



2018 Tennessee State Infrastructure Report

(January 1, 2018 – December 31, 2018)

May 2019

This report reflects information for the portion of Tennessee within the PJM service territory.

1. Planning

- Generation Portfolio Analysis
- Transmission Analysis
- Load Forecast

2. Markets

- Capacity Market Results
- Market Analysis

3. Operations

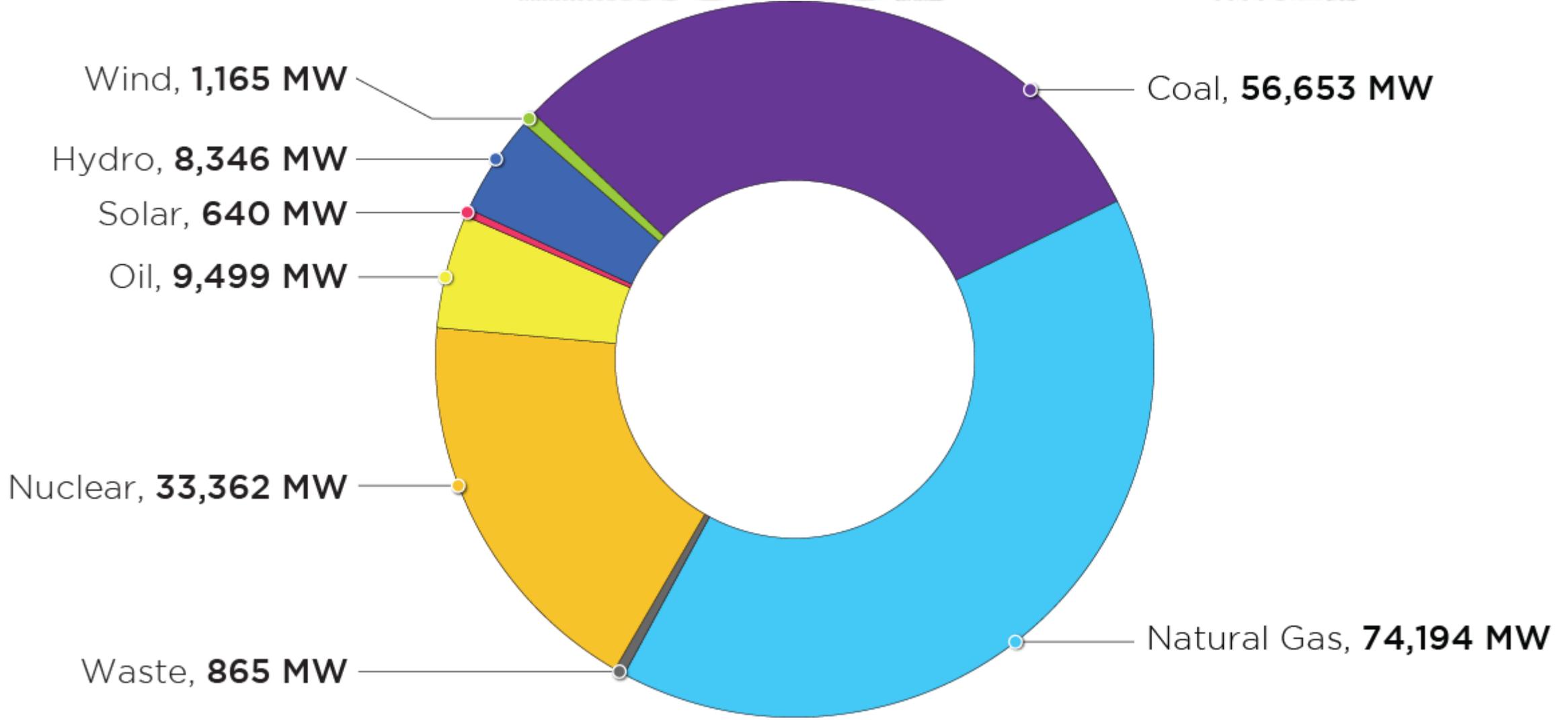
- Emissions Data

- **Existing Capacity:** There are 45 MW of installed capacity in the part of Tennessee served by PJM.
- **Interconnection Requests:** There are no interconnection requests in Tennessee.
- **Deactivations:** Tennessee had no generation deactivations or deactivation notifications in 2018.
- **RTEP 2018:** Tennessee had no RTEP projects in 2018. There were also no supplemental projects in Tennessee in 2018.
- **Load Forecast:** Tennessee load growth is nearly flat, averaging between 0.4 and 0.5 percent per year over the next 10 years. This aligns with PJM RTO load growth projections.
- **1/1/18 – 12/31/18 Performance:** Except for the cold snap in early 2018, Tennessee's average daily locational marginal prices remained consistent with PJM average daily LMPs. Imported resources represent 85.8 percent of the generation that serves the portion of Tennessee within the PJM footprint.



