# 2022 Maryland and District of Columbia State Infrastructure Report

(January 1, 2022 – December 31, 2022)

May 2023

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- **Existing Capacity:** Natural gas represents approximately 48.7 percent of the total installed capacity in the Maryland service territory while coal represents approximately 15.8 percent of capacity. Comparatively, across PJM natural gas and coal are at 46.6 and 24.0 percent of total installed capacity.

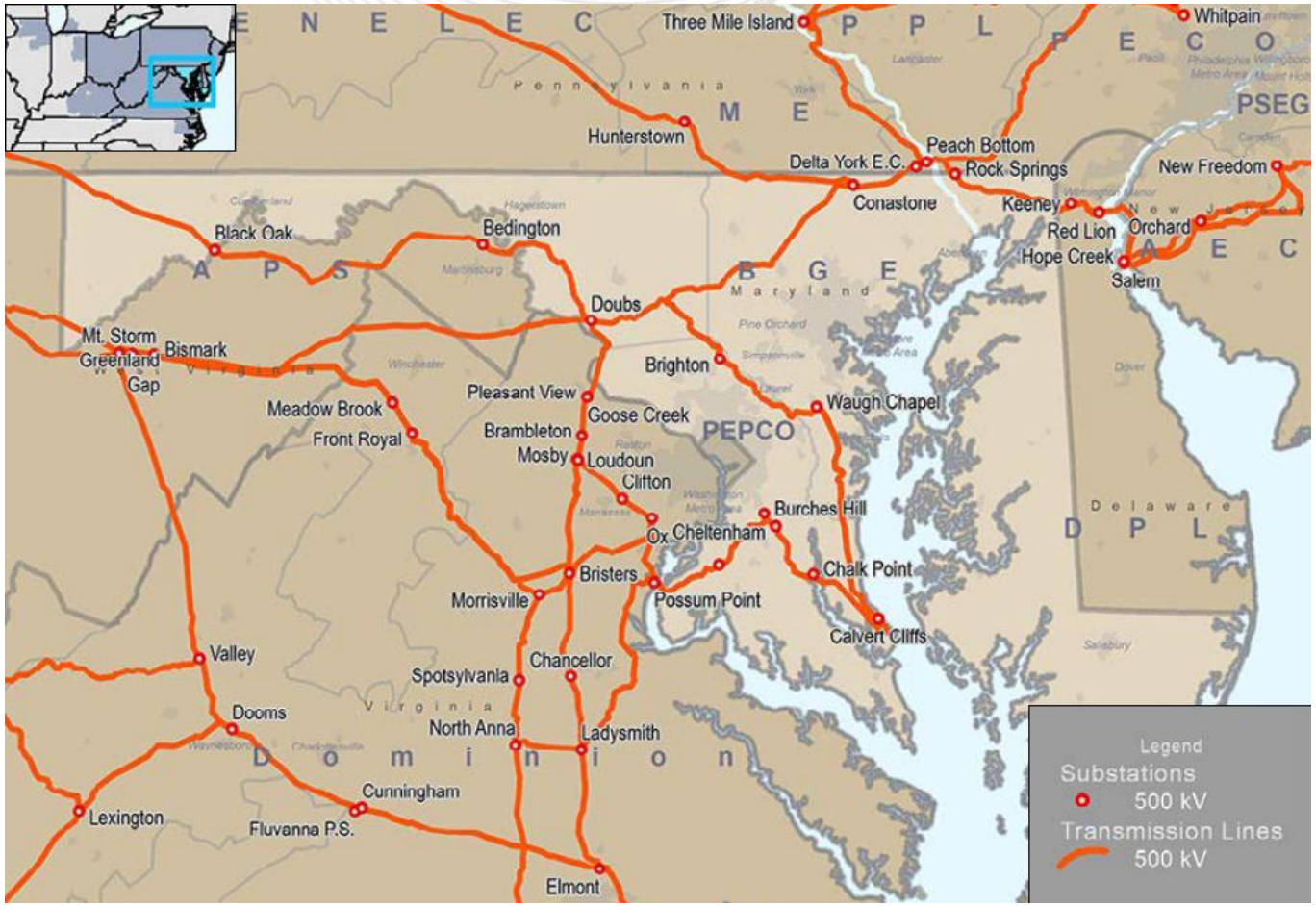
- **Interconnection Requests:** Storage represents 52.8 percent of new interconnection requests in Maryland, while solar represents approximately 45.8 percent of new requests. Because Maryland's offshore wind projects are proposed to interconnect into Delaware, they are captured as Delaware's queued capacity in PJM's RTEP.

- **Deactivations:** 1,282.7 MW of generation deactivated in Maryland in 2022.

- **RTEP 2022:** Maryland's 2022 RTEP project total represents approximately $36.62 million in investment. A portion of the projects associated with New Jersey's State Agreement Approach (SAA) are located in Maryland and have an estimated total cost of $2.85 million. SAA-affiliated projects are cost allocated to New Jersey ratepayers and are not included in Maryland's 2022 RTEP project cost totals.

- **Load Forecast:** Maryland and Washington, D.C.'s projected summer peak load growth is relatively flat, averaging between -0.7 and 0.8 percent annually over the next 10 years, depending on the service territory. Comparatively, the overall PJM RTO projected summer load growth rate is 0.8 percent.
- **2023/24 Capacity Market:** Maryland's service territory cleared at the RTO price of $34.13/MW-day, the MAAC price of $49.99/MW-day, and at $69.95/MW-day within BGE and DPL-South for the 2023/2024 Base Residual Auction..
- **2024/25 Capacity Market:** Maryland's service territory cleared at the RTO price of $28.92/MW-day, the MAAC price of $49.49/MW-day, at $73.00/MW-day within BGE, and at $90.64/MW-day within DPL-South for the 2024/2025 Base Residual Auction.
- **1/1/22 – 12/31/22 Market Performance:** Maryland and D.C.'s average hourly LMPs were higher than the PJM average hourly LMP.
- **Emissions:** Maryland's average CO2 emissions decreased in 2022 compared to 2021 levels.

