REPORT

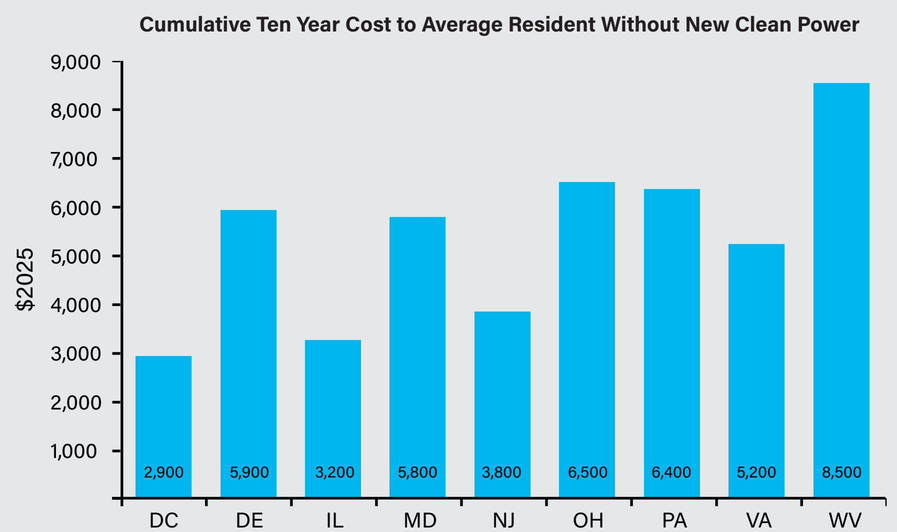
# The Cost of No New Clean Power in PJM

## Executive Summary

Electricity demand in the PJM Interconnection region is growing rapidly, driven by data centers, advanced manufacturing, electrification, and economic expansion. While new loads can connect to the grid within one to two years, new natural gas plants typically require five to seven years to permit and build and face near-term turbine supply constraints. This mismatch creates an immediate reliability and affordability challenge for Mid-Atlantic states. Clean energy resources—wind, solar, and energy storage—can be deployed more quickly and at lower operating cost, helping serve the new load, support resource adequacy, and stabilize wholesale power prices.

To assess the system impacts, the American Clean Power Association modeled PJM under two scenarios: a Base Case with all resources available and a No Clean Power Case in which no new wind, solar, or storage is added beyond projects already underway or required by law. In the No Clean Power Case, PJM becomes increasingly dependent on older, higher-cost fossil generation and imported power, with net imports rising nearly 300 percent by 2035. This reliance on imports and gas peaking units increases exposure to fuel price volatility, drives more high-priced hours, and heightens reliability risks during peak demand periods.

The resulting cost impacts are significant. Without new clean power, ACP finds that ratepayers across nine PJM states would pay an additional $360 billion over the next decade, driven primarily by higher wholesale electricity prices. **The average residential household alone would face $3,000 to $8,500 in added costs.**




These findings show that timely deployment of clean energy and storage is essential to maintaining reliability, reducing dependence on imports, and protecting customers from sharply higher electricity bills as demand continues to grow.

# Introduction

The United States is experiencing a period of rapid energy demand growth driven by artificial intelligence and data centers, a resurgence in domestic manufacturing, record oil and gas production, accelerating electrification, and sustained economic expansion. Ensuring that adequate, reliable, and affordable electricity resources are available to support this growth is a national priority.

This challenge is particularly acute in the PJM Interconnection region, which serves 13 states and the District of Columbia. PJM states are experiencing some of the fastest electricity load growth in the country, driven largely by data centers and advanced manufacturing.

**Meeting this growth will require an all-of-the-above energy strategy that includes renewable energy, energy storage, natural gas generation, and expanded regional transmission.** However, the timing and availability of these resources vary significantly. While large electricity customers such as data centers can interconnect to the grid within one to two years, new generation resources often cannot be deployed on the same timeline.

Clean energy resources have relatively short development and construction timelines. Projects already in advanced stages of development can typically interconnect and begin operating within 1-2 years. By contrast, new natural gas generation faces longer development cycles, typically five to seven years, due to permitting requirements, supply chain constraints, and the limited availability of gas turbines.[1]

In addition to quick deployment, renewable energy and storage are among the most cost-effective generation options available today. Utility-scale solar and onshore wind are cost-competitive compared to combined-cycle natural gas plants and significantly less expensive than gas-fired peaking units. Because clean energy resources have no fuel costs and very low operating expenses, they reduce the marginal cost of serving electricity demand, helping to limit increases in wholesale power prices and protecting against volatile fuel prices. Over time, these operational savings can offset, and in many cases exceed, the upfront capital costs of construction.

To assess the system-wide impacts of resource availability, ACP modeled PJM's electric system under two scenarios. The first is a Base Case, in which all eligible generation technologies, including new renewable energy, storage, and gas are available to meet forecasted load growth. This represents a business-as-usual trajectory. The second is a No Clean Power Case, in which no new wind, solar, or storage resources are added beyond projects already under construction, in advanced development, or required by existing state mandates.

**The No Clean Power Case illustrates the risks PJM would face if state or federal policies constrain new clean energy deployment amid rapid load growth.** PJM would be competing with other regions for a limited near-term supply of gas turbines. Under these constraints, PJM would likely face one of three outcomes:

1. Insufficient new generation leading to reliability challenges, increased reliance on imports, and greater use of high-cost peaking units—driving higher electricity prices.
2. Accelerated gas development at a premium, requiring PJM to pay substantially higher costs to attract scarce gas turbines, which would be passed on to customers.
3. Load defection in which new data center and manufacturing investments locate outside the PJM region, causing states such as Virginia, New Jersey, Pennsylvania, and Ohio to forgo capital investment, job creation, and tax revenues.

