



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

June 2024

Planning

- Generation Portfolio Analysis
- Transmission Analysis
- Load Forecast

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- Net Energy Import/Export Trend

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- Generator Production
- Emissions Data

In the Ohio service territory:



Existing Capacity:

- In Ohio, natural gas represents 60% of the total installed capacity while coal represents 27% and nuclear 9%.
- In PJM, natural gas and coal are 48% and 22% of total installed capacity, while nuclear represents 18%.



Interconnection Requests:

- Solar represents 77% of new interconnection requests while storage represents 19% of new requests.



Deactivations:

- 1,518.3 MW of generation deactivated in Ohio in 2023.
- 4 MW of generation announced its intention to deactivate in future years.



RTEP 2023:

Ohio's 2023 RTEP project total represents approximately \$1.52 billion in investment.

In the Ohio service territory:



Load Forecast:

Ohio's summer peak load is projected to increase by 0% to 2.6% percent annually over the next ten years, while the winter peak is projected to increase by 0% to 2.7% 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 Ohio State Infrastructure Report.



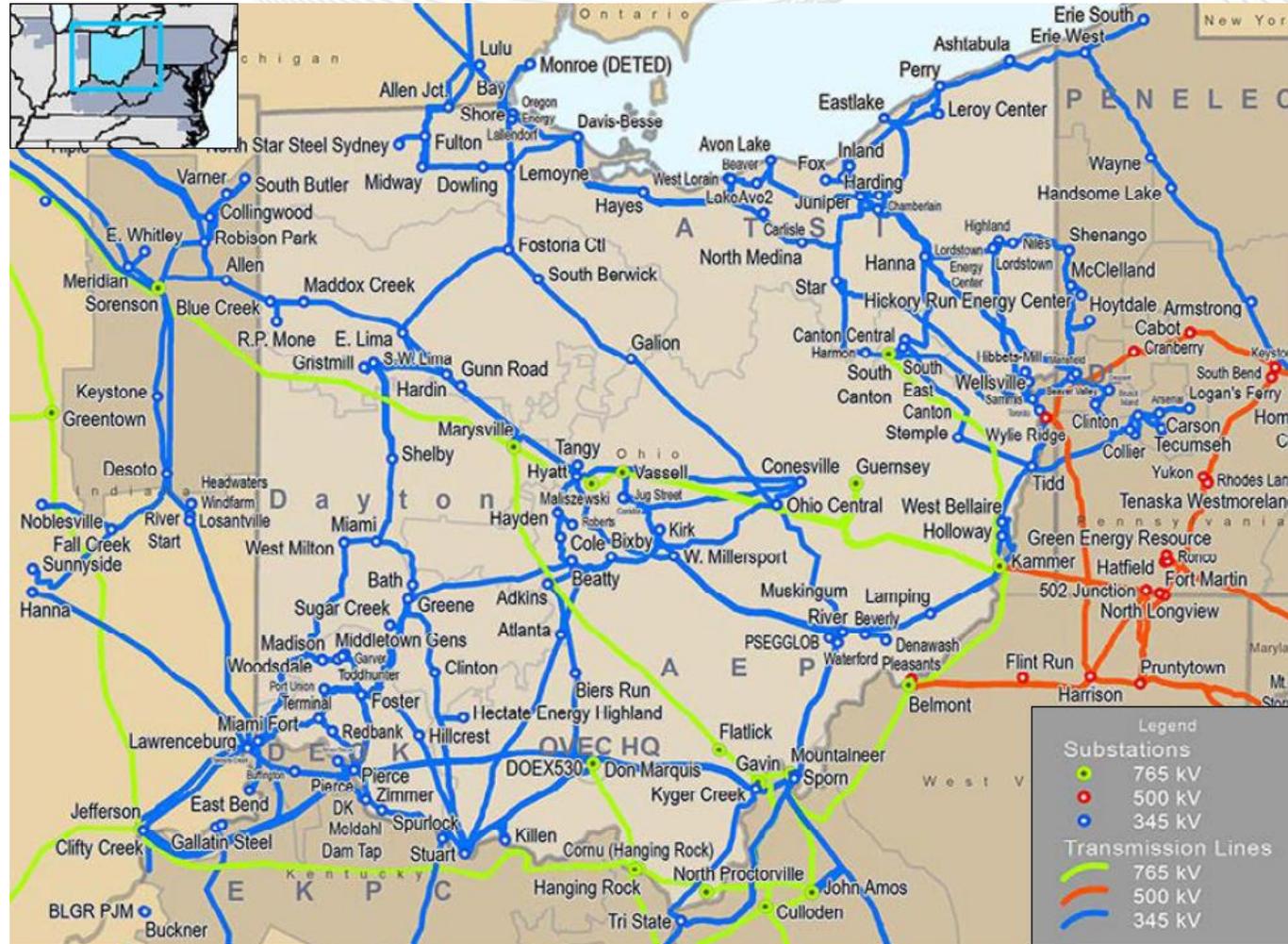
Market Performance:

Ohio's average hourly LMPs were aligned with the PJM average hourly LMP.



Emissions:

Ohio's average CO₂ emissions decreased in 2023 compared to 2022 levels.

