



2020 Tennessee Infrastructure Report

(January 1, 2020 – December 31, 2020)

April 2021

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

- Market Analysis
- Net Energy Import/Export Trend

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.
- **RTEP 2020:** Tennessee had one supplemental project come forward in 2020, which totaled \$11.5 million.
- **Load Forecast:** Tennessee's peak load within the PJM footprint is projected to grow 0.1 percent annually over the next ten years. The overall PJM RTO projected load growth rate is 0.3 percent.
- **1/1/20 – 12/31/20 Market Performance:** Tennessee's average hourly LMPs generally aligned with the PJM average hourly LMP.

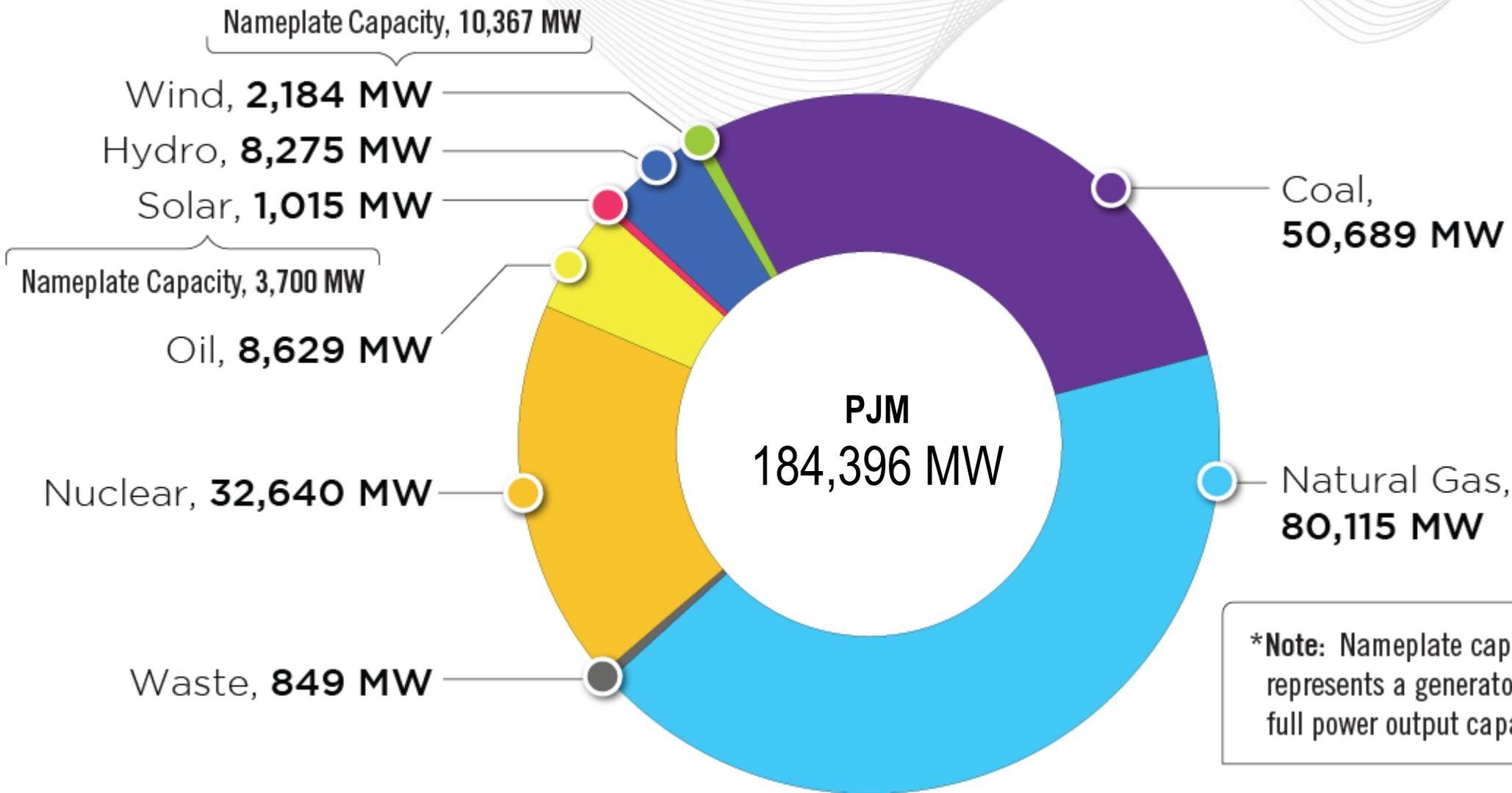


The PJM service area in Tennessee is represented by the shaded portion of the map.

