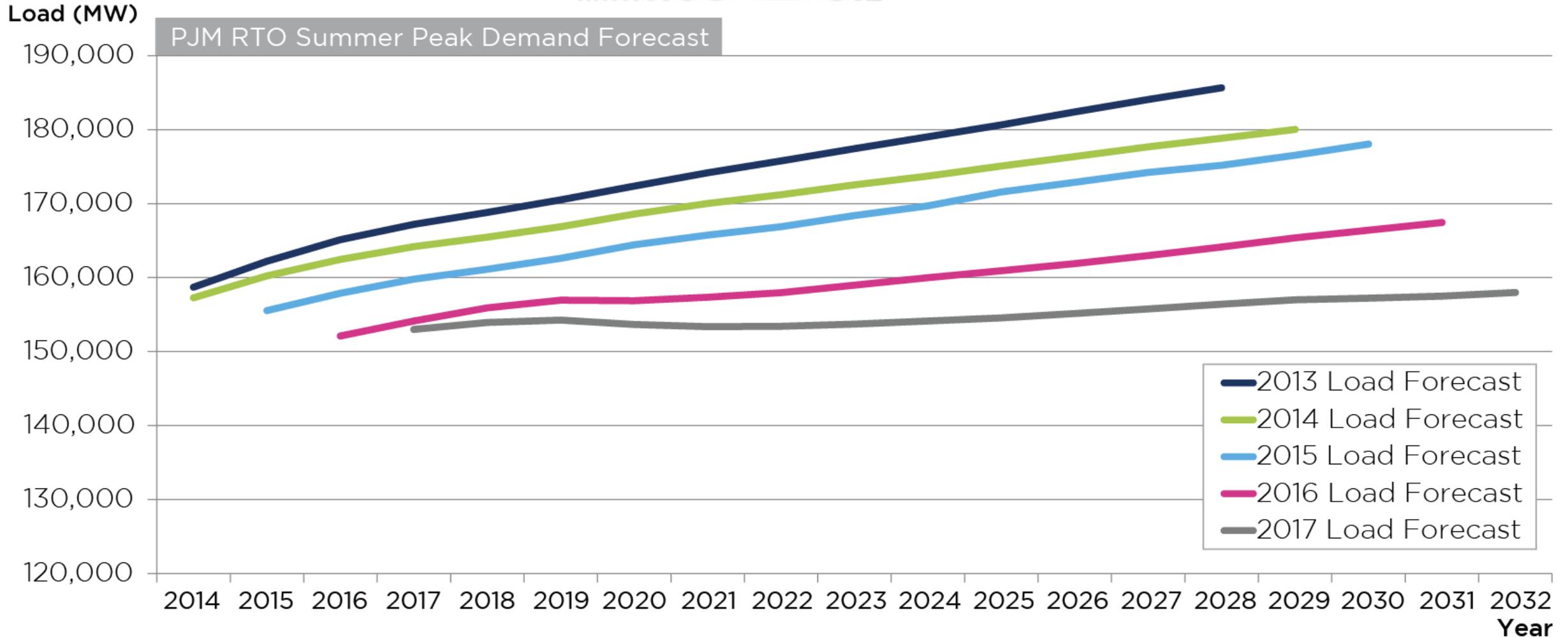
Planning

Load Forecast



PJM Annual Load Forecasts

(January 9, 2017)