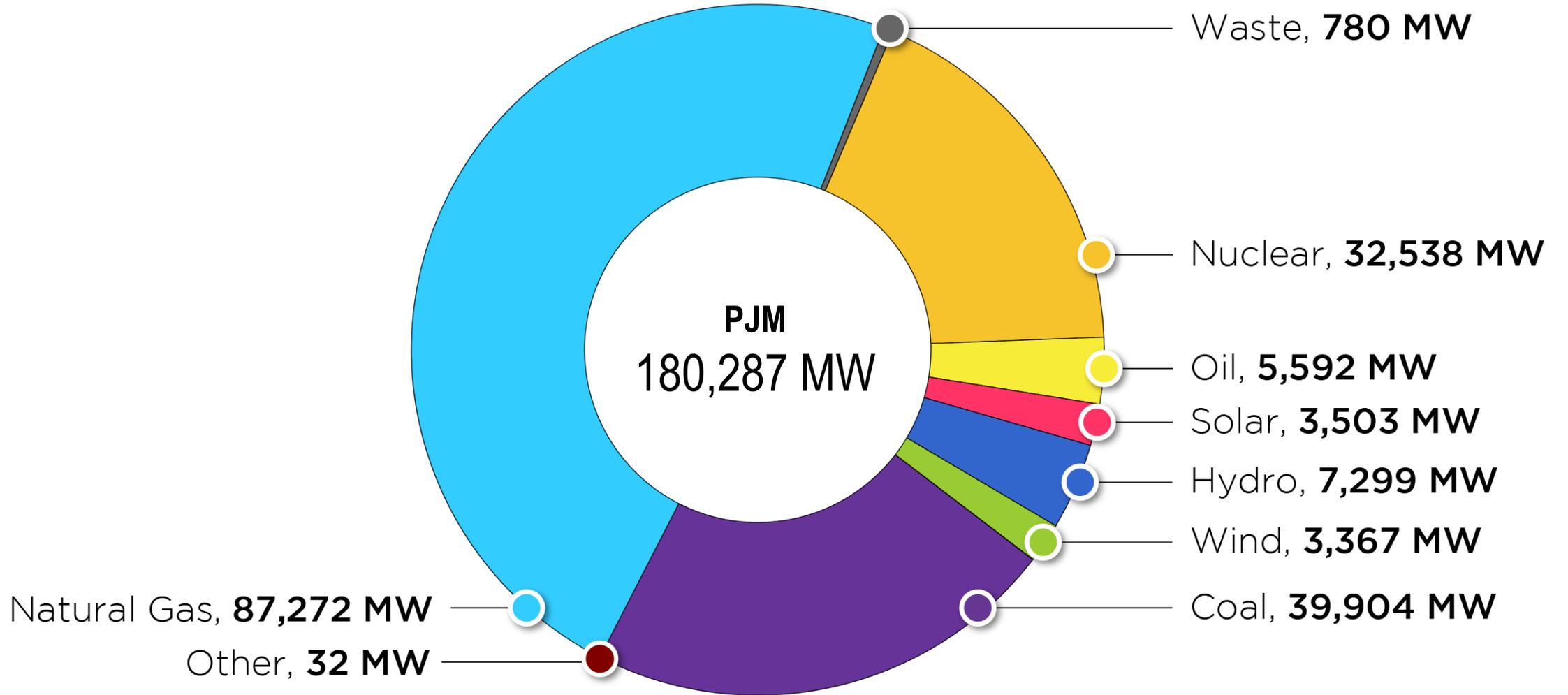


Planning

Generation Portfolio Analysis

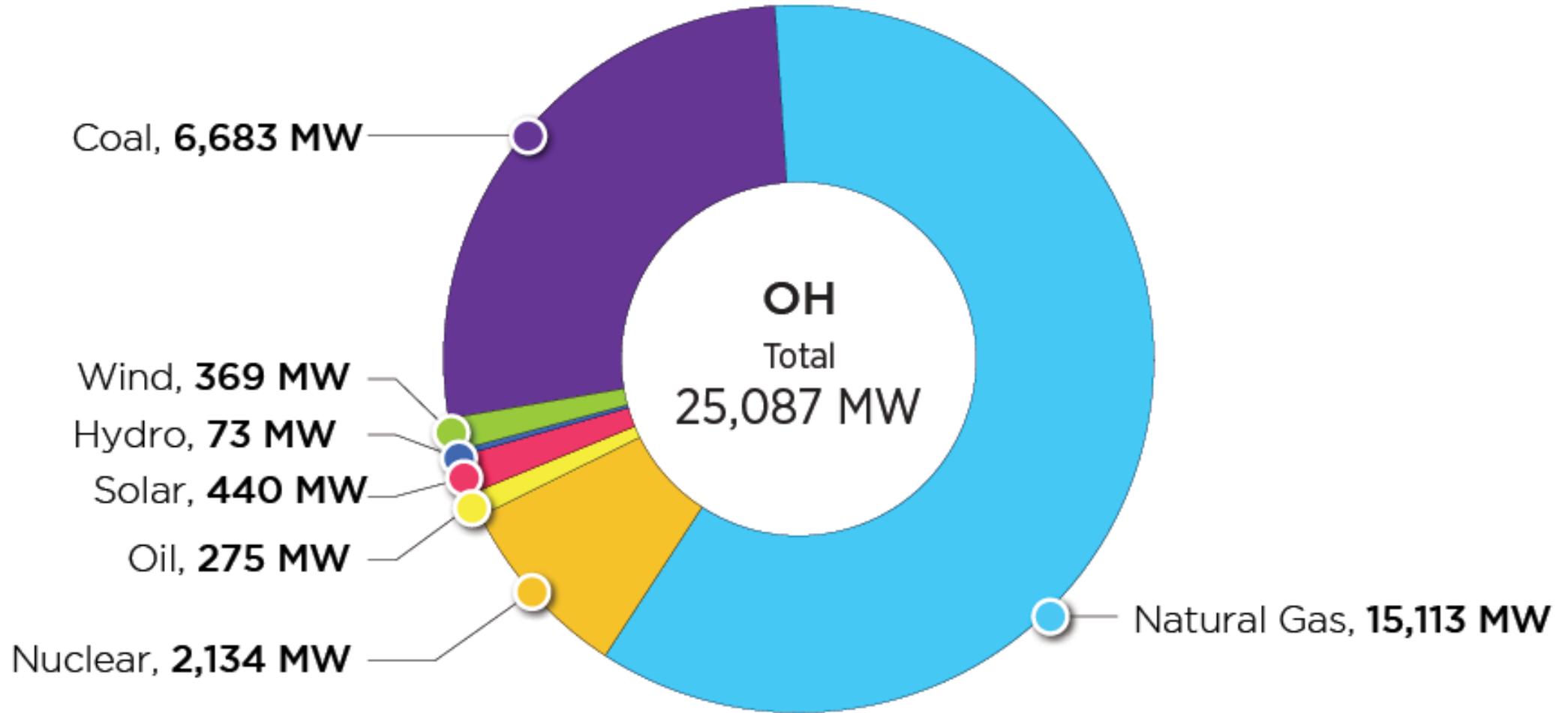
PJM Existing Installed Capacity Mix

(CIRs – as of Dec. 31, 2023)



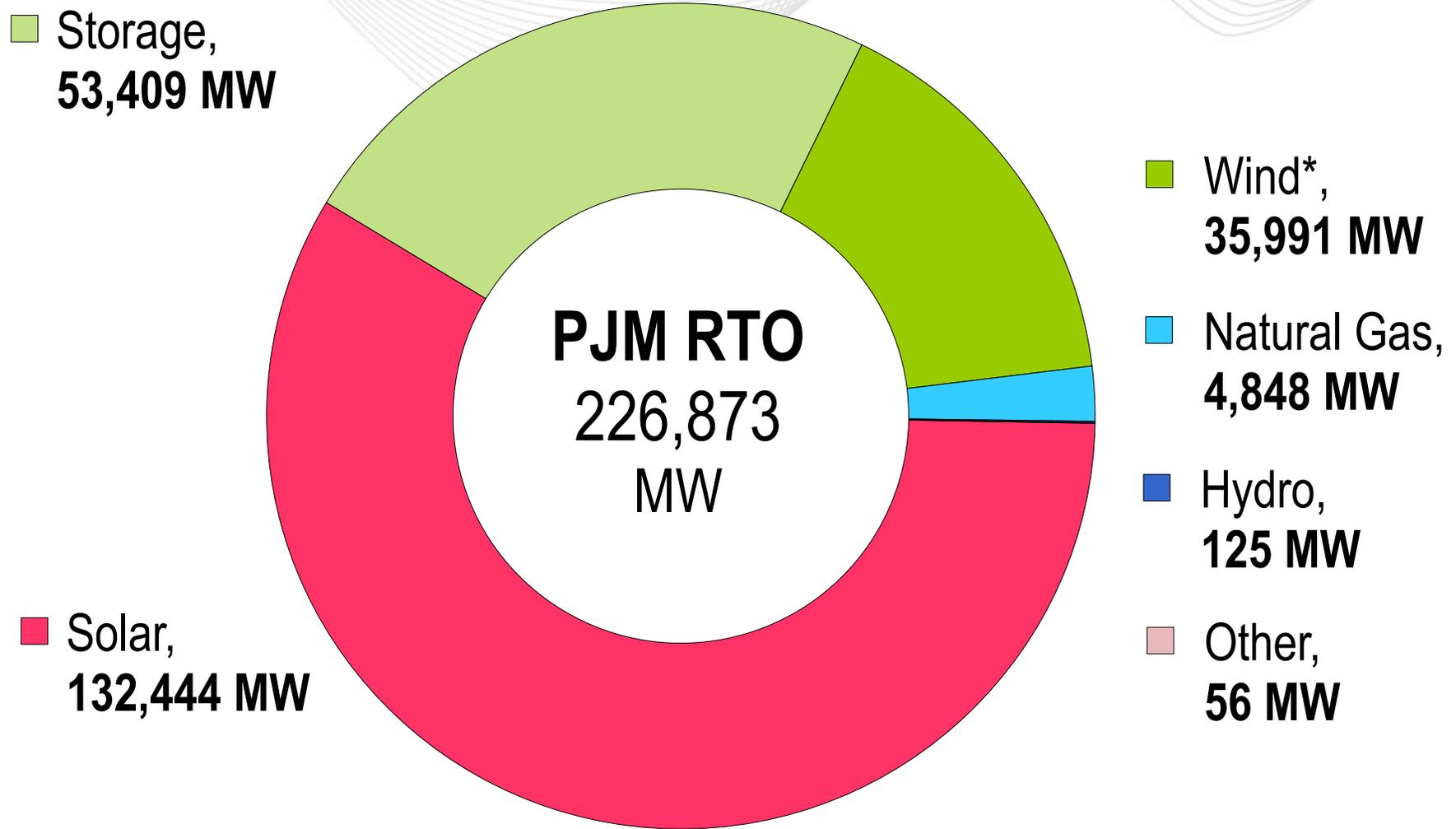
Ohio – Existing Installed Capacity (MW) by Fuel Type

