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.
Planning
Generation Portfolio Analysis
PJM – Existing Installed Capacity

(CIRs – as of Dec. 31, 2022)

PJM
184,833 MW

- Nuclear, 32,649 MW
- Oil, 6,424 MW
- Solar, 2,707 MW
- Hydro, 8,238 MW
- Wind, 3,508 MW
- Coal, 44,293 MW
- Natural Gas, 86,212 MW
- Waste, 802 MW
Maryland – Existing Installed Capacity
(CIRs – as of Dec. 31, 2022)

MD/DC
Total
11,159 MW

Nuclear, 1,708 MW
Oil, 1,393 MW
Coal, 1,758 MW

Waste, 102 MW
Solar, 94 MW
Wind, 76 MW

Natural Gas, 5,436 MW
Hydro, 592 MW
PJM Queued Capacity (Nameplate) by Fuel Type

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

- Solar, 147,986 MW
- Storage, 55,037 MW
- Wind*, 43,221 MW
- Natural Gas, 5,537 MW
- Hydro, 824 MW
- Other, 60 MW

*Wind includes both onshore and offshore wind
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

<table>
<thead>
<tr>
<th>Unit</th>
<th>TO Zone</th>
<th>Fuel Type</th>
<th>Request Received to Deactivate</th>
<th>Actual or Projected Deactivation Date</th>
<th>Age (Years)</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dickerson GT1</td>
<td>PEPCO</td>
<td>Oil</td>
<td>7/25/2022</td>
<td>10/23/2022</td>
<td>55</td>
<td>18.0</td>
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<tr>
<td>Morgantown GT2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>51</td>
<td>16.0</td>
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<tr>
<td>Morgantown GT1</td>
<td></td>
<td></td>
<td>4/12/2022</td>
<td>10/1/2022</td>
<td>52</td>
<td>16.0</td>
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<tr>
<td>Morgantown Unit 2</td>
<td></td>
<td>Coal</td>
<td>6/9/2021</td>
<td>5/31/2022</td>
<td>50</td>
<td>619.4</td>
</tr>
<tr>
<td>Morgantown Unit 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>51</td>
<td>613.3</td>
</tr>
</tbody>
</table>
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)

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

<table>
<thead>
<tr>
<th>TO Zone</th>
<th>Cost ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGE</td>
<td>$2.50</td>
</tr>
<tr>
<td>DP&amp;L</td>
<td>$2.81</td>
</tr>
</tbody>
</table>

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.
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

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
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.
Markets
Capacity Market Results
2023/24 Base Residual Auction Clearing Prices ($/MW-Day)
### 2023/24 Cleared MW (UCAP) by Resource Type

<table>
<thead>
<tr>
<th>Resource</th>
<th>ANNUAL (MW)</th>
<th>SUMMER (MW)</th>
<th>WINTER (MW)</th>
<th>Total (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>131,256.3</td>
<td>47.0</td>
<td>474.1</td>
<td>131,777.4</td>
</tr>
<tr>
<td>DR</td>
<td>7,919.1</td>
<td>177.1</td>
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<td>8,096.2</td>
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<tr>
<td>EE</td>
<td>5,221.1</td>
<td>250.0</td>
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<td>5,471.1</td>
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<tr>
<td>Total (MW)</td>
<td>144,396.5</td>
<td>474.1</td>
<td>474.1</td>
<td>131,777.4</td>
</tr>
</tbody>
</table>
2024/25 Base Residual Auction Clearing Prices ($/MW-Day)

- **DEO&K**: $96.24
- **RTO**: $28.92
- **BGE**: $73.00
- **MAAC**: $49.49
- **Eastern MAAC**: $54.95
- **DPL-South**: $90.64
# 2024/2025 Cleared MW (UCAP) by Resource Type

<table>
<thead>
<tr>
<th></th>
<th>ANNUAL (MW)</th>
<th>SUMMER (MW)</th>
<th>WINTER (MW)</th>
<th>Total (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>131,779.3</td>
<td>38.2</td>
<td>605.6</td>
<td>132,423.1</td>
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<tr>
<td>DR</td>
<td>7,804.3</td>
<td>188.4</td>
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<td>7,992.7</td>
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<tr>
<td>EE</td>
<td>7,289.7</td>
<td>379.0</td>
<td>0</td>
<td>7,668.7</td>
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<tr>
<td>Total (MW)</td>
<td>146,873.3</td>
<td>605.6</td>
<td>605.6</td>
<td></td>
</tr>
</tbody>
</table>
Markets
Market Analysis
Note: The significant price spike in late Dec. 2022 was a result of Winter Storm Elliott’s impact on system conditions.
Maryland’s average hourly LMPs were higher than the PJM average hourly LMP.
Positive values represent exports and negative values represent imports.
Note: The significant price spike in late Dec. 2022 was a result of Winter Storm Elliott's impact on system conditions.
Washington, D.C.’s average hourly LMPs were higher than the PJM average hourly LMP.
Washington, D.C. – Net Energy Import/Export Trend
(Jan. 2022 – Dec. 2022)

Positive values represent exports and negative values represent imports.
Operations
Maryland – 2022 Generator Production

- Nuclear, 40.9%
- Natural Gas, 37.6%
- Coal, 12.8%
- Hydro, 4.8%
- Wind, 1.4%
- Other, 2.5%

The data in this chart comes from EIA Form 923 (2022).
2005 – 2022 PJM Average Emissions
(March 2023)

- **CO₂** (lbs/MWh)
- **SO₂ and NOₓ** (lbs/MWh)

**CO₂**
- 2005: 1,300 lbs/MWh
- 2022: 0.0 lbs/MWh

**SO₂ and NOₓ**
- 2005: 3.0 lbs/MWh
- 2022: 0.0 lbs/MWh

- **Carbon Dioxide**
- **Nitrogen Oxides**
- **Sulfur Dioxide**
Maryland – Average Emissions (lbs/MWh)
(March 2023)

CO₂ (lbs/MWh)

SO₂ and NOₓ (lbs/MWh)

Carbon Dioxide
Nitrogen Oxides
Sulfur Dioxide