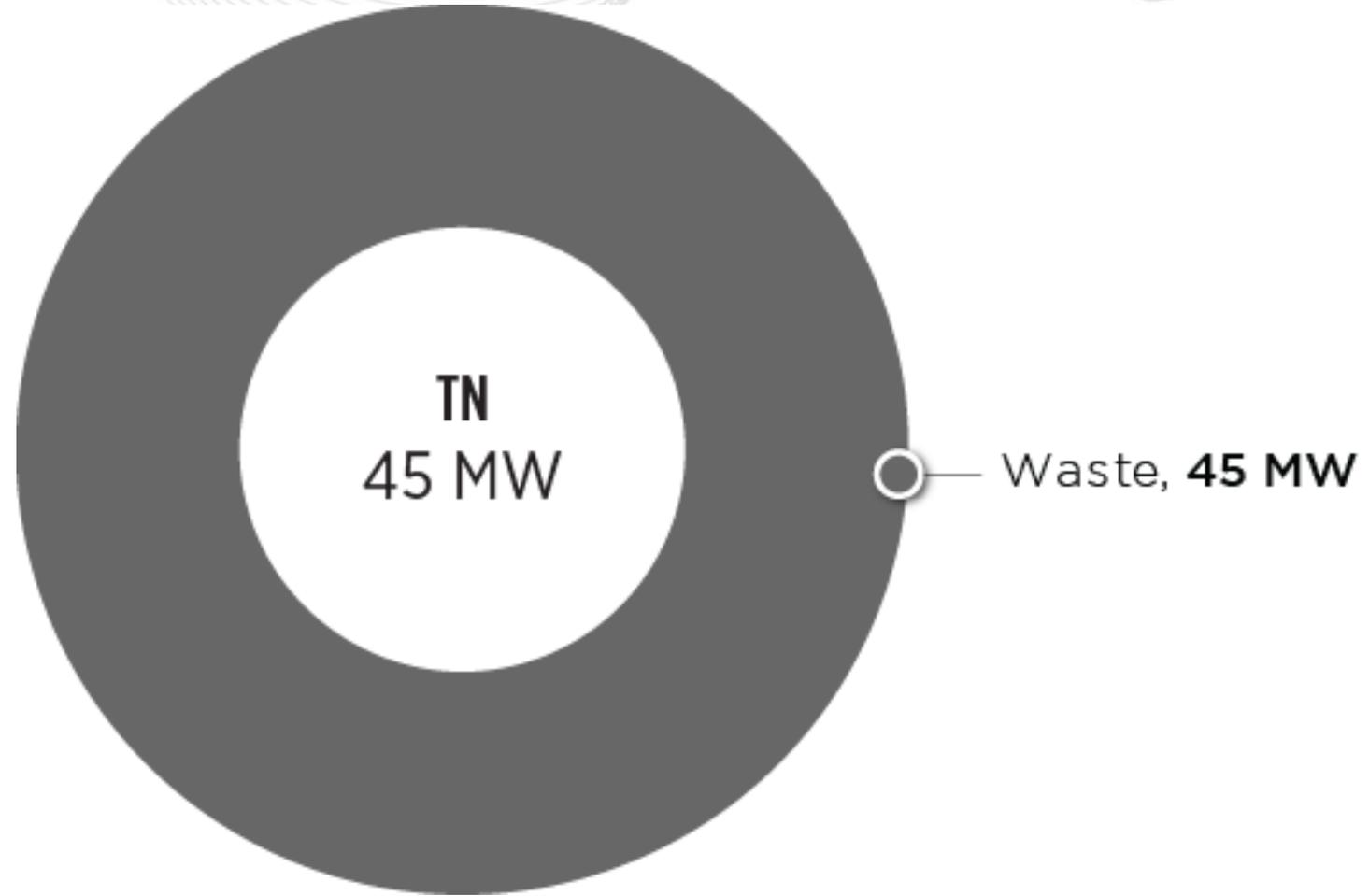
PJM operates transmission lines that extend beyond the service territory.

