

PJM OVERVIEW

PJM Interconnection is the regional grid operator, whose primary focus is to maintain electric reliability for over 65 million consumers in its footprint covering all or parts of 13 states and Washington D.C.

- PJM monitors and coordinates more than 1,400 electric generators and 88,115 miles of high-voltage transmission lines.
- Power generators, electric utilities and power marketers coordinate their operations through PJM.
- The mission is to provide reliable electricity at an affordable cost through our competitive markets and to plan the system for the future.
- PJM is one of nine regional grid operators in North America and is fully regulated by the Federal Energy Regulatory Commission.

PJM **Does**

- Direct operation of the transmission system
- Operate on a profit-neutral basis
- Maintain independence from PJM members
- Coordinate maintenance of the grid

PJM **Does NOT**

- Own any transmission or generation assets
- Function as a publicly traded company with shareholders or profit motives
- Perform maintenance on generators or transmission systems (e.g., repair power lines)
- Serve or direct any end-use customers (retail)

It's important to note that PJM is different from a typical utility company. PJM functions as an independent, mission-driven, revenue-neutral company with rates predetermined by the Federal Energy Regulatory Commission (FERC) and a predetermined budget. At the end of the year, if PJM does not exceed its budget, money is returned to members. PJM also has no shareholders, doesn't produce quarterly earnings and doesn't own any assets.

KEY POINTS



PJM's primary focus is reliability – keeping the lights on and power flowing for customers.



PJM has identified a number of trends that have the potential to deplete the electricity supply toward the end of the decade.



PJM has reformed its processes to speed the interconnection of new resources, most of them renewable, to meet this potential shortage. But PJM also urges policymakers to be cautious in advancing legislation that could further exacerbate the retirement of PJM's existing fleet.



PJM embraces the challenge ahead and is working to advance state energy goals while taking a series of steps to try and maintain reliability as we progress through this transition.



Reliability Through Transitions

Previous transitions have resulted in a more diverse, cleaner, reliable system.

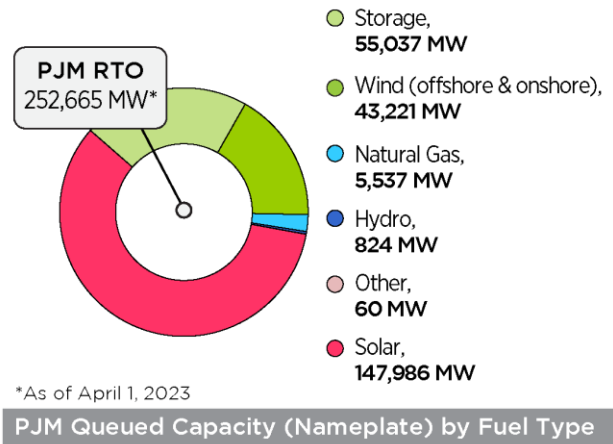
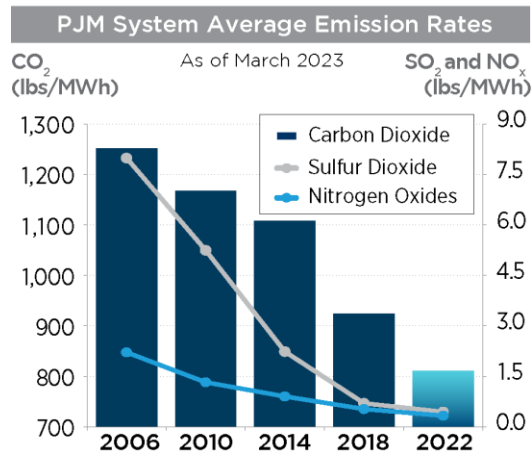
With the advantages of scale as the nation's largest grid operator, and through its core business functions of running competitive wholesale markets, planning the regional transmission system and operating the grid effectively, PJM saves consumers within the region between \$3.2 billion and \$4 billion annually.