(as of Dec. 31, 2023)



PJM Queued Capacity (Nameplate) by Fuel Type

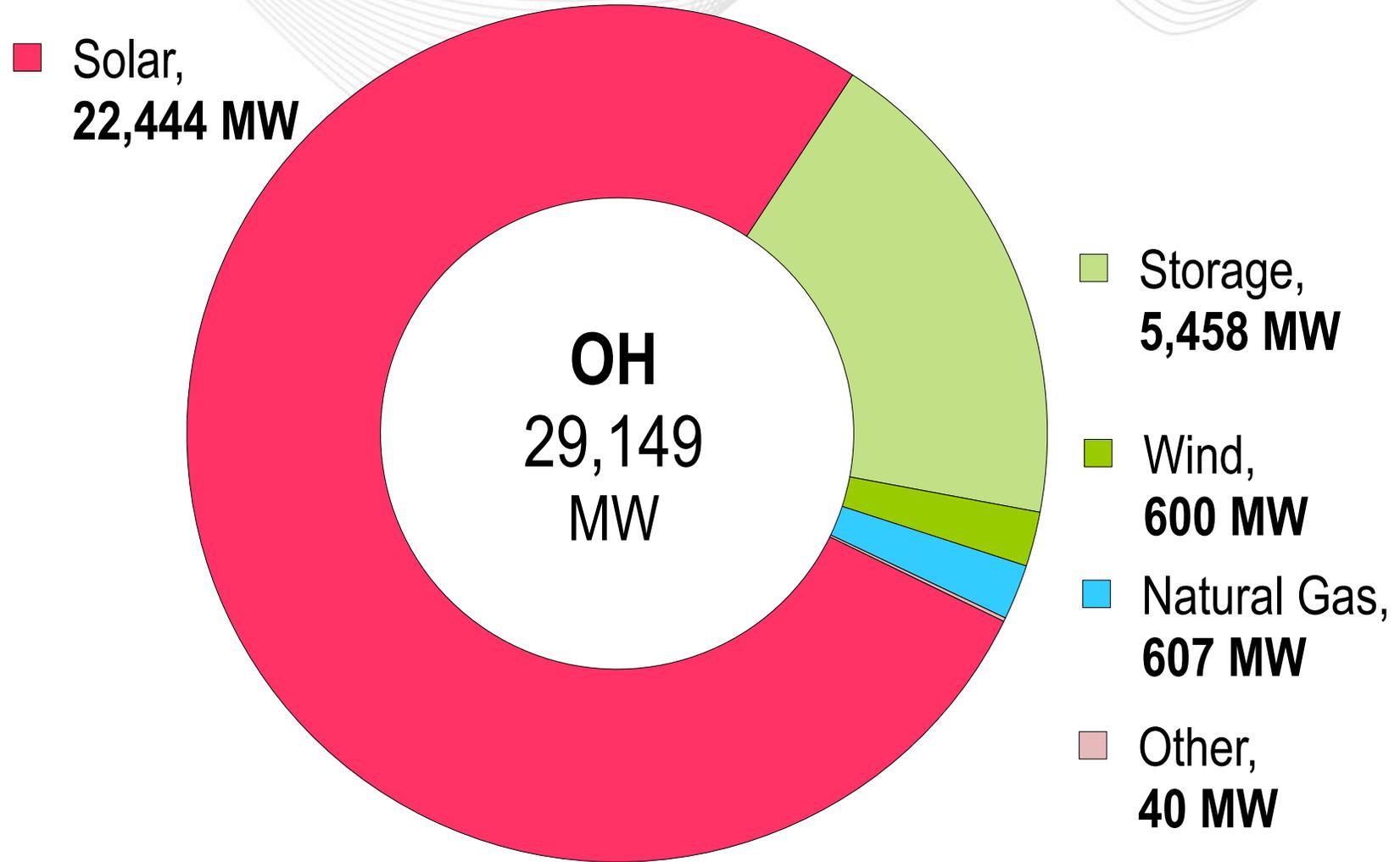
("Active" in the PJM Queue as of April 1, 2024)

