



# PJM: Meeting Emerging Electricity Demand

Pennsylvania House Environmental Resources & Energy Committee

***Asim Z. Haque***

Sr. Vice-President, Governmental & Member  
Services

**October 16, 2024**

# RELIABILITY

A large green gear-shaped icon with a white rounded rectangle in the center containing text.

## Markets

- Energy
- Capacity
- Ancillary services

A large orange gear-shaped icon with a white rounded rectangle in the center containing text.

## Operations

- Grid operations
- Supply/demand balance
- Transmission monitoring

A large dark blue gear-shaped icon with a white rounded rectangle in the center containing text.

## Regional Planning

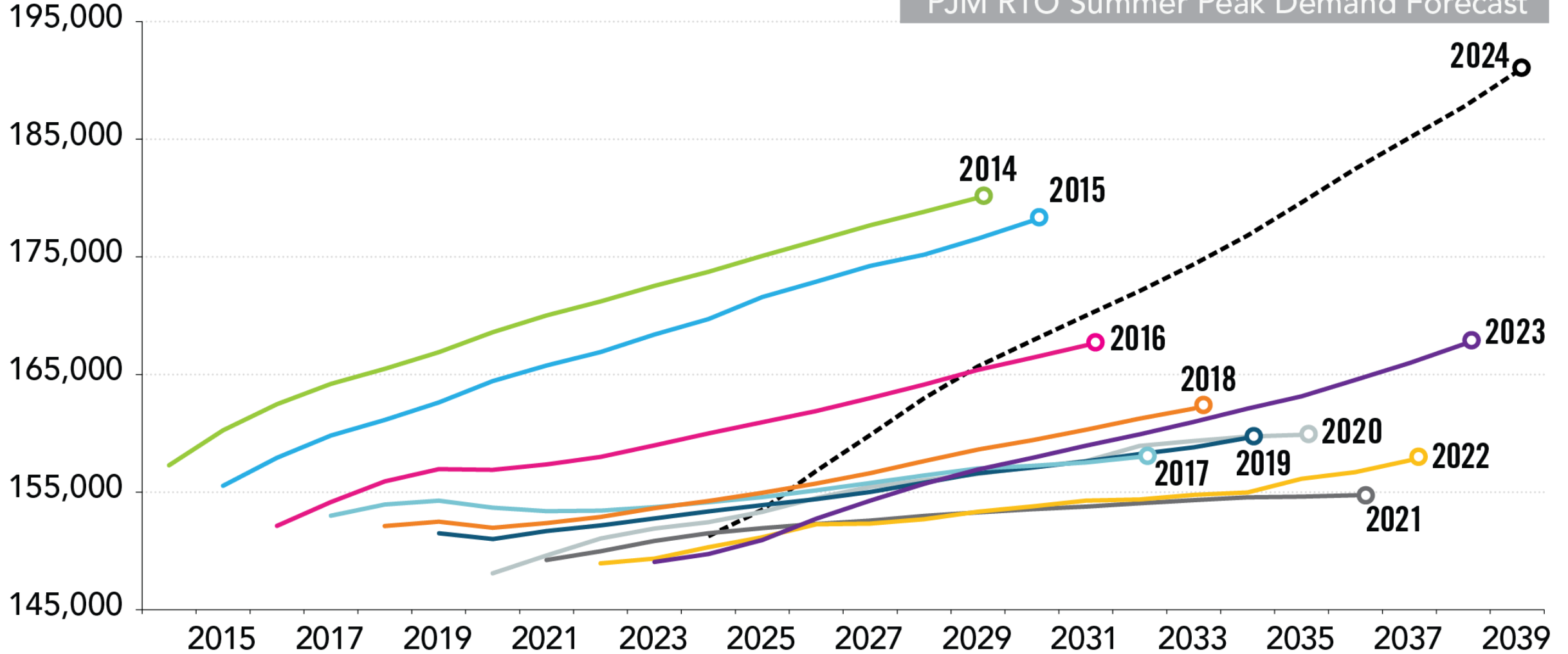
- 15-year outlook



# Electricity Demand Growth

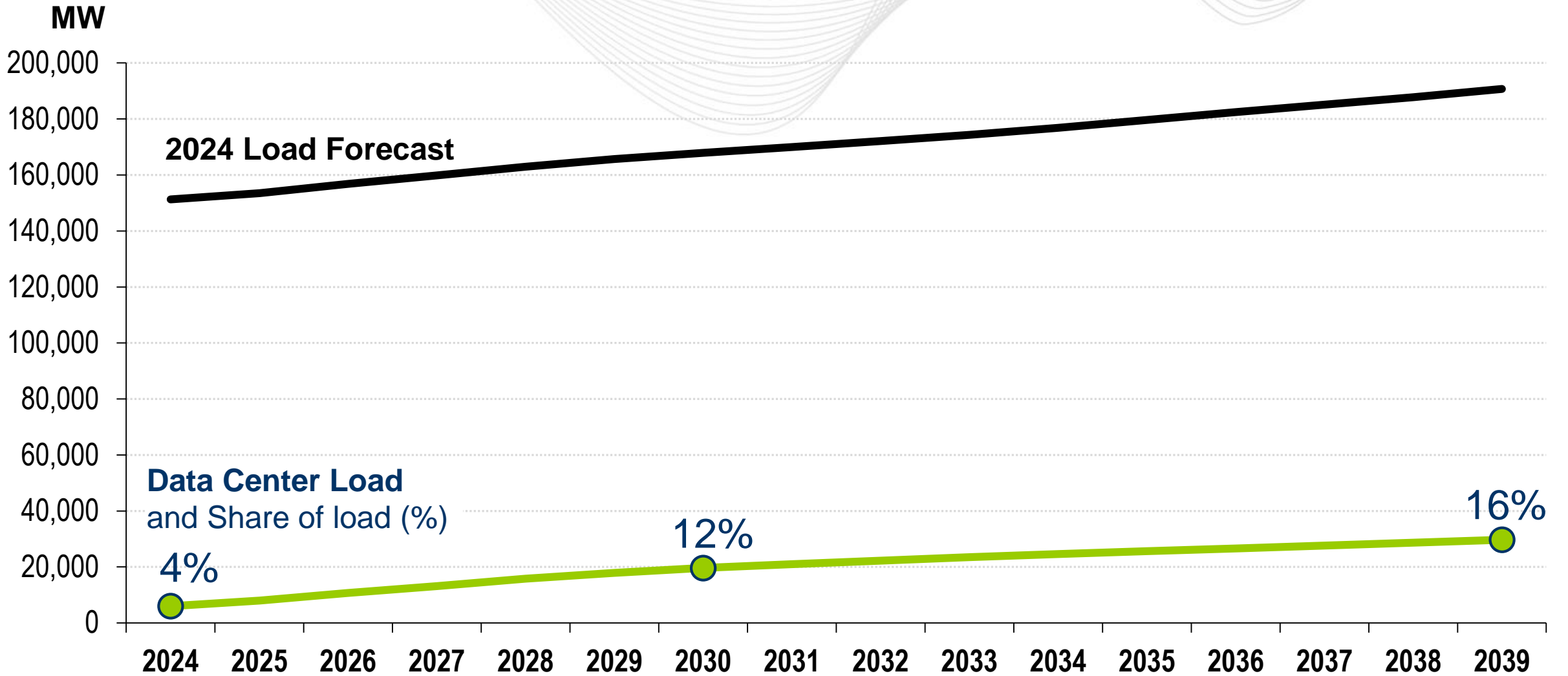
Load (MW)

PJM RTO Summer Peak Demand Forecast





# 2024 Load Forecast – Summer Peak (MW)



“Over the 2024-2025 forecast period of this report, global electricity consumption is expected to increase at the fastest pace in years, fueled by robust economic growth, intense heatwaves and continued electrification worldwide.”

**The rise of artificial intelligence (AI) has put the electricity consumption of data centers in focus, making better stocktaking more important than ever.**