PJM's fuel mix is diverse, with natural gas being the primary fuel source, on top of a robust nuclear fleet, a still-significant but ever-declining coal fleet, and a growing number of renewable resources entering the system. Over the past 15 years, the PJM system has seen dramatic emissions reductions, due primarily to the switch to natural gas from coal as the region's primary fuel source, along with the influx of renewables.

Today, PJM sits at the early stages of another energy transition. The generation capacity entering the PJM system is almost entirely made up of renewable and storage resources.

Over the past several years, PJM has been studying this impending energy transition and, in part, how it differs from the switch to gas from coal. Those generators share similar physical properties, and along with nuclear, constitute what are referred to as "thermal resources" with distinct physical characteristics.

Renewable resources are not able to provide some of the same physical properties on the grid that thermal resources can provide. In addition, renewable resources cannot always be called upon to produce power. That means that renewable resources won't be a one-to-one replacement to these thermal units that produce power on demand.



Concerning Trends Emerging

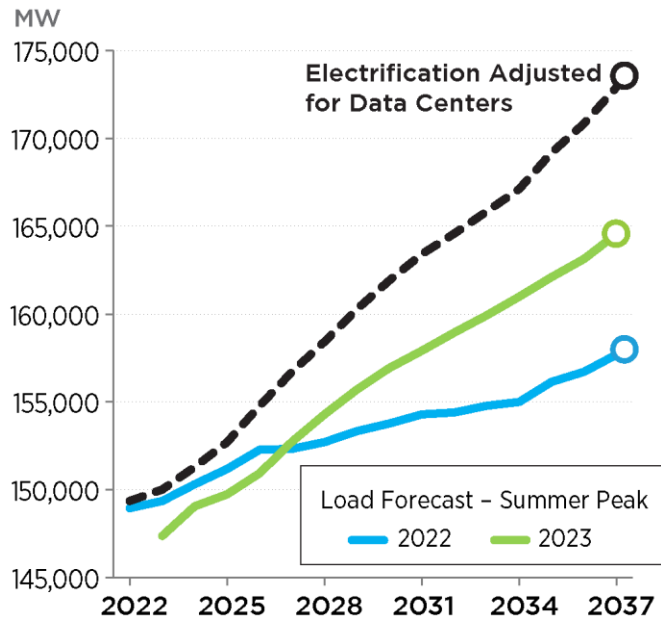
PJM has identified trends that have the potential to reduce supply to concerning levels.

Demand on the system, or load, is increasing. In recent years, demand projections had remained relatively flat within PJM. But due to the rise in electrification (e.g., the steady growth of electric vehicles and electric heaters in buildings) and the rapid proliferation of energy-intensive data centers, PJM is now forecasting significant long-term and medium-term load increases – more than 40,000 MW in the next 15 years.

At the same time, supply is decreasing. PJM sees significant generator retirements on the horizon due primarily to federal and state policies prompting the shutdown of fossil fuel resources earlier than their useful economic life; PJM expects to lose at least 40,000 MW of generation from retirements by 2030.

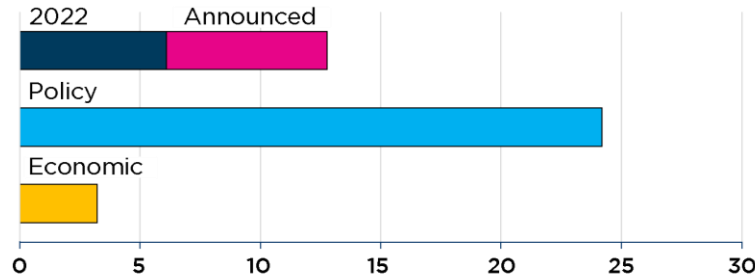
That's 40,000 MW in load growth by 2039 and the loss of 40,000 MW of generation through retirements by 2030. The math is not good.