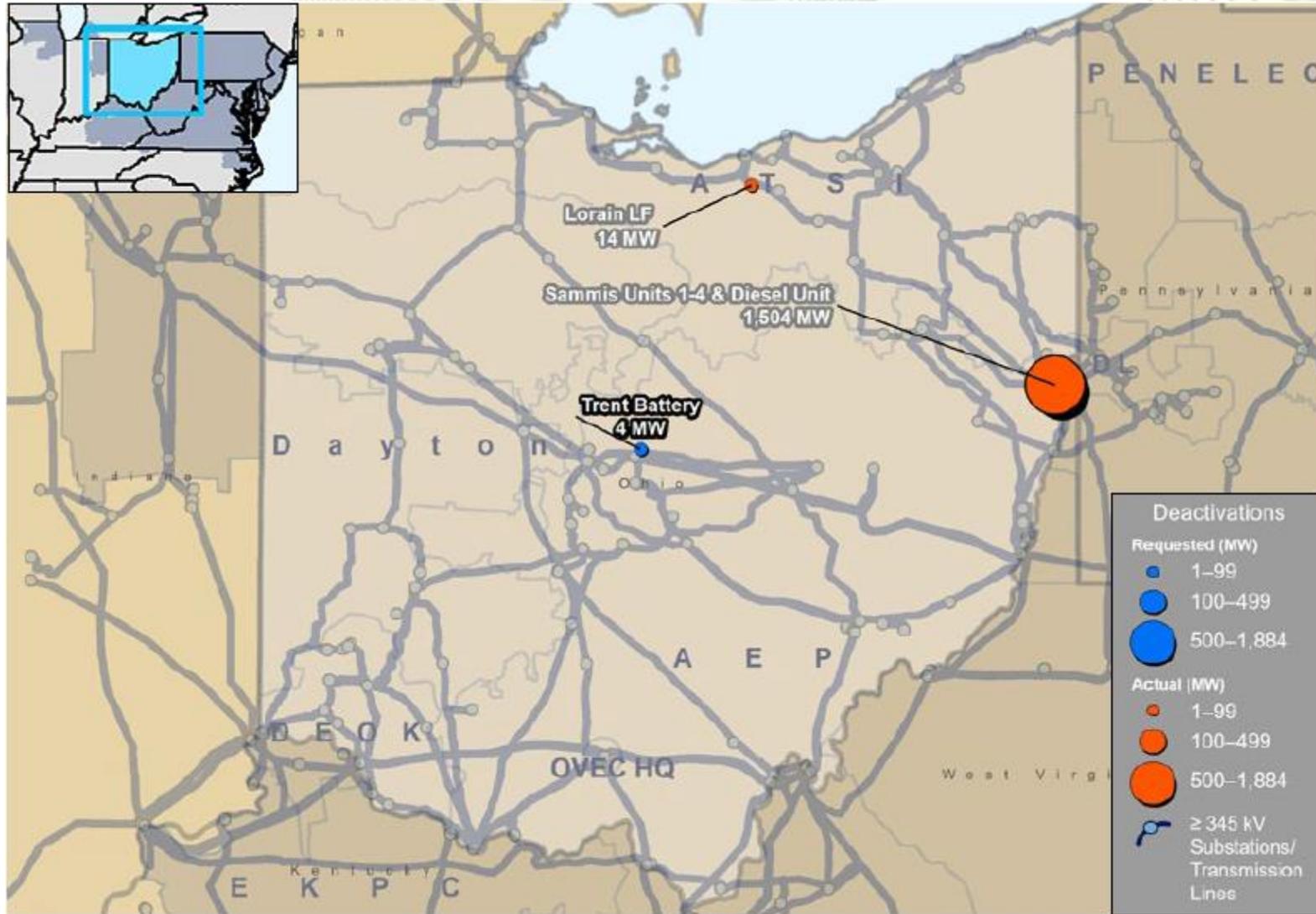


*Wind includes both onshore and offshore wind

Ohio Queued Capacity (Nameplate) by Fuel Type

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







Ohio – 2023 Generator Deactivations

Unit	TO Zone	Fuel Type	Request Received to Deactivate	Actual or Projected Deactivation Date	Age (Years)	Capacity (MW)
TRENT 1 BT	AEP	Battery	9/22/23	1/1/2024	10	4
Sammis Diesel Units	ATSI	Diesel	3/14/22	5/3/2023	50	13
Sammis Unit 5		Coal			55	291.3
Sammis Unit 6					53	600
Sammis Unit 7					51	600
Lorain 1 LF		Methane	10/14/22	4/1/2023	21	14

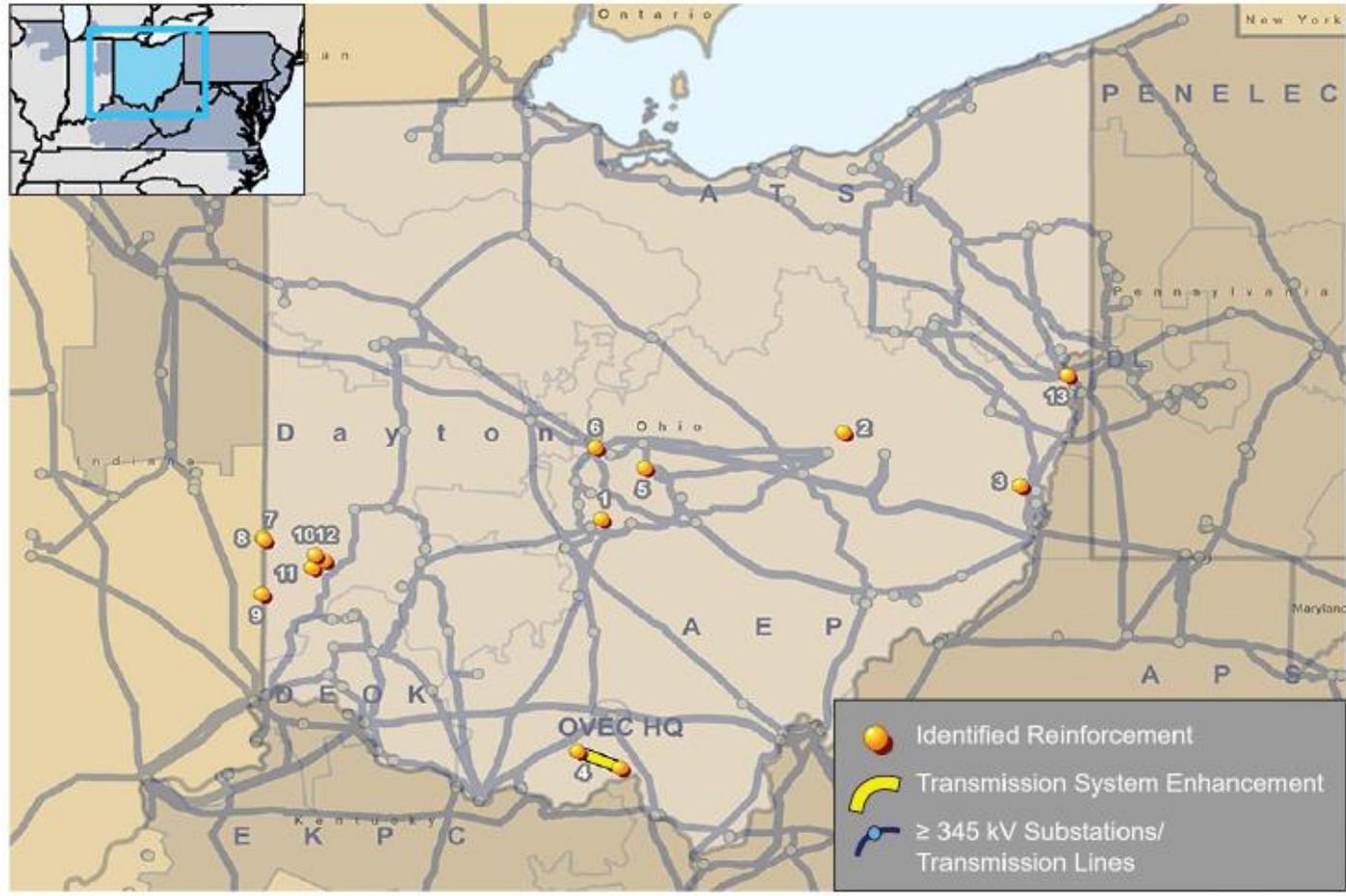
Planning

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.