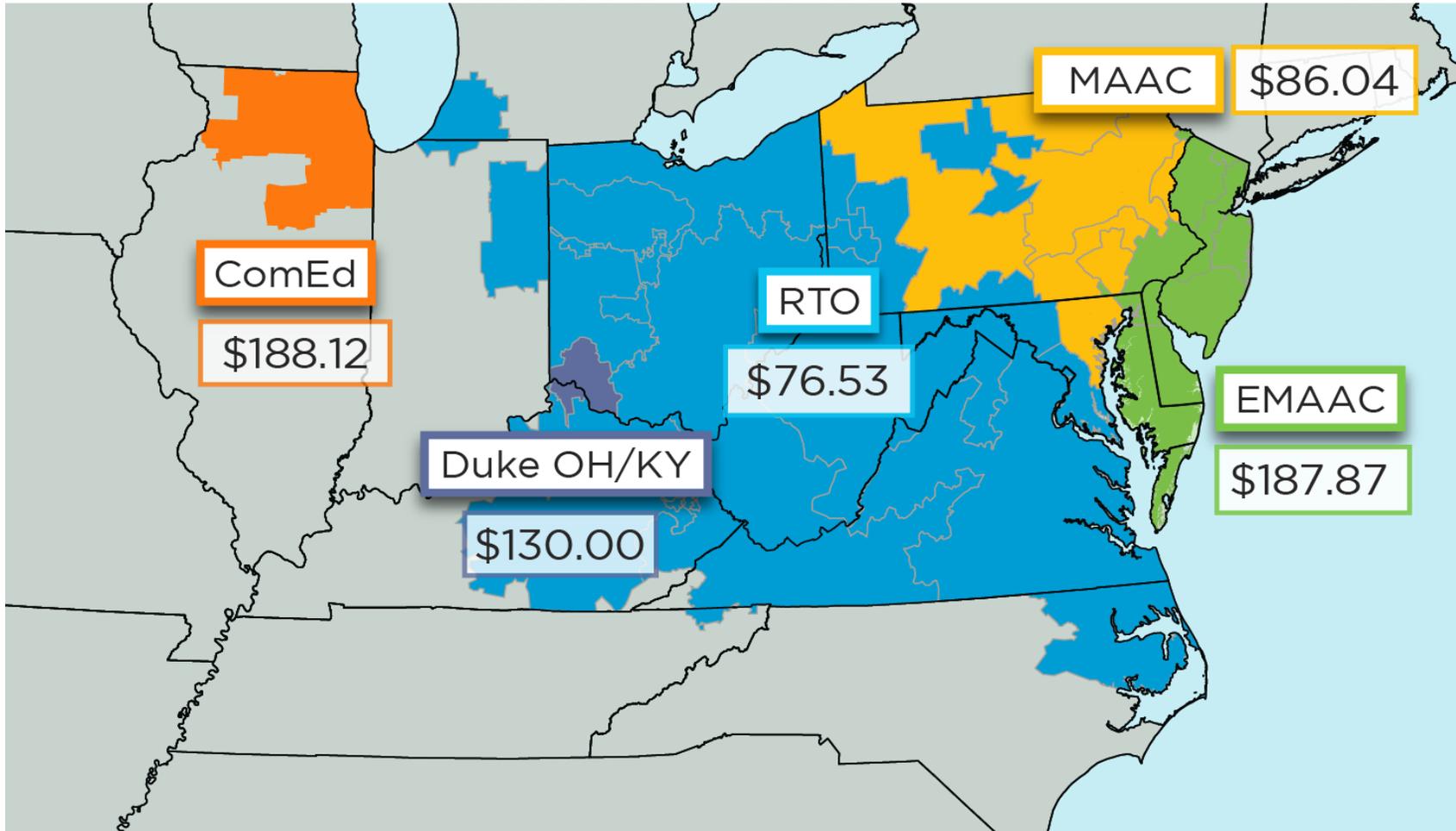
Transmission Owner	Summer Peak (MW)			Winter Peak (MW)		
	2017	2027	Growth Rate (%)	2016/17	2026/27	Growth Rate (%)
American Electric Power Company *	336	350	0.4%	442	466	0.5%
PJM RTO	152,999	155,773	0.2%	131,391	134,915	0.3%

*American Electric Power Company serves load other than in Tennessee. The Summer Peak and Winter Peak MW values in this table each reflect the estimated amount of forecasted load to be served by American Electric Power Company solely in Tennessee. Estimated amounts were calculated based on the average share of American Electric Power Company’s real-time summer and winter peak load located in Tennessee over the past five years.

*PJM’s 2017 forecast reflects methodology improvements implemented in 2016: variables to account for equipment and appliance saturation and efficiency, distributed solar generation adjustments and more refined treatment of weather data.