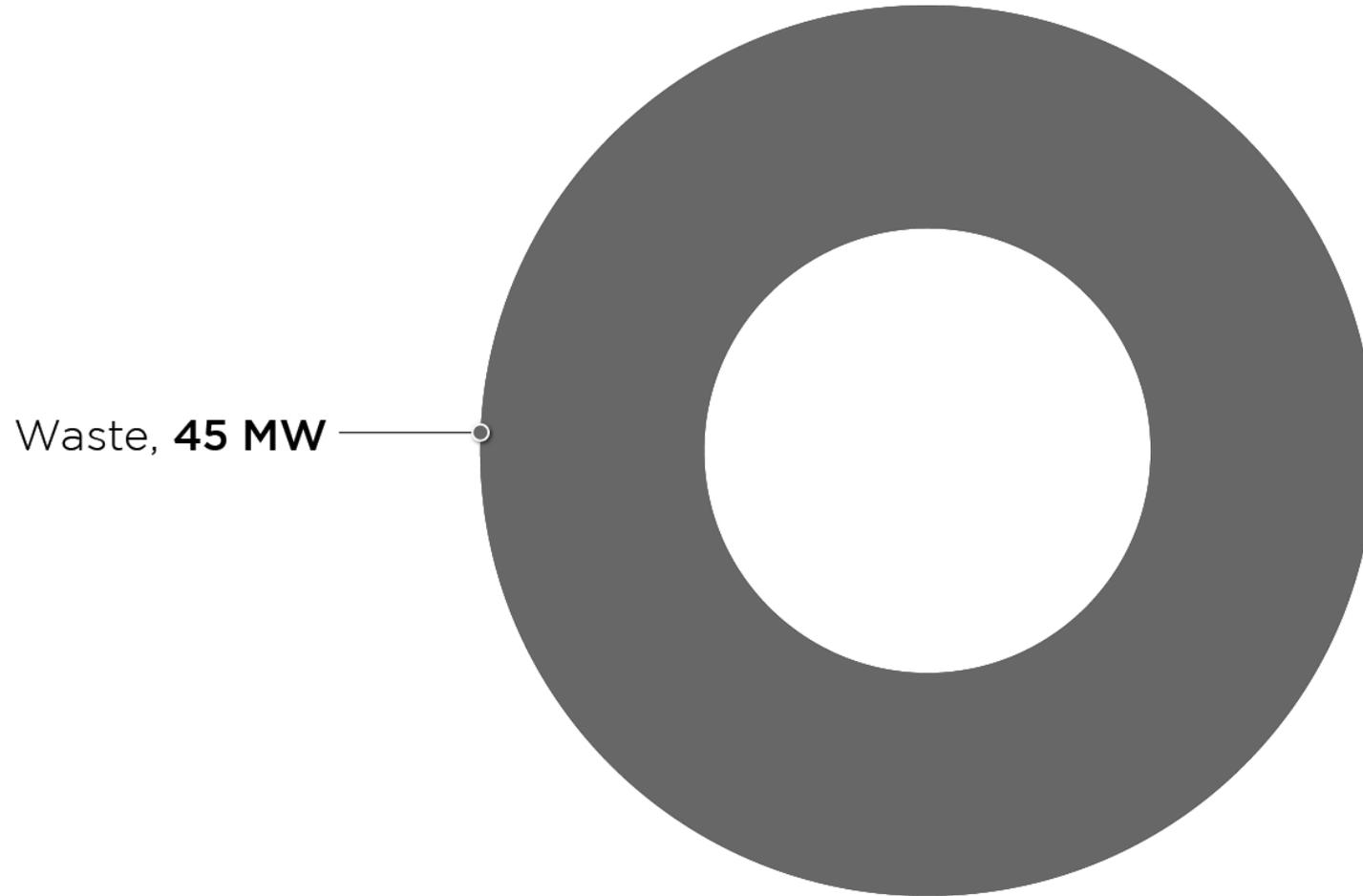
Planning

Generation Portfolio Analysis



Tennessee – Existing Installed Capacity

(MW submitted to PJM, December 31, 2018)





Tennessee – Interconnection Requests

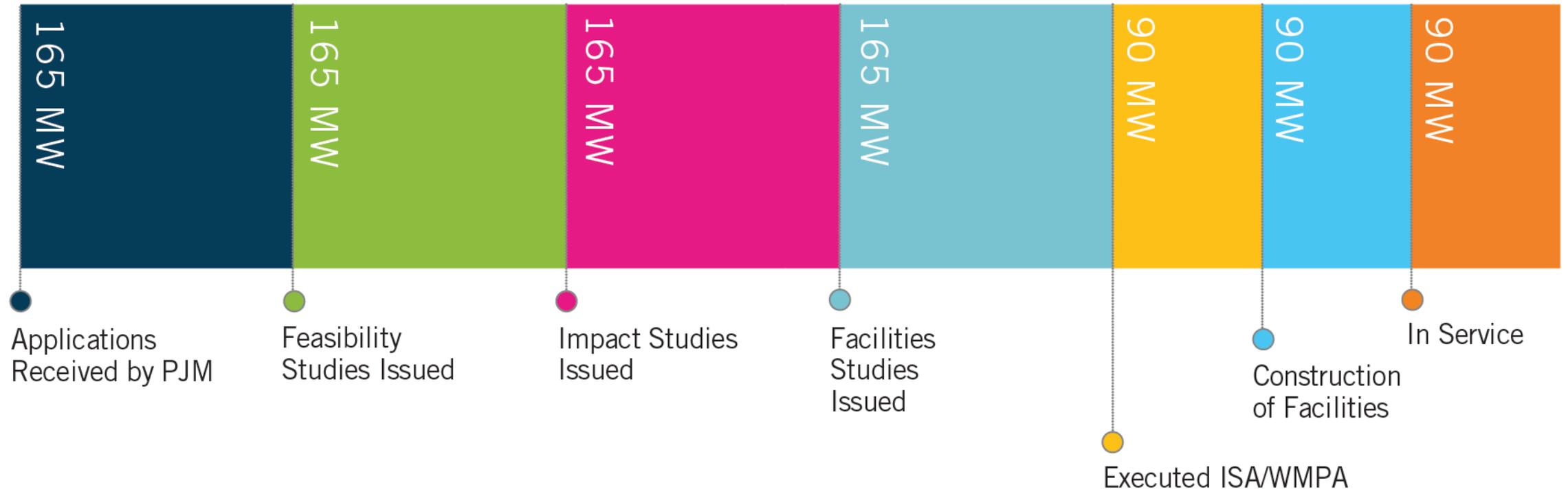
(Unforced Capacity, As of December 31, 2017)

	Complete				Grand Total	
	In Service		Withdrawn			
	No. of Projects	Capacity, MW	No. of Projects	Capacity, MW	No. of Projects	Capacity, MW
Non-Renewable	0	0	1	75	1	75
Coal	0	0	1	75	1	75
Renewable	2	90	0	0	2	90
Biomass	2	90	0	0	2	90
Grand Total	2	90	1	75	3	165

There are no interconnection requests in the queue in the part of Tennessee served by PJM.

