2023 Virginia State Infrastructure Report (January 1, 2023 – December 31, 2023)

June 2024

Table of Contents

Executive Summary

2023 Virginia State Infrastructure Report

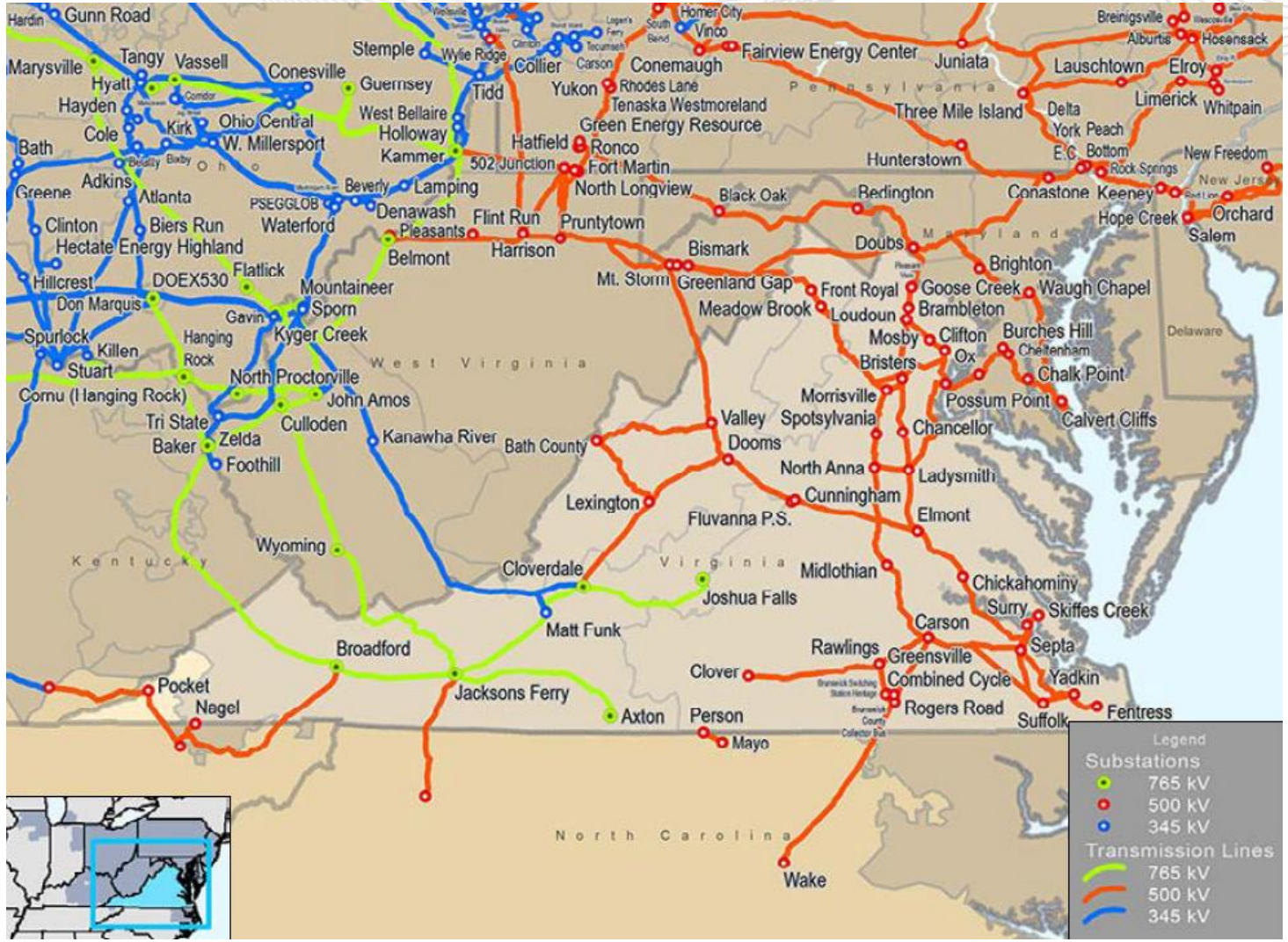
In the Virginia service territory:

Existing Capacity:	• In Virginia, natural gas represents 53% of the total installed capacity while hydro represents 14% and nuclear 14%. • In PJM, natural gas and coal are 48% and 22% of total installed capacity, while nuclear represents 18%.
Interconnection Requests:	• Solar represents 55% of new interconnection requests while storage represents 32% of new requests.
Deactivations:	• 1,803 MW in Virginia deactivated in 2023 • 51 MW of generation in Virginia gave a notice of deactivation in 2023.
RTEP 2023:	Virginia's 2023 RTEP project total represents approximately $3.85 billion in investment.

In the Virginia service territory:

Load Forecast:	Virginia's summer peak load is projected to increase by 0.3% to 5.7% annually over the next ten years, while the winter peak is projected to increase by 0.6% to 5.2%, depending on the transmission zone.
Capacity Market:	No Base Residual Auction was conducted in 2023. For the most recent auction results, please see the 2022 Virginia State Infrastructure Report.
Market Performance:	Virginia's average hourly LMPs were above the PJM average hourly LMP.
Emissions:	Virginia's average CO_2 emissions declined in 2023 compared to 2022 levels

