



2023 Maryland and District of Columbia State Infrastructure Report (January 1, 2023 – December 31, 2023)

June 2024

Planning

- Generation Portfolio Analysis
- Transmission Analysis
- Load Forecast

Markets

- Market Analysis
- Net Energy Import/Export Trend

Operations

- Generator Production
- Emissions Data

In the Maryland & D.C. service territory:



Existing Capacity:

- In Maryland, natural gas represents 49% of the total installed capacity while coal represents 16% and nuclear 16%.
- In PJM, natural gas and coal are 48% and 22% of total installed capacity, while nuclear represents 18%.



Interconnection Requests:

- Solar represents 54% of new interconnection requests while storage represents 44% of new requests.



Deactivations:

- 2 MW of generation deactivated in 2023.
- An additional 2,686 MW of generation announced its intention to deactivate in future years.



RTEP 2023:

Maryland and Washington, D.C.'s 2023 RTEP project total represents approximately \$2.03 billion in investment.

In the Maryland & D.C. service territory:



Load Forecast:

Maryland and Washington, D.C.'s summer peak load is projected to increase by 0.3% to 4.6% percent annually over the next ten years, while the winter peak is projected to increase by 0.6% to 4.7% percent, 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 Maryland and Washington, D.C. State Infrastructure Report.



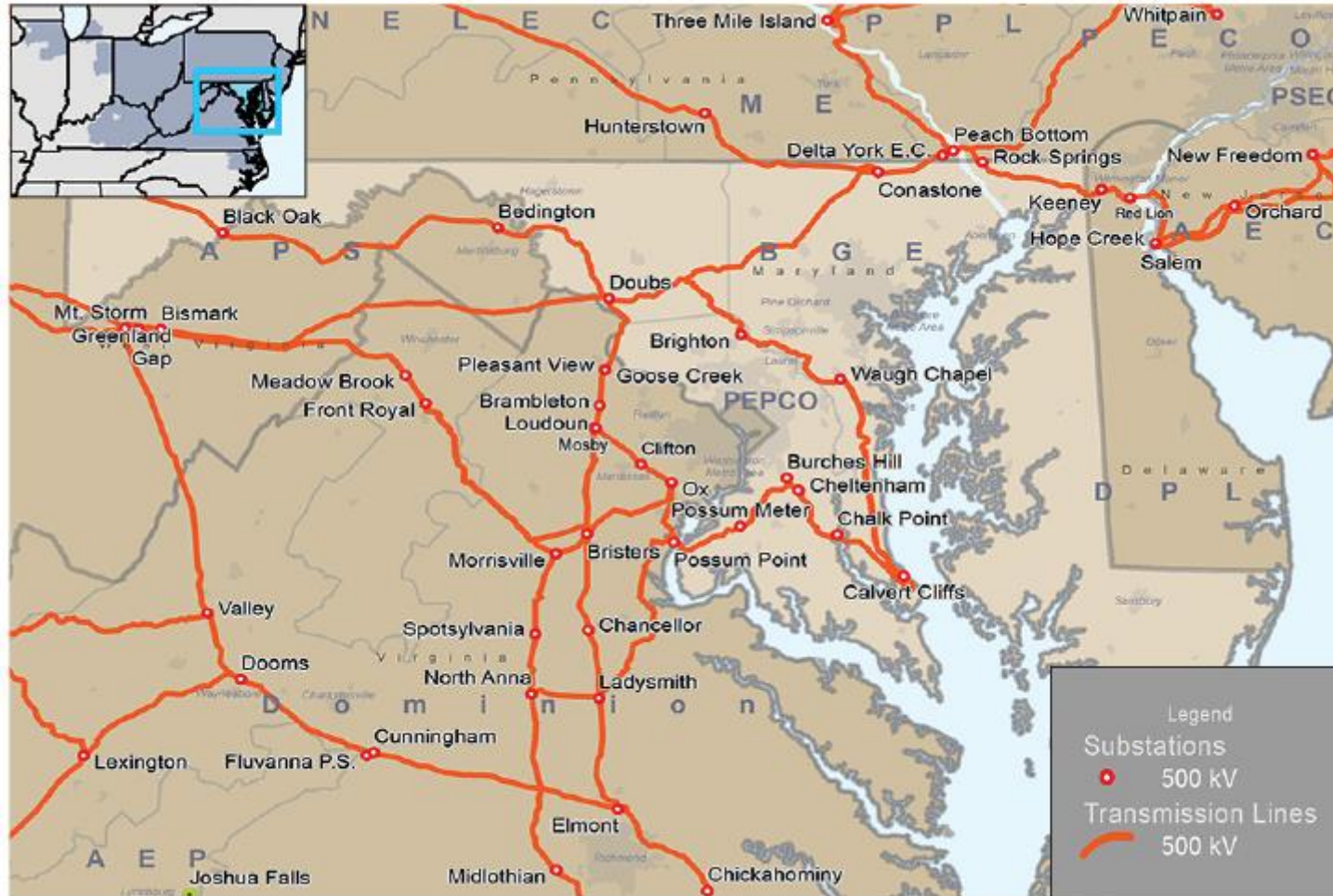
Market Performance:

Maryland and Washington, D.C.'s average hourly LMPs were higher than the PJM average hourly LMP.



Emissions:

Maryland and Washington, D.C.'s average CO₂ emissions decreased in 2023 compared to 2022 levels.