Tennessee – Progression History Interconnection Requests

Projects under construction, suspended, in service, or withdrawn (as of December 31, 2018)



Percentage of planned capacity and projects reached commercial operation

- 54.5 % requested capacity megawatt
- 66.7 % requested projects

Tennessee – Actual Generation Deactivations and Deactivation Notifications Received in 2018

Tennessee had no generation deactivations or deactivation notifications in 2018.

Planning

Transmission Infrastructure Analysis



Tennessee – RTEP Baseline Projects

(Greater than \$5 million)

Tennessee had no baseline project upgrades in 2018.

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



Tennessee – RTEP Network Projects

(Greater than \$5 million)

Tennessee had no network project upgrades in 2018.

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)

Tennessee had no supplemental project upgrades in 2018.

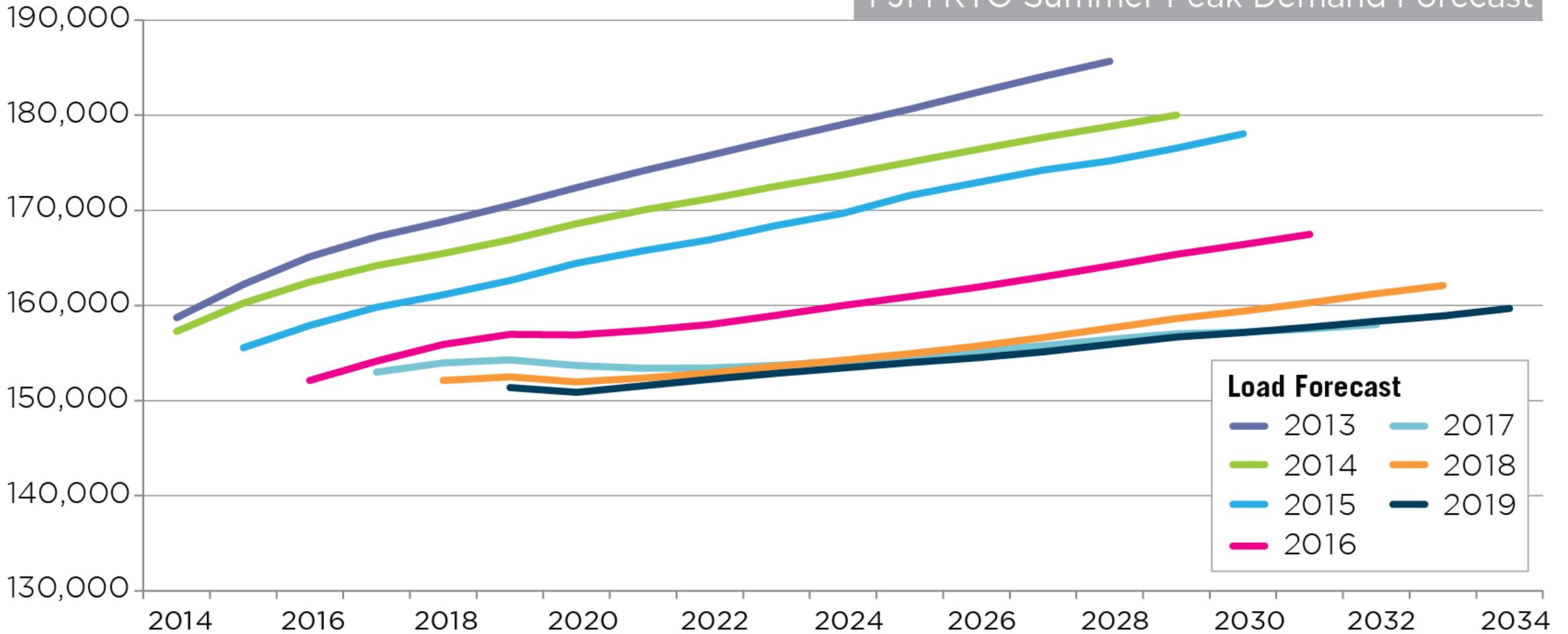
Note: Supplemental projects are transmission expansions or enhancements that are not required for compliance with the following PJM criteria: system reliability, operational performance or economic criteria, pursuant to a determination by the Office of the Interconnection and is not a state public policy project.