PJM Service Area in Virginia

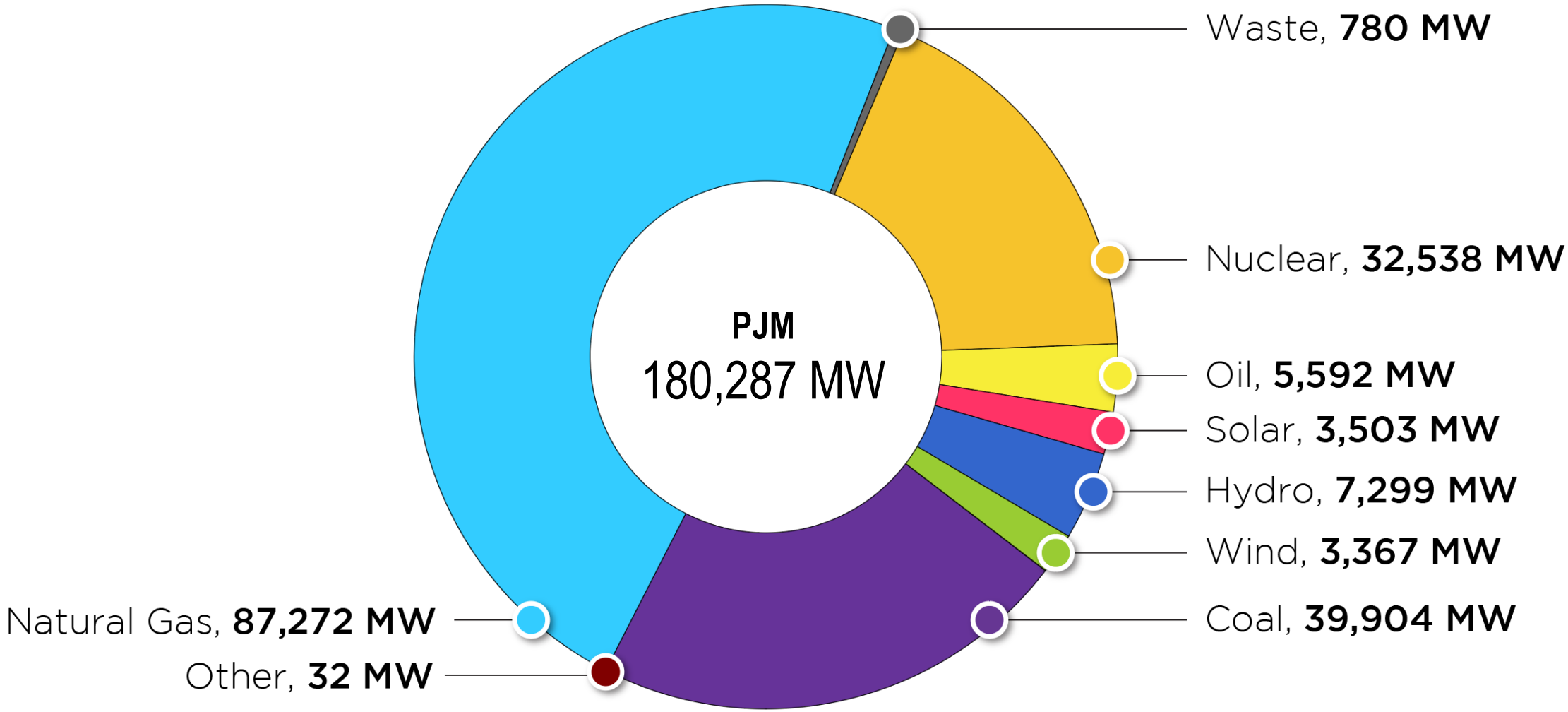


Planning

Generation Portfolio Analysis

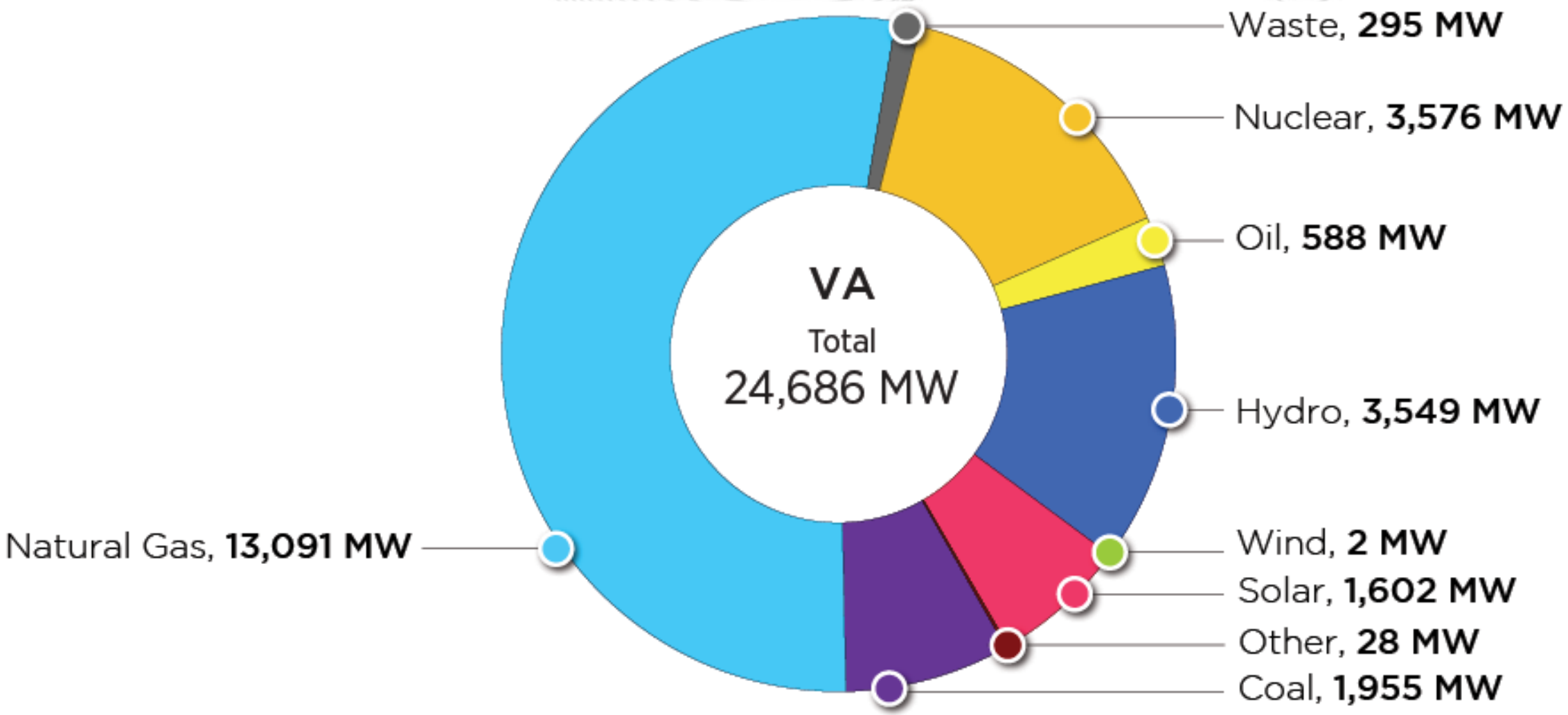
PJM Existing Installed Capacity Mix

(CIRs – as of Dec. 31, 2023)



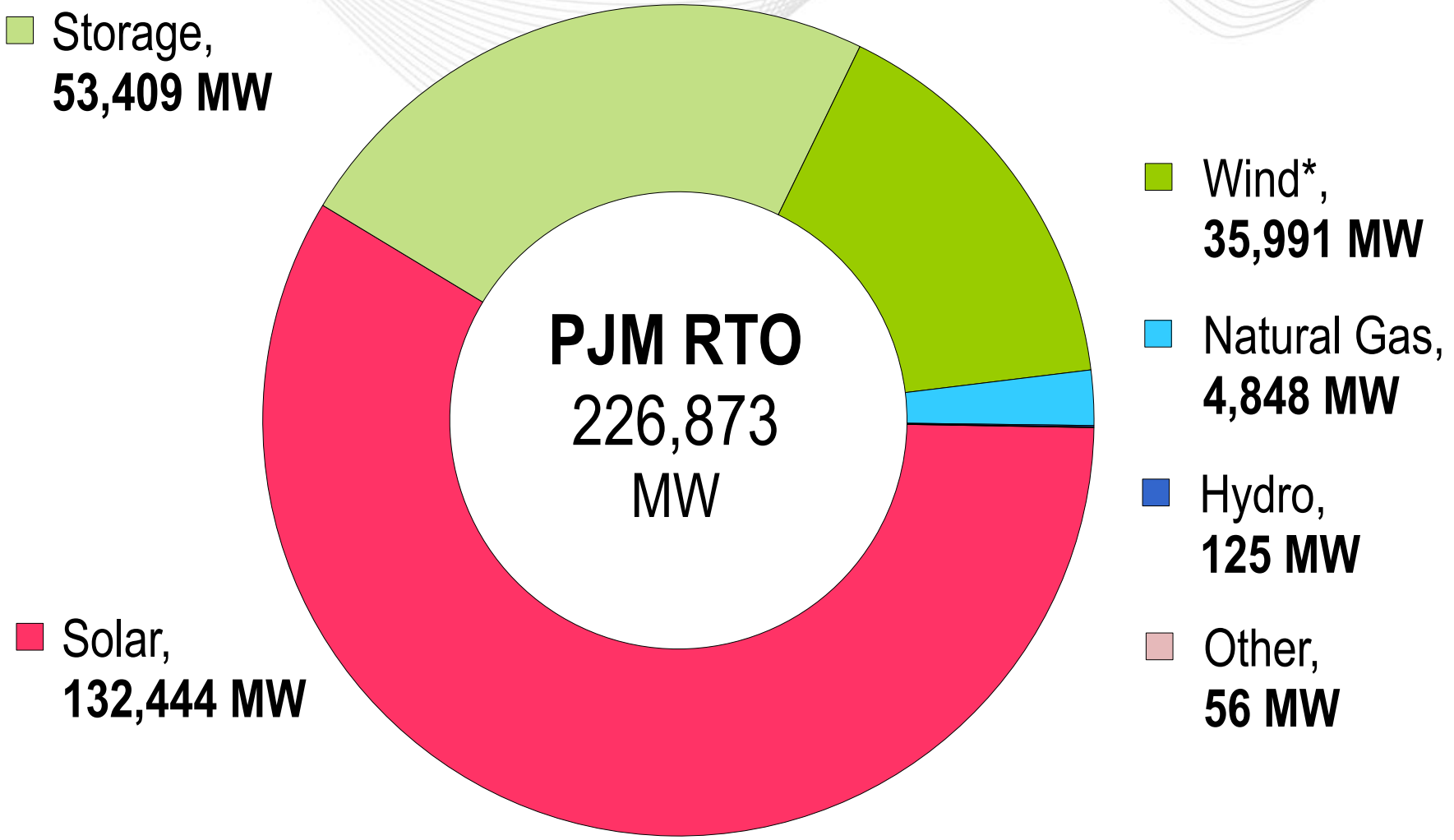
Virginia – Existing Installed Capacity (MW) by Fuel Type

(as of Dec. 31, 2023)