# PJM Service Area – Maryland & D.C.

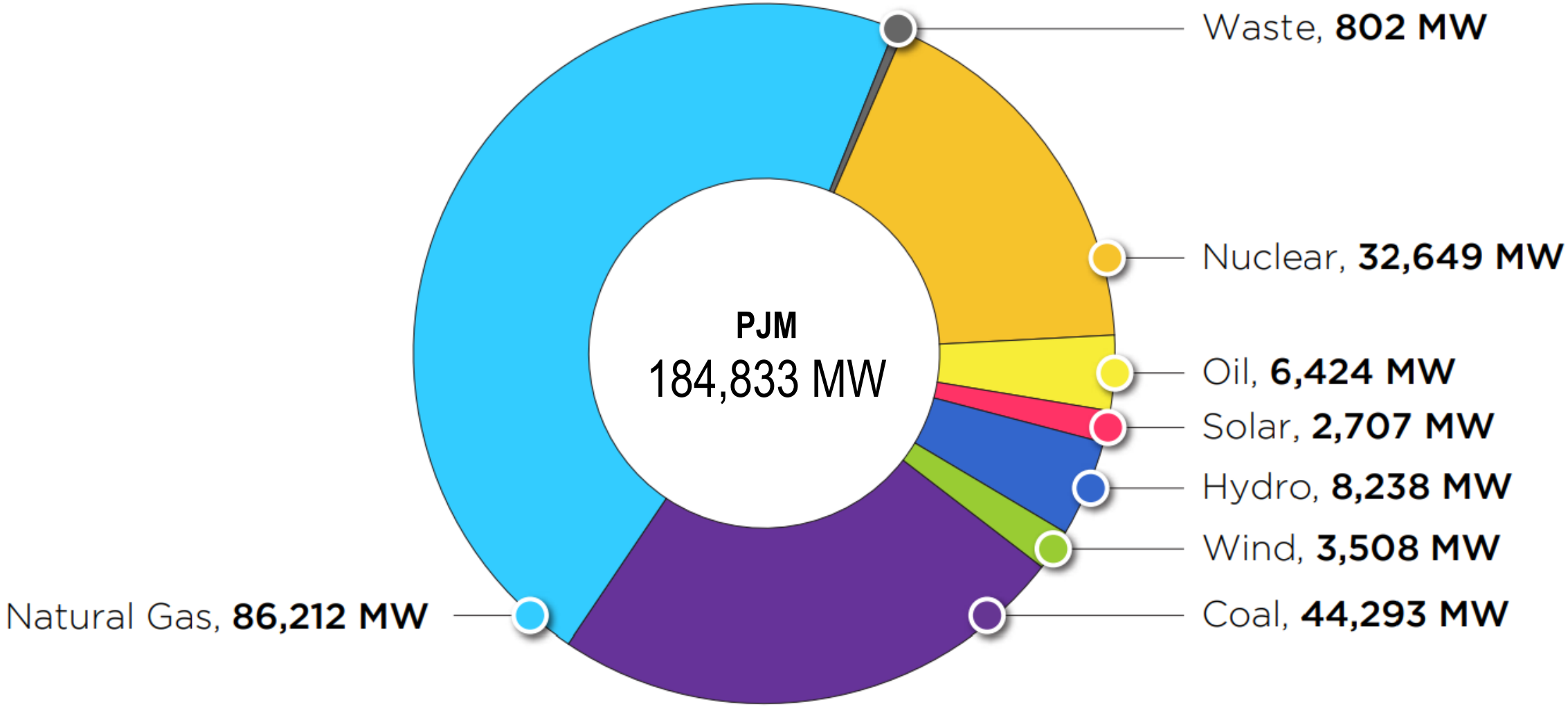


# Planning

## Generation Portfolio Analysis

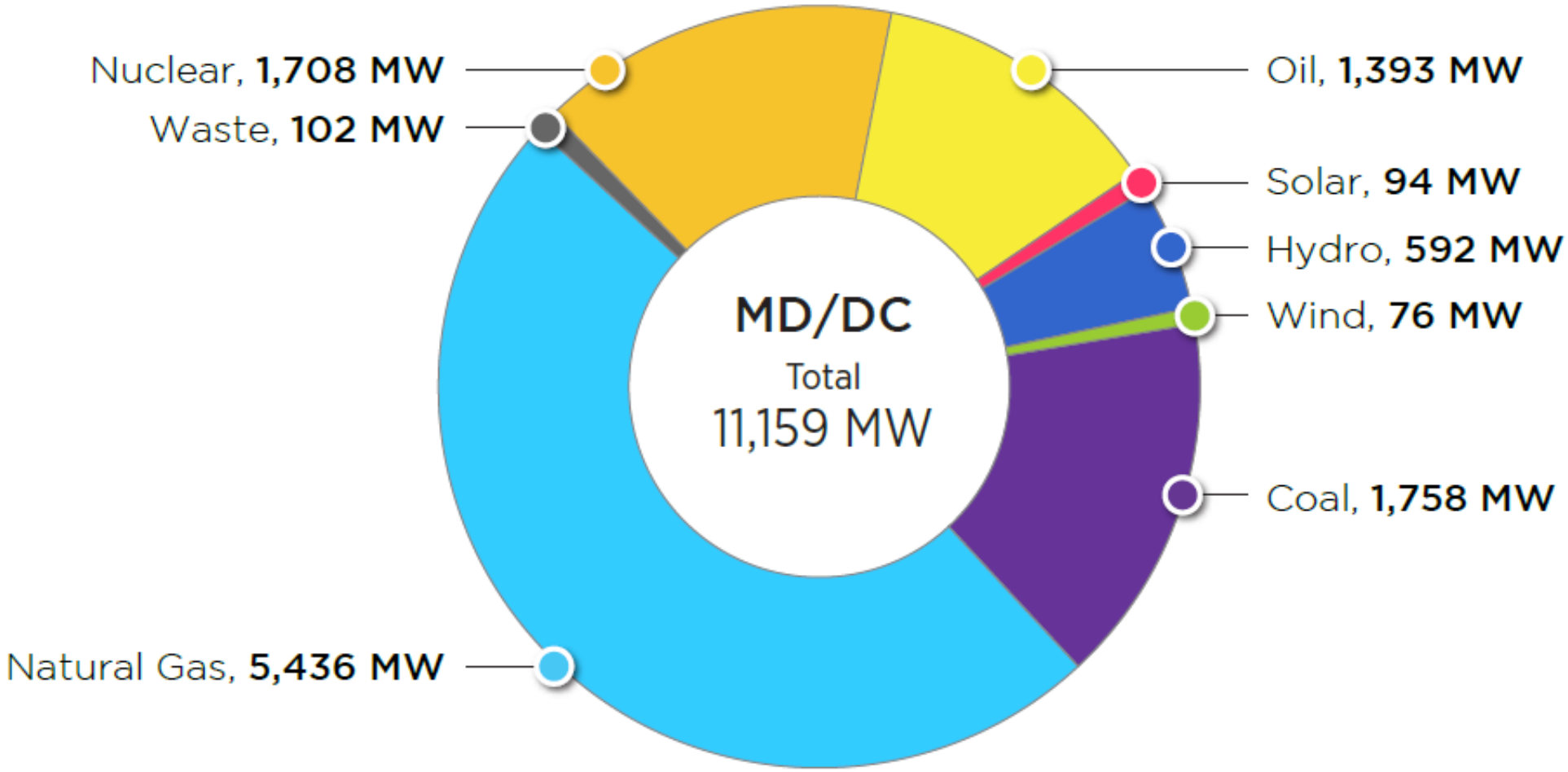
# PJM – Existing Installed Capacity

(CIRs – as of Dec. 31, 2022)



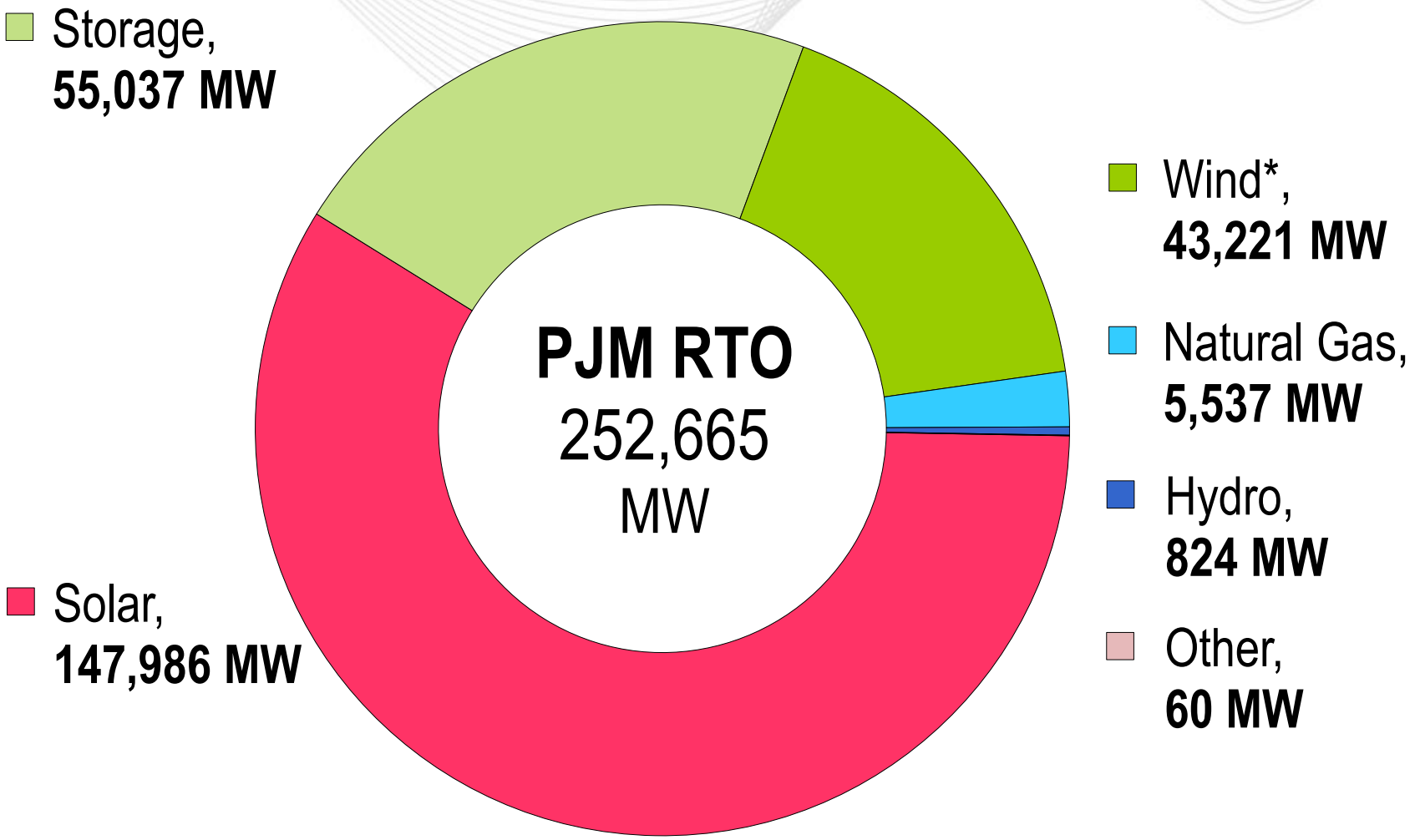
# Maryland – Existing Installed Capacity

(CIRs – as of Dec. 31, 2022)



# PJM Queued Capacity (Nameplate) by Fuel Type

("Active" in the PJM Queue as of April 1, 2023)