Planning

Load Forecast

PJM RTO Summer Peak Demand Forecast

Load (MW)



Load Forecast

- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019



Tennessee – 2019 Load Forecast Report

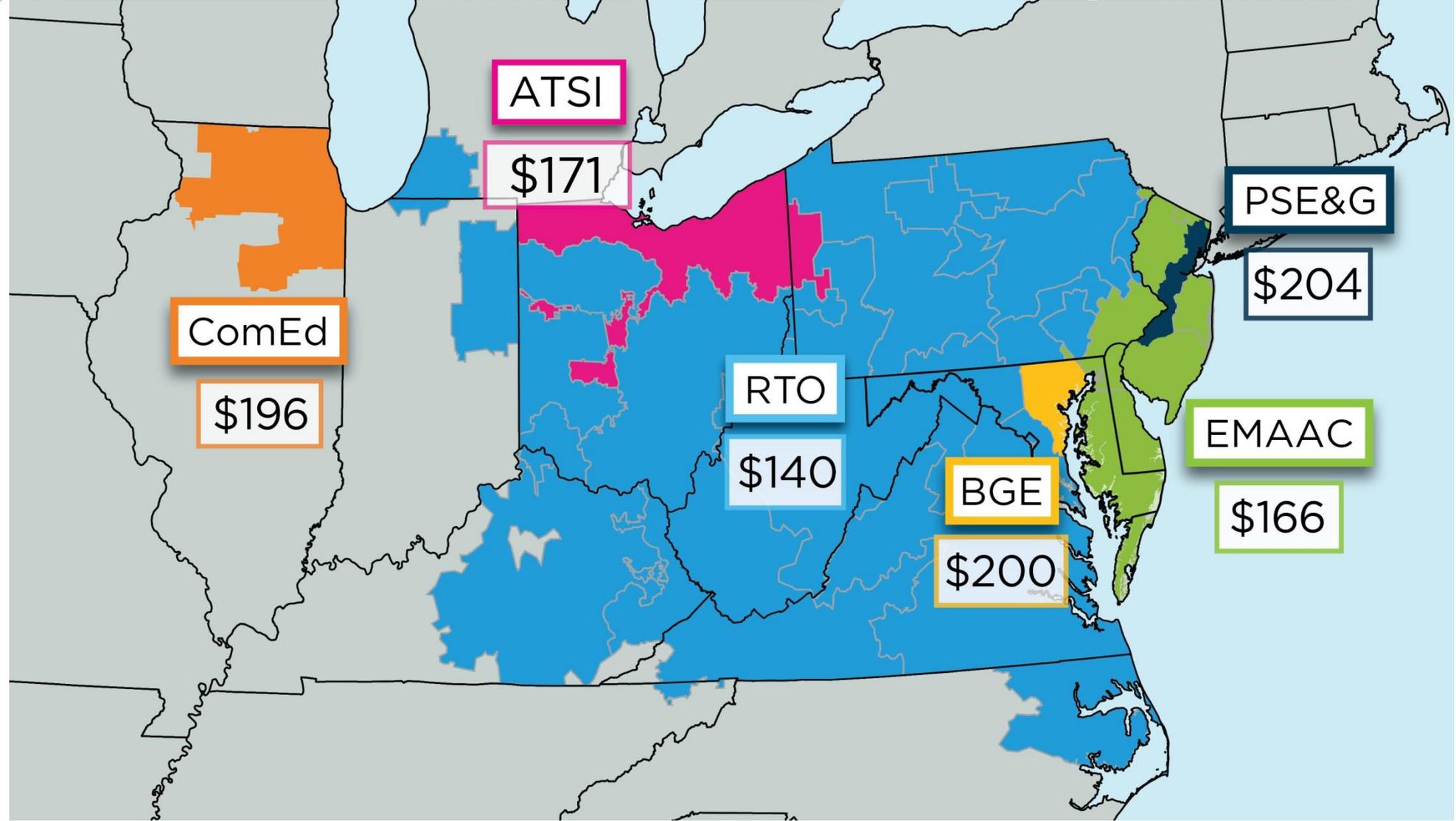
Transmission Owner	Summer Peak (MW)			Winter Peak (MW)		
	2019	2029	Growth Rate (%)	2018/19	2028/29	Growth Rate (%)
American Electric Power Company *	348	365	0.5%	443	463	0.4%
PJM RTO	151,358	156,689	0.3%	131,082	136,178	0.4%