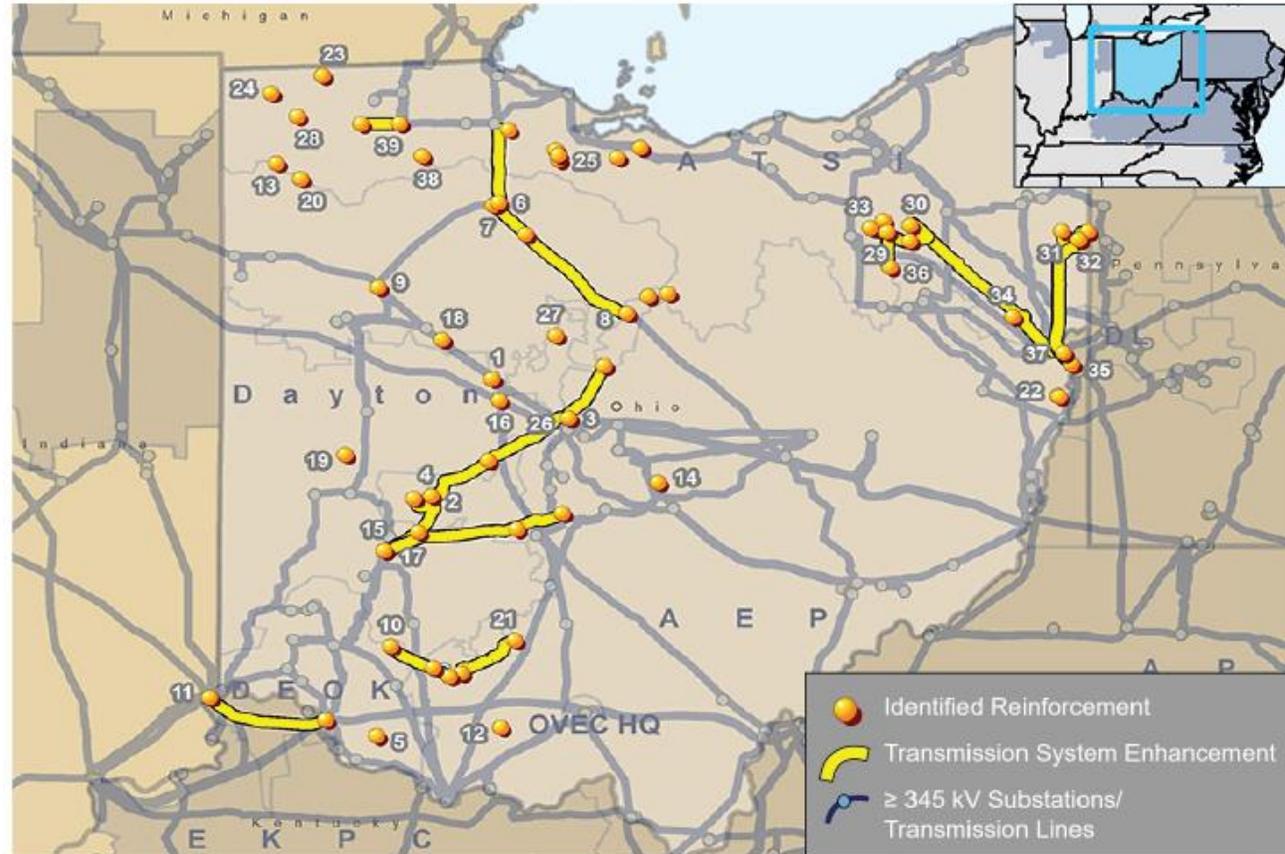
For a detailed list of each project shown on a state's project map, please see that state's section in the **2023 Annual RTEP Report** on PJM.com: <https://pjm.com/-/media/library/reports-notices/2023-rtep/2023-rtep-report.ashx>.

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>.



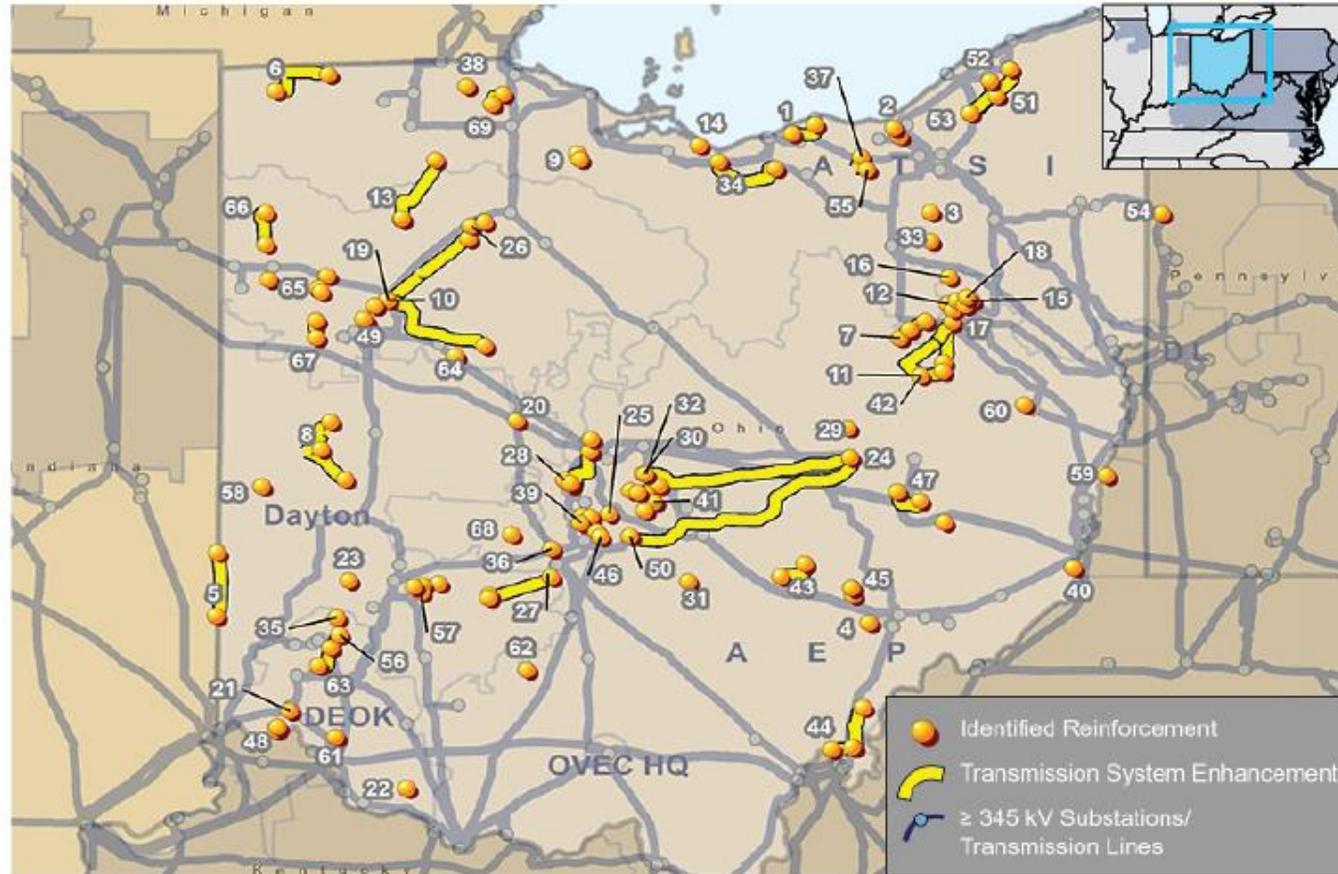
The 2023 RTEP has \$64.44 million in baseline projects located in Ohio.

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 \$77.12 million in network upgrades located in Ohio.

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 \$1.38 billion in supplemental projects located in Ohio.