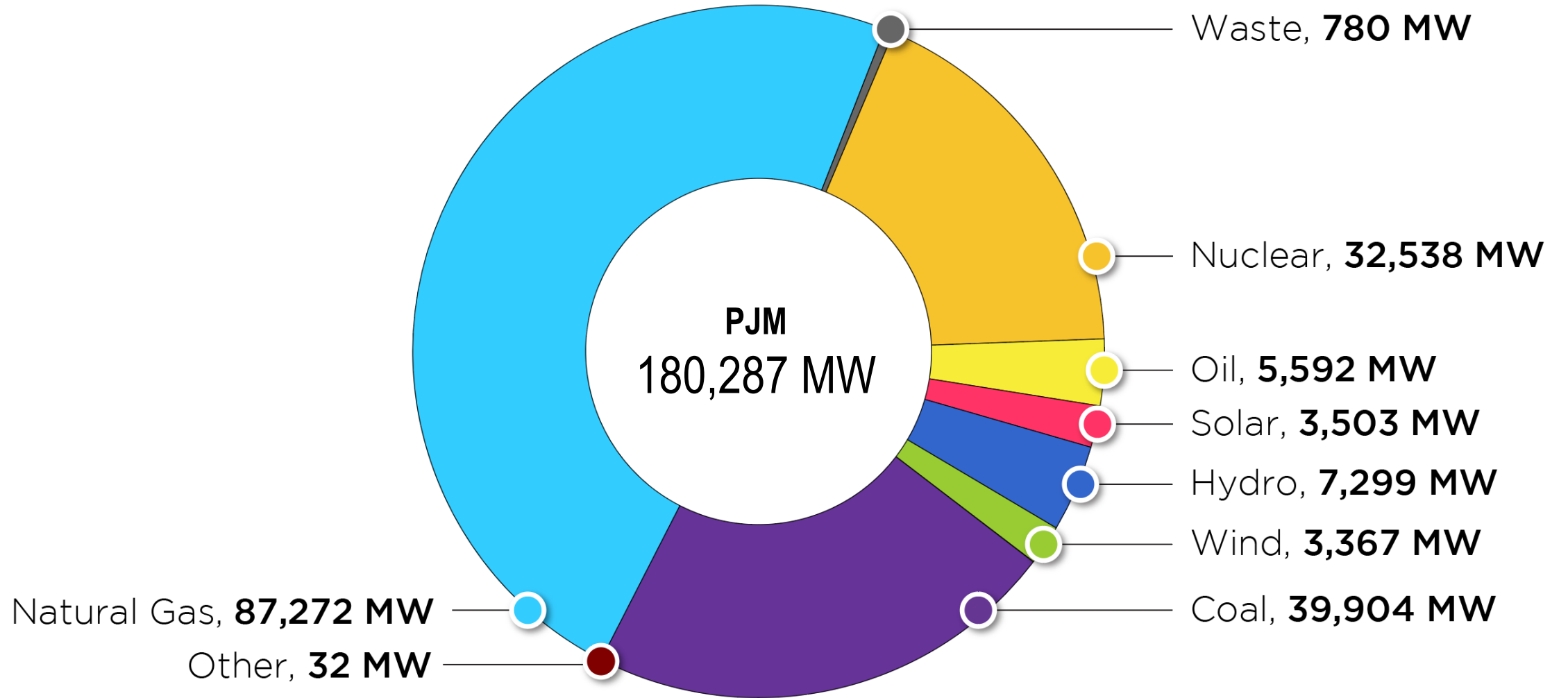
The 4% growth expected for 2024 is the highest since 2007, with the exceptions of the sharp rebounds in 2010 after the global financial crisis and in 2021 following the Covid-induced demand collapse.

We expect this demand trend to continue in 2025, with growth also at 4%. In both 2024 and 2025, the rise in the world's electricity use is projected to be significantly higher than global GDP growth of 3.2%. In 2022 and 2023, electricity demand grew more slowly than GDP.

<https://www.iea.org/reports/electricity-mid-year-update-july-2024>

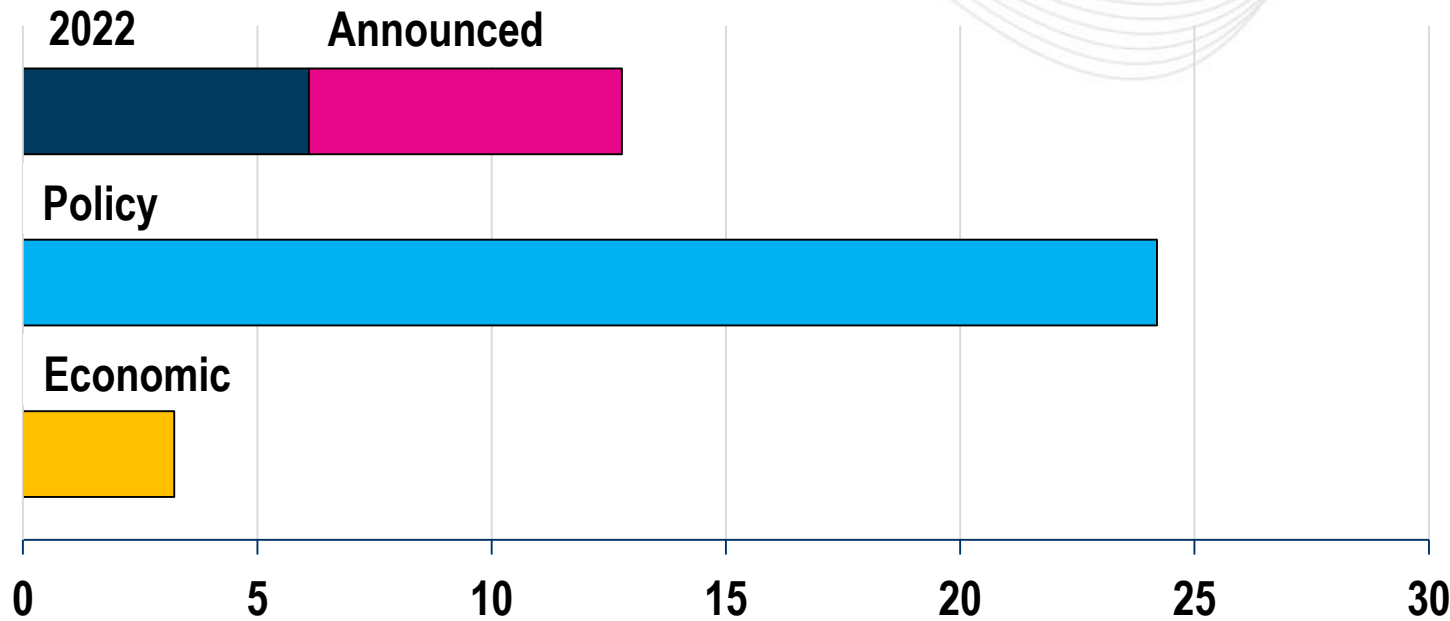
# PJM Existing Installed Capacity Mix

(CIRs – as of Dec. 31, 2023)