* PJM notes that 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.

Markets

Capacity Market Results

2021/22 Base Residual Auction Clearing Prices (\$/MW-Day)





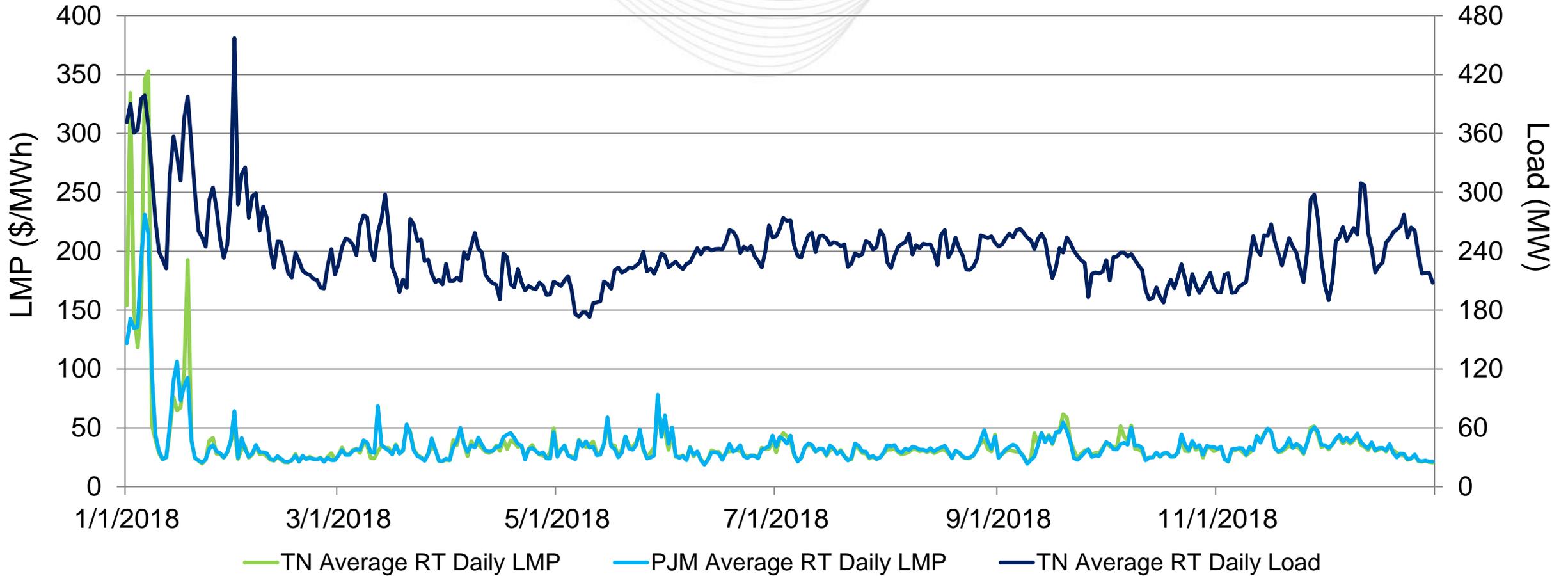
PJM – 2021/2022 Cleared MW (UCAP) by Resource Type