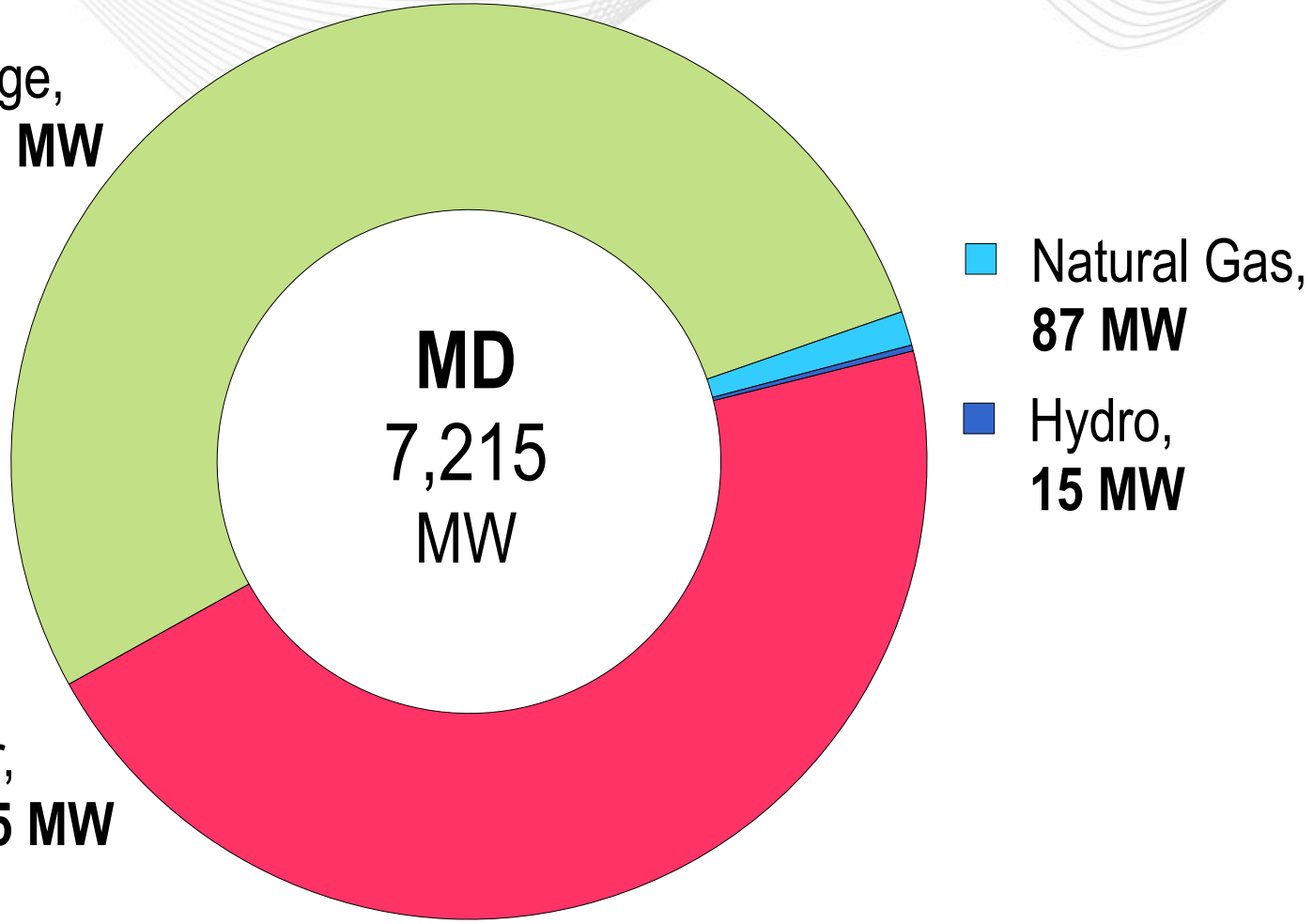



*Wind includes both onshore and offshore wind

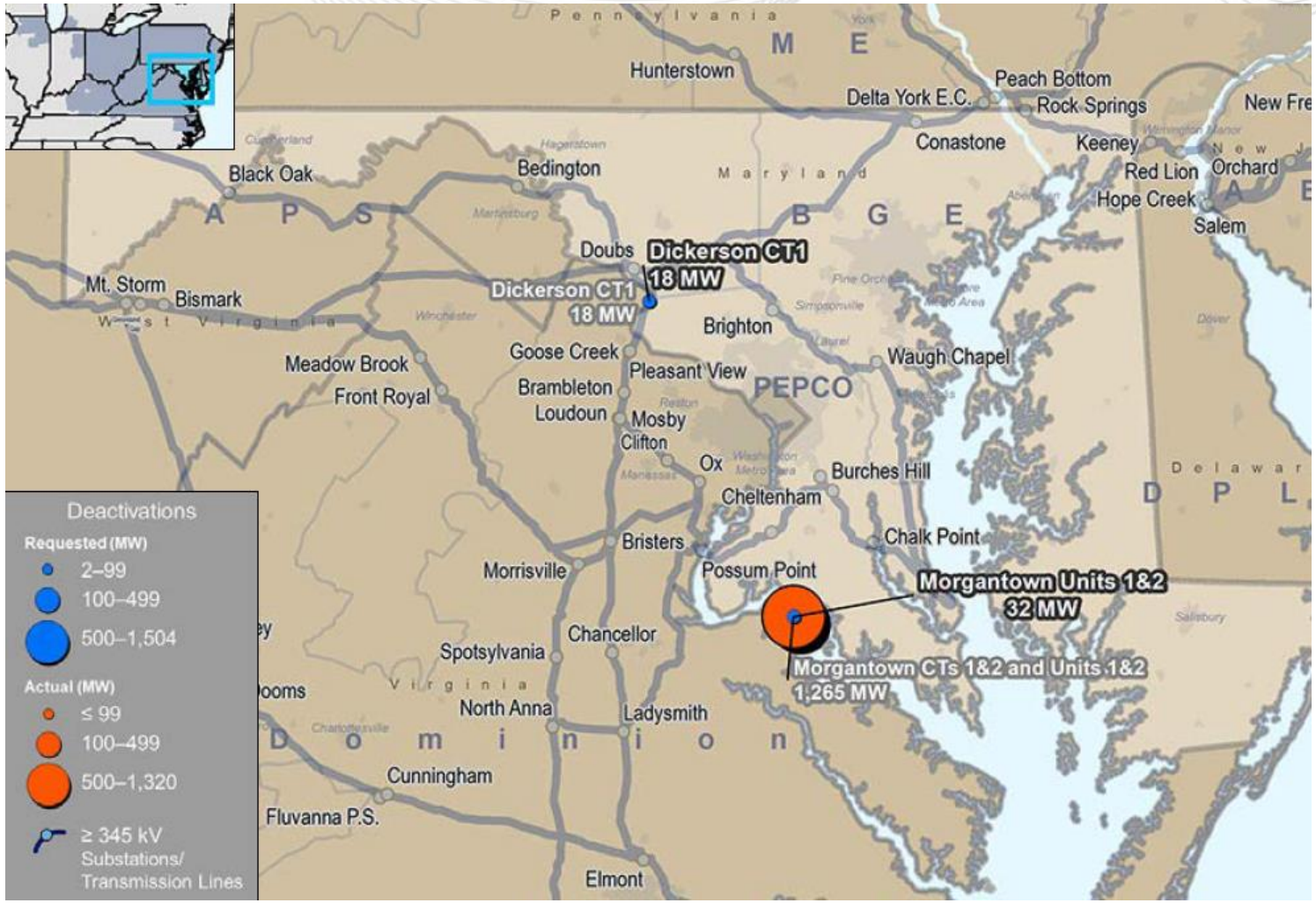
# Maryland Queued Capacity (Nameplate) by Fuel Type

("Active" in the PJM Queue as of April 1, 2023)

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 7,122 MW of nameplate offshore wind capacity queued in Delaware.



# Maryland – 2022 Generator Deactivations



# Maryland – 2022 Generator Deactivations

| Unit | TO Zone | Fuel Type | Request Received to Deactivate | Actual or Projected Deactivation Date | Age (Years) | Capacity (MW) |
|---|---|---|---|---|---|---|
| Dickerson CT1 | PEPCO | Oil | 7/25/2022 | 10/23/2022 | 55 | 18.0 |
| Morgantown CT2 | | | 4/12/2022 | 10/1/2022 | 51 | 16.0 |
| Morgantown CT1 | | | | | 52 | 16.0 |
| Morgantown Unit 2 | | Coal | 6/9/2021 | 5/31/2022 | 50 | 619.4 |
| Morgantown Unit 1 | | | | | 51 | 613.3 |