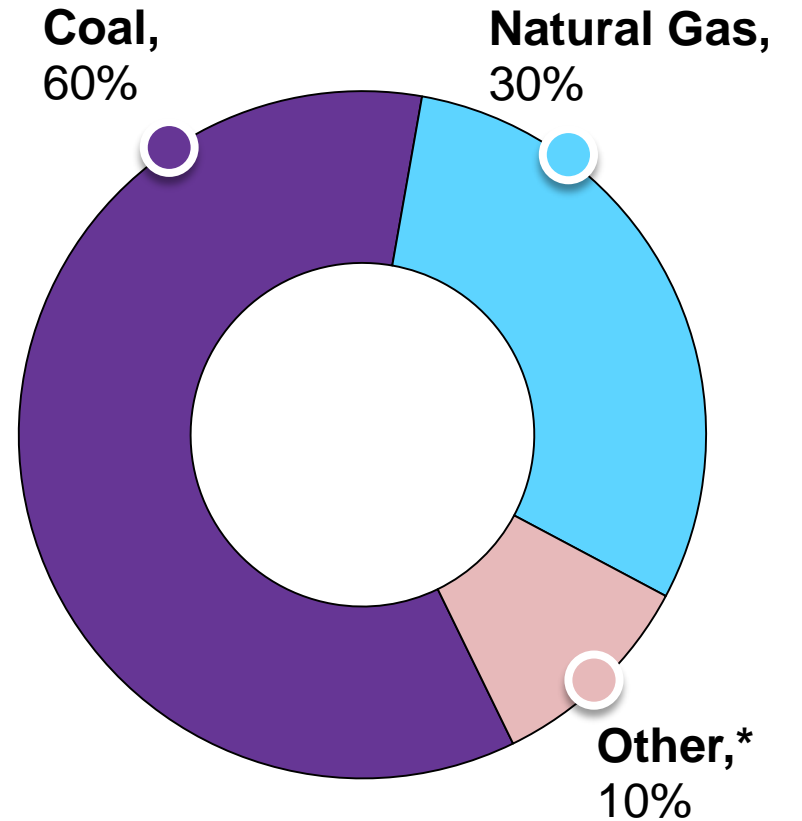


# Forecasted Retirements (2022–2030)

Total Forecasted Retirement Capacity (GW)



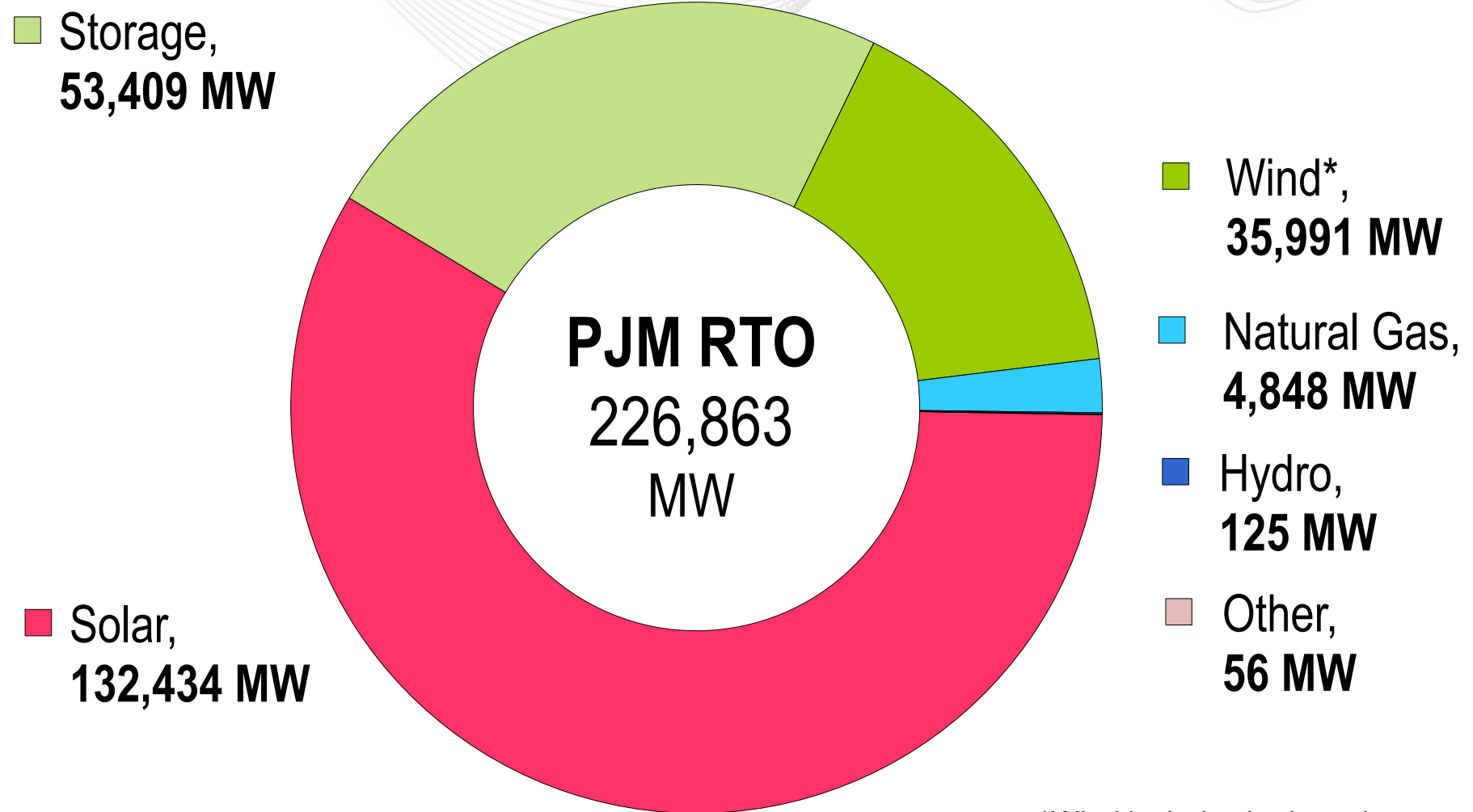
This 40 GW represents 21% of PJM's current 192 GW of installed generation