	Annual	Summer	Winter	Total
Generation	149,616 MW	54 MW	716 MW	150,385 MW
DR	10,674 MW	452 MW	- MW	11,126 MW
EE	2,623 MW	209 MW	- MW	2,832 MW
Total	162,912 MW	716 MW	716 MW	164,343 MW

Markets

Market Analysis

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

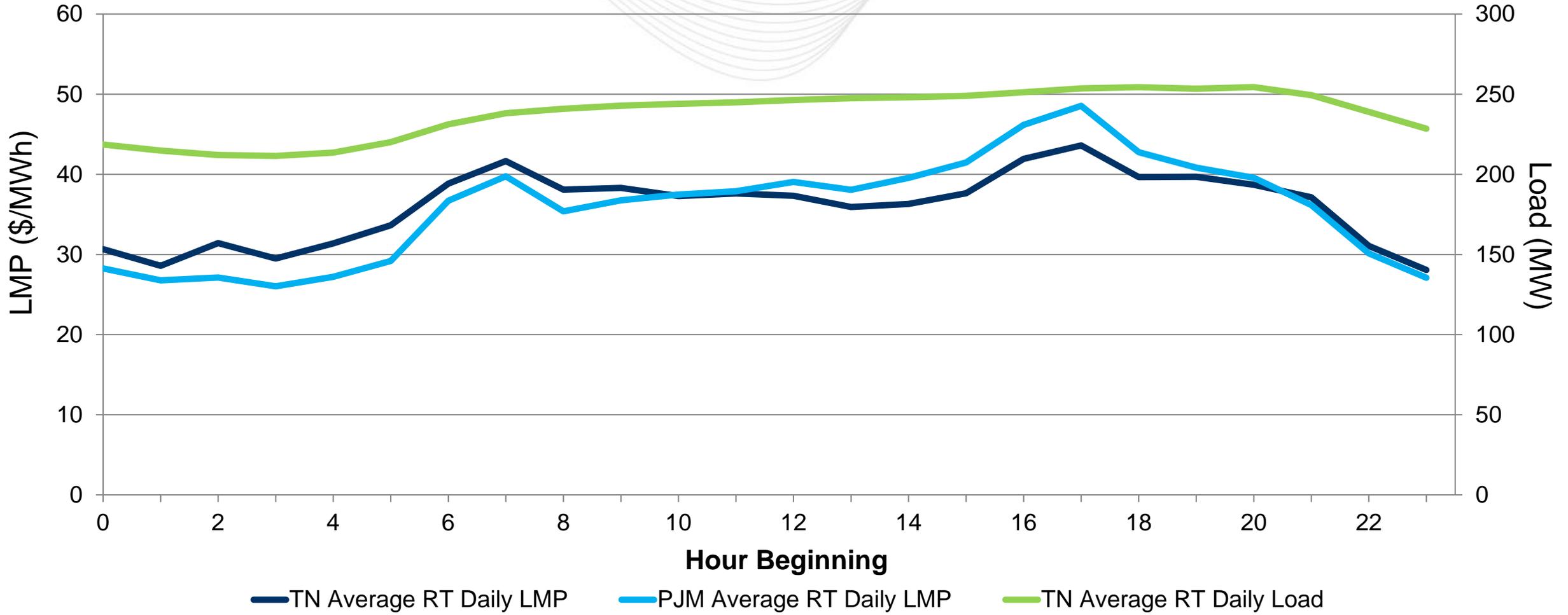


Note: The price spike in January reflects the Cold Snap that lasted from 12/28/17 to 1/7/2018.