For supply to keep pace with demand given these trends, PJM needs as much new generation to find its way onto the system as possible. PJM has cleared about 40,000 MW of projects through its study process that are, nevertheless, not getting built due to supply chain, financing and siting issues. If this sluggish pace of development continues, PJM projects a shortfall in supply by the end of this decade – or sooner.



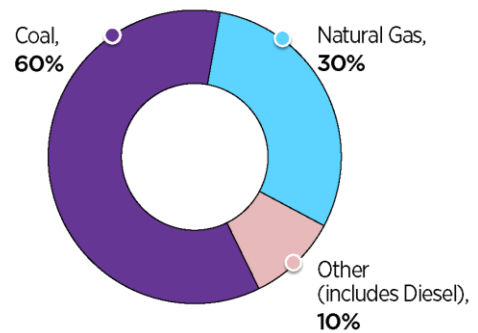
Forecasted Retirements (2022-2030)

Total Forecasted Retirement Capacity (GW)



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

- Policy: Retirements taking place due to state or federal environmental policies
- Economic: Retirements taking place due to revenue adequacy challenges



Interconnection Reforms Underway

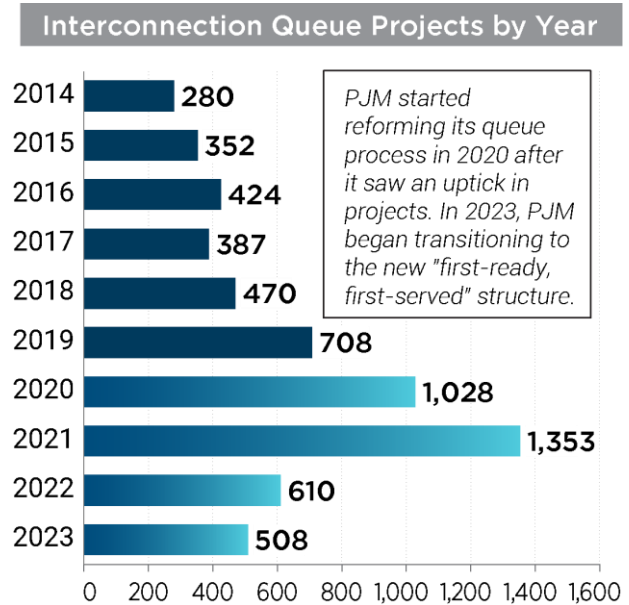
PJM reforms to interconnect new, mostly renewable resources as quickly as possible are already seeing results.

PJM and its stakeholders started reforming its study process for the introduction of new resources in 2020 after seeing a substantial uptick in projects entering the queue. FERC approved the proposed reforms in November 2022.

In 2023, PJM began transitioning to that new process, moving away from a “first-in, first-out” model to a “first-ready, first-served” structure. Based on FERC’s orders, PJM will process more than 260,000 MW of mostly renewable and storage projects through its interconnection queue by the end of 2026.

But once these projects make it through the PJM queue, whether they get built is not up to PJM. Currently, PJM has thousands of megawatts of mostly renewable projects that have cleared PJM’s queue process but have not moved to construction.

In 2023, approximately 3,600 MW of renewable projects went in-service in the PJM footprint. This is an improvement over previous years but still does not represent the levels of new construction required to replace retiring generators and meet the growing load. At this pace, supply scarcity is nearly certain unless policy retirements slow or developers increase the speed of construction.



Areas for Action

Driven by consumer choices and state and federal policy objectives, PJM’s resource mix is evolving toward a future where renewables will make up a significant share of the power mix.

But if the trends outlined above continue, electricity demand will eventually outstrip supply. With this in mind, PJM urges policymakers to:

- 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 working to advance state energy goals and taking a series of steps to try and maintain reliability as we progress through this transition. For more information on PJM's efforts, please visit the [Ensuring a Reliable Energy Transition](#) webpage on PJM.com. It outlines the organization's reliability concerns, the actions PJM is advancing to help alleviate those concerns, and all of the studies produced related to the ongoing energy transition.