PJM Queued Capacity (Nameplate) by Fuel Type

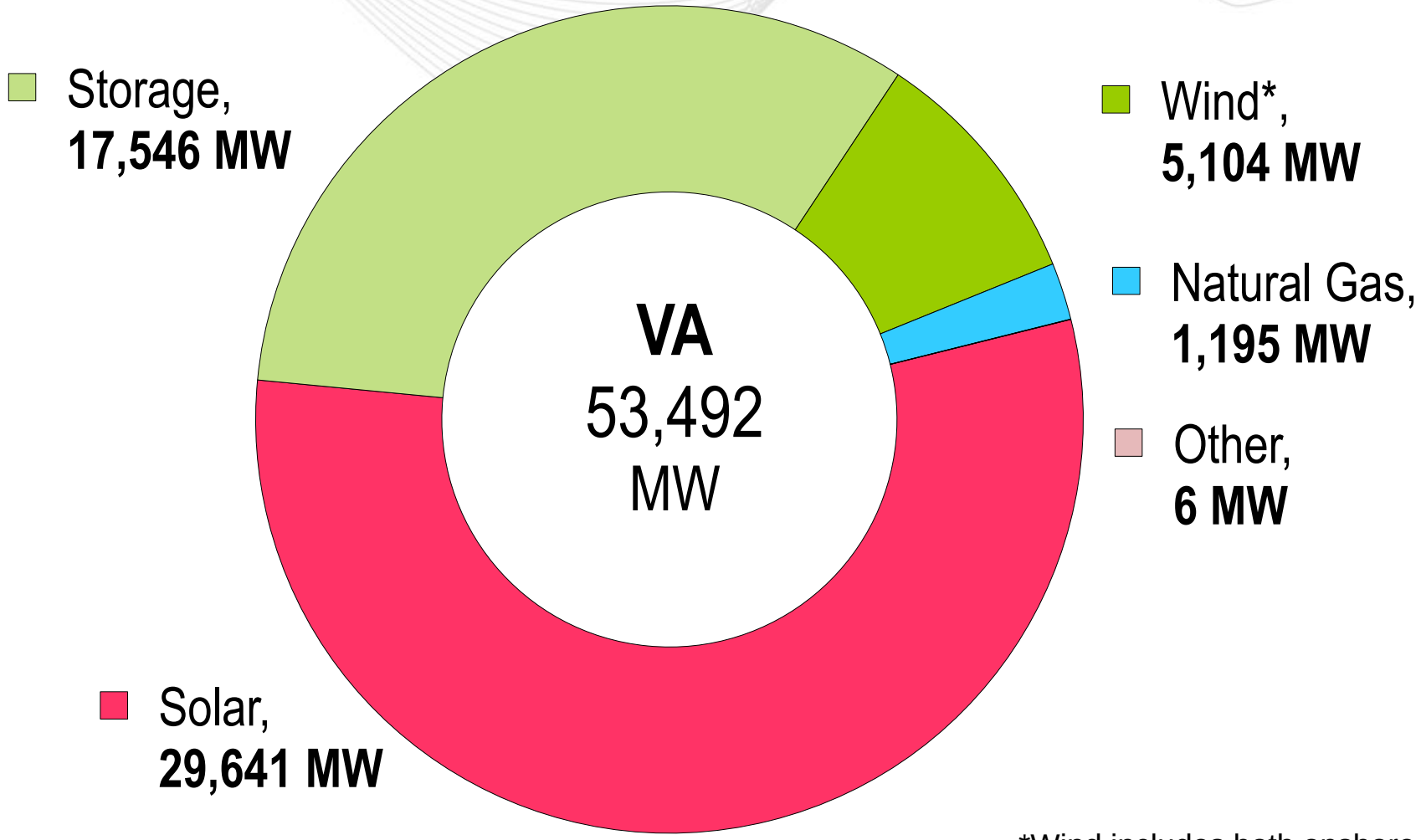
("Active" in the PJM Queue as of April 1, 2024)



*Wind includes both onshore and offshore wind

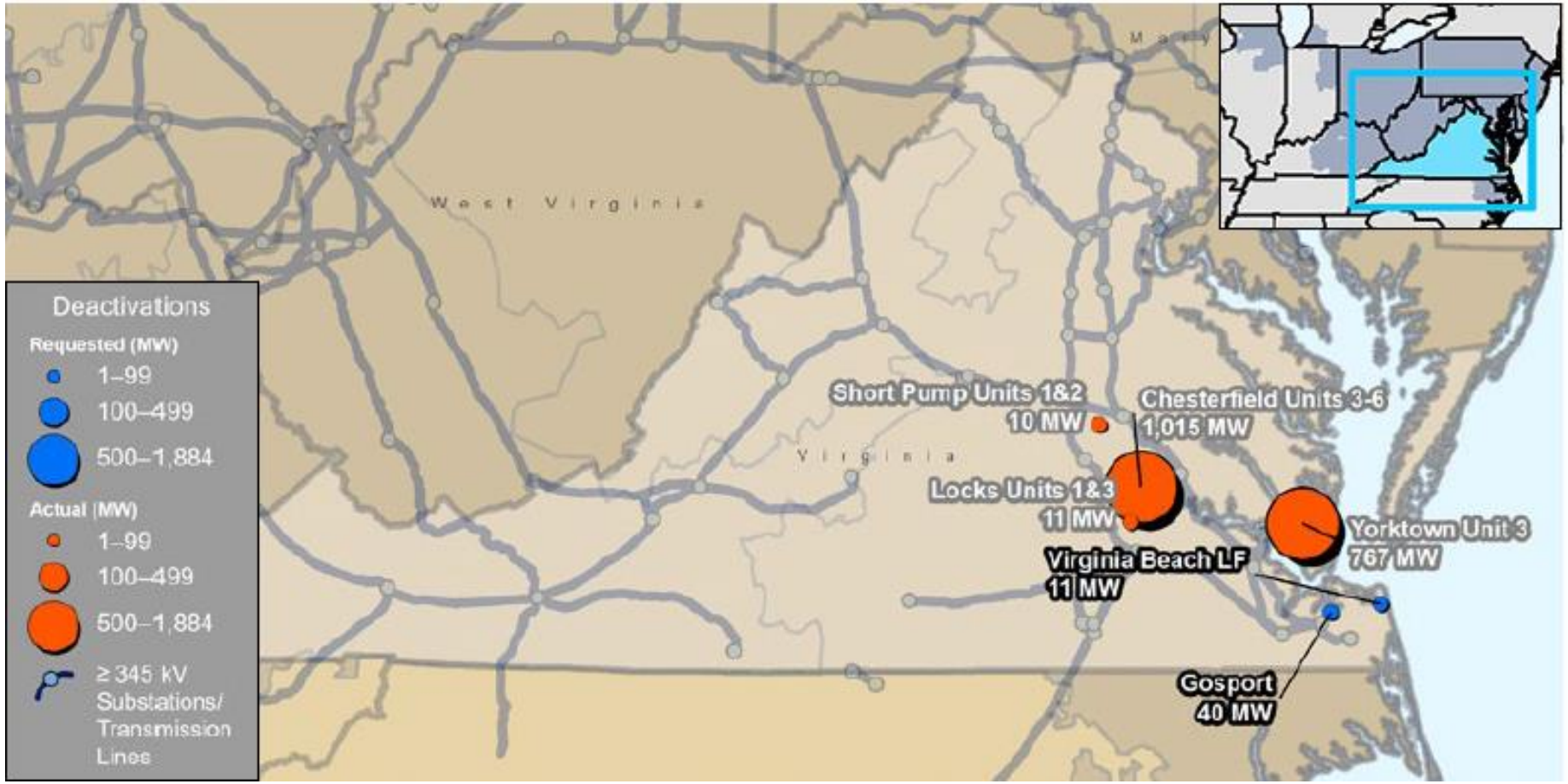
Virginia Queued Capacity (Nameplate) by Fuel Type

("Active" in the PJM Queue as of April1, 2024)



*Wind includes both onshore and offshore wind

Virginia – 2023 Generator Deactivations



Virginia – 2023 Generator Deactivations

Unit	TO Zone	Fuel Type	Request Received to Deactivate	Actual or Projected Deactivation Date	Age (Years)	Capacity (MW)
VIRGINIA BEACH LANDFILL	Dominion	Methane	12/8/23	4/1/2024	18	11
GOSPORT 1 F		Biomass	2/15/23	7/1/2024	36	40
Chesterfield 5		Coal	2/20/2020	6/1/2023	56	336.8
Chesterfield 6					51	678.1
DINWIDDIE 1 CT		Diesel	9/29/2021		28	3
Lanier 1 CT					21	7
Rockville CT					26	4
Weakley CT					21	7
Yorktown 3		Oil	12/20/2022		48	767.1