\*Other includes diesel, etc.

# PJM Queued Capacity (Nameplate) by Fuel Type

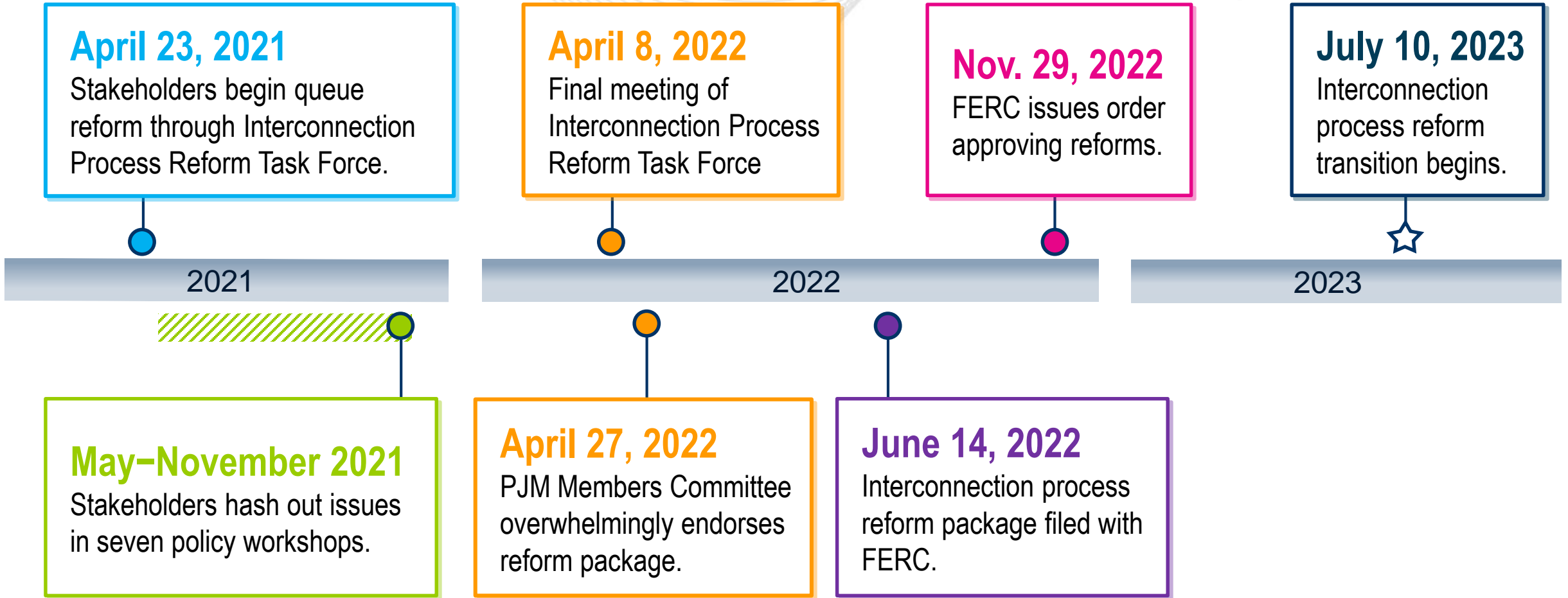
("Active" in the PJM Queue as of April 1, 2024)