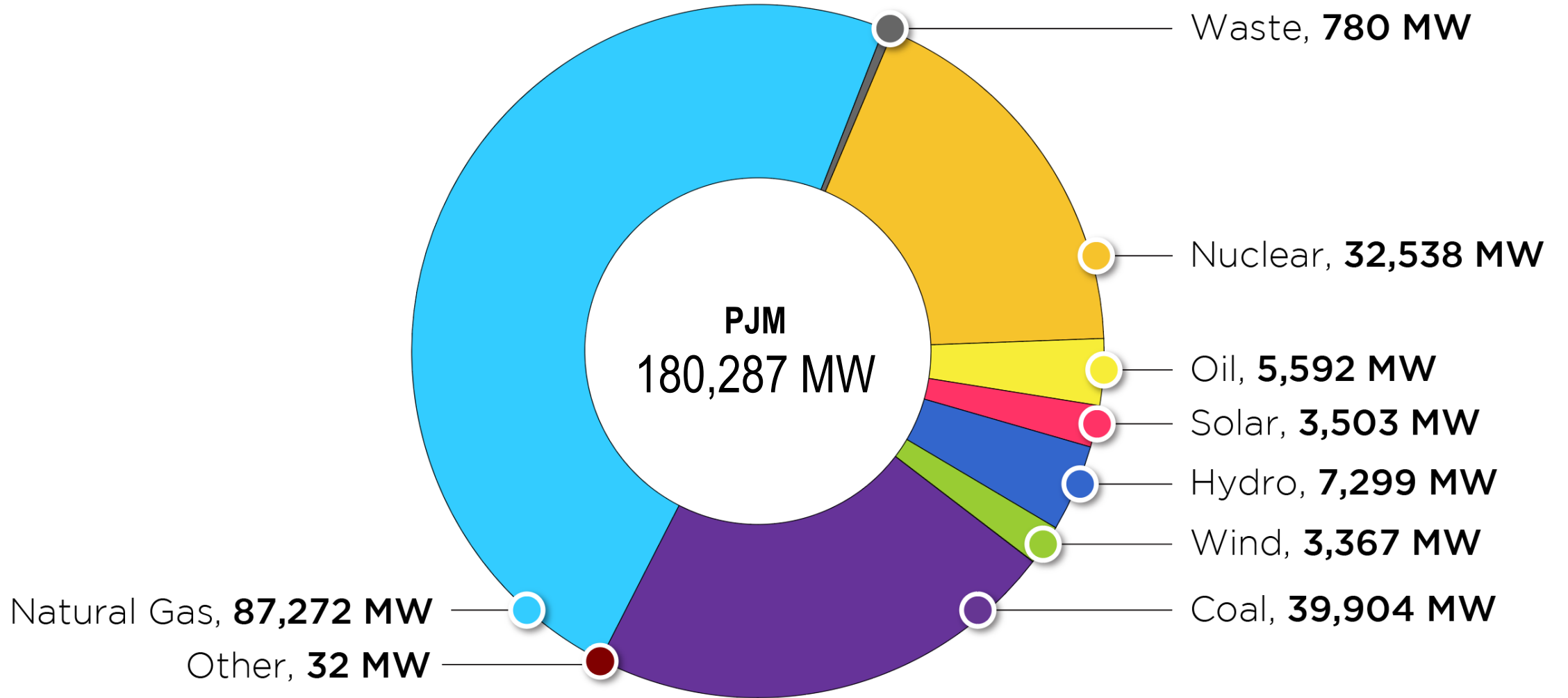


Planning

Generation Portfolio Analysis

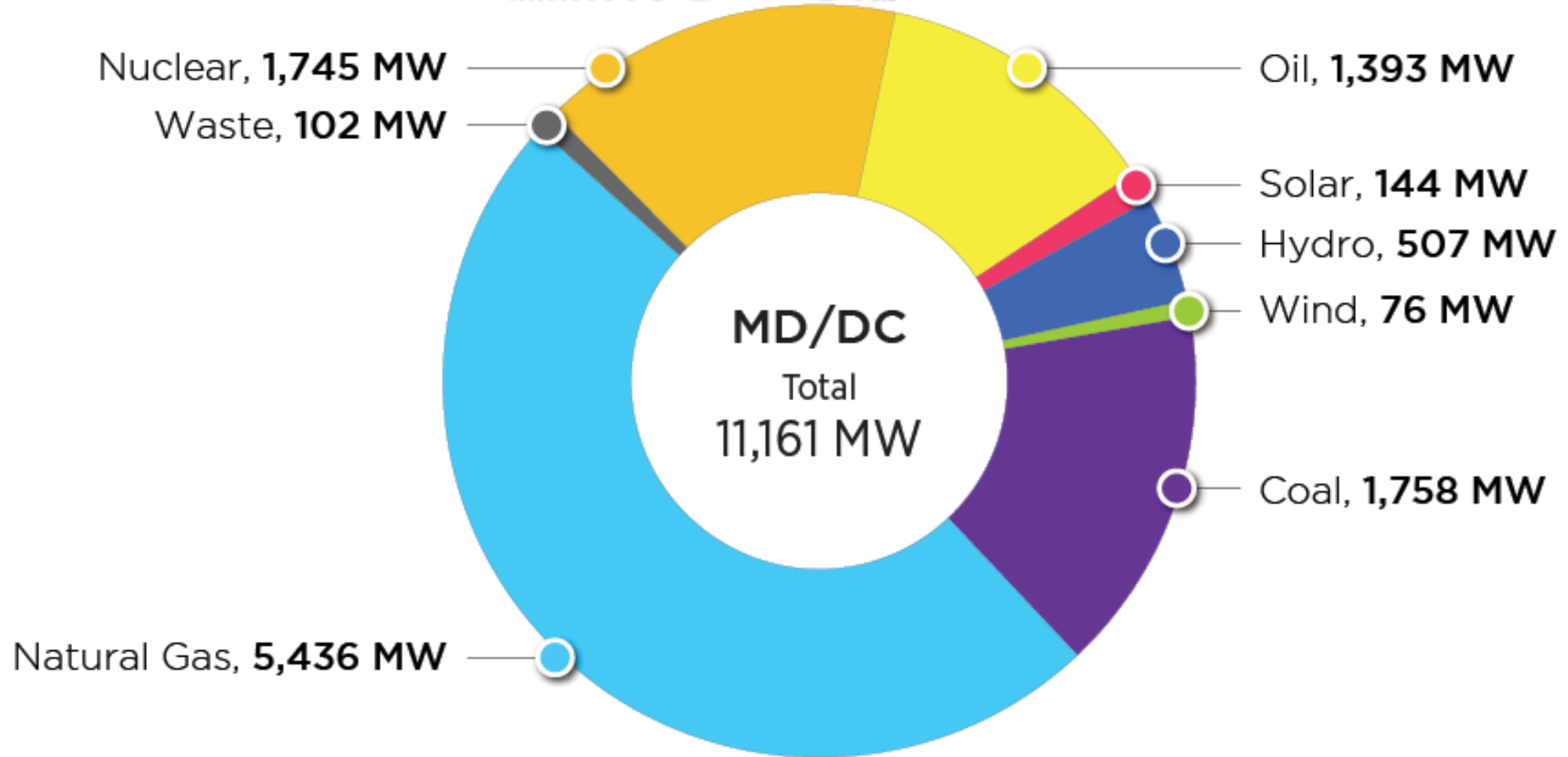
PJM Existing Installed Capacity Mix

(CIRs – as of Dec. 31, 2023)



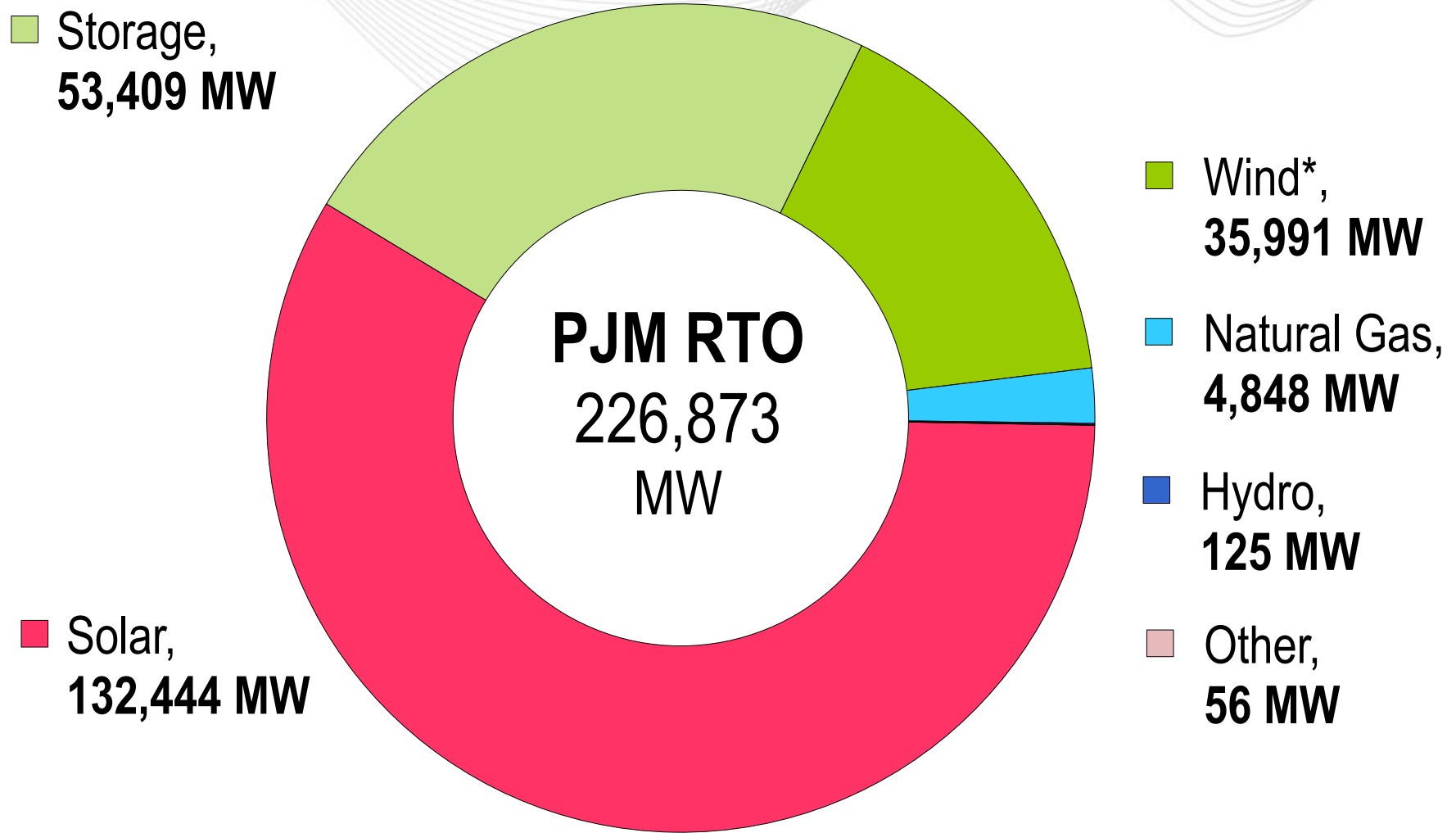
MD/DC – Existing Installed Capacity (MW) by Fuel Type