Markets

Capacity Market Results





Tennessee - Cleared Resources in 2020/21 Auction

(May 23, 2017)

	Cleared MW (Unforced Capacity)	Change from 2019/20 Auction
Generation	43	(31)
Demand Response	13	(5)
Energy Efficiency	2	1
Total	58	(36)

RTO Locational Clearing Price

\$76.53

NOTE: Demand Response and Energy Efficiency are reported to PJM by Transmission Zone. The numbers above reflect the state's pro-rata share of cross-state zones for illustrative purposes.



PJM - Cleared Resources in 2020/21 Auction

(May 23, 2017)

	Cleared MW (Unforced Capacity)	Change from 2019/20 Auction
Generation	155,976	882
Demand Response	7,820	(2,528)
Energy Efficiency	1,710	195
Total	165,506	(1,450)



Tennessee – Offered and Cleared Resources in 2020/21 Auction

(May 23, 2017)

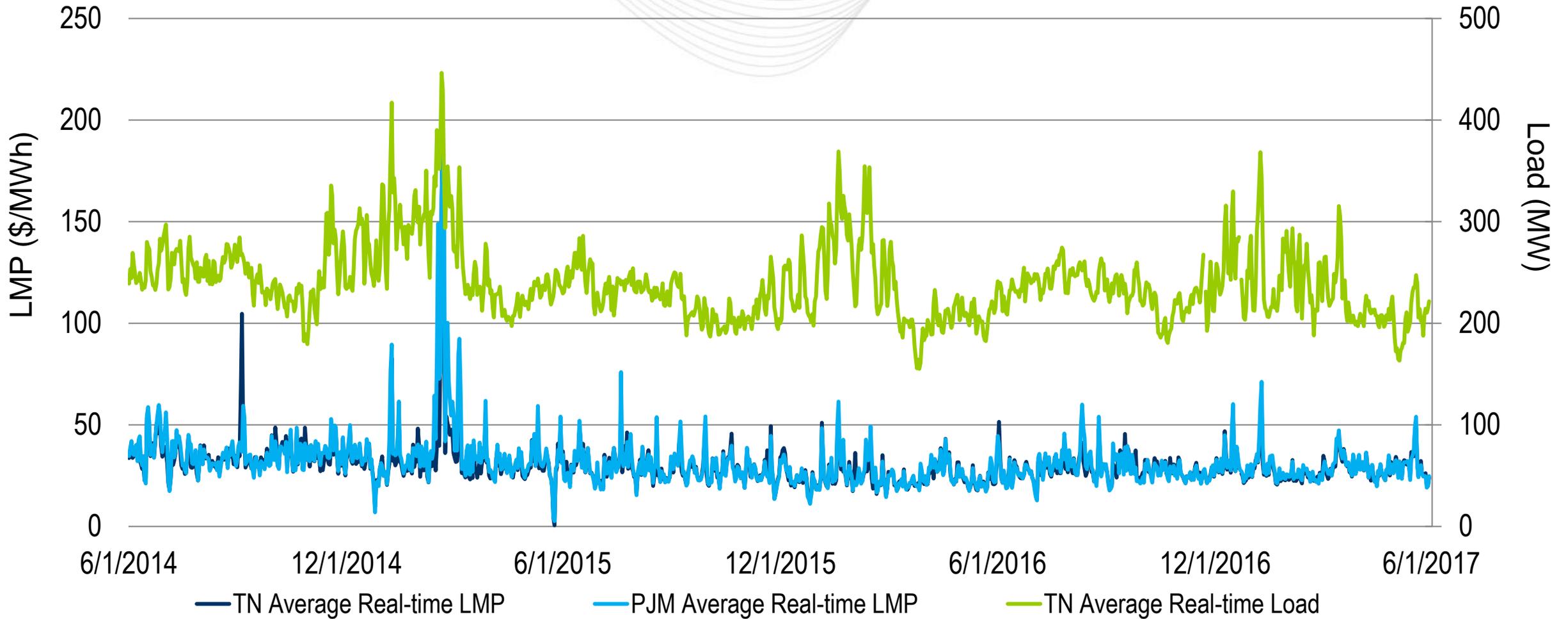
		Unforced Capacity
Generation	Offered MW	43
	Cleared MW	43
Demand Response	Offered MW	19
	Cleared MW	13
Energy Efficiency	Offered MW	2
	Cleared MW	2
Total Offered MW		64
Total Cleared MW		58