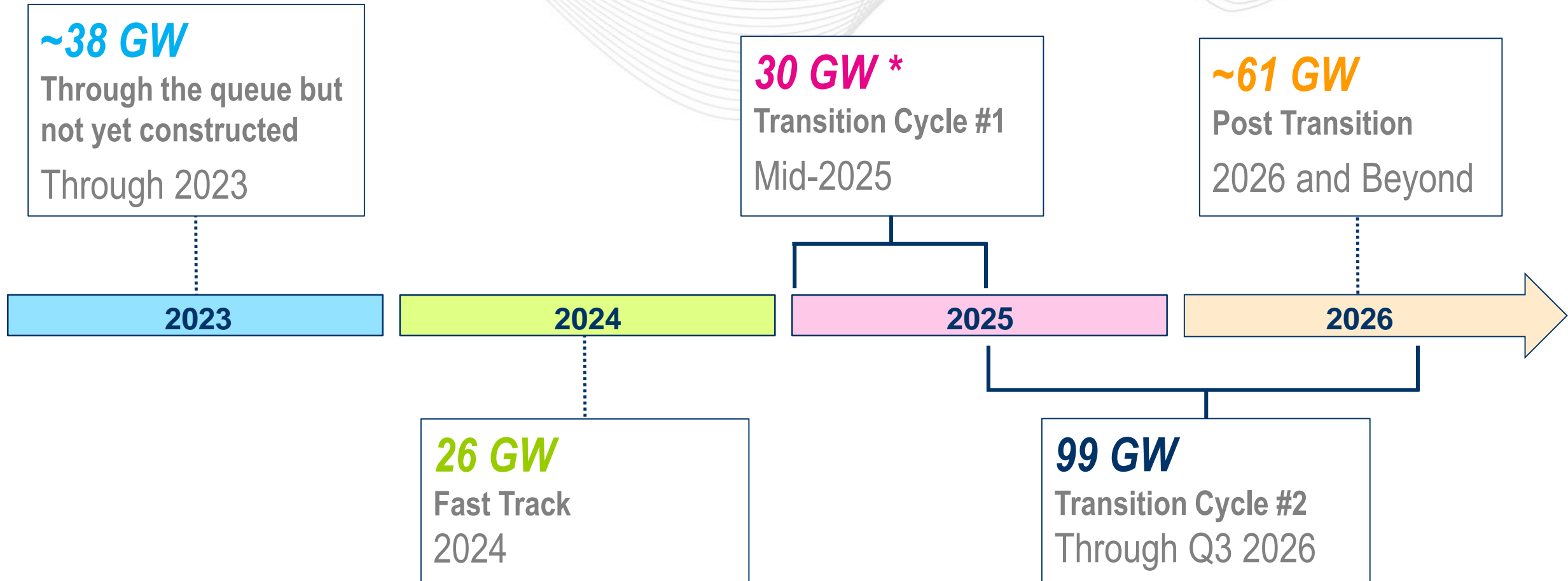
\*Wind includes both onshore and offshore wind



# Implemented Interconnection Reforms



# Initial Queue Breakdown and Timeline



\* TC1 was 46 GW prior to Decision Point 1.

The 2025/2026 BRA cleared enough capacity to meet the RTO reliability requirement, but the reserve margin is lower than prior years and there is minimal uncleared capacity that was offered in the auction.