(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

Maryland Queued Capacity (Nameplate) by Fuel Type

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

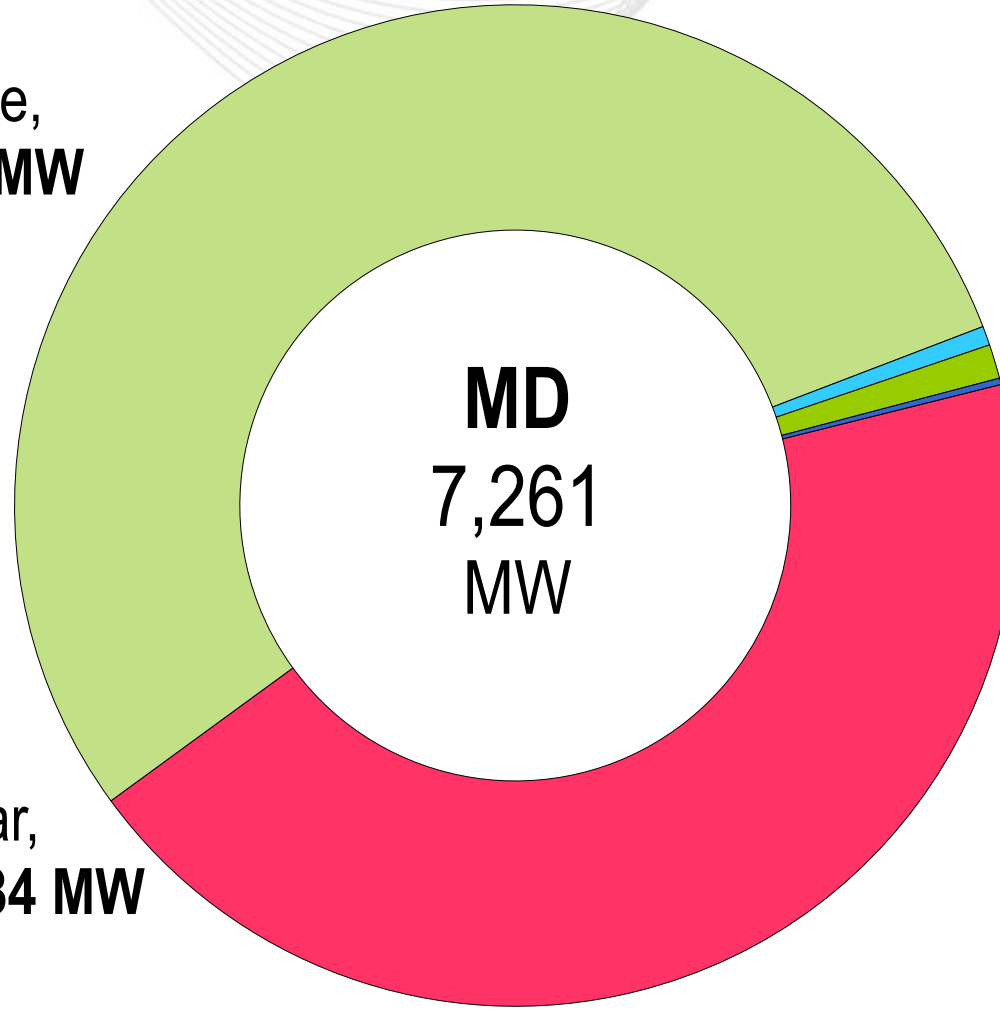
Storage,
3,937 MW

Natural Gas,
45 MW

Wind,
80 MW

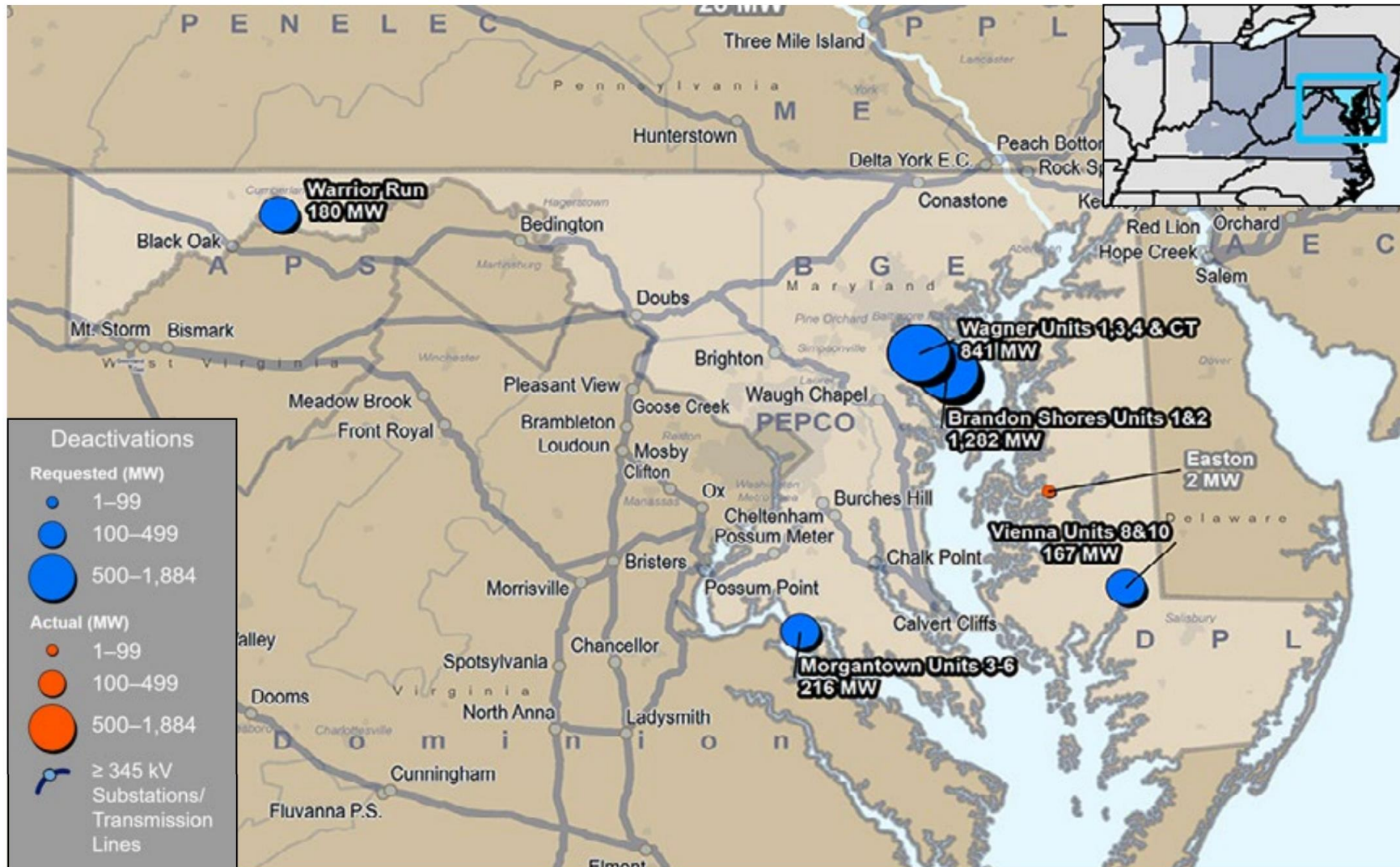
Hydro,
15 MW

Solar,
3,184 MW



MD
7,261
MW

Because Maryland's offshore wind projects are proposed to interconnect into Delaware, they are captured as Delaware's queued capacity in PJM's RTEP. There are 6,674 MW of nameplate offshore wind capacity queued in Delaware.





Maryland – 2023 Generator Deactivations

Unit	TO Zone	Fuel Type	Request Received to Deactivate	Actual or Projected Deactivation Date	Age (Years)	Capacity (MW)
Morgantown CT 6	PEPCO	Oil	12/22/23	6/1/2024	50	216
Morgantown CT 5						
Morgantown CT 4						
Morgantown CT 3						
Wagner CT 1	BGE	Diesel	10/16/23	6/1/2025	56	13
Wagner 4		Oil			51	397
Wagner 3		Coal			64	305
Wagner 1		Natural Gas			67	126
Warrior Run GEN1	AP	Coal	9/29/23	6/1/2024	21	180
Easton Diesel	DP&L	Diesel	6/9/23	10/1/2023	9	2
Brandon Shores 2	BGE	Coal	4/6/23	6/1/2025	32	643
Brandon Shores 1					39	639
Vienna 10	DP&L	Oil	3/24/23	6/1/2025	55	14
Vienna 8					51	153