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

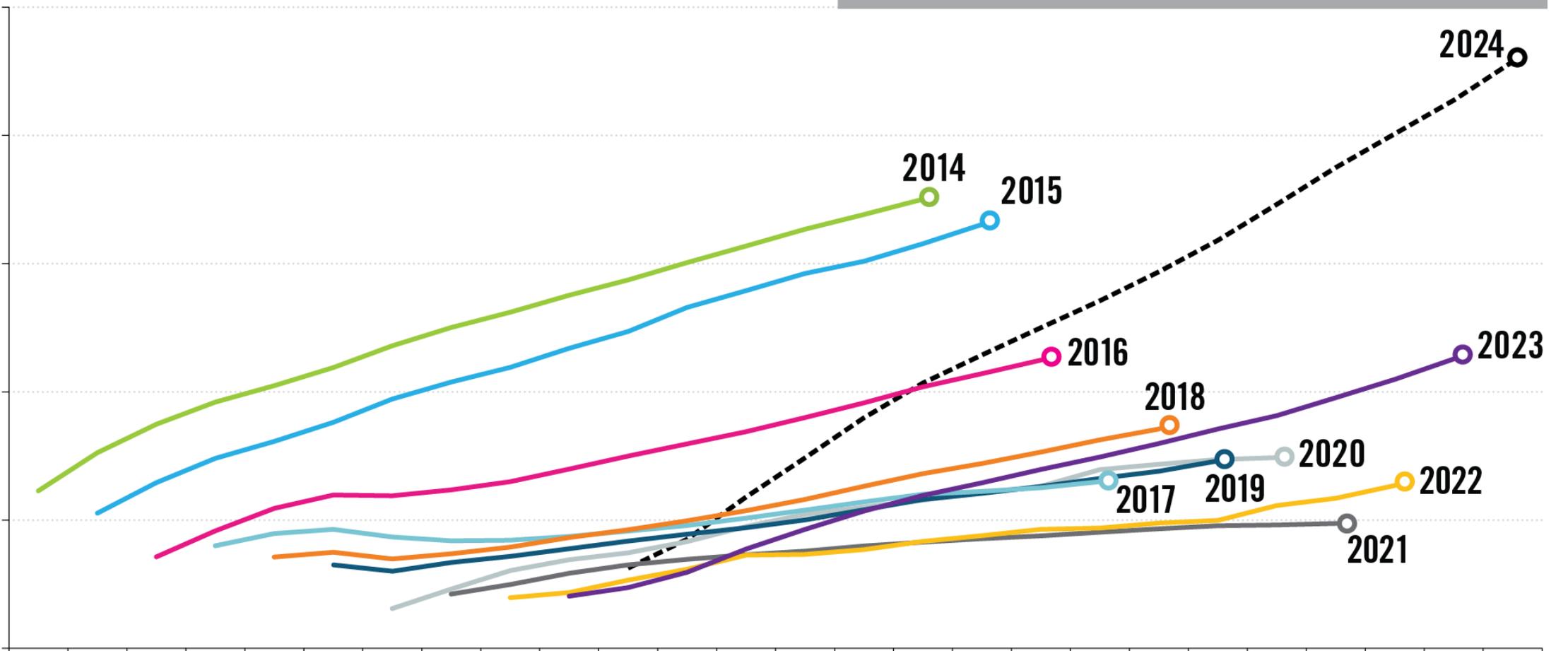
165,000

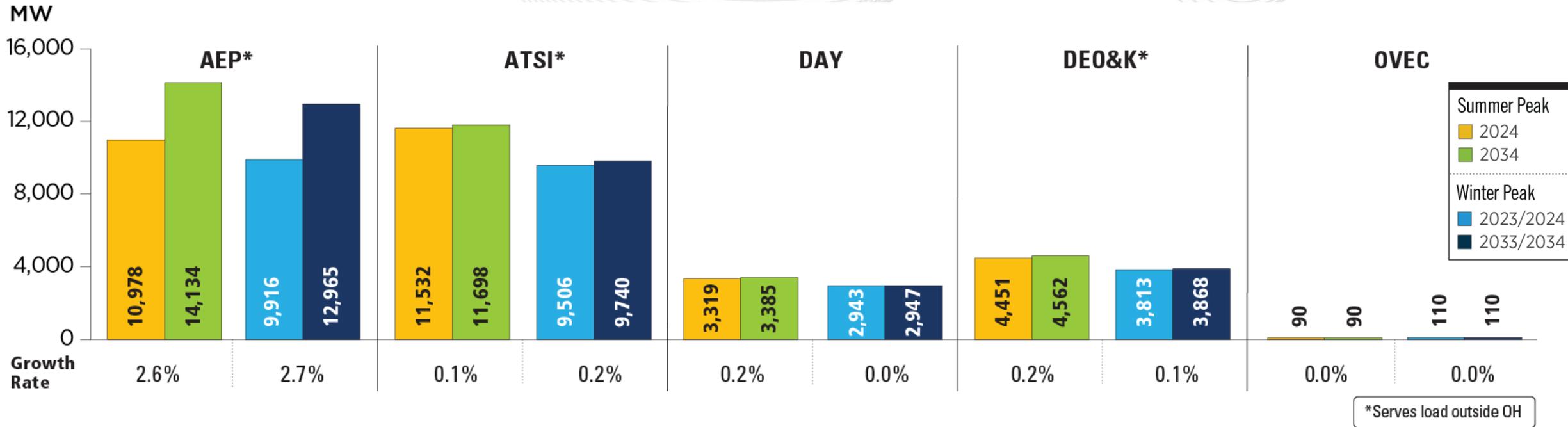
155,000

145,000

PJM RTO Summer Peak Demand Forecast

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





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%