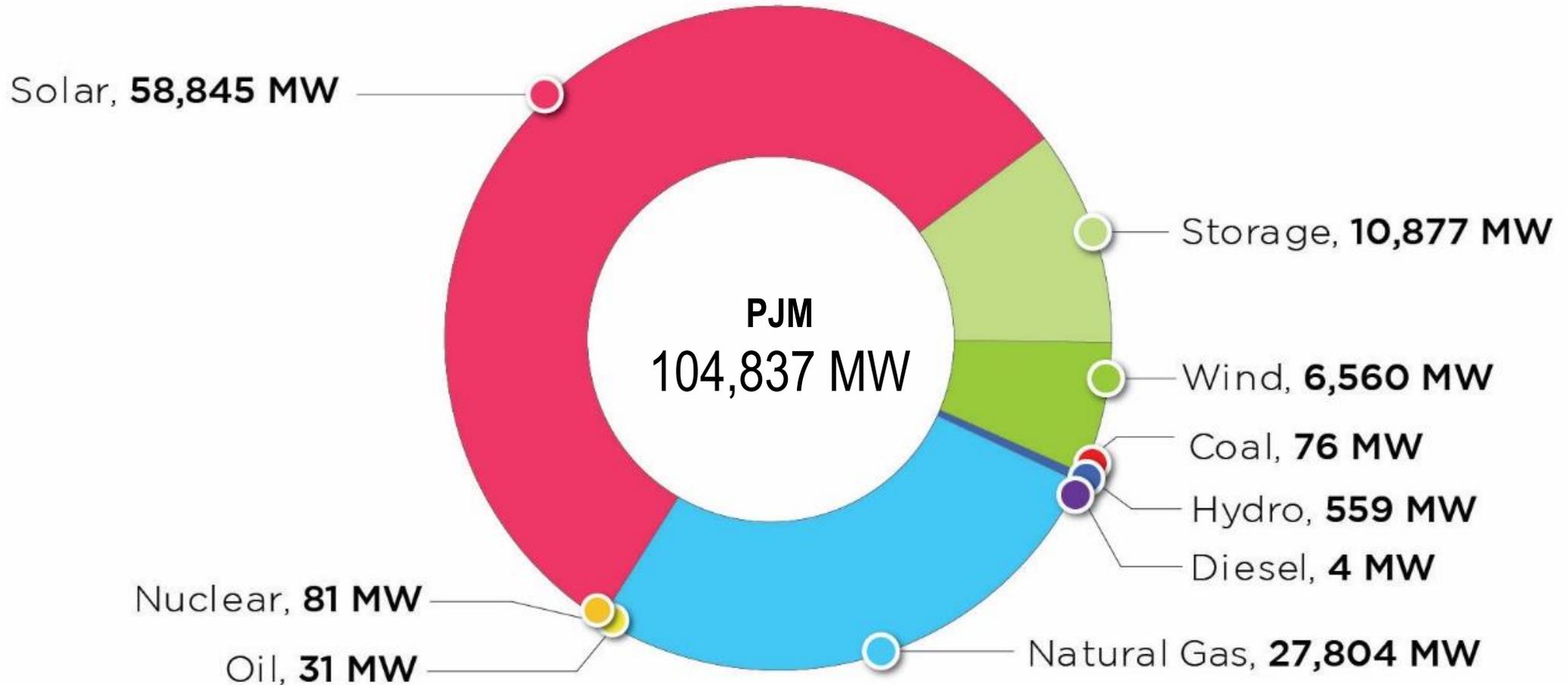
Planning

Generation Portfolio Analysis



***Note:** Nameplate capacity represents a generator's rated full power output capability.







Tennessee – Interconnection Requests by Fuel Type

(Unforced Capacity – as of Dec. 31, 2020)

Complete

		In Service		Withdrawn		Grand Total	
		Projects	Capacity (MW)	Projects	Capacity (MW)	Projects	Capacity (MW)
Non-Renewable	Coal	0	0	1	75	1	75
Renewable	Biomass	1	45	0	0	1	45
	Grand Total	1	45	1	75	2	120

Note: The "Under Construction" column includes both "Engineering and Procurement" and "Under Construction" project statuses.