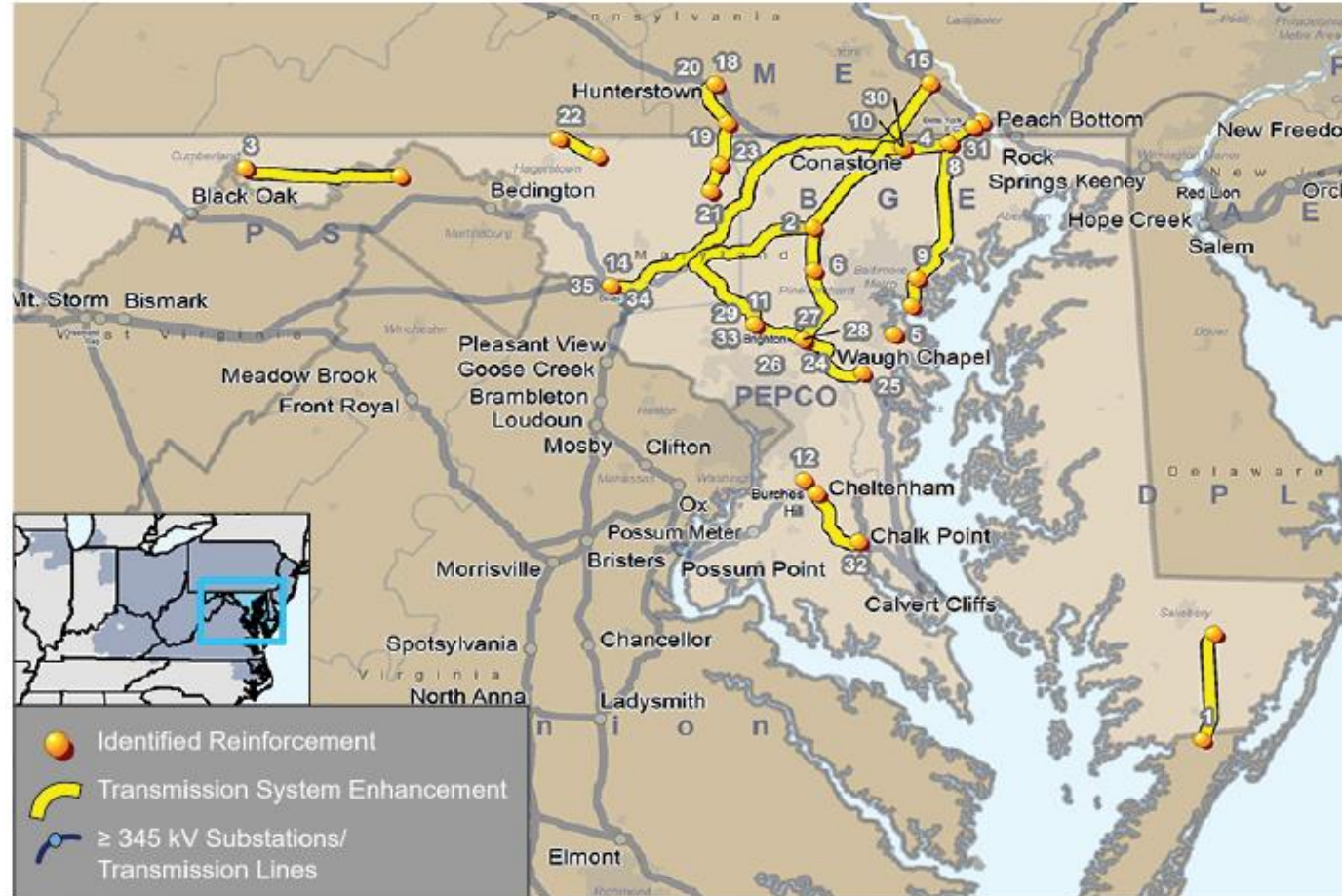
Planning

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.

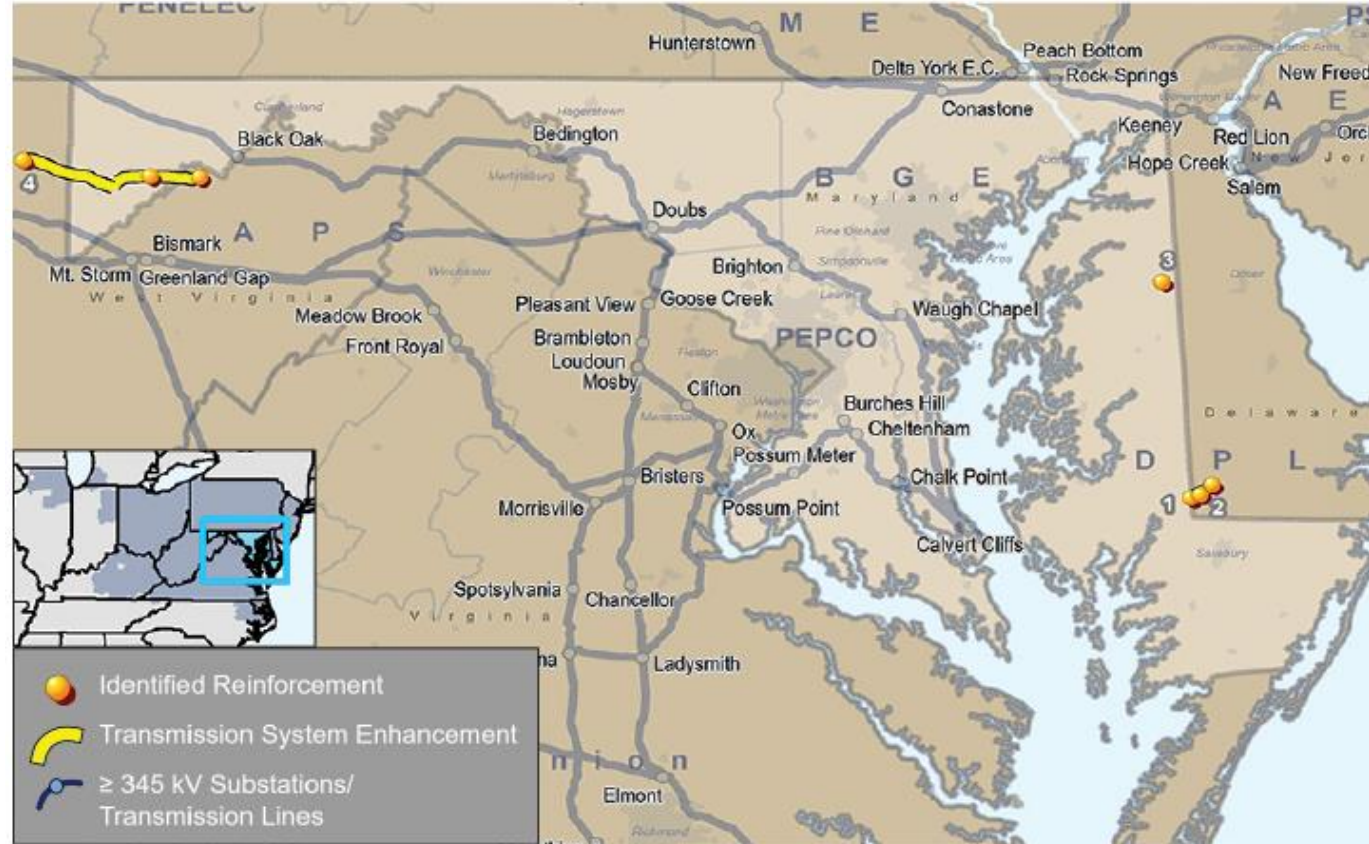
For a detailed list of each project shown on a state's project map, please see that state's section in the **2023 Annual RTEP Report** on PJM.com: <https://pjm.com/-/media/library/reports-notice/2023-rtep/2023-rtep-report.ashx>.

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>.



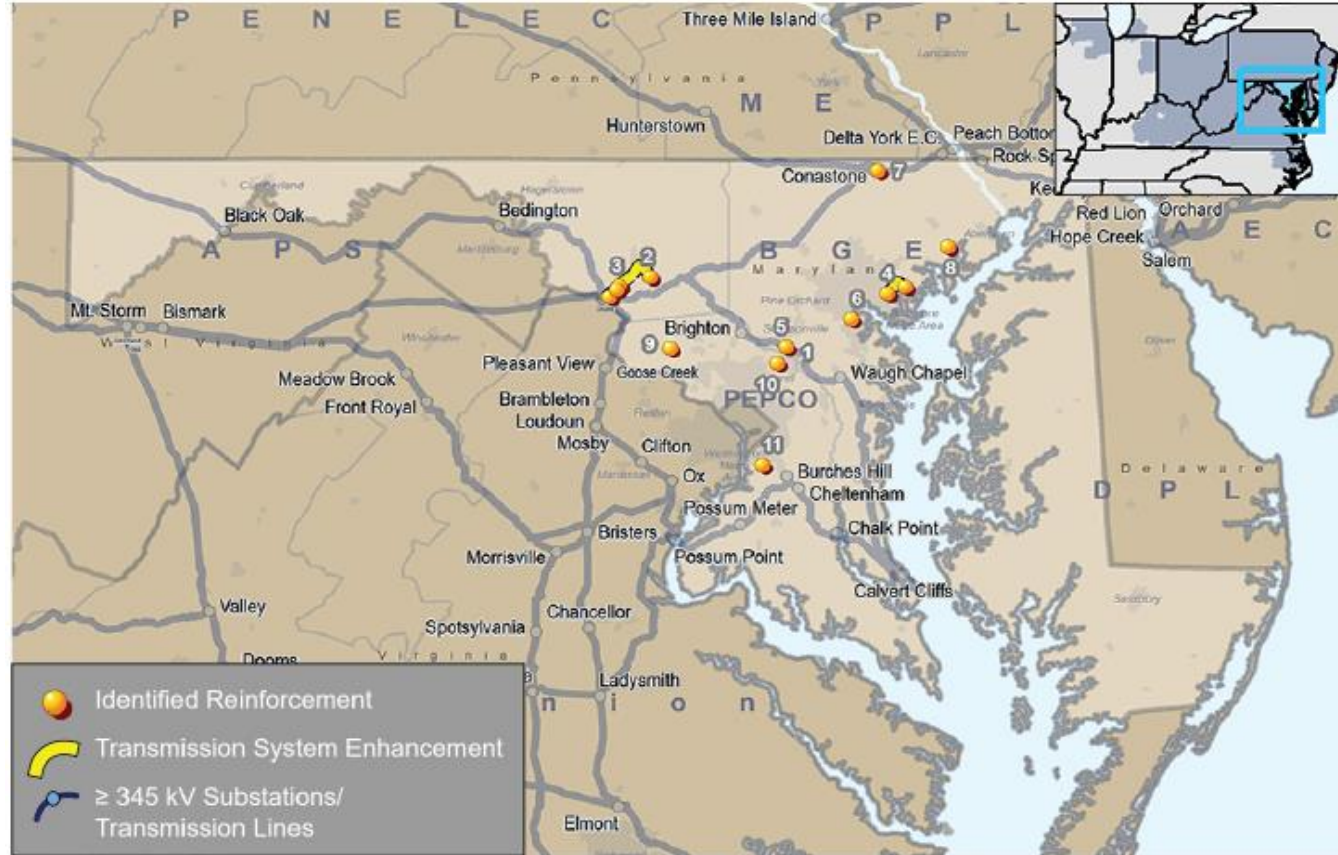
The 2023 RTEP has \$1.961 billion in baseline projects located in Maryland.