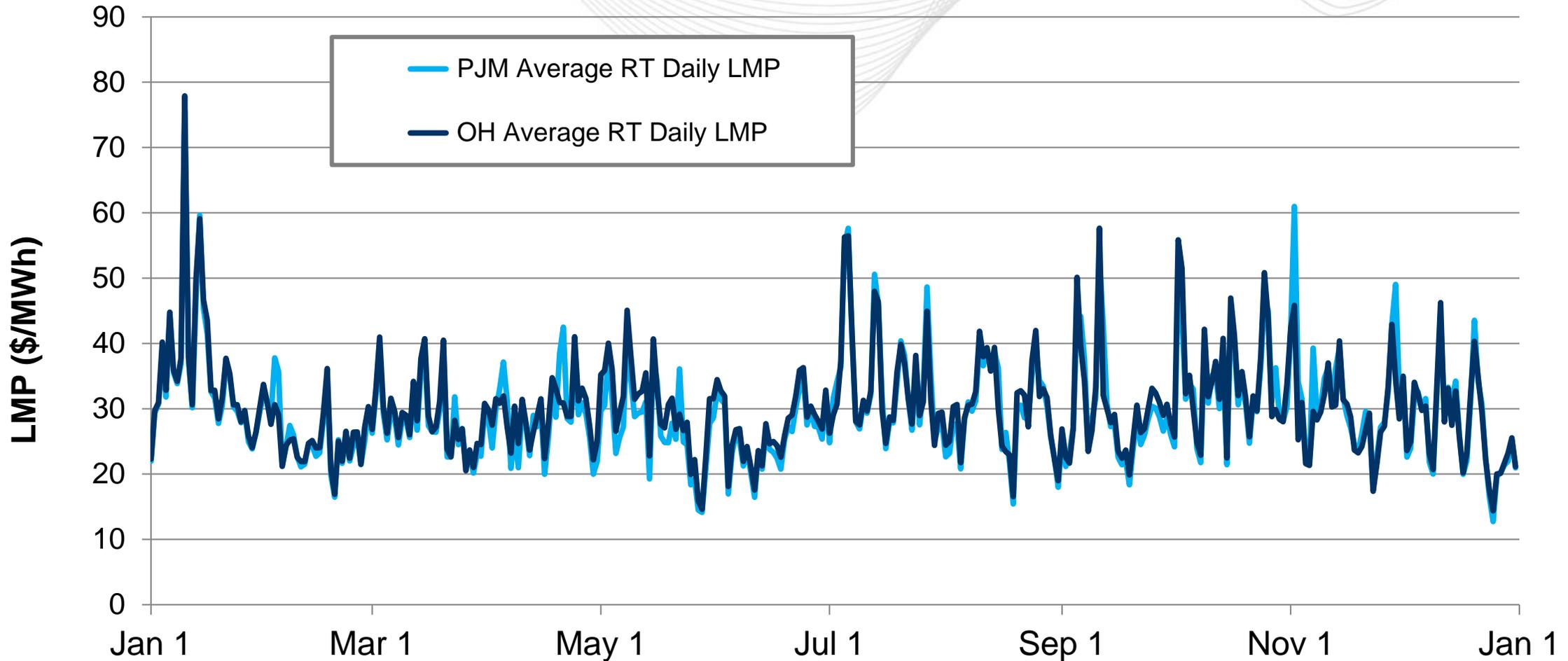
PJM RTO Winter Peak

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

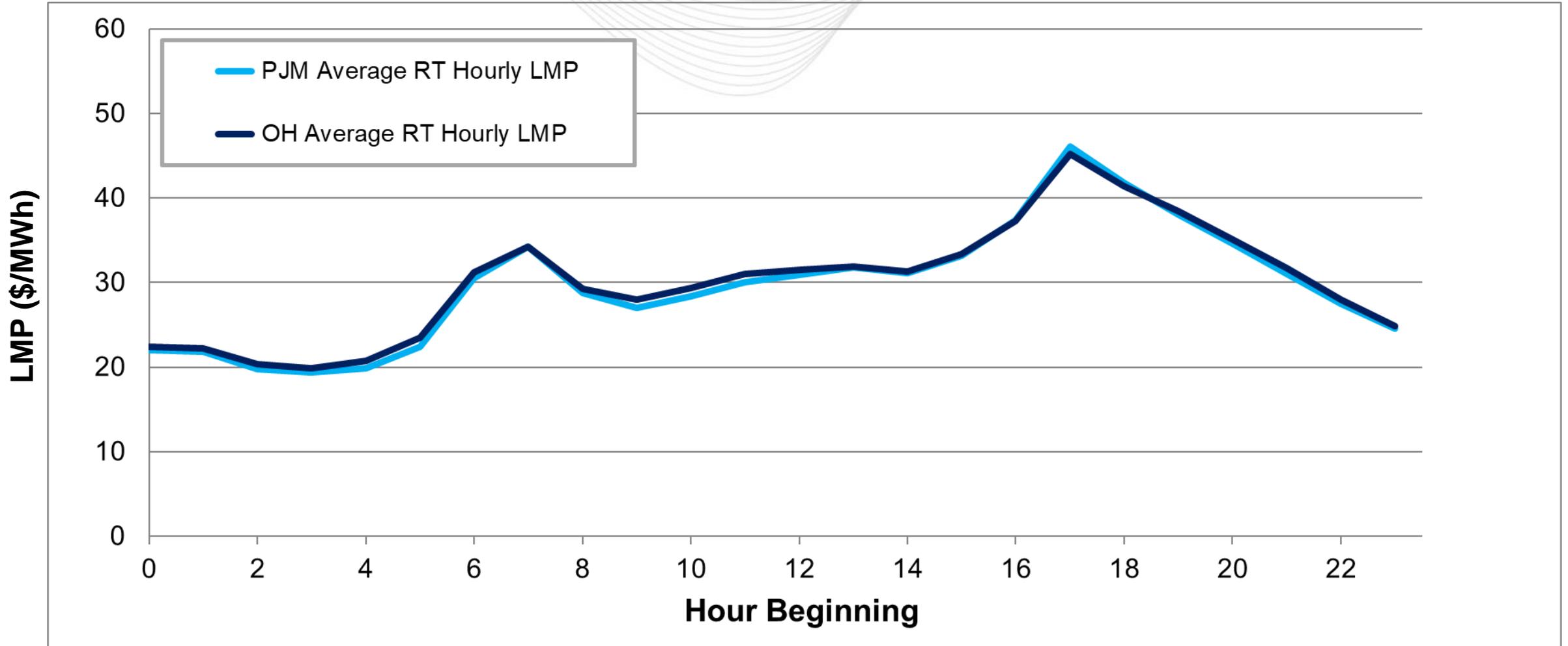
Growth Rate 1.9%

Markets

Market Analysis

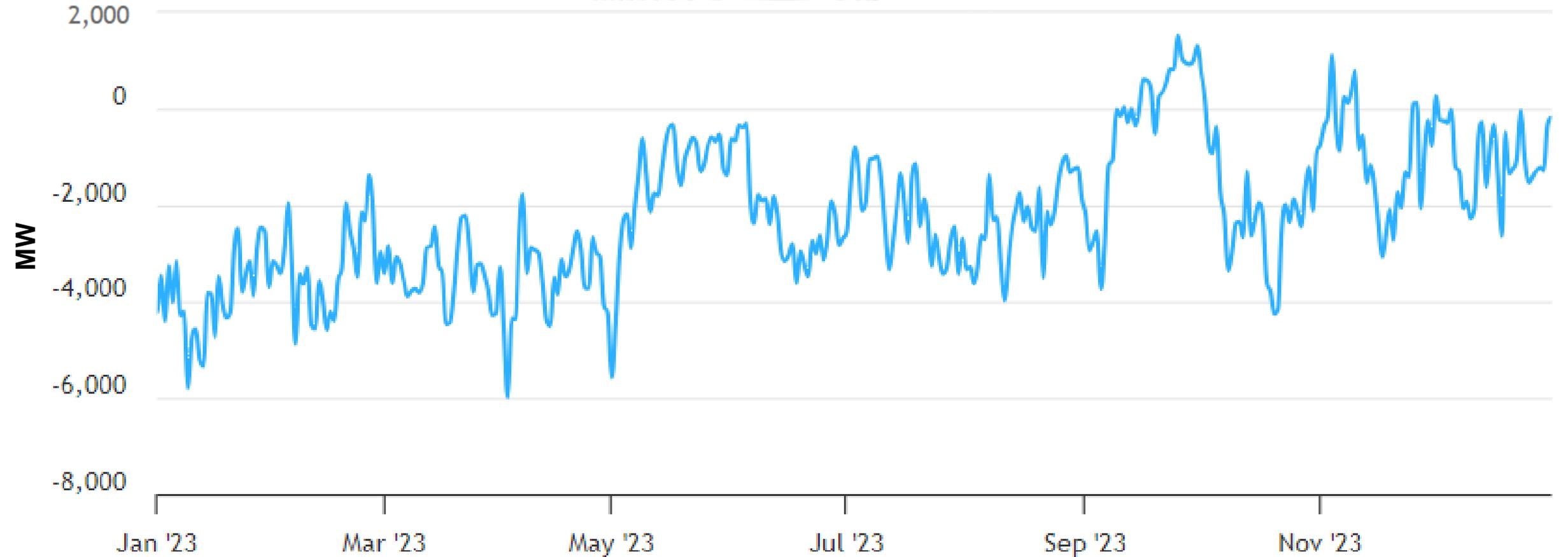


Ohio's average hourly LMPs were consistent with the PJM average hourly LMP.