NOTE: Demand Response and Energy Efficiency are reported to PJM by Transmission Zone. The numbers above reflect the state's pro-rata share of cross-state zones for illustrative purposes.

Markets

Market Analysis

Tennessee's average daily LMPs generally align with the PJM average daily LMP

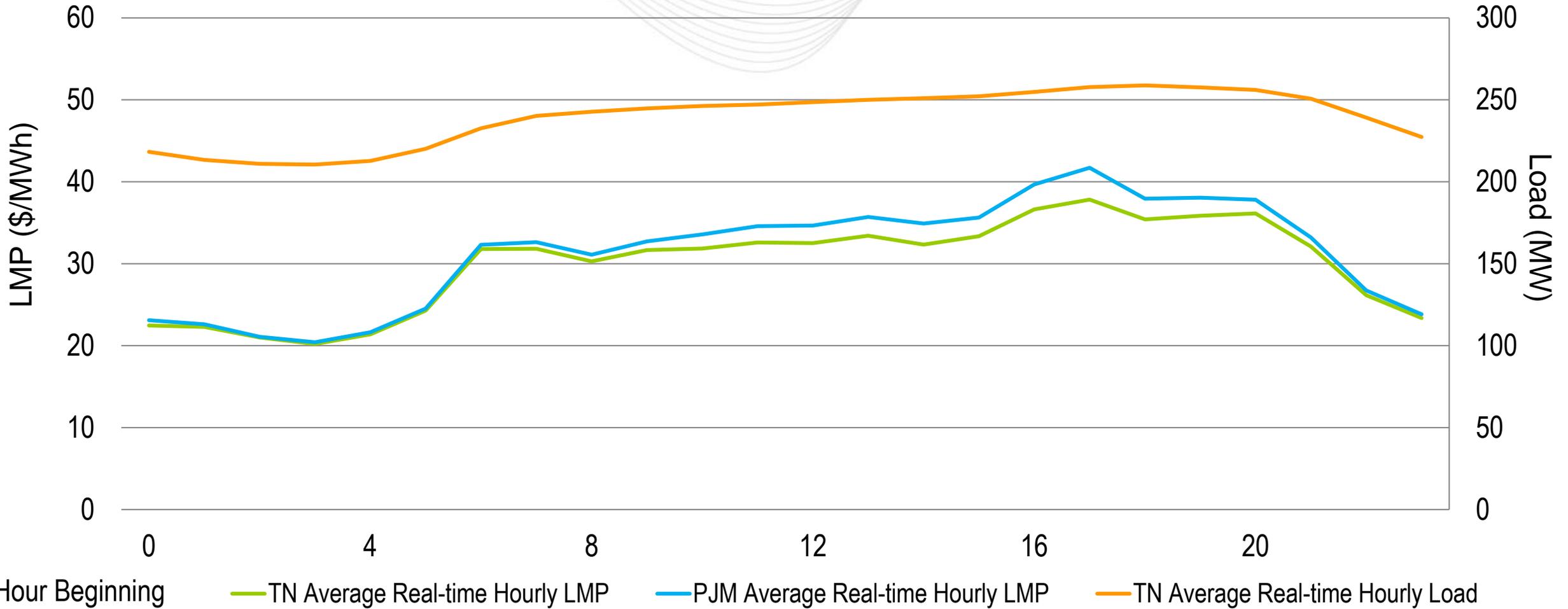




Tennessee – Hourly Average LMP and Load

(June 1, 2014 – May 31, 2017)

Tennessee's hourly LMPs were at or below the PJM average.



Operations Emissions Data