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.



The 2023 RTEP has \$20.48 million in network upgrades located in Maryland.

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.



The 2023 RTEP has \$47.9 million in supplemental projects located in Maryland.

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

Load (MW)

195,000

185,000

175,000

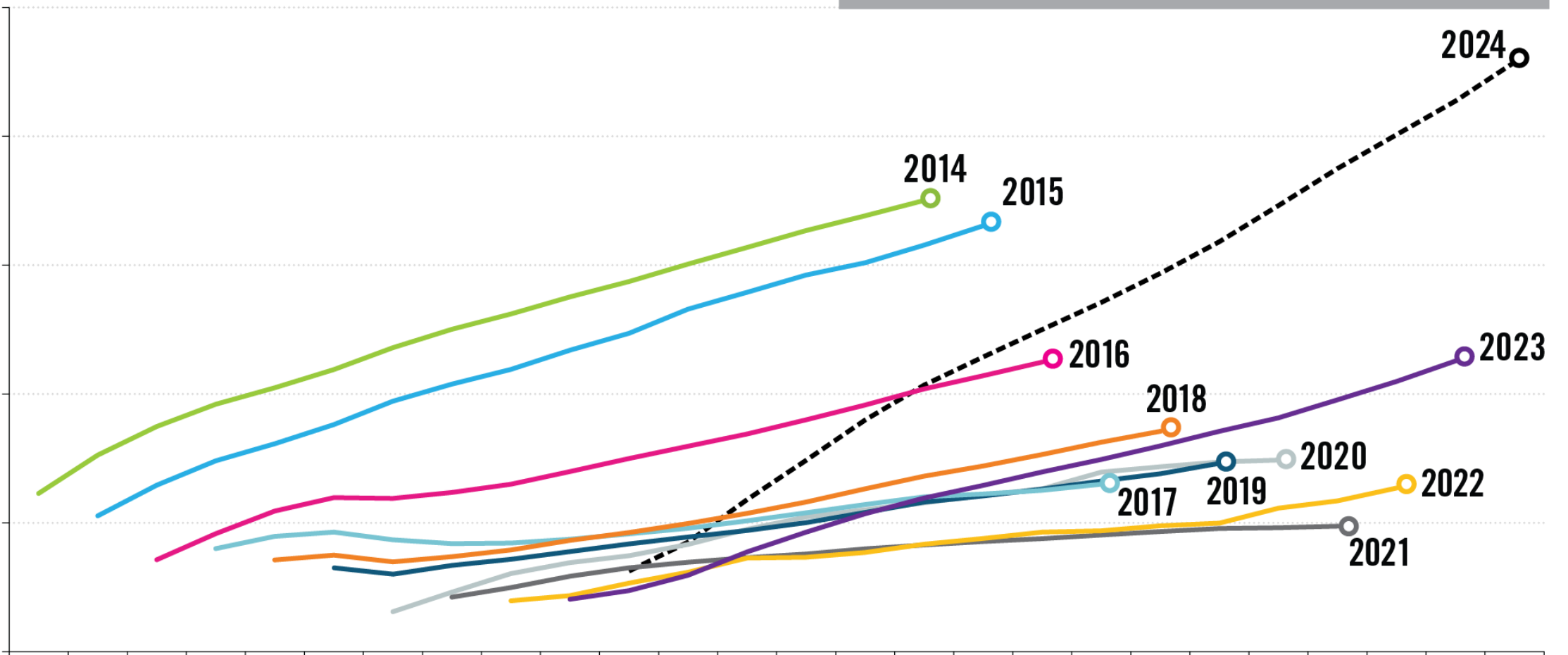
165,000

155,000

145,000

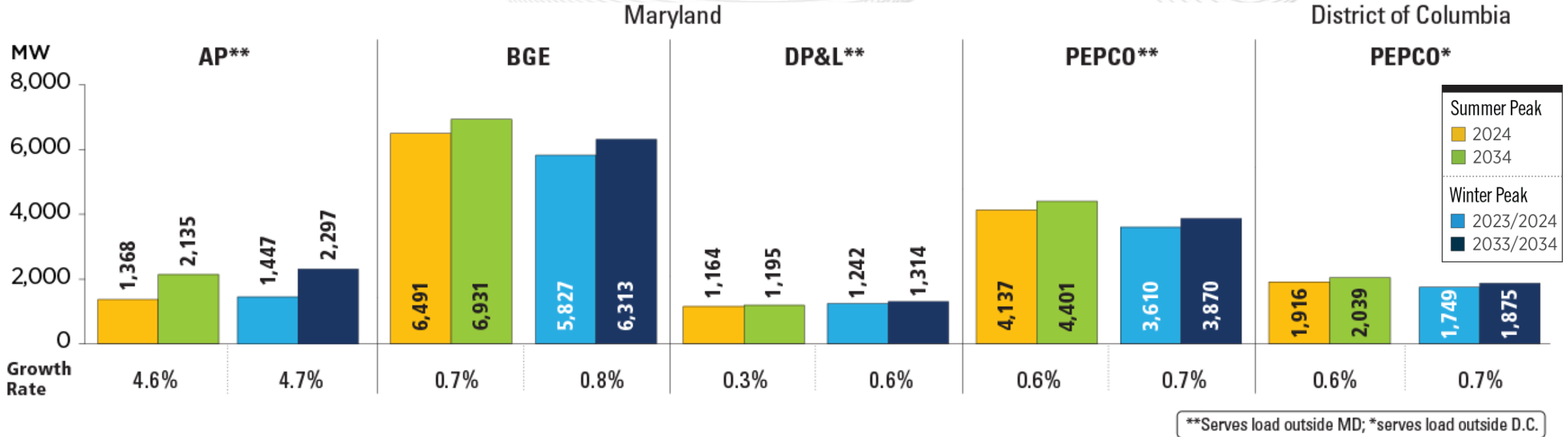
PJM RTO Summer Peak Demand Forecast

2015 2017 2019 2021 2023 2025 2027 2029 2031 2033 2035 2037 2039





Maryland and Washington, D.C. – 2024 Load Forecast Report



The summer and winter peak megawatt values reflect the estimated amount of forecast 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.