Tennessee – Progression History of Interconnection Requests



Percentage of planned capacity and projects that have reached commercial operation	38%	50%
	Requested capacity megawatts	Requested projects

This graphic shows the final state of generation submitted to the PJM queue that completed the study phase as of Dec. 31, 2020, meaning the generation reached in-service operation, began construction, or was suspended or withdrawn. It does not include projects considered active in the queue as of Dec. 31, 2020.

Planning

Transmission Infrastructure Analysis

Please note that PJM 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 included in this state report. However, only projects that are \$10 million and above are displayed on the project maps.

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

<https://www.pjm.com/planning/project-construction>



Tennessee – RTEP Baseline Projects

(Greater than \$5 million)

Tennessee had no baseline project upgrades in 2020.

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



Tennessee – RTEP Network Projects

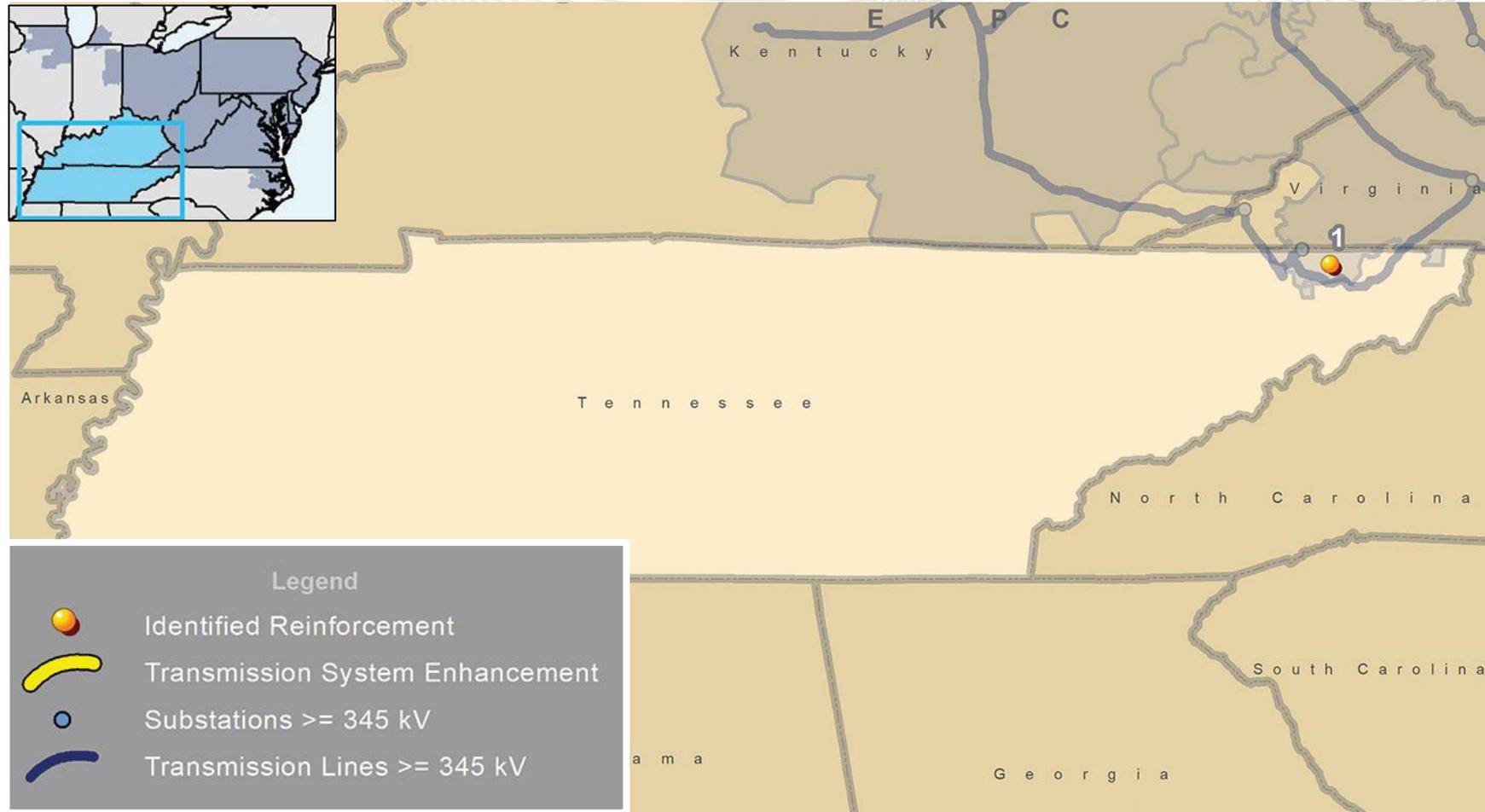
(Greater than \$5 million)