# Planning

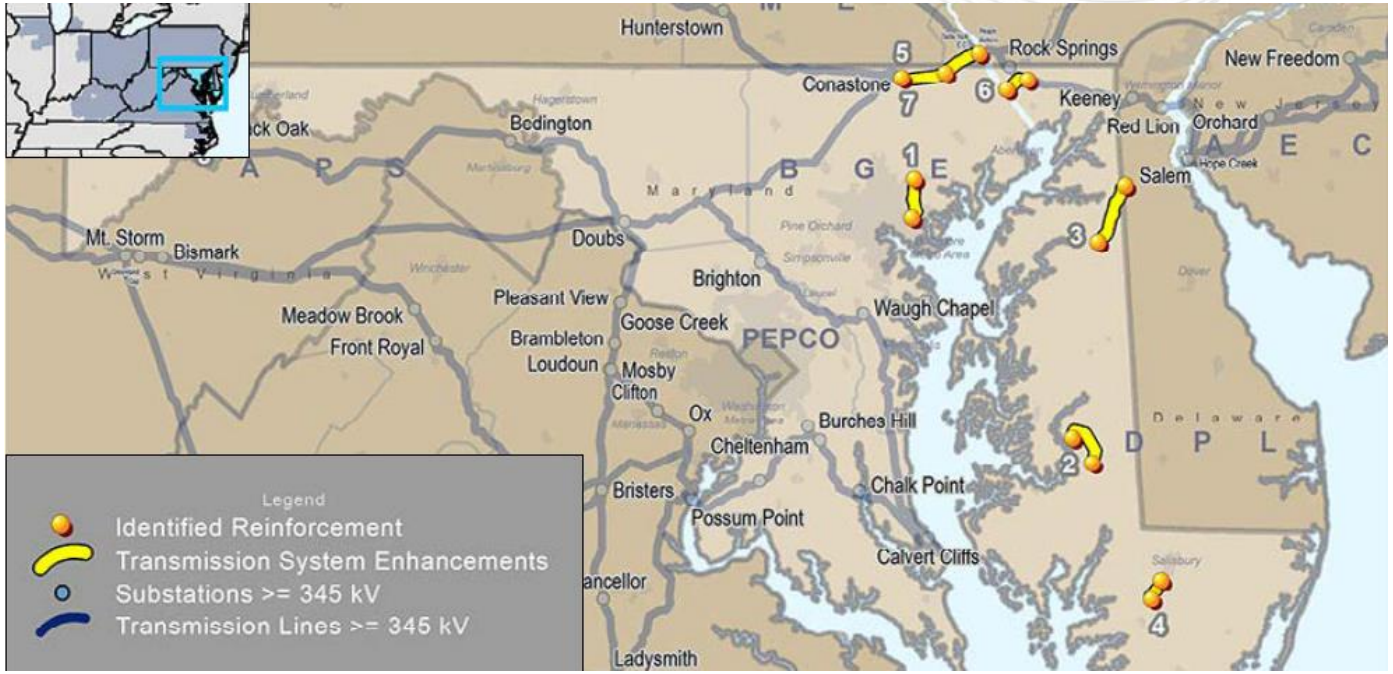
Transmission Infrastructure Analysis

For reporting purposes, the 2022 state infrastructure reports provide maps displaying all baseline, network, and supplemental projects for the respective state. The reports also include aggregated project cost tables of these projects by Transmission Owner zone. For a detailed list of each project shown on a state's project map, please see that state's section in the **2022 Annual RTEP Report** on pjm.com: https://www.pjm.com/-/media/library/reports-notices/2022-rtep/2022-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/project-construction

# Maryland – RTEP Baseline Projects

(No baseline projects were planned in Washington, D.C. in the 2022 RTEP)




| MD Baseline Projects | |
|---|---|
| **TO Zone** | **Cost ($M)** |
| BGE | $2.50 |
| DP&L | $2.81 |

The project shown as #7 on the map is a portion of the baseline project b3737. RTEP project b3737, including all associated sub-projects, by multiple designated entities, represents the State Agreement Approach projects selected by the New Jersey Board of Public Utilities. The Maryland portion of b3737 totals $2.85($M), and its cost is allocated 100% to New Jersey ratepayers. This project's cost is not included in the table shown above.

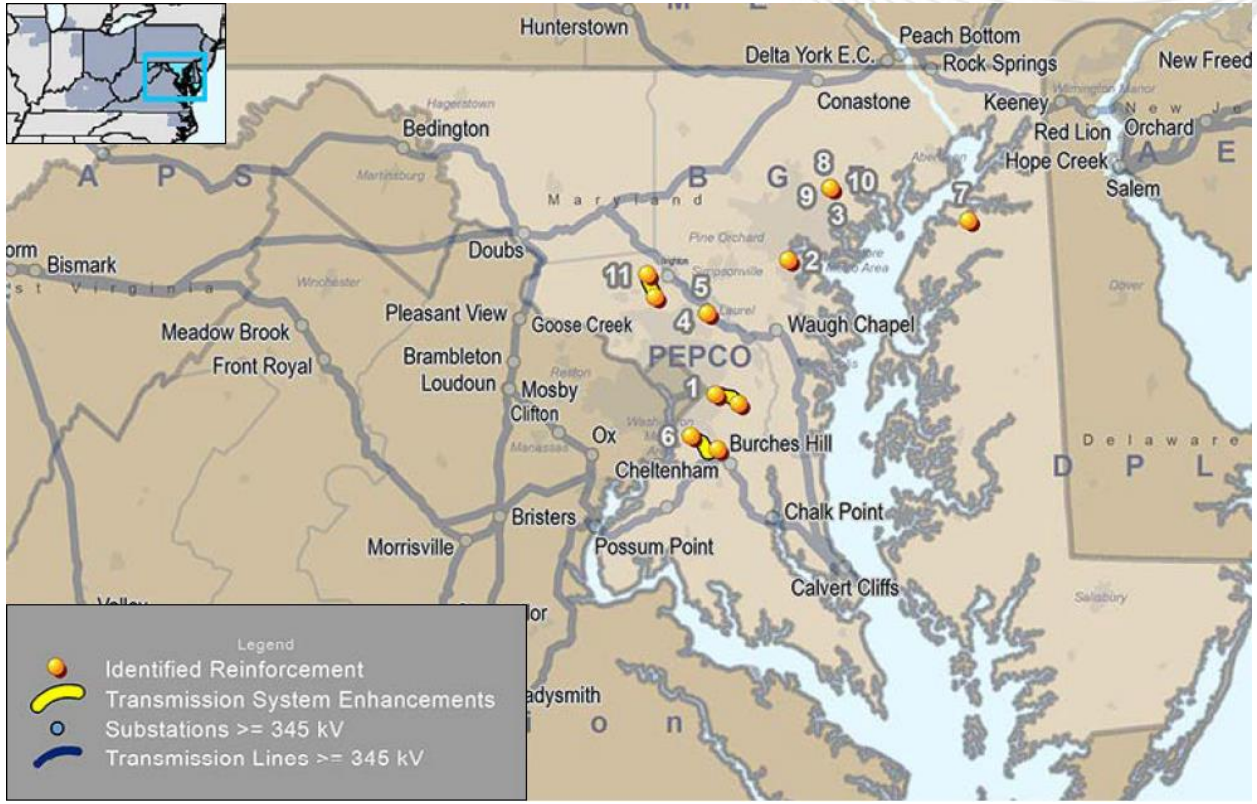
Note: Baseline upgrades are those that resolve a system reliability criteria violation.

# Maryland & D.C. – RTEP Network Projects

Maryland and Washington, D.C. had no network project upgrades in 2022.

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.

# Maryland & D.C. – TO Supplemental Projects



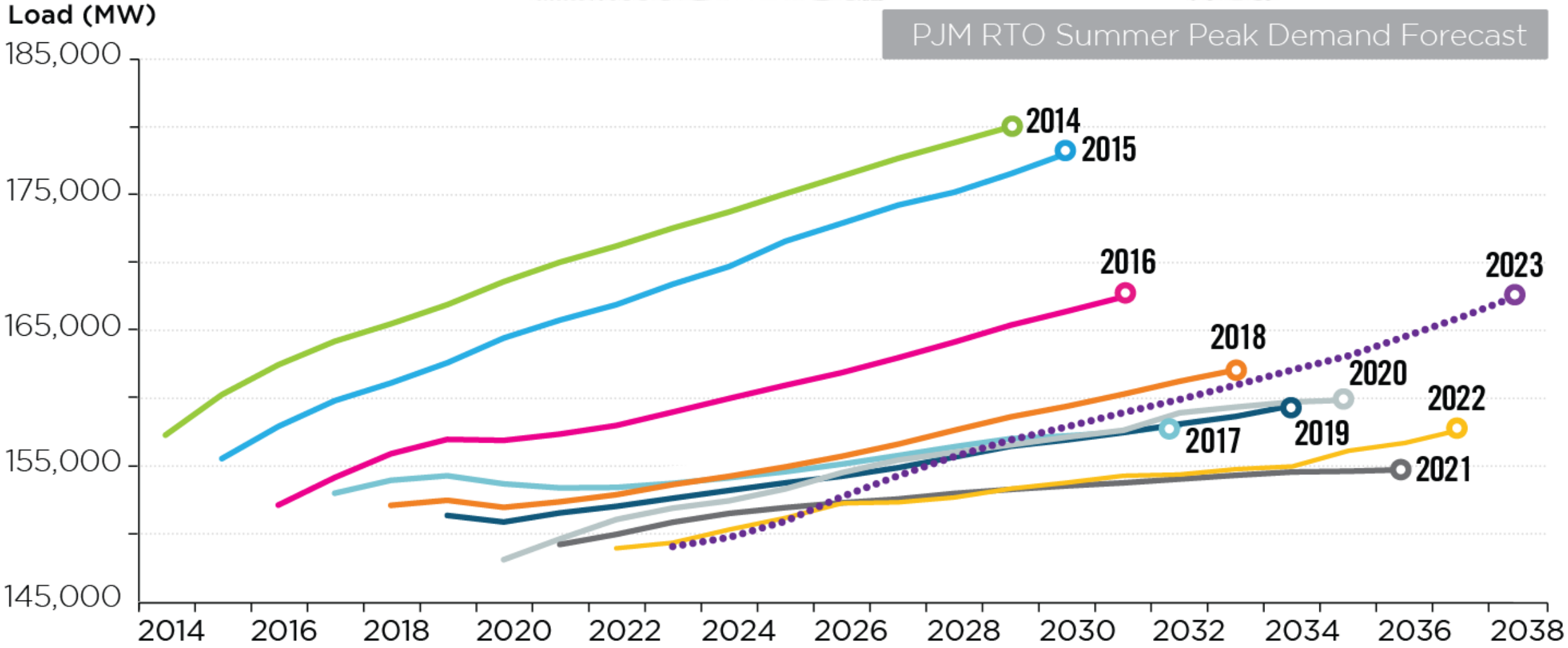

| MD Supplemental Projects | |
|---|---|
| **TO Zone** | **Cost ($M)** |
| BGE | $21.80 |
| DP&L | $6.30 |
| PEPCO | $3.21 |

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.