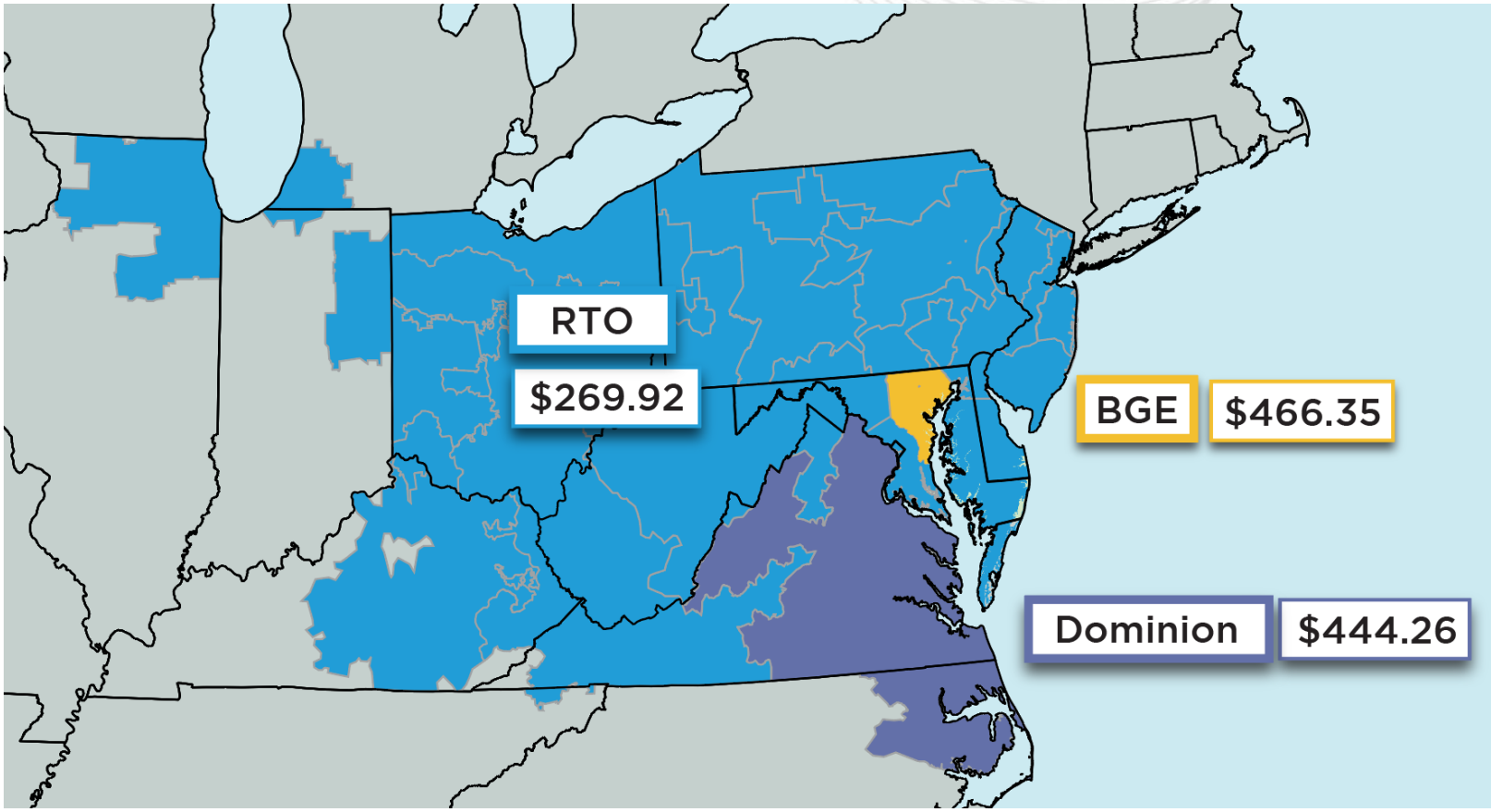
### **Dominion and Baltimore Gas & Electric**

- Cleared short of their reliability requirements due to load growth and retirements
- Prices in these LDAs are at the price caps.

**The auction** cleared a diverse mix of resources, including (on a UCAP basis):

- 48% natural gas
- 21% nuclear
- 18% coal
- 1% solar
- 1% wind
- 4% hydro
- 5% demand response