Planning

Transmission Infrastructure Analysis

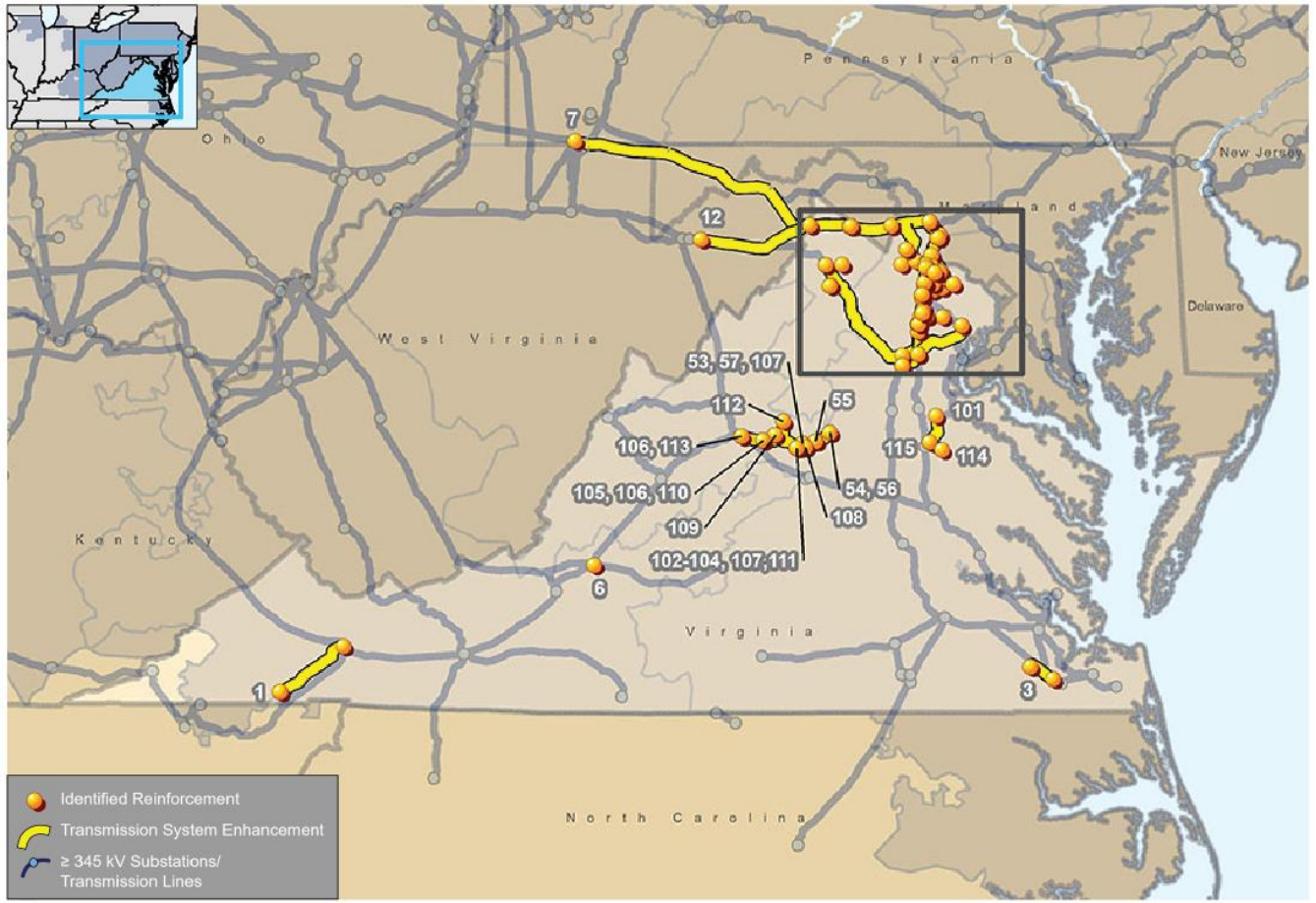
For reporting purposes, the 2023 state infrastructure reports provide maps displaying all baseline, network, and supplemental projects for the respective state. The reports also include aggregated project costs for each type of project within each state. The costs listed in the state infrastructure reports and 2023 Annual RTEP Report are not indicative of each project's cost allocation.

For a detailed list of each project shown on a state's project map, please see that state's section in the **2023 Annual RTEP Report** on PJM.com: https://pjm.com/-/media/library/reports-notices/2023-rtep/2023-rtep-report.ashx.

The complete list of all RTEP projects in PJM, including those from prior years, can be found at the **RTEP Upgrades & Status – Transmission Construction Status** page on PJM.com: https://www.pjm.com/planning/m/project-construction.

Virginia Baseline Projects

(as of Dec. 31. 2023)

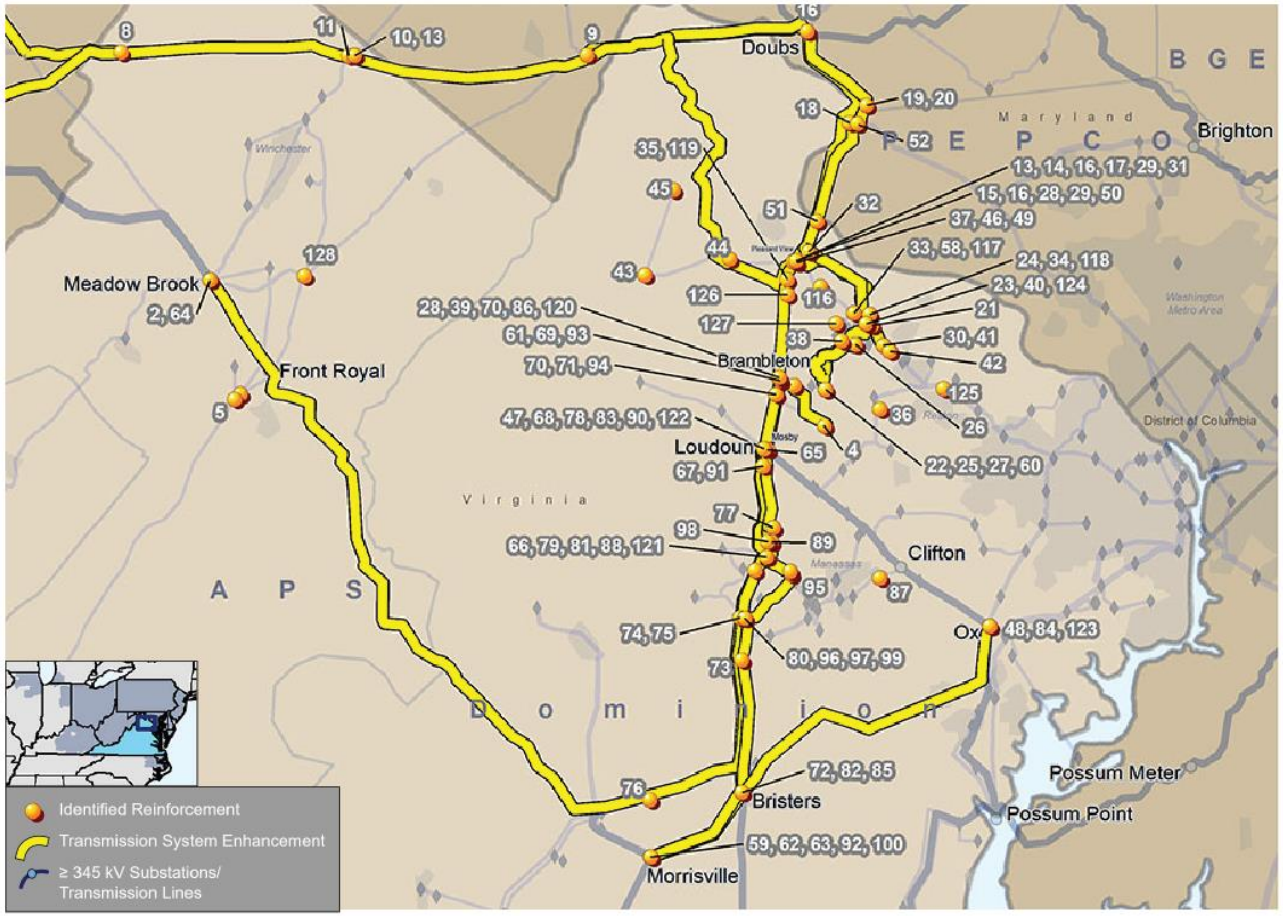


The 2023 RTEP has $3.562 billion in baseline projects located in Virginia.