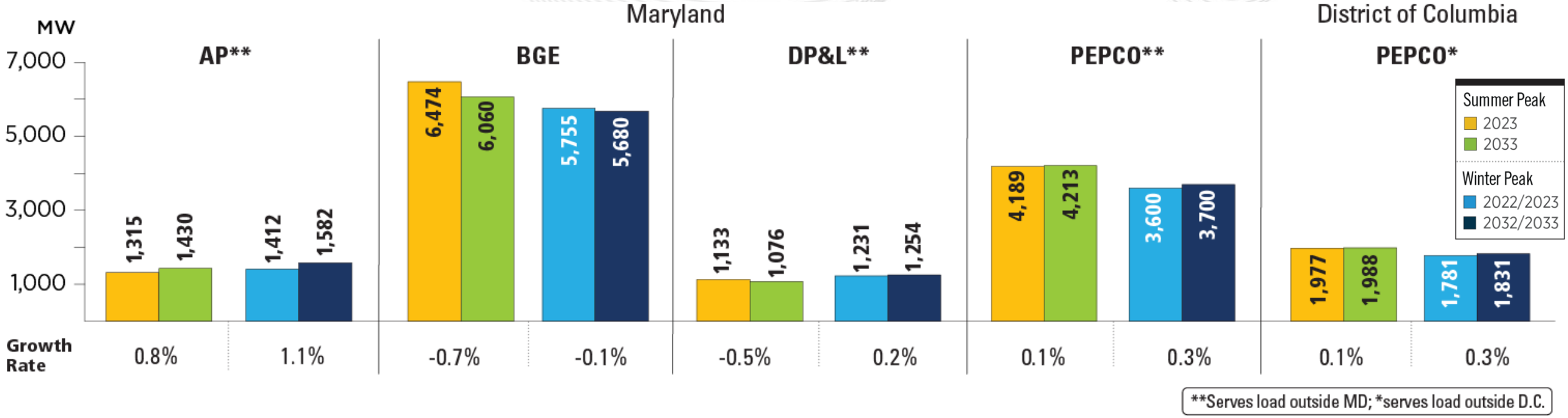
# **Planning**
Load Forecast

# PJM Annual Load Forecast

(Jan. 2023)



# Maryland & D.C. – 2023 Load Forecast Report




**Serves load outside MD; *serves load outside D.C.

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**

| 2023 | 2033 |
|---|---|
| 149,059 MW | 160,971 MW |

Growth Rate 0.8%

**PJM RTO Winter Peak**

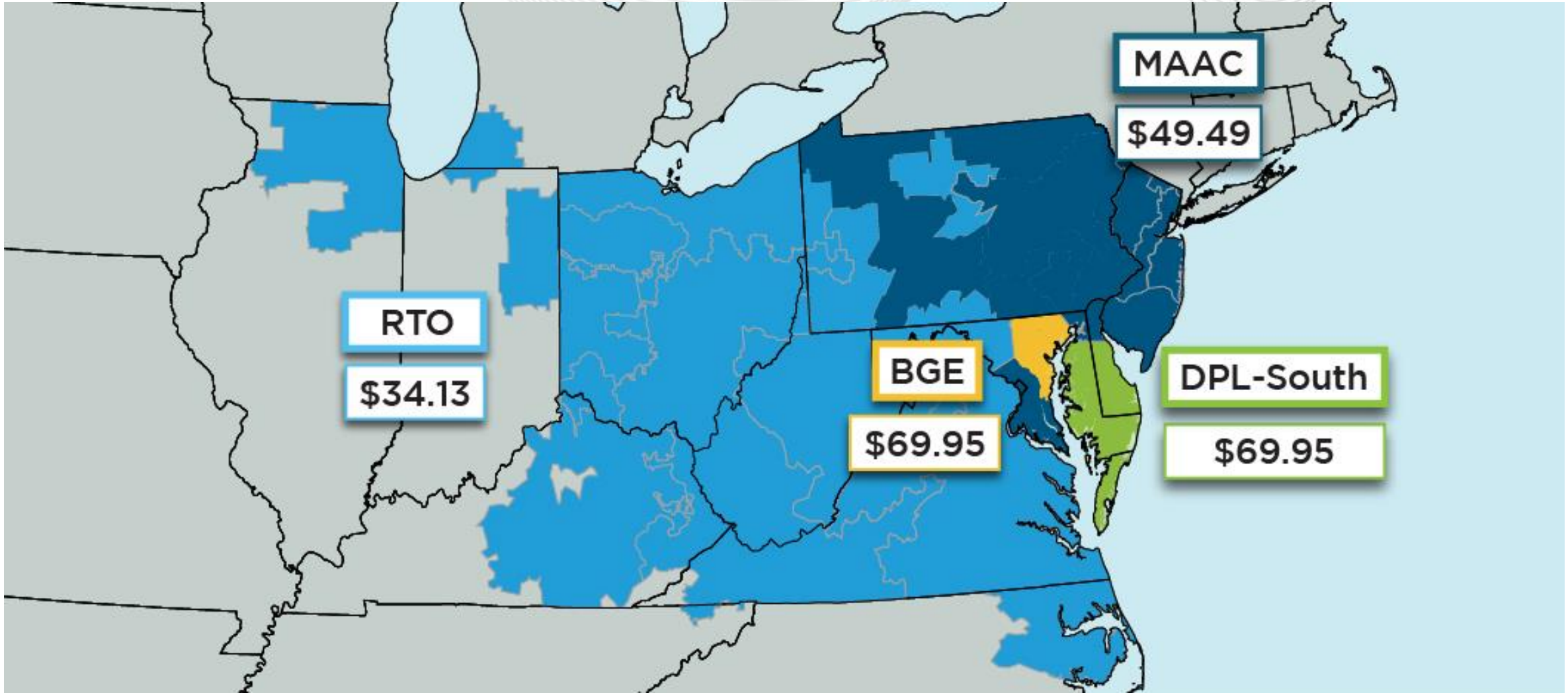
| 2022/2023 | 2032/2033 |
|---|---|
| 130,811 MW | 144,992 MW |

Growth Rate 1.0%

# Markets

## Capacity Market Results

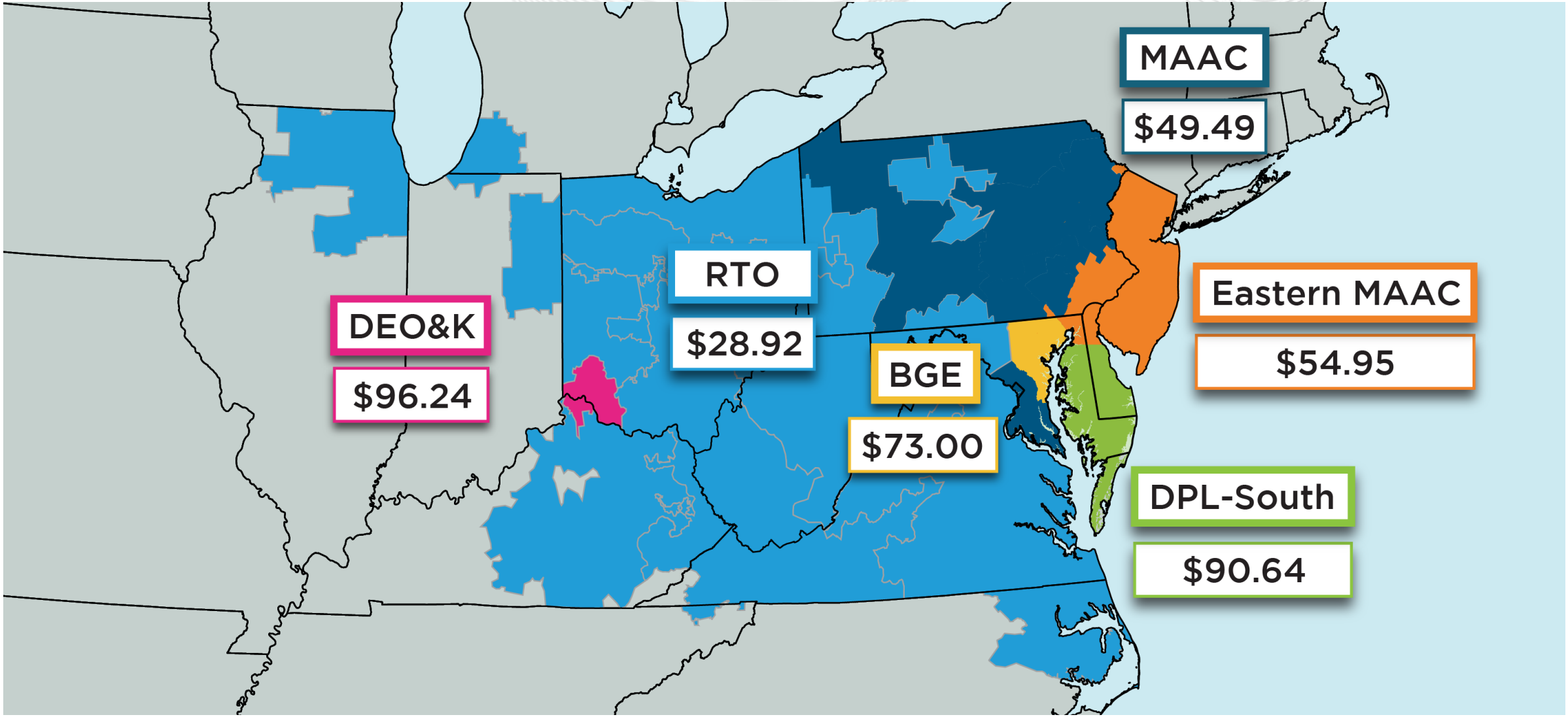
# 2023/24 Base Residual Auction Clearing Prices ($/MW-Day)