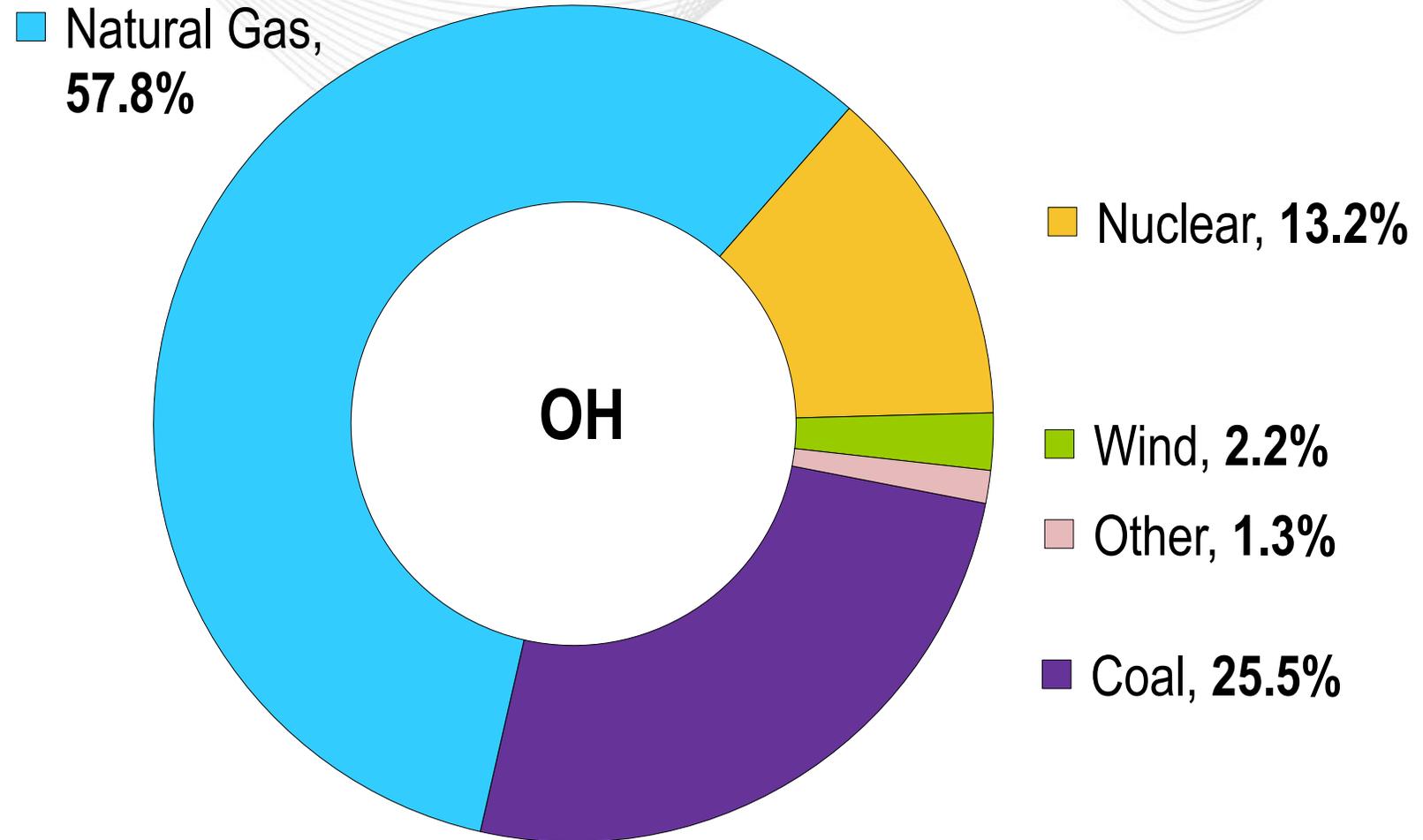
Ohio – Net Energy Import/Export Trend

(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).

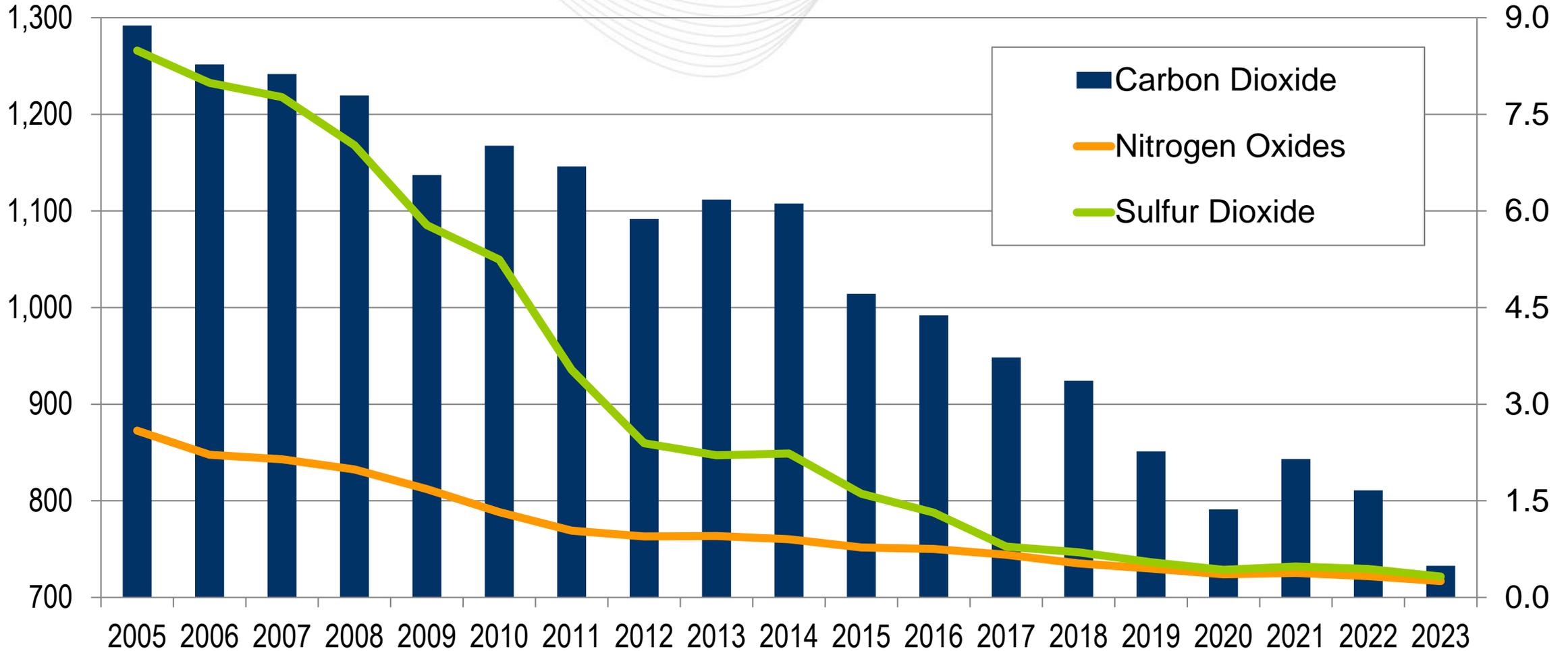


2005–2023 PJM Average Emissions

(March 2024)

CO₂
(lbs/MWh)

SO₂ and NO_x
(lbs/MWh)





Ohio – Average Emissions (lbs/MWh)

(March 2024)

SO₂ and NO_x
(lbs/MWh)

CO₂
(lbs/MWh)