Note: Baseline upgrades are those that resolve a system reliability criteria violation. Baseline projects listed in the annual RTEP report reflect project costs within a specific location and are not indicative of the project's cost allocation.

Virginia Baseline Projects (Northern Virginia)

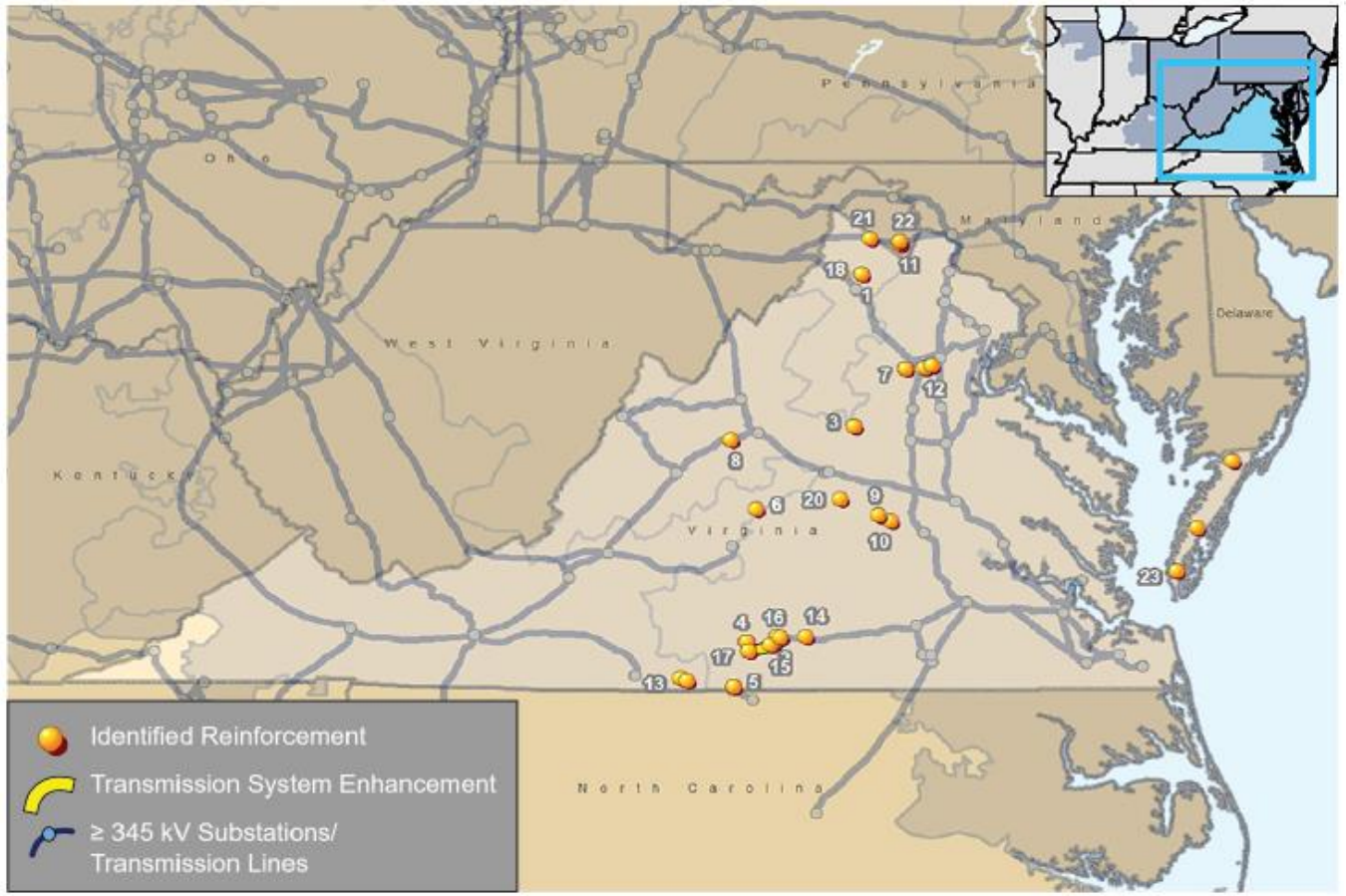
(as of Dec. 31. 2023)



Note: Baseline upgrades are those that resolve a system reliability criteria violation. Baseline projects listed in the annual RTEP report reflect project costs within a specific location and are not indicative of the project's cost allocation.

Virginia Network Projects

(as of Dec. 31. 2023)

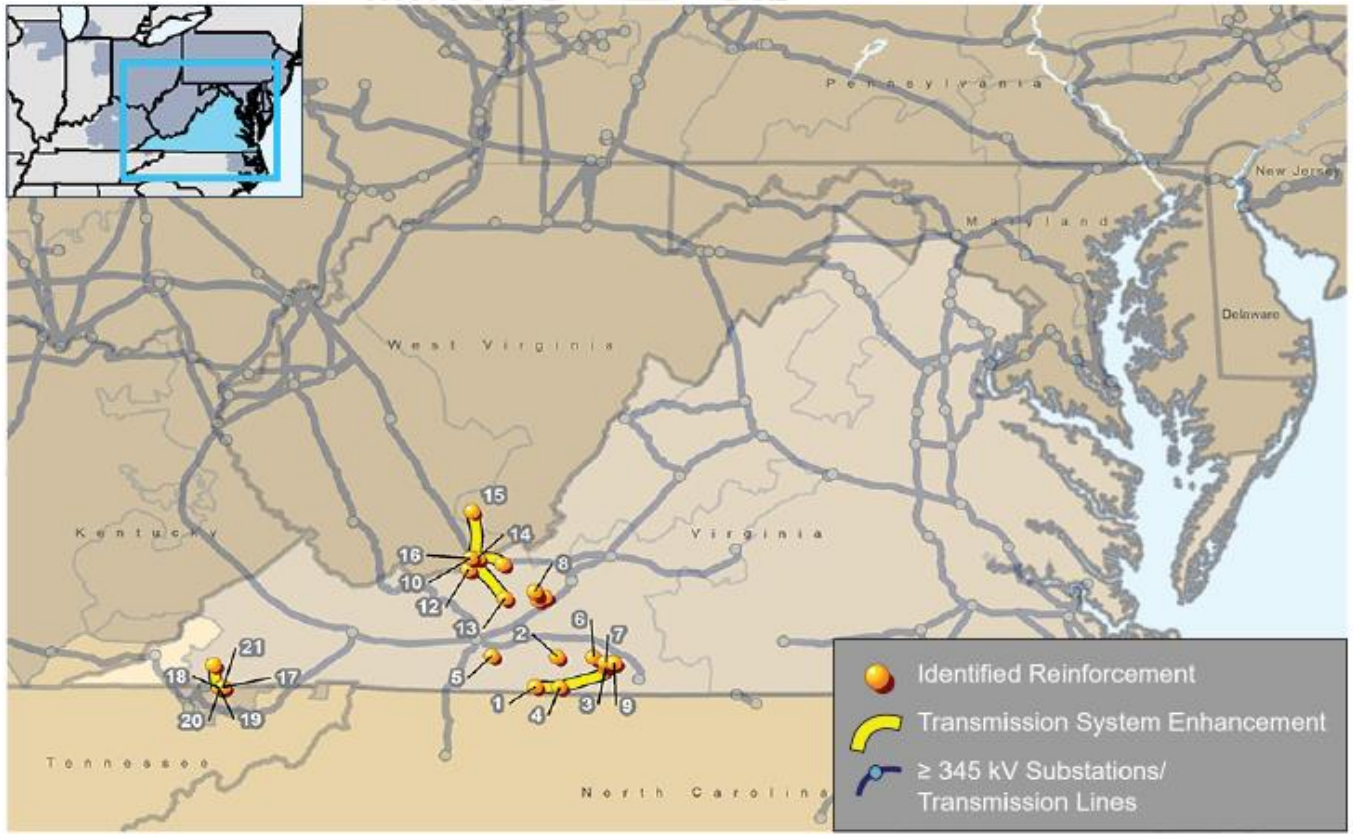


The 2023 RTEP has $90.23 million in network upgrades located in Virginia.