PJM RTO Summer Peak

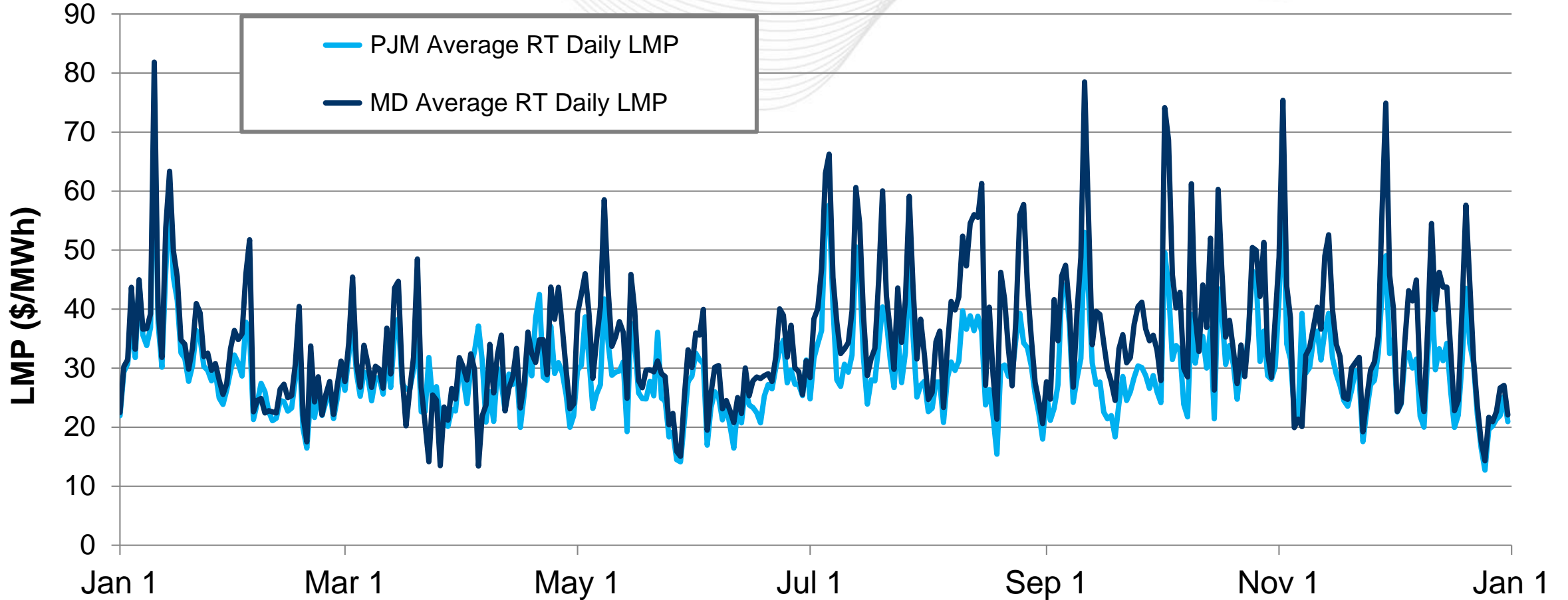
2024	2034
151,247 MW	176,822 MW
Growth Rate 1.6%	

PJM RTO Winter Peak

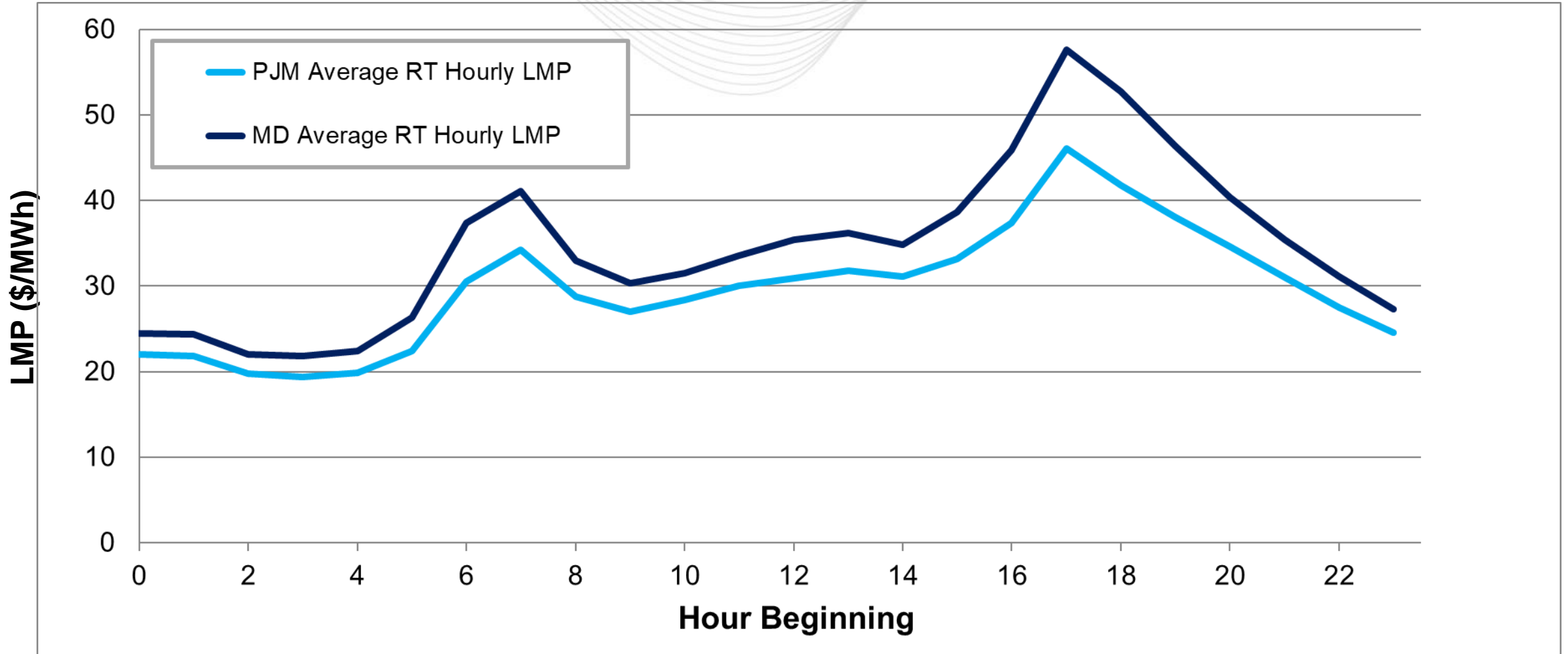
2023/2024	2033/2034
134,659 MW	163,069 MW
Growth Rate 1.9%	

Markets

Market Analysis

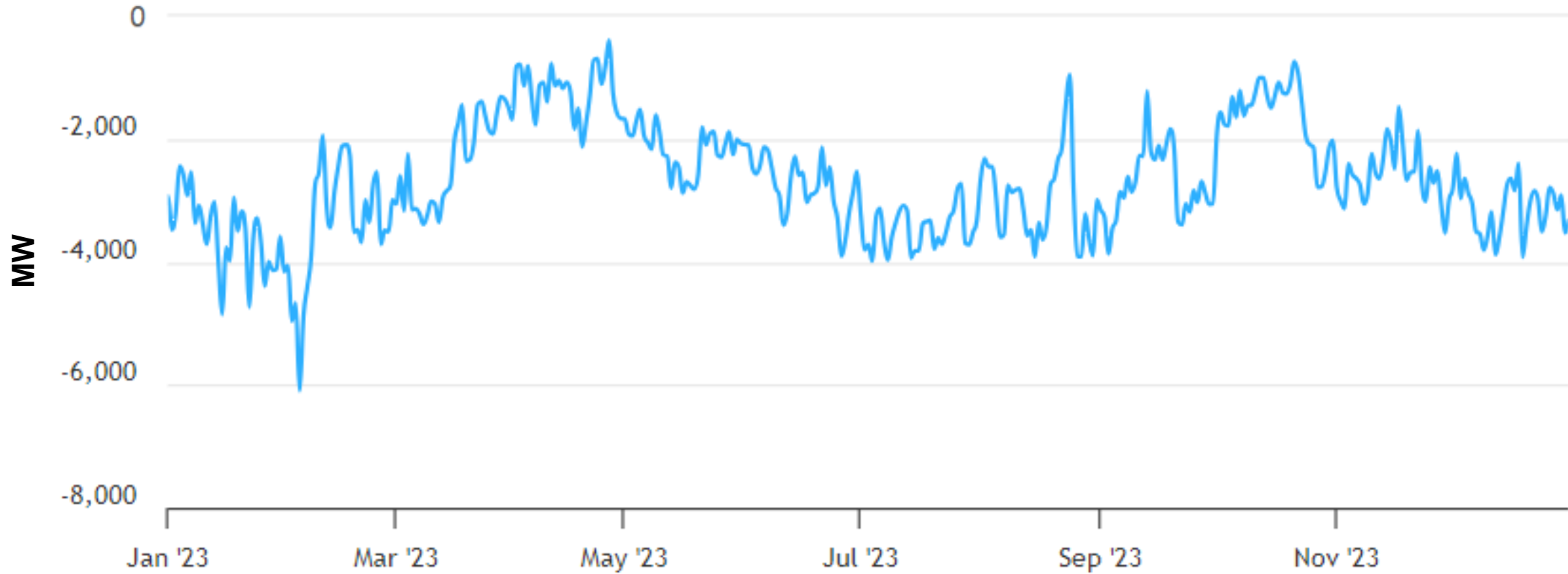


Maryland's average hourly LMPs were higher than the PJM average hourly LMP.