Tennessee – Average Hourly LMP and Load

(January 1, 2018 – December 31, 2018)

Tennessee's average hourly LMPs were lower than the PJM average during peak hours

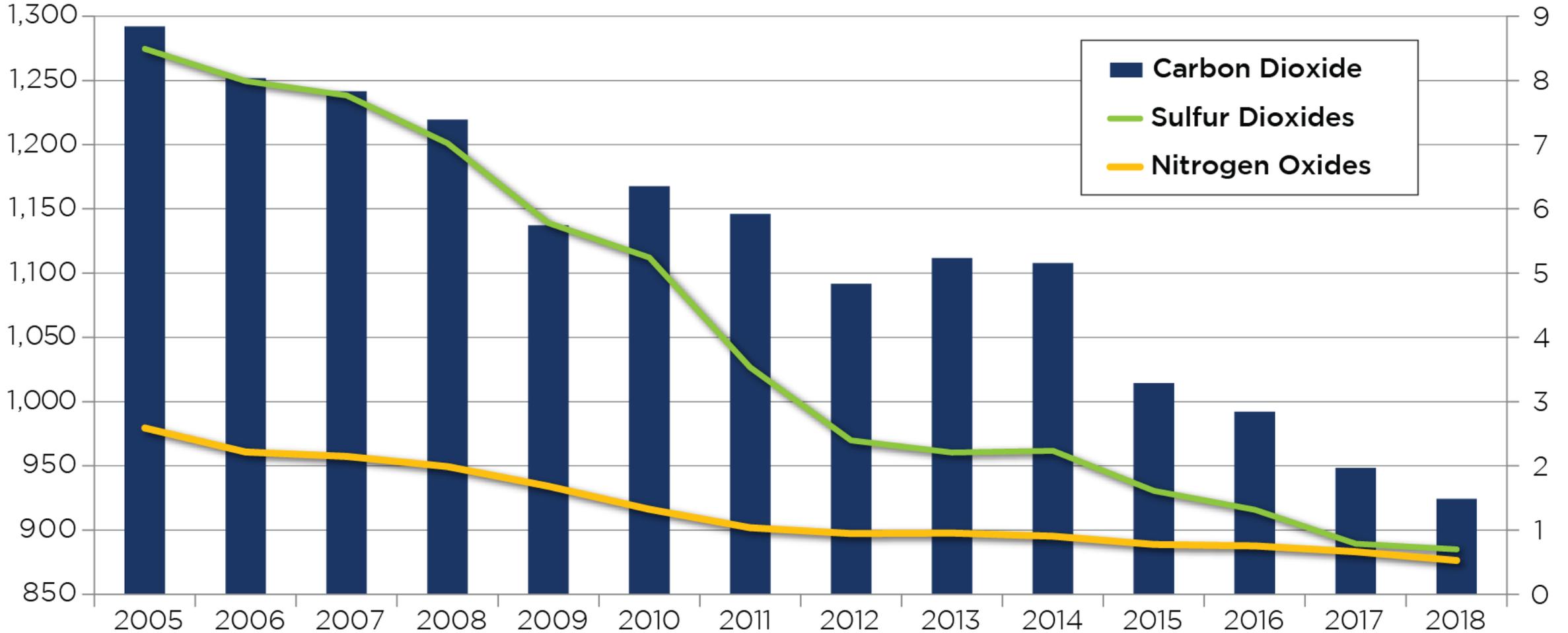


Operations Emissions Data

2005-2018 PJM Average Emissions

CO₂
lbs/MWh

SO₂ and NO_x
lbs/MWh



Please note that PJM has historically used \$5 million as the threshold for listing projects in the RTEP report. Beginning in 2018, it was decided to increase this cutoff to \$10 million. All RTEP projects with costs totaling at least \$5 million are still included in this state report.

For a complete list of all RTEP projects, including those below the RTEP threshold of \$10 million, please visit the “RTEP Upgrades & Status – Transmission Construction Status” page on [pjm.com](https://www.pjm.com).

<https://www.pjm.com/planning/rtep-upgrades-status/construct-status.aspx>