**Auction results send a clear investment signal across the RTO.**



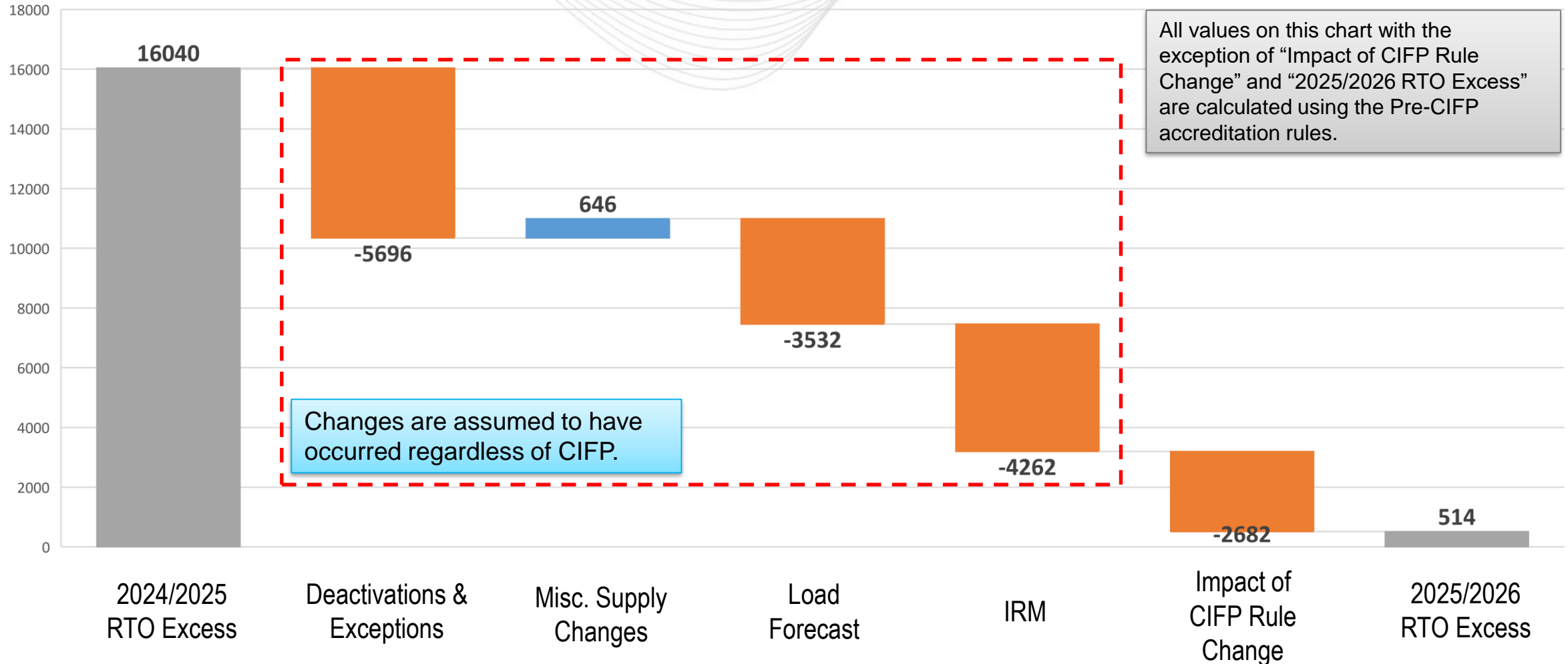
## RTO Price Comparison

	2025/2026	2024/2025
RTO Price:	<b>\$269.92/</b> MW-day	<b>\$29/</b> MW-day
Reserve Margin <i>with IRM of:</i>	<b>18.5%</b>	<b>20.5%</b>
	17.8%	14.7%



# Waterfall Chart of Reduction in Excess Capacity (UCAP) from 24/25 to 25/26

■ Increase ■ Decrease ■ Total



Changes are assumed to have occurred regardless of CIFP.

All values on this chart with the exception of "Impact of CIFP Rule Change" and "2025/2026 RTO Excess" are calculated using the Pre-CIFP accreditation rules.

\*Annual resources only; CIFP impact represents net impact of reduced supply (due to lower pool-wide average accreditation) and reduced demand (due to lower Forecast Pool Requirement).

Enhance **reliability risk modeling** in resource adequacy studies.

Improve **capacity accreditation** to reflect resources' contribution during periods of risk.

Maintain the **capacity performance framework**, but **enhance** the rules and testing requirements.

Improve other areas of the market construct, including balanced **market power mitigation** rules.

	2025/2026 BRA ELCC Class Ratings
Onshore Wind	35%
Offshore Wind	60%
Fixed-Tilt Solar	9%
Tracking Solar	14%
Landfill Intermittent	54%
Hydro Intermittent	37%
4-hr Storage	59%
6-hr Storage	67%
8-hr Storage	68%
10-hr Storage	78%
Demand Resource	76%
Nuclear	95%
Coal	84%
Gas Combined Cycle	79%
Gas Combustion Turbine	62%
Gas Combustion Turbine Dual Fuel	79%
Diesel Utility	92%
Steam	75%

The following table provides the [ELCC Class Ratings](#) applicable to the 2025/2026 Base Residual Auction (BRA) as calculated under the methodology approved by FERC on January 30th, 2024 in FERC Docket No. ER24-99

## CIR Transfer

**Target:** Resources using interconnection service from a deactivating generator

---

**Potential Outcome:** Permanent modifications to the process

## Reliability Resource Initiative

**Target:** Resources not currently in the interconnection queue

---

**Potential Outcome:** Expansion of the eligibility criteria for Transition Cycle 2 beyond active requests received prior to September 2021

## Surplus Interconnection Service

**Target:** Operating generators that are not able to operate continually 24/7/365

---

**Potential Outcome:** Permanent modification to Surplus Interconnection Service criteria

## **The system has gotten much tighter since the 2024/2025 BRA.**

- This is aligned with the study entitled “Energy Transition in PJM: Resource Retirements, Replacements & Risks” issued in February 2023.
- CIFP changes to risk modeling and accreditation have contributed to this but to a lesser degree than other changes that have occurred.

## **The capacity market is signaling the need for investment now.**

## **The load forecast and IRM in 2026/2027 are both increasing relative to 2025/2026.**



**Avoid policies meant to push generation resources off of the system until an adequate quantity of replacement generation is online and has been shown to be operating**

**Analyze your state/local challenges in the deployment of new generation resources and electricity infrastructure, and enact policy to facilitate greater/quicker construction**

**PJM is a resource to assist in your policy discussions**