# 2023/24 Cleared MW (UCAP) by Resource Type

| | ANNUAL | SUMMER | WINTER | Total (MW) |
|---|---|---|---|---|
| **Generation** | 131,256.3 | 47.0 | 474.1 | 131,777.4 |
| **DR** | 7,919.1 | 177.1 | 0.0 | 8,096.2 |
| **EE** | 5,221.1 | 250.0 | 0.0 | 5,471.1 |
| **Total (MW)** | 144,396.5 | 474.1 | 474.1 | |

# 2024/25 Base Residual Auction Clearing Prices ($/MW-Day)



# 2024/2025 Cleared MW (UCAP) by Resource Type

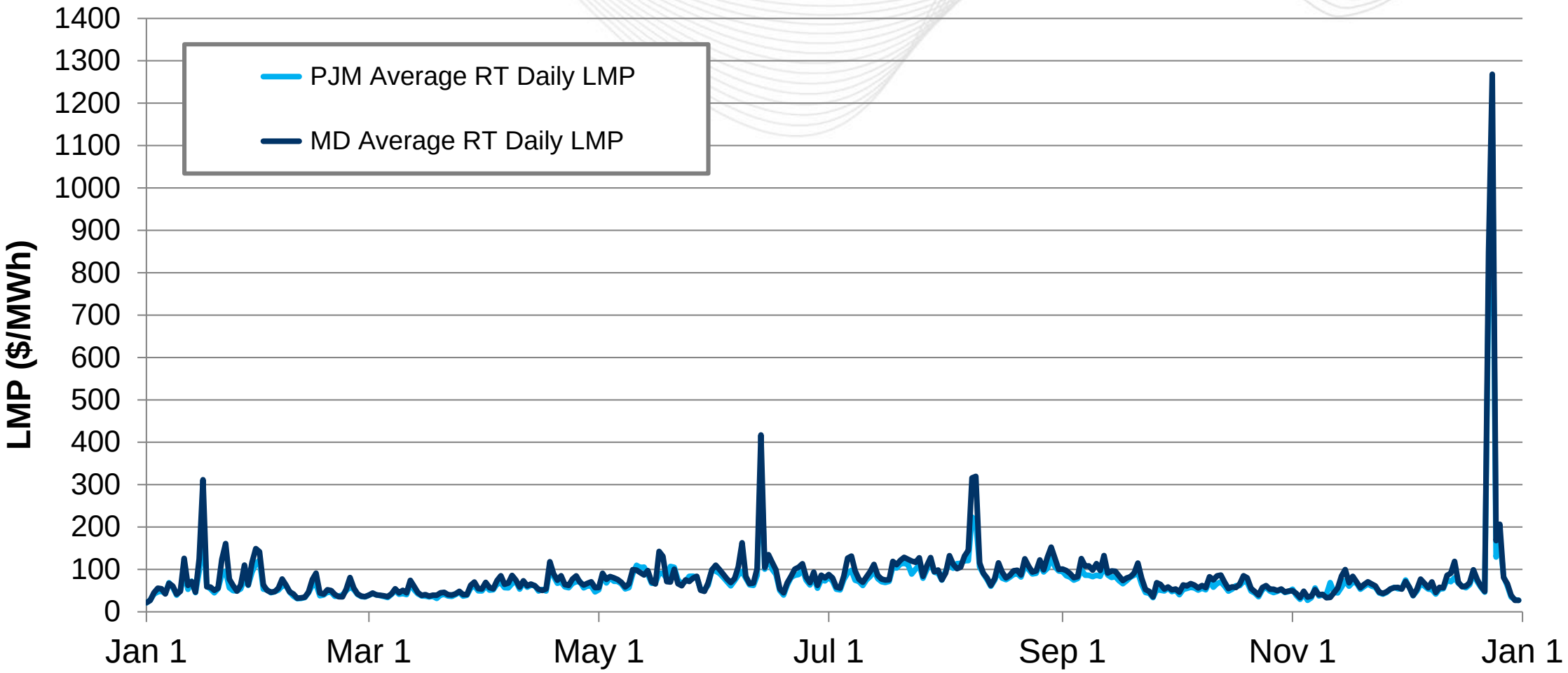
| | ANNUAL | SUMMER | WINTER | Total (MW) |
|---|---|---|---|---|
| **Generation** | 131,779.3 | 38.2 | 605.6 | 132,423.1 |
| **DR** | 7,804.3 | 188.4 | 0 | 7,992.7 |
| **EE** | 7,289.7 | 379.0 | 0 | 7,668.7 |
| **Total (MW)** | **146,873.3** | **605.6** | **605.6** | |

# Markets

Market Analysis

# Maryland – Average Daily LMP

(Jan. 1, 2022 – Dec. 31, 2022)

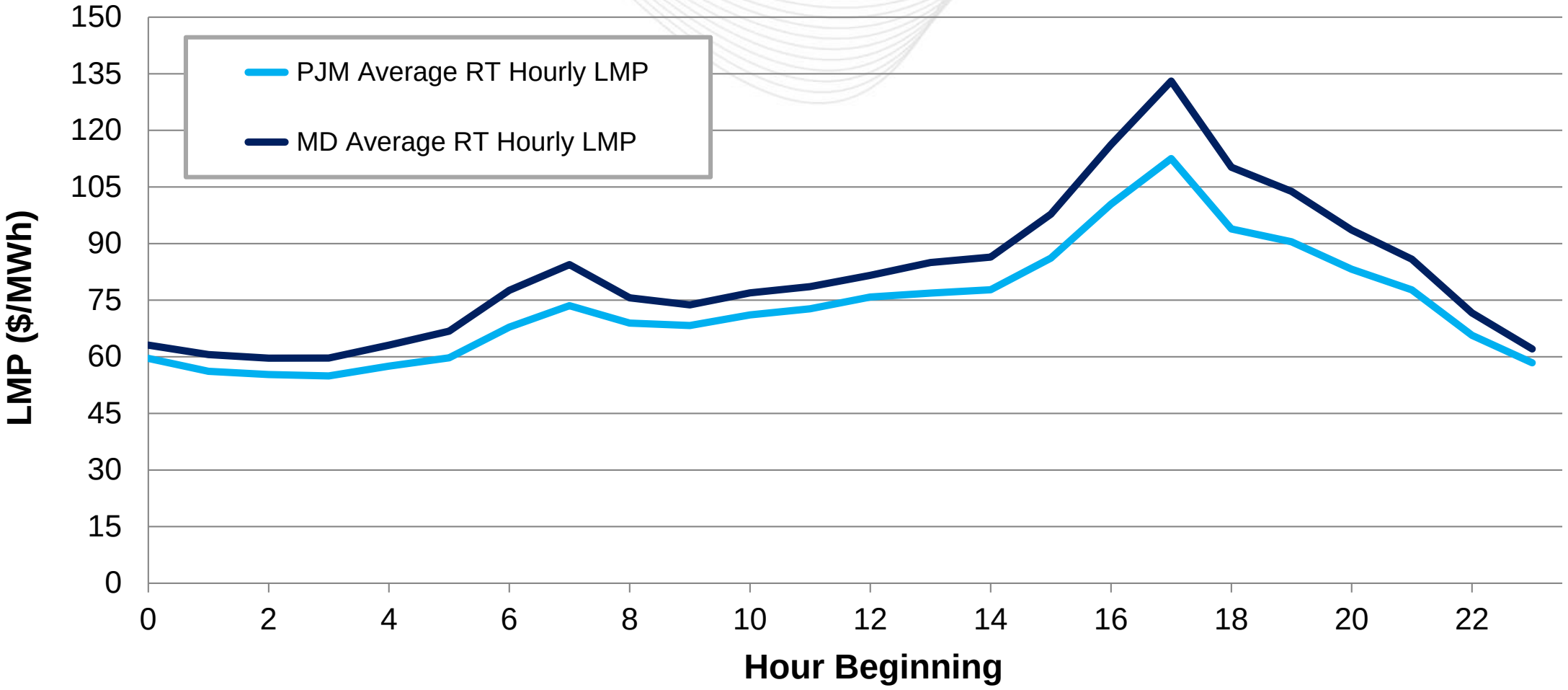



**Note:** The significant price spike in late Dec. 2022 was a result of Winter Storm Elliott's impact on system conditions.