Maryland – Net Energy Import/Export Trend

(Jan. 2023 – Dec. 2023)

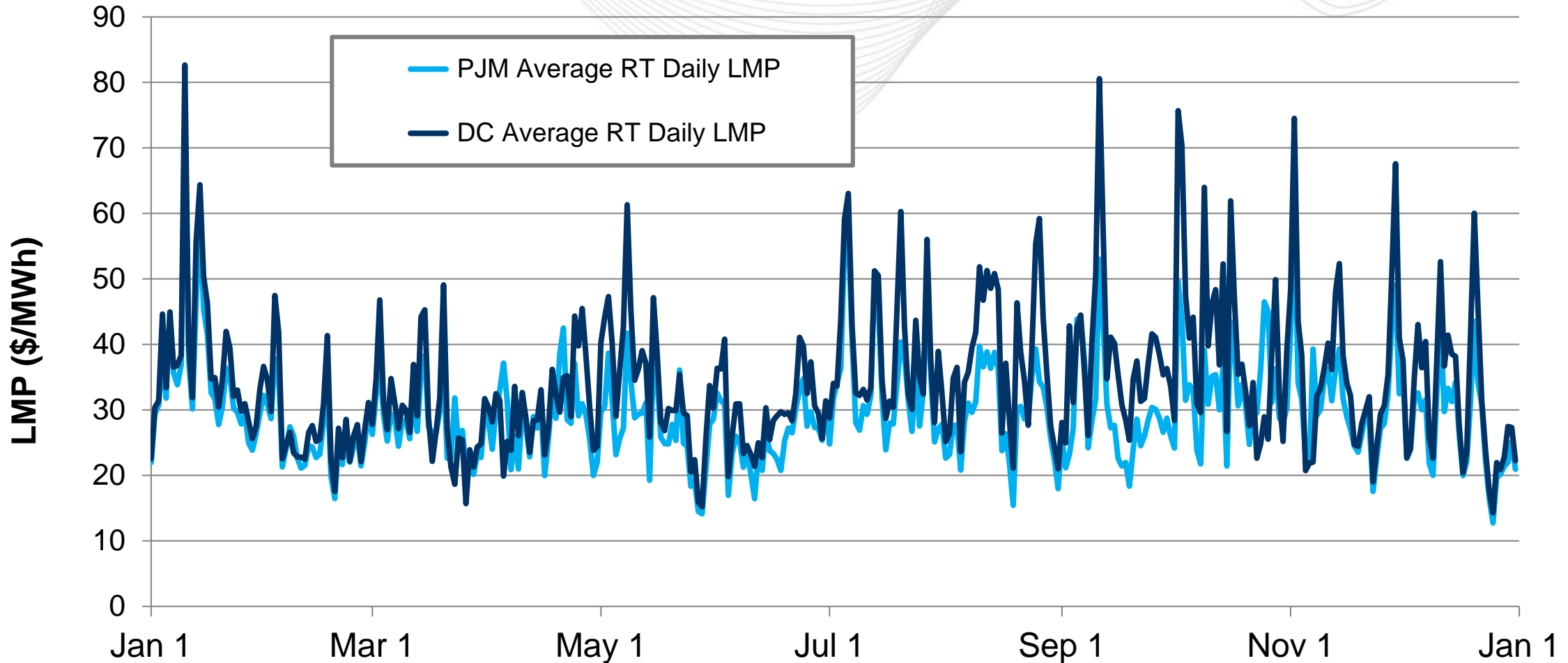


Positive values represent exports and negative values represent imports.

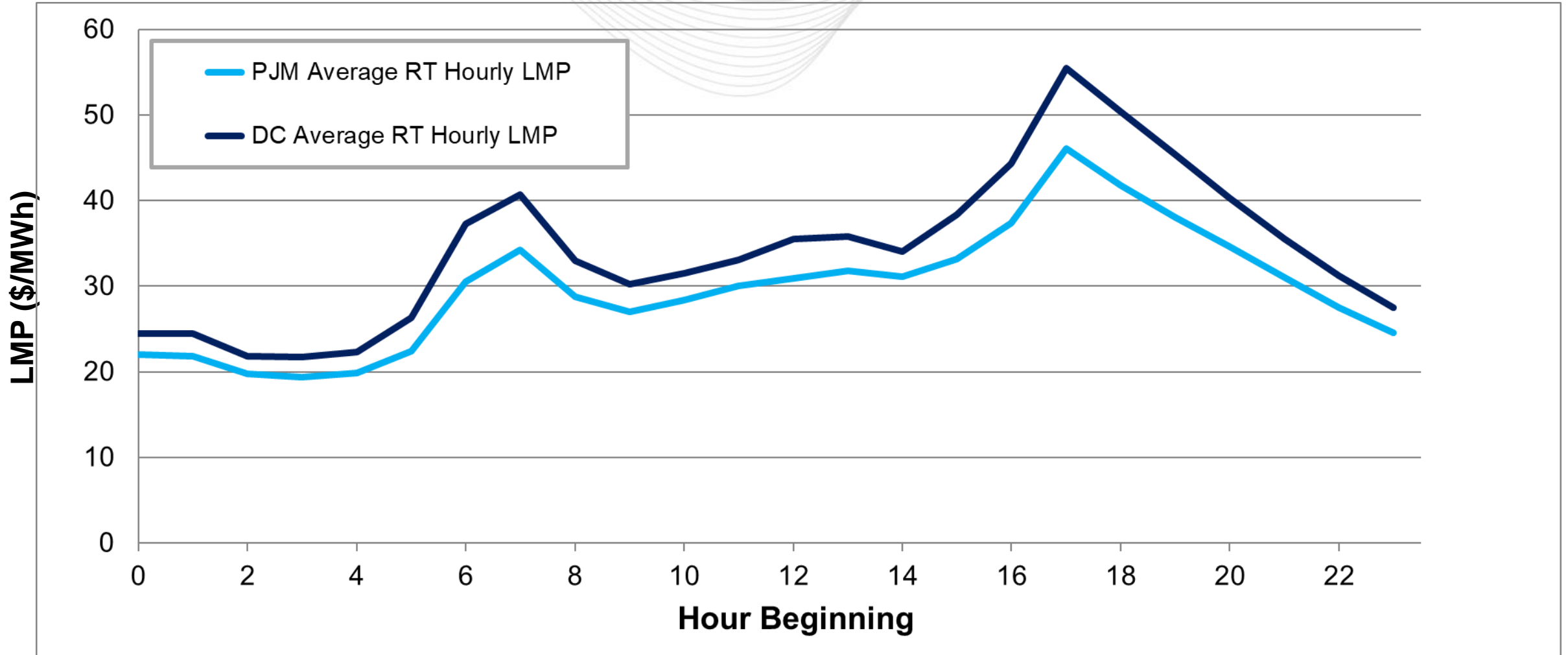


Washington, D.C. – Average Daily LMP

(Jan. 1, 2023 – Dec. 31, 2023)



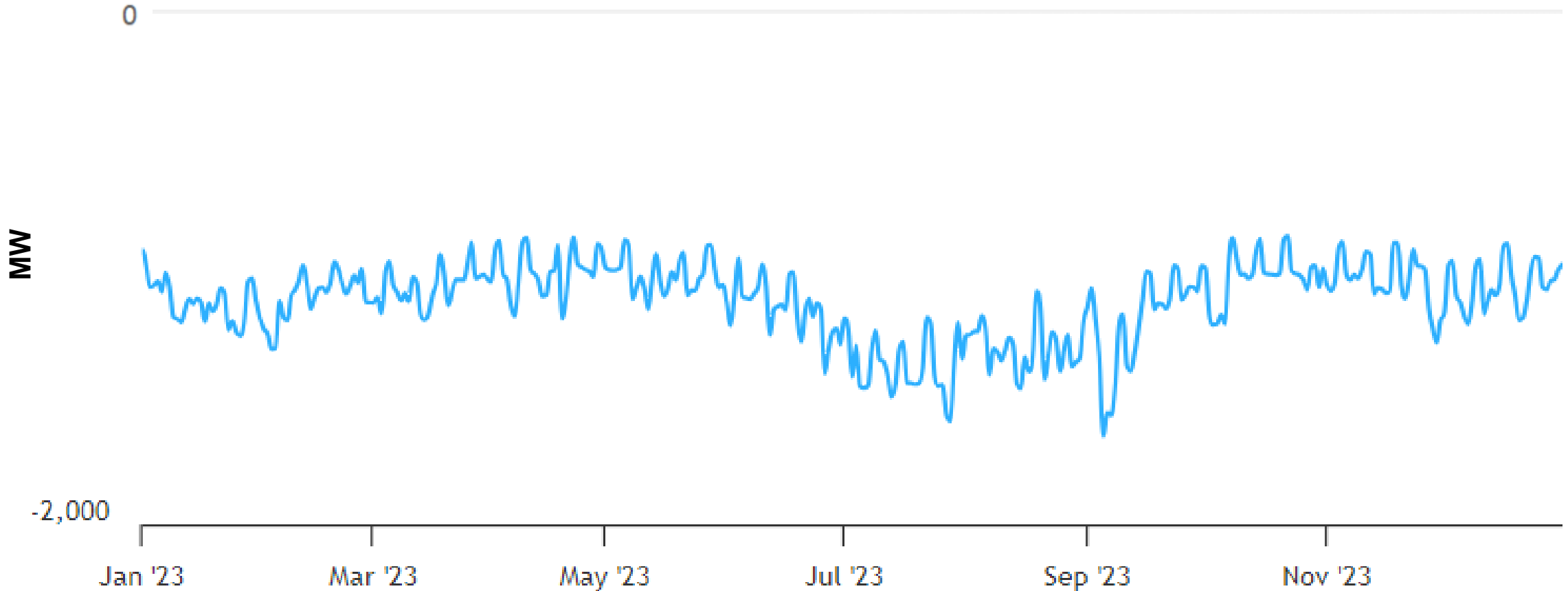
Washington, D.C's average hourly LMPs were higher than the PJM average hourly LMP.