Tennessee had no network project upgrades in 2020.

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, as well as certain direct connection facilities required to interconnect proposed generation projects.

Tennessee – TO Supplemental Projects

(Greater than \$10 million)



Note: Supplemental projects are transmission expansions or enhancements that are not required for compliance with PJM criteria and are not state public policy projects according to the PJM Operating Agreement. These projects are used as inputs to RTEP models, but are not required for reliability, economic efficiency or operational performance criteria, as determined by PJM.



Tennessee – TO Supplemental Projects

(Greater than \$5 million)

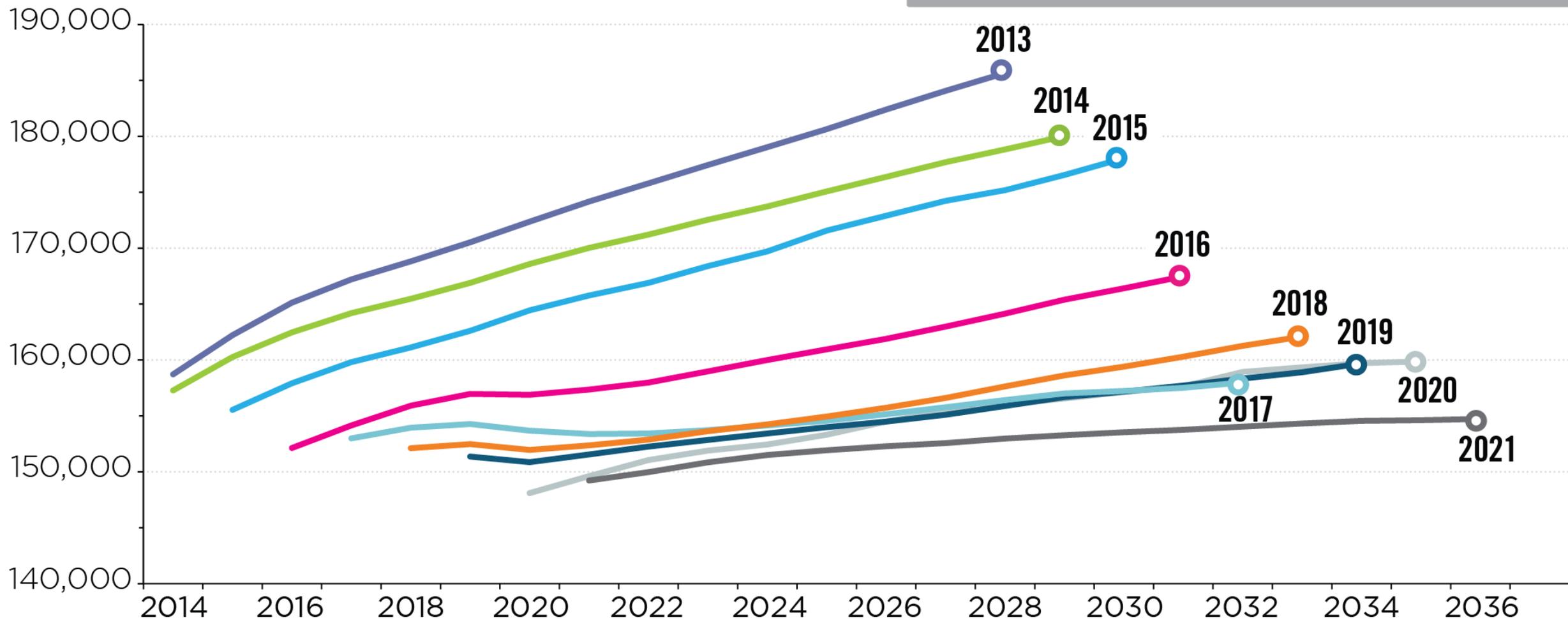
Map ID	Project	Description	Projected In-Service Date	Project Cost (\$M)	TO Zone	TEAC Date
1	s2249	Holston substation: Replace existing 138/34.5 kV, 45 MVA transformer No. 1 with a new 138/69/34.5 kV, 90 MVA transformer. Replace existing high-side MOAB switches on transformer No. 1 with new 138 kV, 3000 A 40 KA circuit breaker. Replace existing ground transformers No. 8 and No. 9 with new ground banks. Reconfigure the existing 34.5 kV into a ring bus configuration with five new 34.5 kV breakers.	12/1/2023	\$11.50	AEP	4/20/2020