# Maryland – Average Hourly LMP

(Jan. 1, 2022 – Dec. 31, 2022)

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



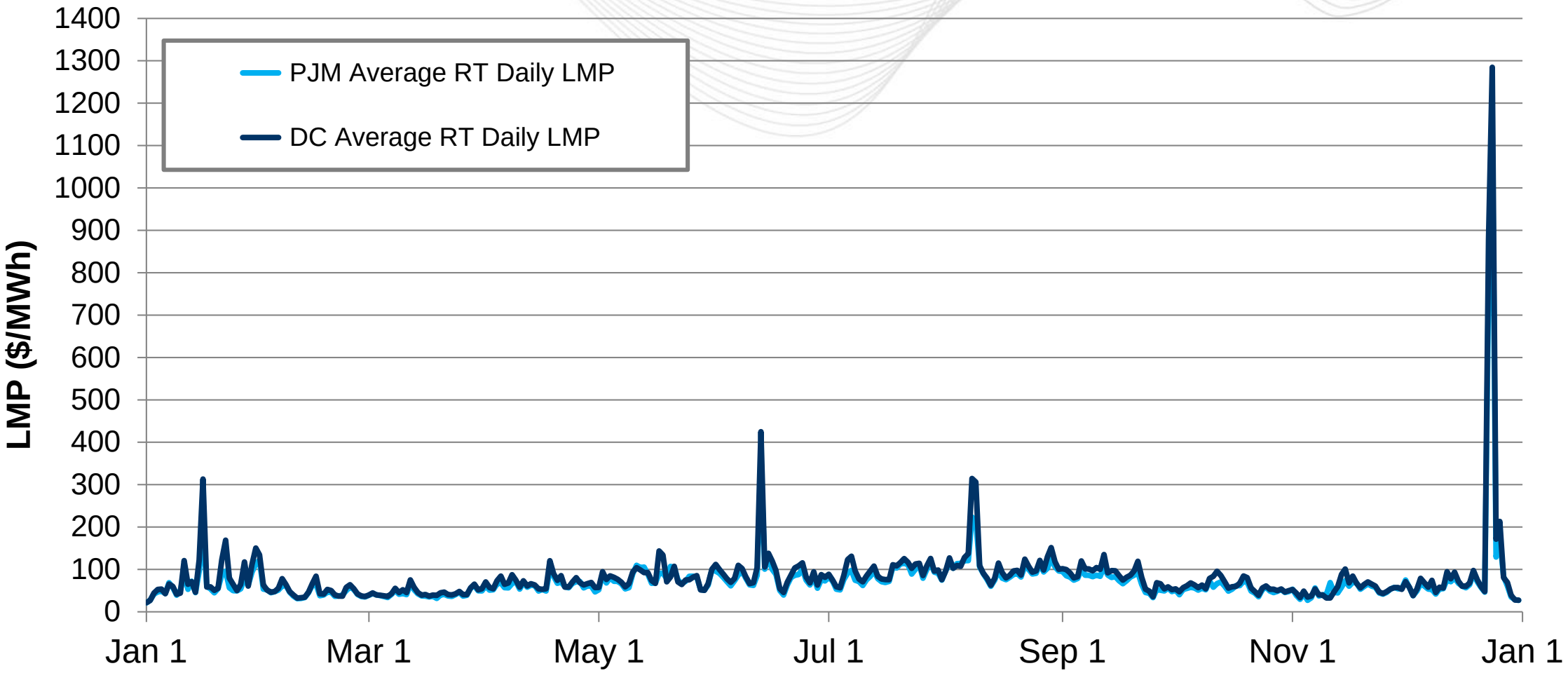
# Maryland – Net Energy Import/Export Trend

(Jan. 2022 – Dec. 2022)


Positive values represent exports and negative values represent imports.

# Washington, D.C. – Average Daily LMP

(Jan. 1, 2022 – Dec. 31, 2022)

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# Washington, D.C. – Average Hourly LMP

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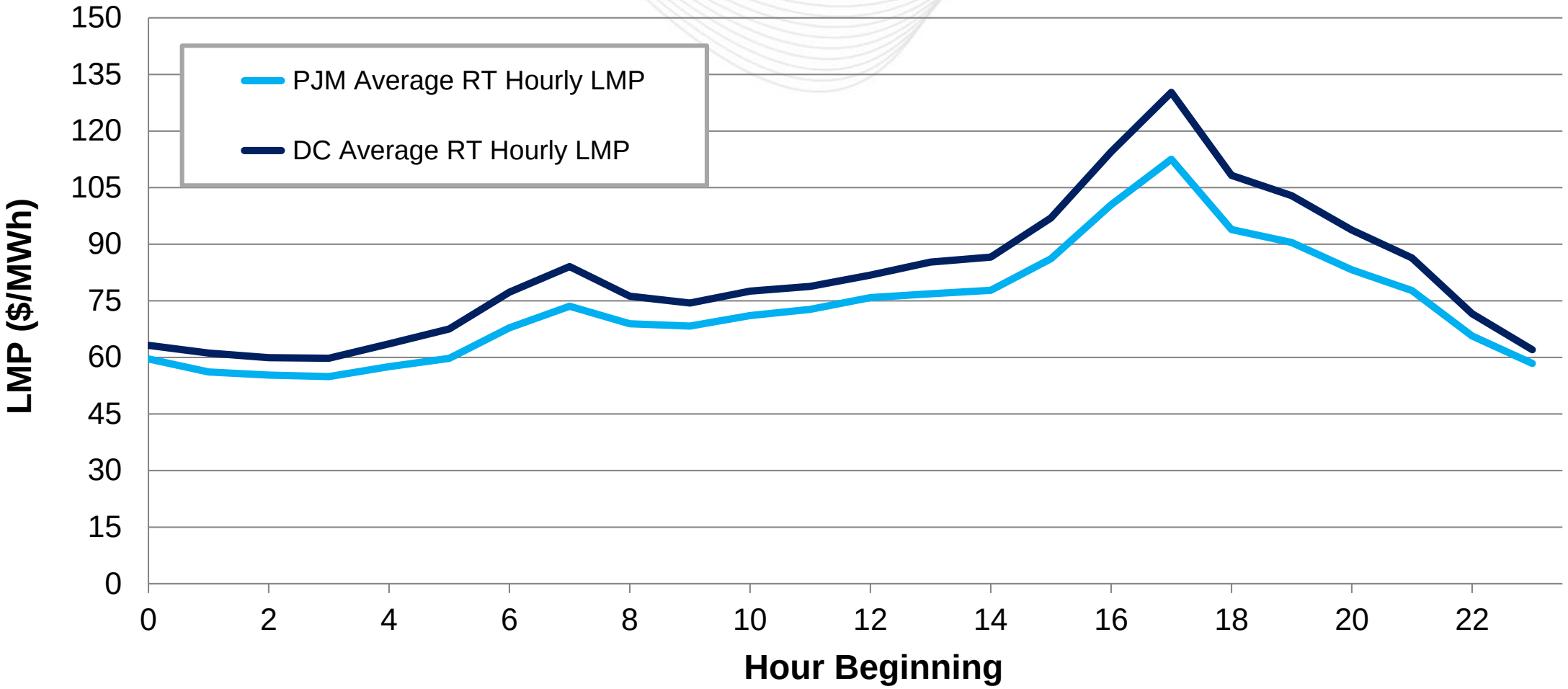
Washington, D.C.'s average hourly LMPs were higher than the PJM average hourly LMP.