Note: Network projects 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. The costs of network projects are borne by the interconnection customer.

Virginia Supplemental Projects

(as of Dec. 31. 2023)

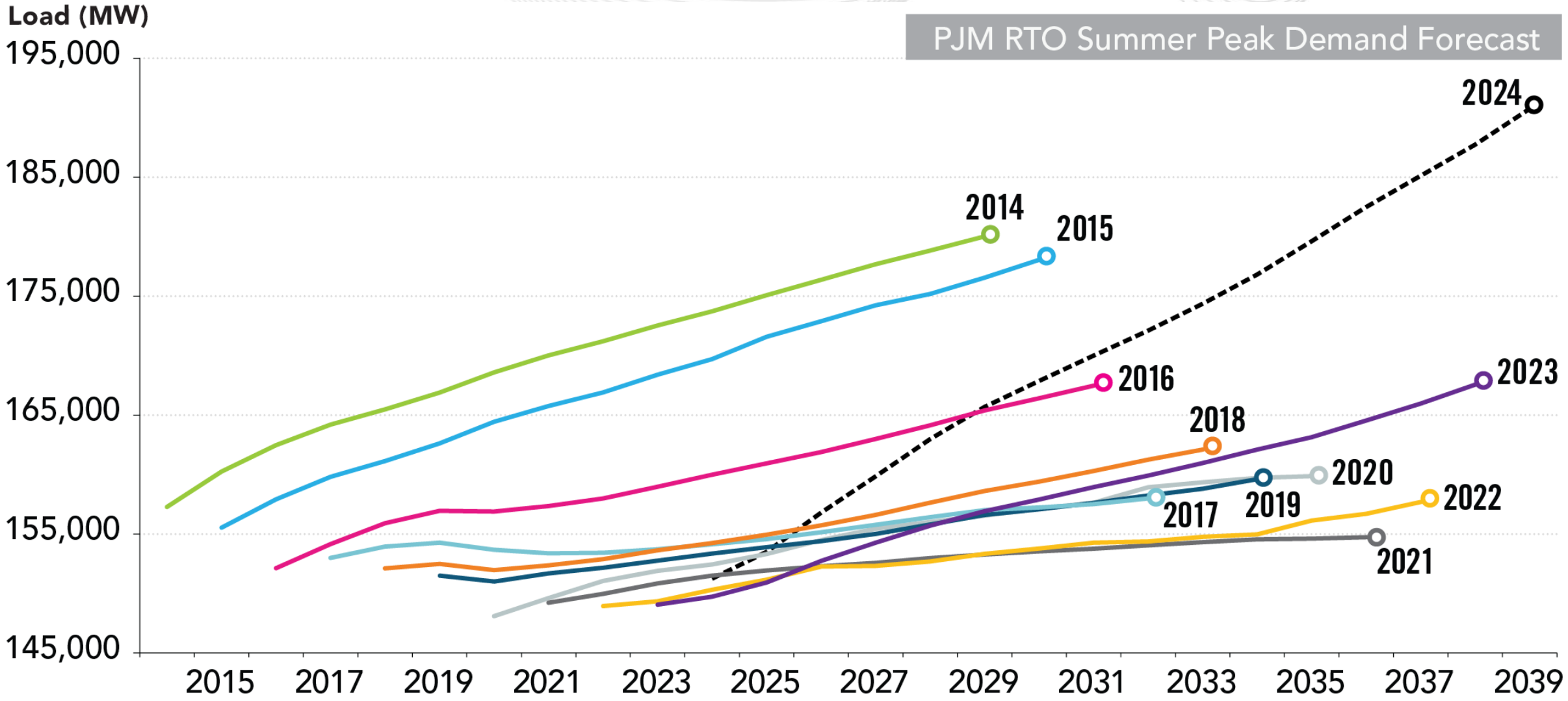


The 2023 RTEP has $200.46 million in supplemental projects located in Virginia.

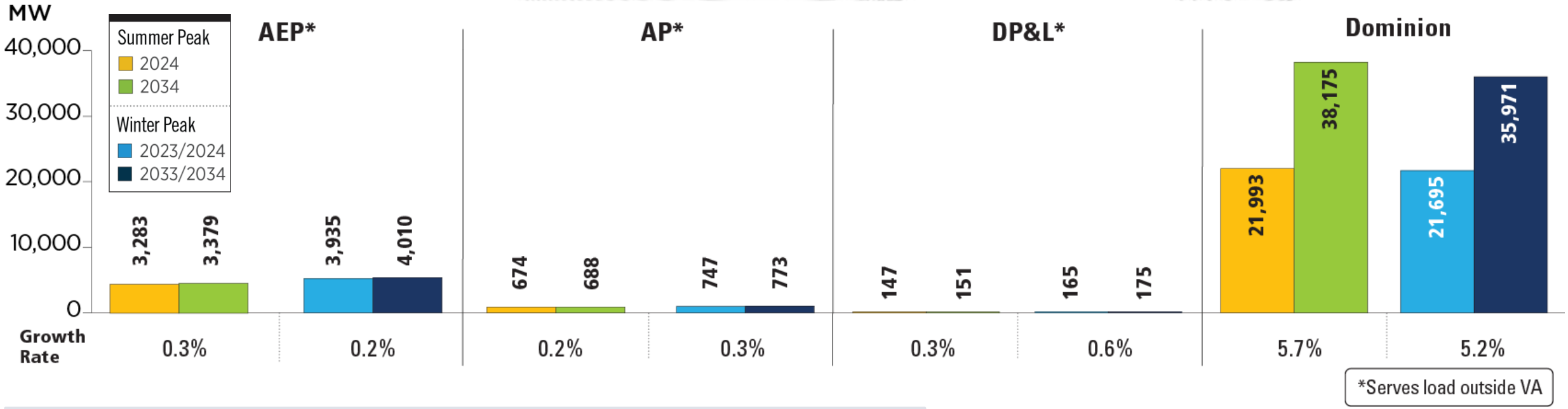
Note: Supplemental projects are transmission expansions or enhancements that are not required for compliance with PJM criteria and are not state public policy projects according to the PJM Operating Agreement. These projects are used as inputs to RTEP models, but are not required for reliability, economic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

Planning
Load Forecast

PJM Electricity Demand Growth



Virginia – 2024 Load Forecast Report



* PJM notes that American Electric Power Company, Delmarva Power and Light, Allegheny Power and Dominion Virginia Power serve load other than in Virginia. The summer and winter peak megawatt values in this table each reflect the estimated amount of forecasted load to be served by each of those transmission owners solely in Virginia. Estimated amounts were calculated based on the average share of each transmission owner's real-time summer and winter peak load located in Virginia over the past five years.