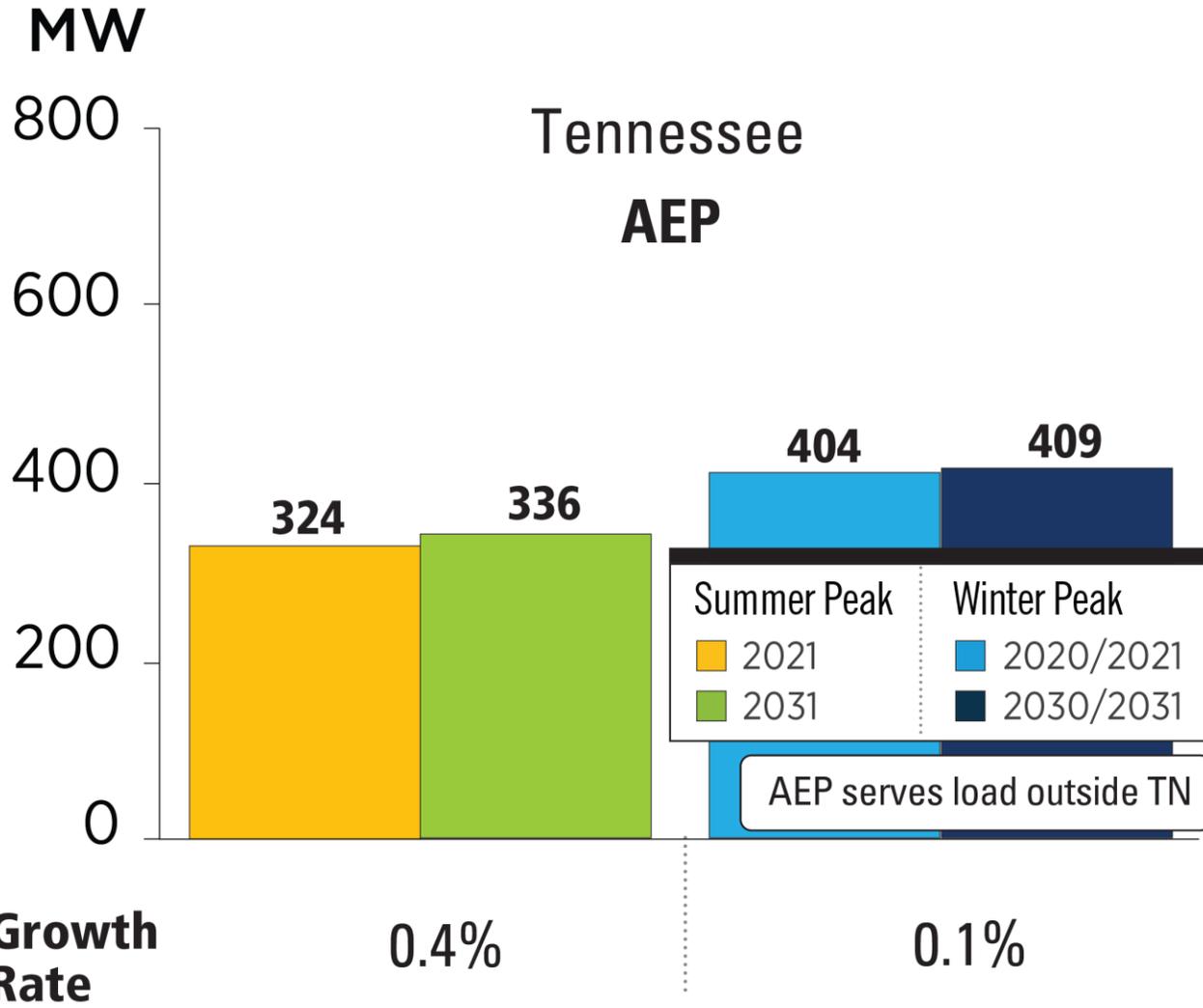
Planning

Load Forecast

PJM RTO Summer Peak Demand Forecast

Load (MW)





PJM RTO Summer Peak

2021	2031
149,223 MW	153,759 MW

Growth Rate 0.3%

PJM RTO Winter Peak

2020/2021	2030/2031
132,027 MW	135,568 MW

Growth Rate 0.2%

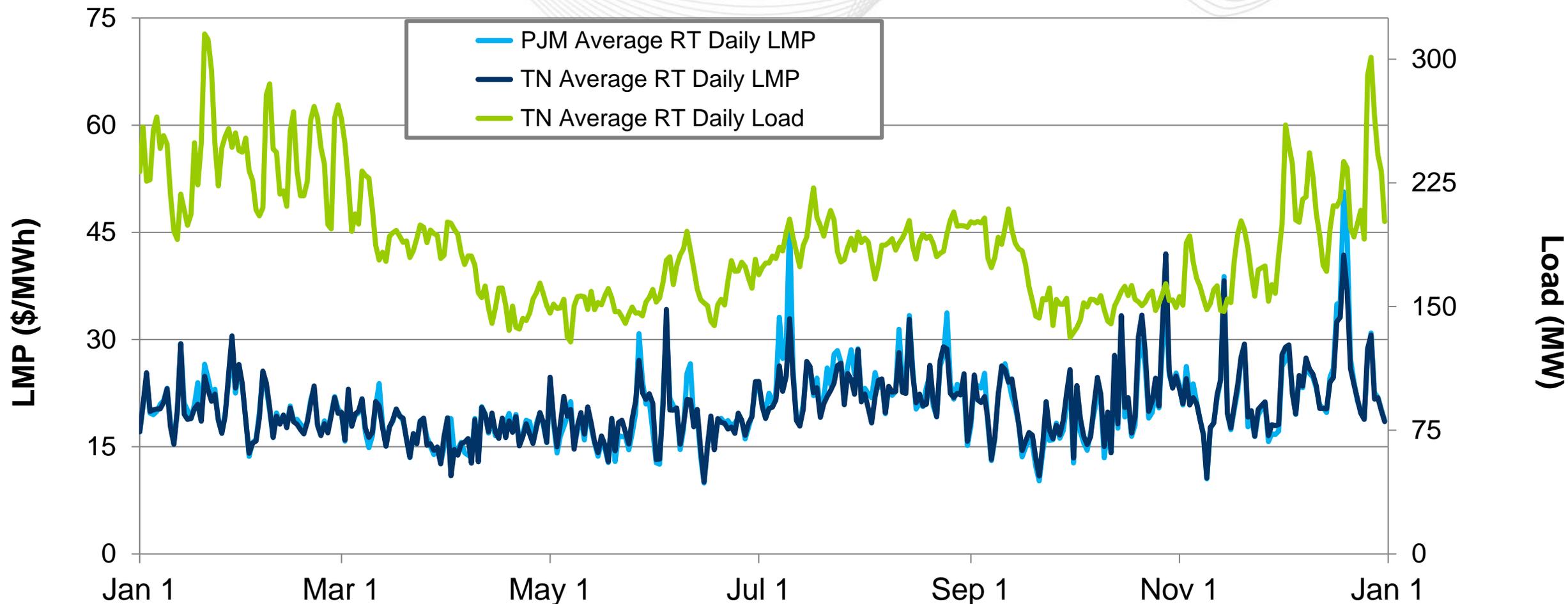
The summer and winter peak megawatt values reflect the estimated amount of forecasted load to be served by each transmission owner in the noted state/district. Estimated amounts were calculated based on the average share of each transmission owner's real-time summer and winter peak load in those areas over the past five years.