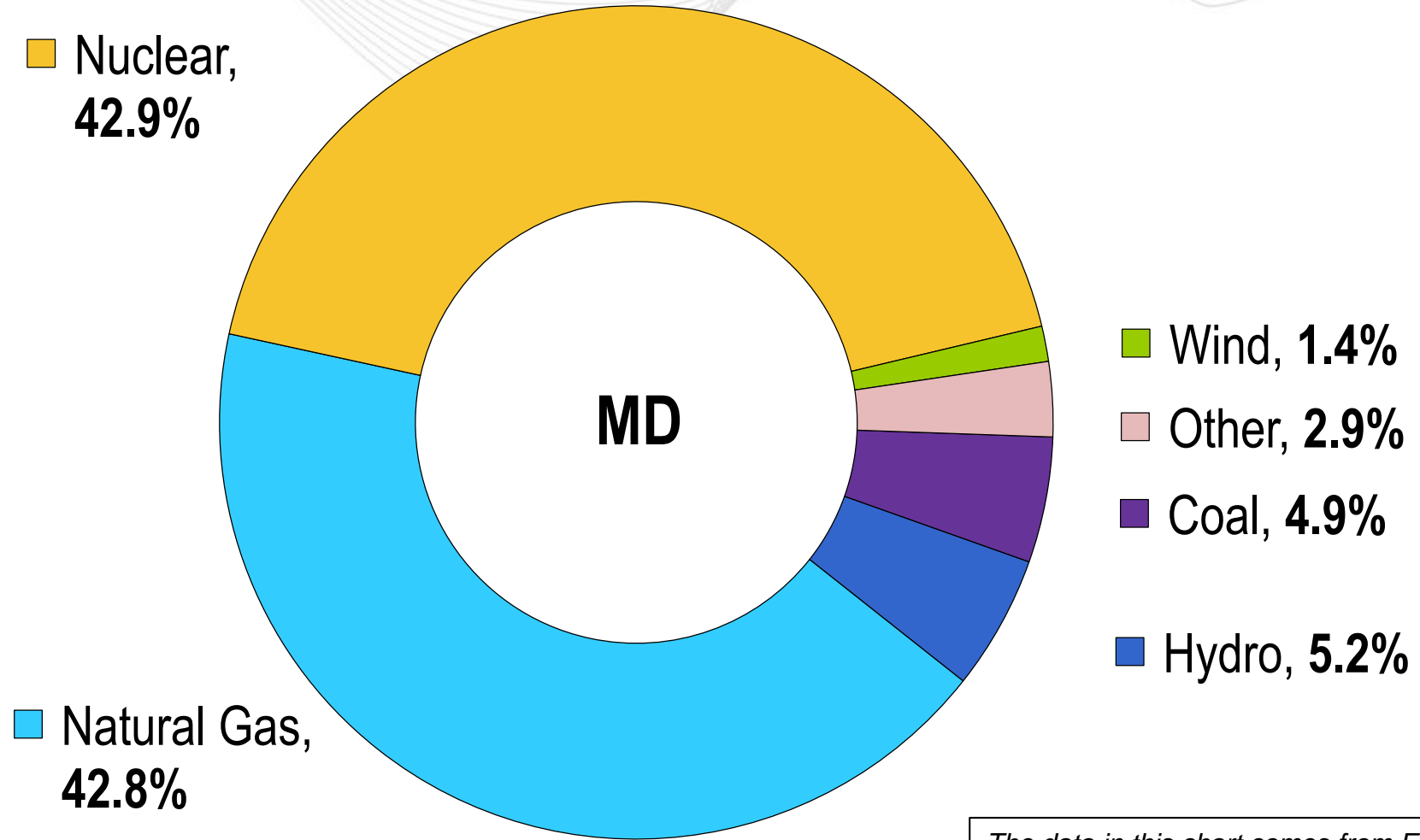
Washington, D.C. – Net Energy Import/Export Trend

(Jan. 2023 – Dec. 2023)



Positive values represent exports and negative values represent imports.

Operations



The data in this chart comes from EIA Form 923 (2023).

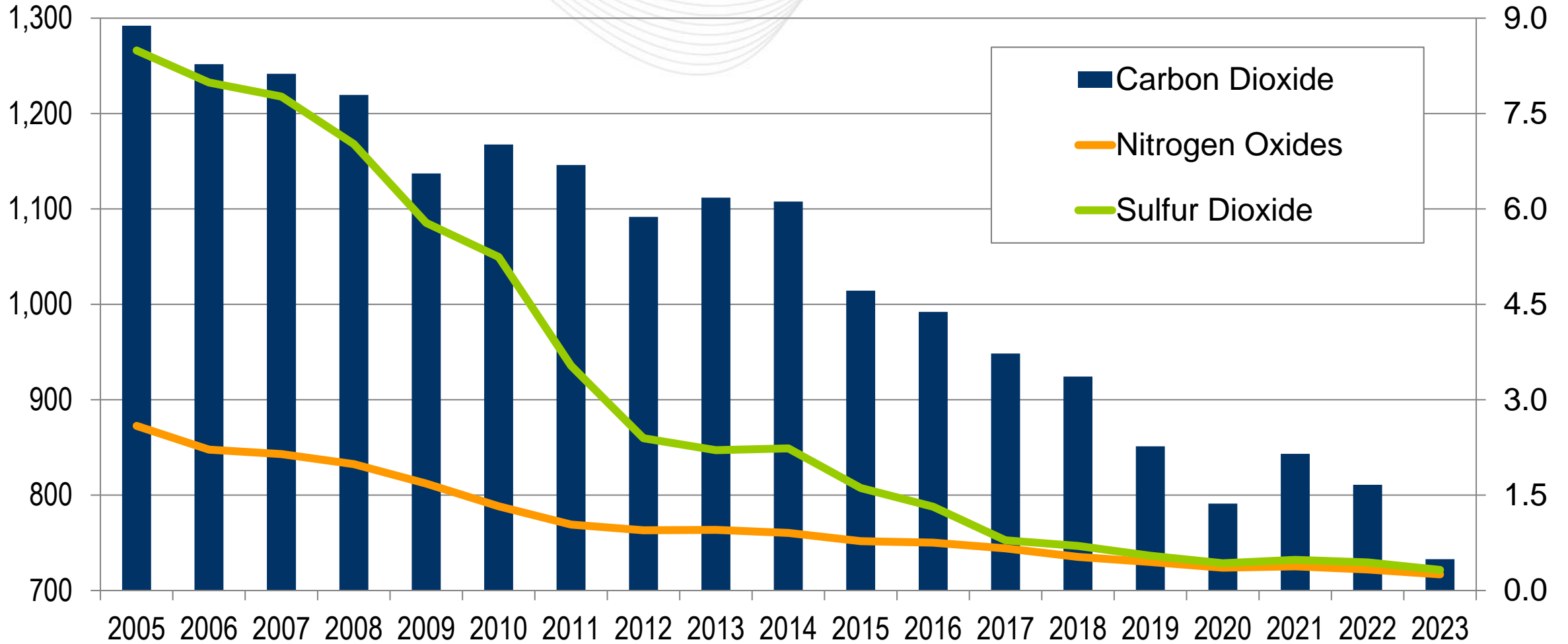


2005–2023 PJM Average Emissions

(March 2024)

CO₂
(lbs/MWh)

SO₂ and NO_x
(lbs/MWh)



Maryland – Average Emissions (lbs/MWh)

(March 2024)