PJM RTO Summer Peak

2024	2034
151,247 MW	176,822 MW

Growth Rate 1.6%

PJM RTO Winter Peak

2023/2024	2033/2034
134,659 MW	163,069 MW

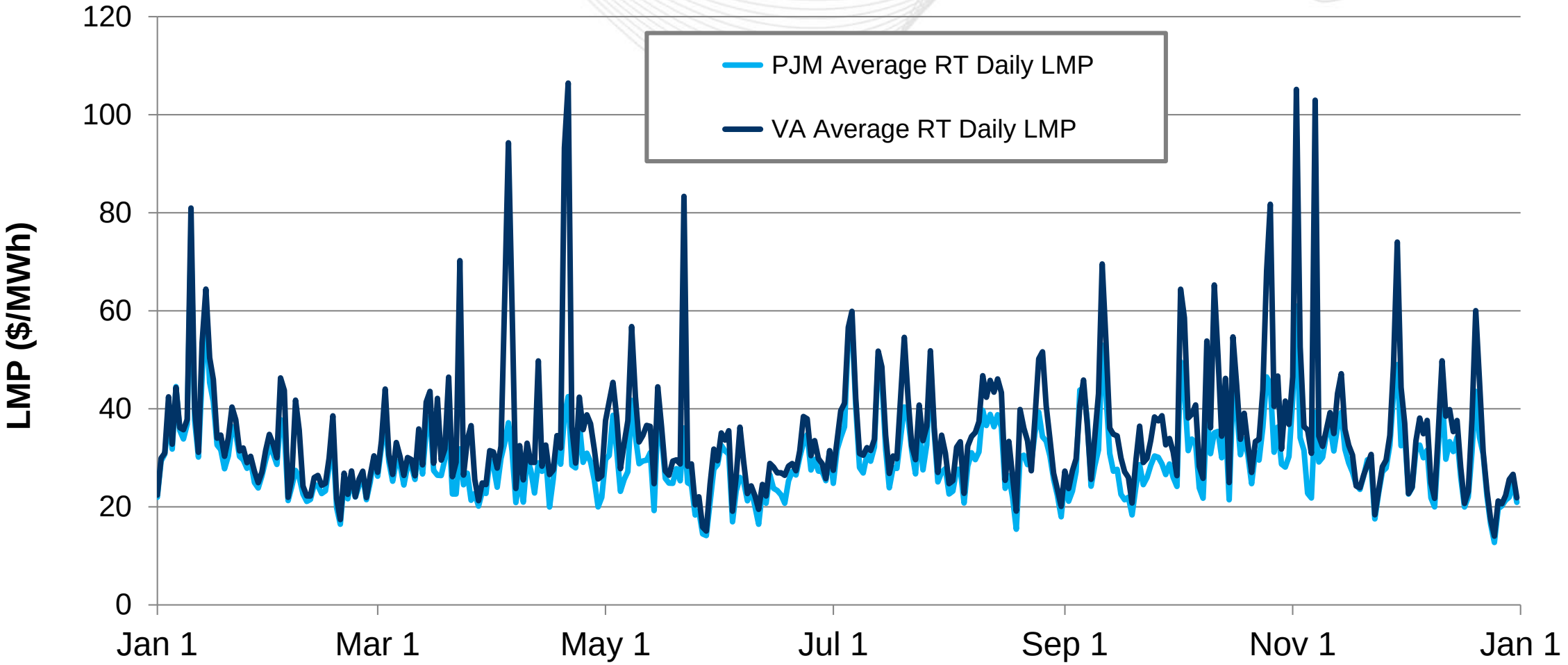
Growth Rate 1.9%

Markets

Market Analysis

Virginia – Average Daily LMP

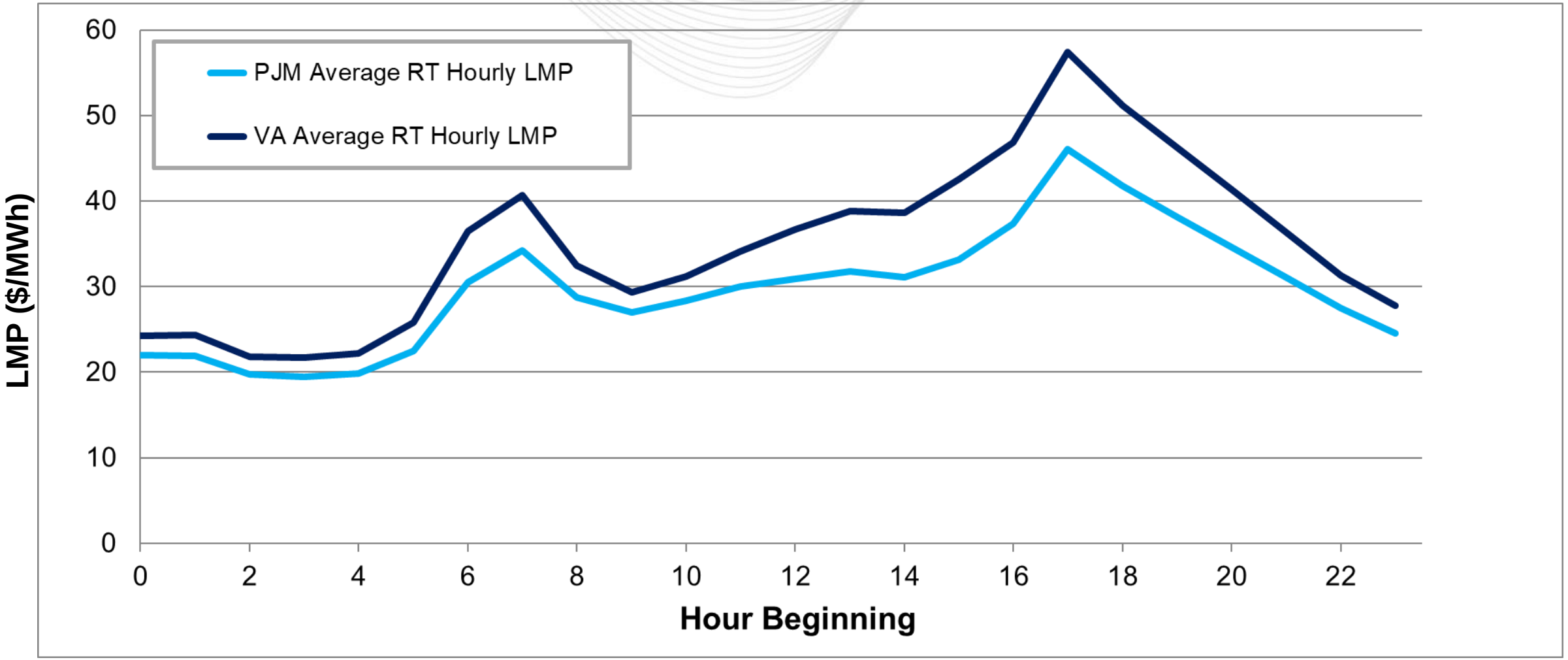
(Jan. 1, 2023 – Dec. 31, 2023)



Virginia – Average Hourly LMP

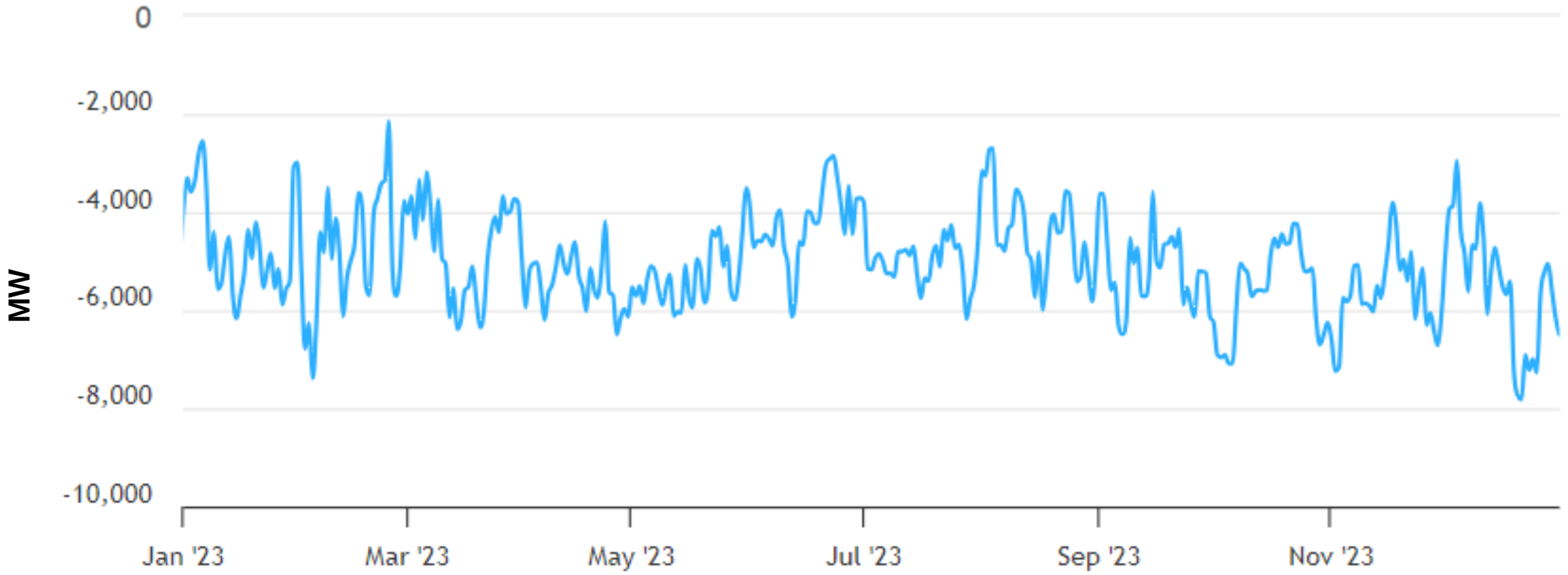
(Jan. 1, 2023 – Dec. 31, 2023)

Virginia's average hourly LMPs were higher than the PJM average hourly LMP.