Markets

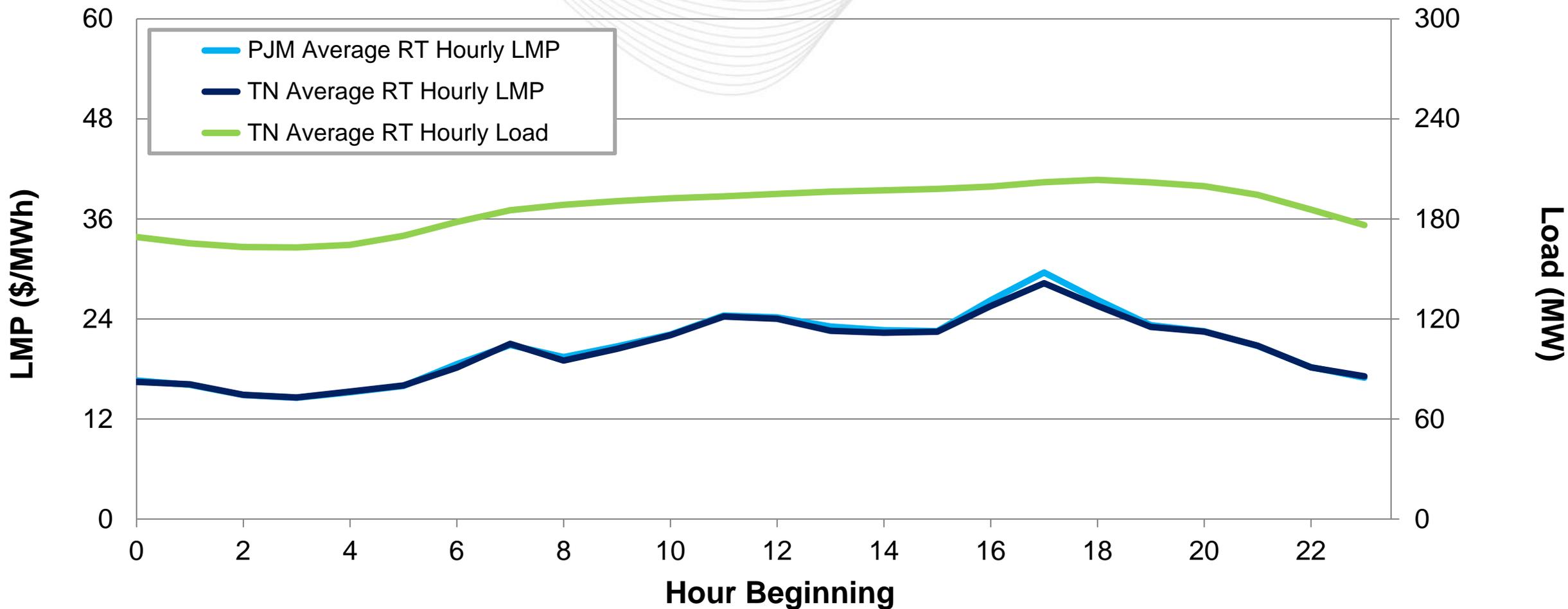
Market Analysis

Tennessee – Average Daily LMP and Load

(Jan. 1, 2020 – Dec. 31, 2020)



Tennessee's average hourly LMPs generally aligned with the PJM average hourly LMP. Load (MW)





Tennessee – Net Energy Import/Export Trend

(Jan. 2020 – Dec. 2020)



This chart reflects the portion of Tennessee that PJM operates. Positive values represent exports and negative values represent imports.

Operations Emissions Data



2005 – 2020 PJM Average Emissions