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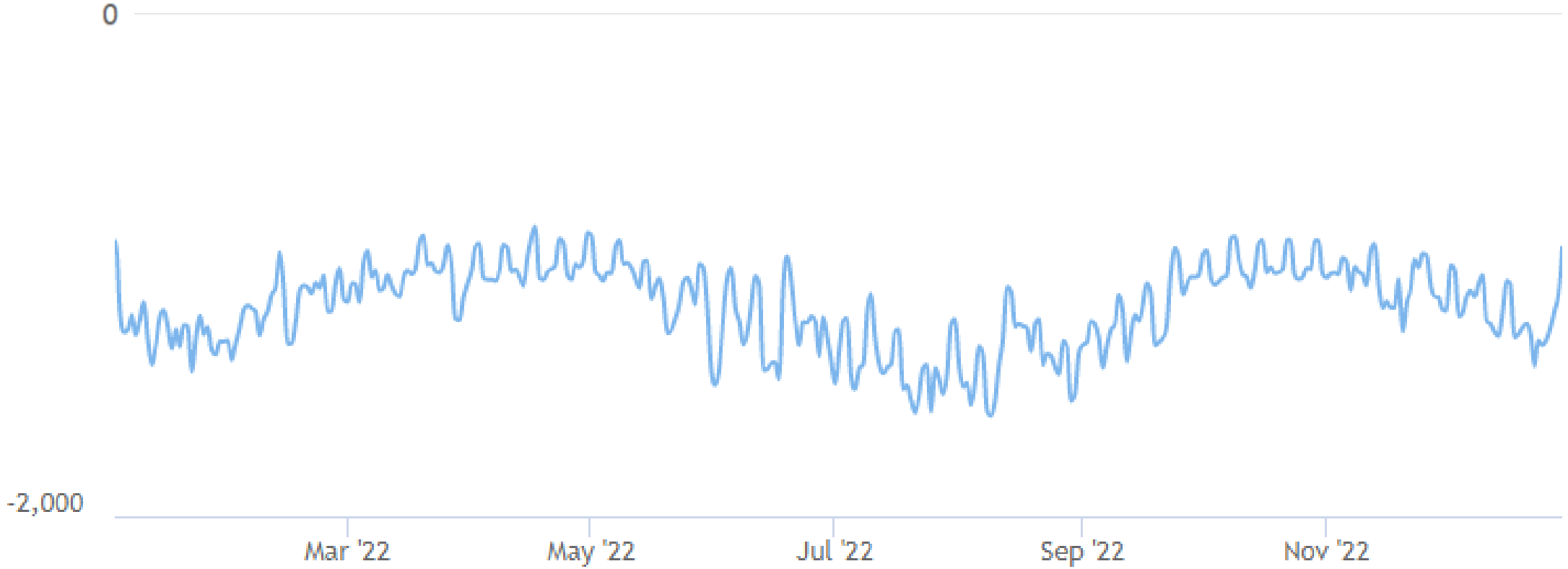
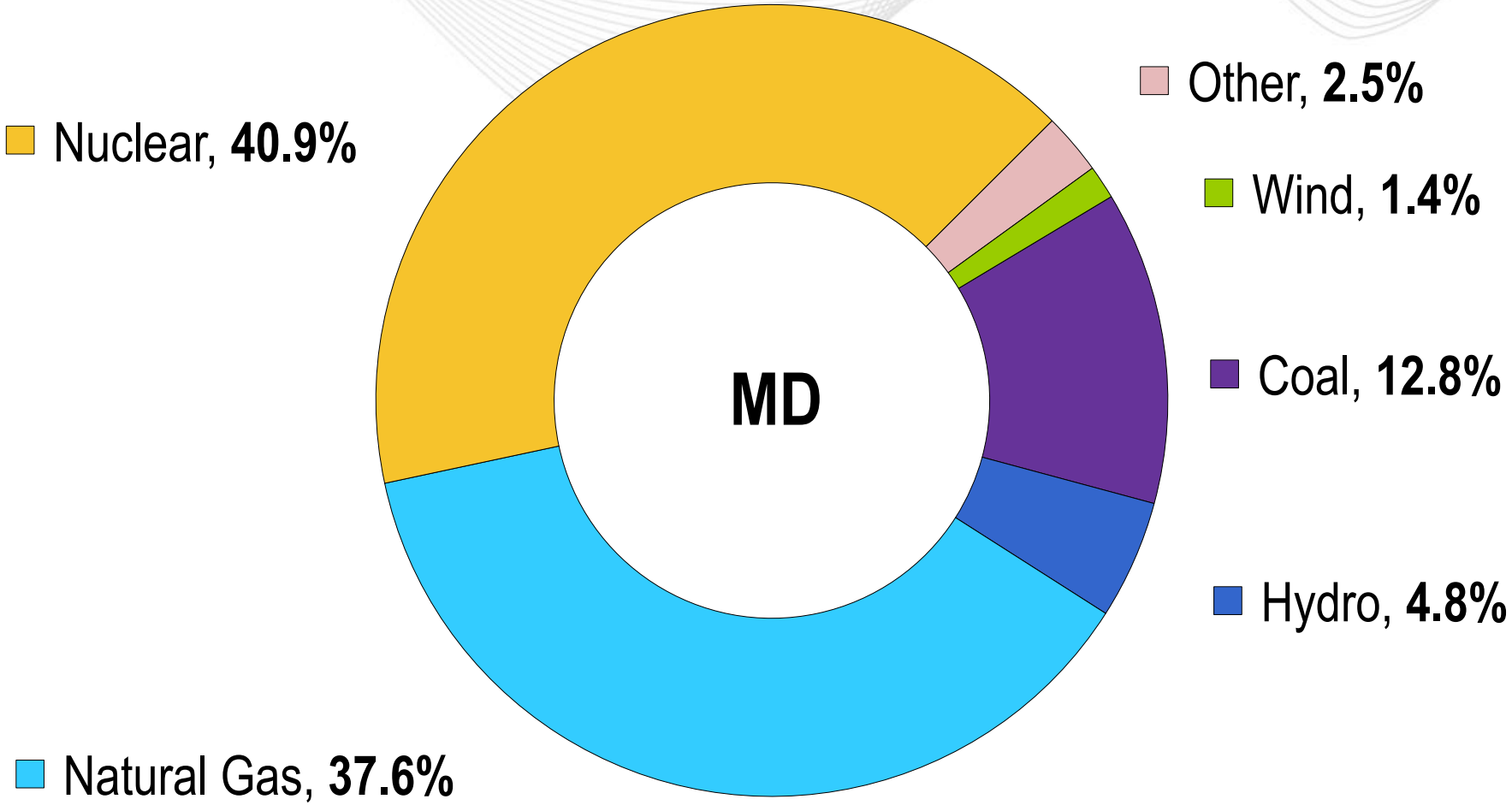



Positive values represent exports and negative values represent imports.

# Operations

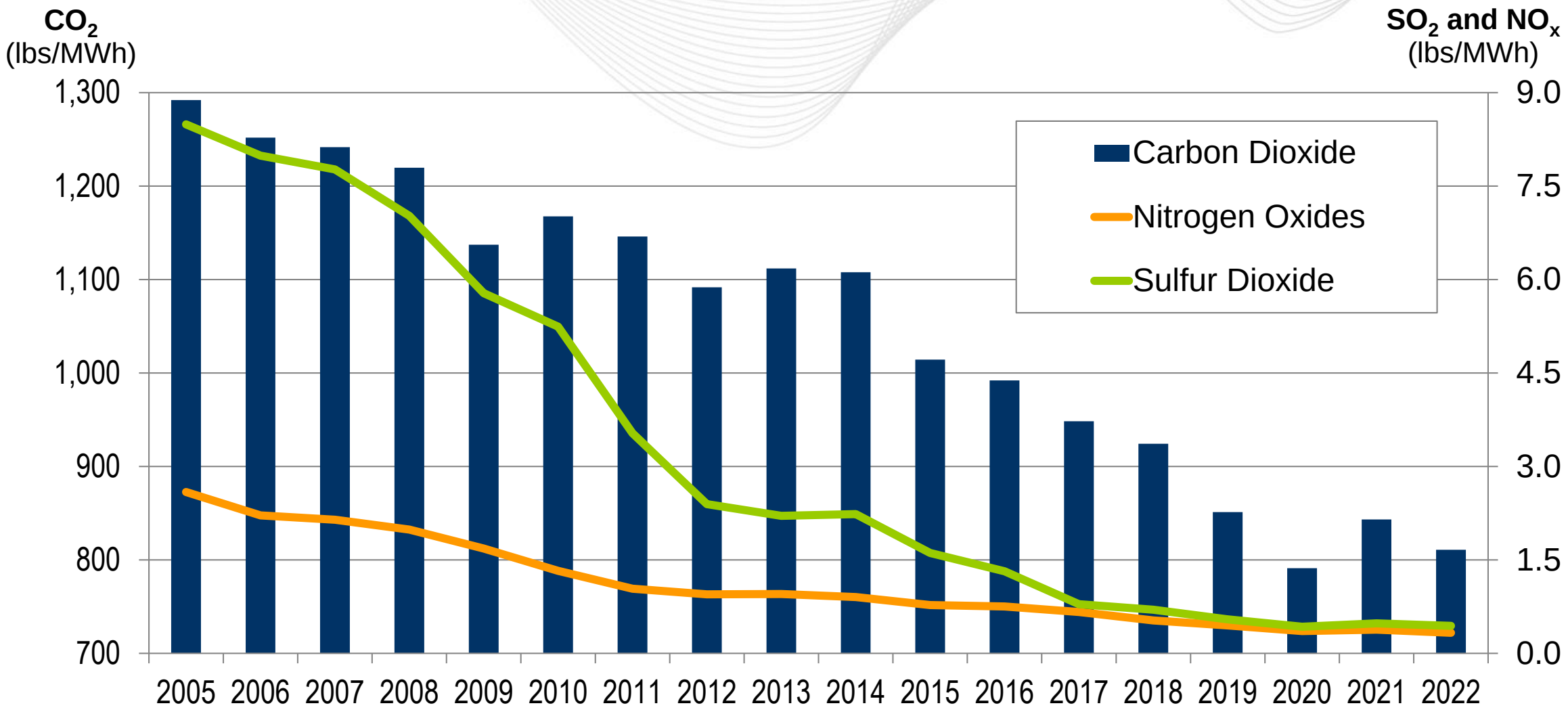
# Maryland – 2022 Generator Production




*The data in this chart comes from EIA Form 923 (2022).*

# 2005 – 2022 PJM Average Emissions

(March 2023)



# Maryland – Average Emissions (lbs/MWh)

(March 2023)