Virginia – Net Energy Import/Export Trend

(Jan. 2023 – Dec. 2023)

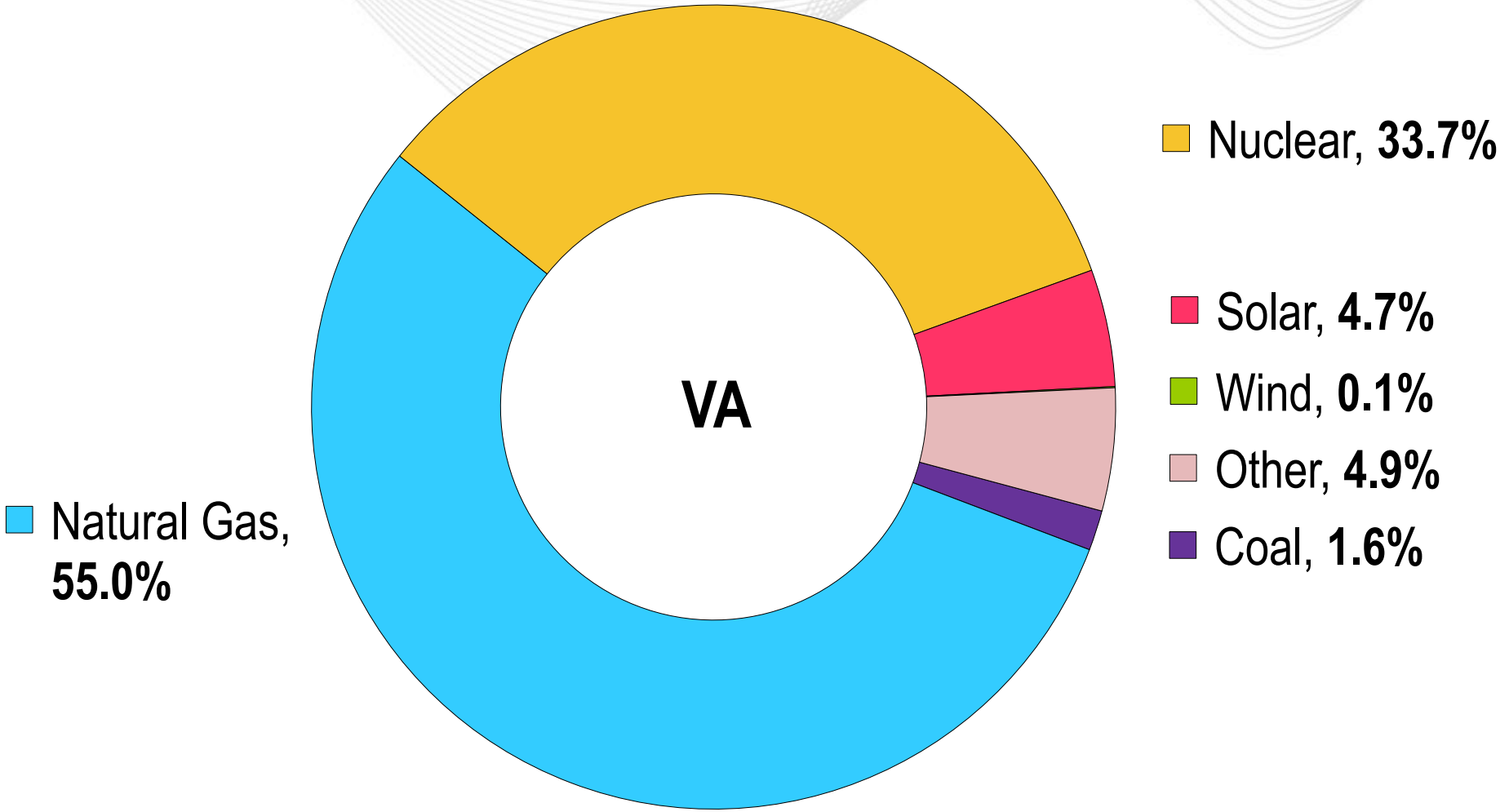


This chart reflects the portion of Virginia that PJM operates. Positive values represent exports and negative values represent imports.

Note – A significant amount of generation from units owned by Virginia jurisdictional utilities and included in regulated rates charged to Virginia customers are physically located outside of Virginia. They are categorized as imports in the chart.

Operations

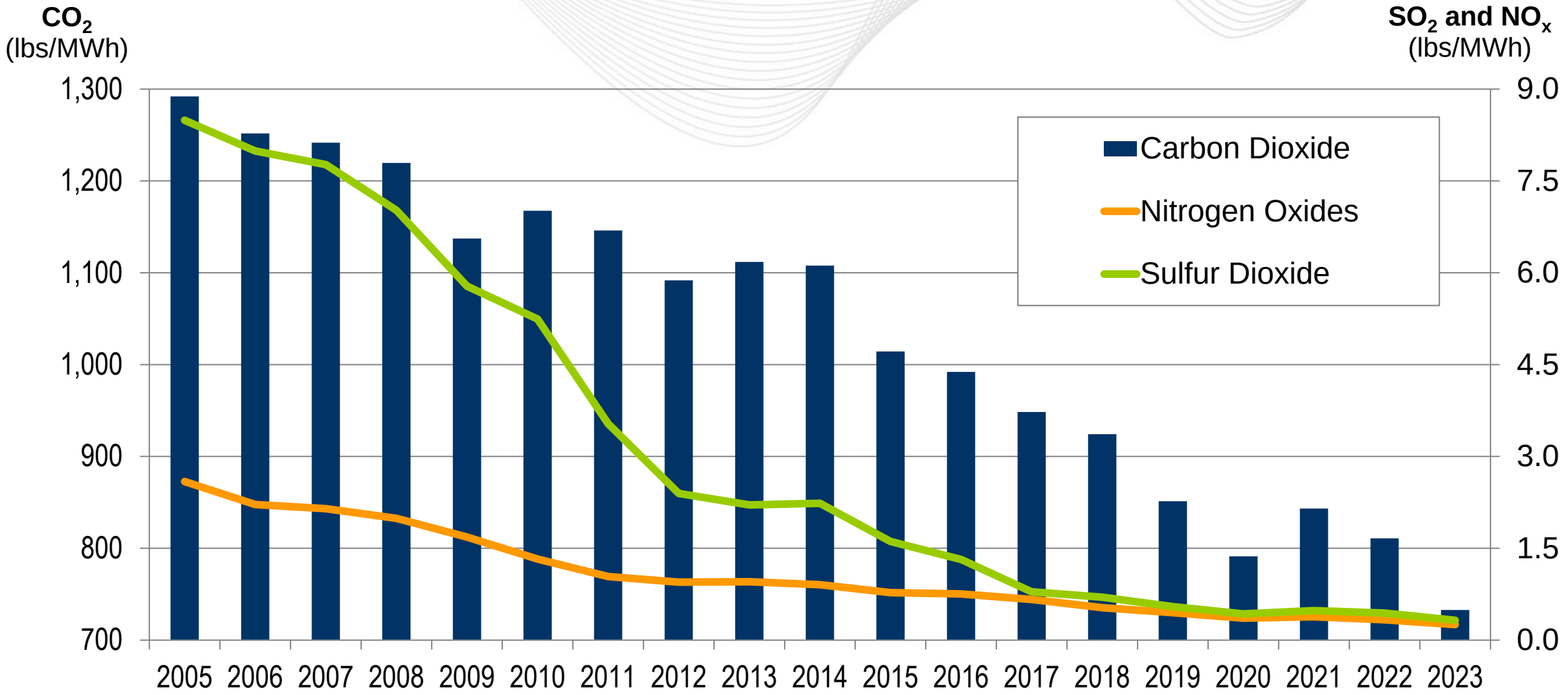
Virginia – 2023 Generator Production



The data in this chart comes from EIA Form 923 (2023) and represents only generators physically located within Virginia.

2005–2023 PJM Average Emissions

(March 2024)



Virginia – Average Emissions (lbs/MWh)

(March 2024)