Modeling the first scenario, ACP found that **without additional clean energy deployment all ratepayers in PJM would pay an extra $360 billion over the next ten years**. Residential customers alone could pay as much as $8,500 more per household over ten years due to higher wholesale power prices.

These findings underscore the critical role that timely deployment of clean energy and storage can play in maintaining reliability and controlling costs while encouraging additional economic development.

1 Mitsubishi Power Americas, NextEra Energy, Siemens Energy North America, Solar Turbines, and GE Vernova at CERAWeek (March 2025), POWERGEN (February 2025), and/or company earning calls.

# Retail Rates and Wholesale Power Prices

Retail electricity rates are the prices customers pay to their electric utilities for each unit of electricity consumed. These rates are typically reviewed and approved by state public utility commissions to ensure they are just and reasonable.

Retail rates are generally composed of three primary components:

1. **Generation** – the cost of producing electricity
2. **Transmission** – the cost of moving electricity over high-voltage lines
3. **Distribution** – the cost of delivering electricity to homes and businesses

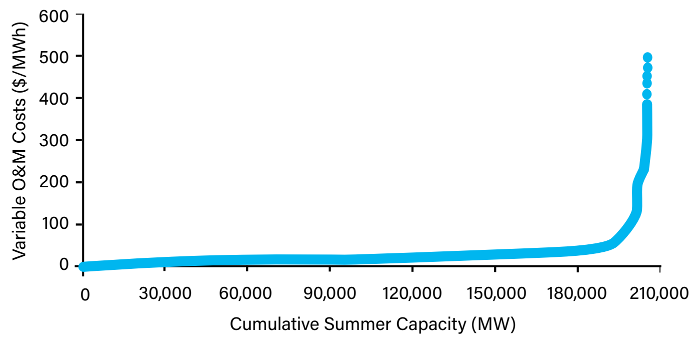
*FIGURE 1: What Makes Up a Retail Rate*

| | | |
|---|---|---|
| *Distribution Charges* | *Other* | Administrative costs, utility rate of returns, insurance, policy initiatives, etc. |
| *Distribution Charges* | *Local Distribution* | Lower voltage, "neighborhood" lines that deliver electricity directly to homes and businesses. |
| *Distribution Charges* | *Transmission* | The federally regulated cost of moving electricity over long distances on our country's high voltage transmission lines. |
| *Supply Charge* | *Generation* | The cost of producing electricity. This is inclusive of variable operating costs of power plants, capital costs of building new plants, as well as reliability and contract costs. |

Considering these components, generation typically represents the largest share of retail electricity rates. In regions like PJM that operate competitive wholesale electricity markets, generation prices are determined through market auctions. In these markets, electricity prices are set by the cost of the marginal unit, the last and most expensive power plant needed to meet demand in a given time period.

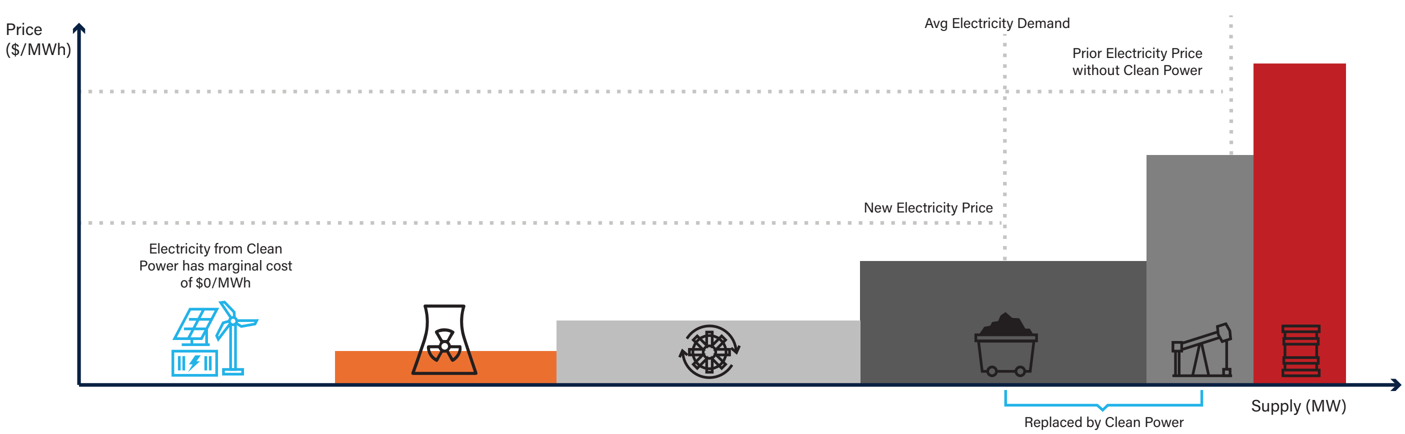
In PJM, the marginal unit is frequently a natural gas–fired power plant. As a result, wholesale electricity prices, and ultimately retail generation costs, are highly sensitive to natural gas prices, fuel efficiency, and system demand.

*FIGURE 2: PJM Generation Stack*




Adding more clean energy resources to the grid can reduce overall electricity costs by reshaping the marginal cost stack. As shown in Figure 3, increased deployment of wind, solar, and energy storage reduces reliance on older, less efficient, and more expensive peaking units. This can shift the marginal unit from high-cost peakers to more efficient generation, lowering wholesale prices across many hours of the year.

*FIGURE 3: Illustrative Impact of Clean Power on Marginal Stack*



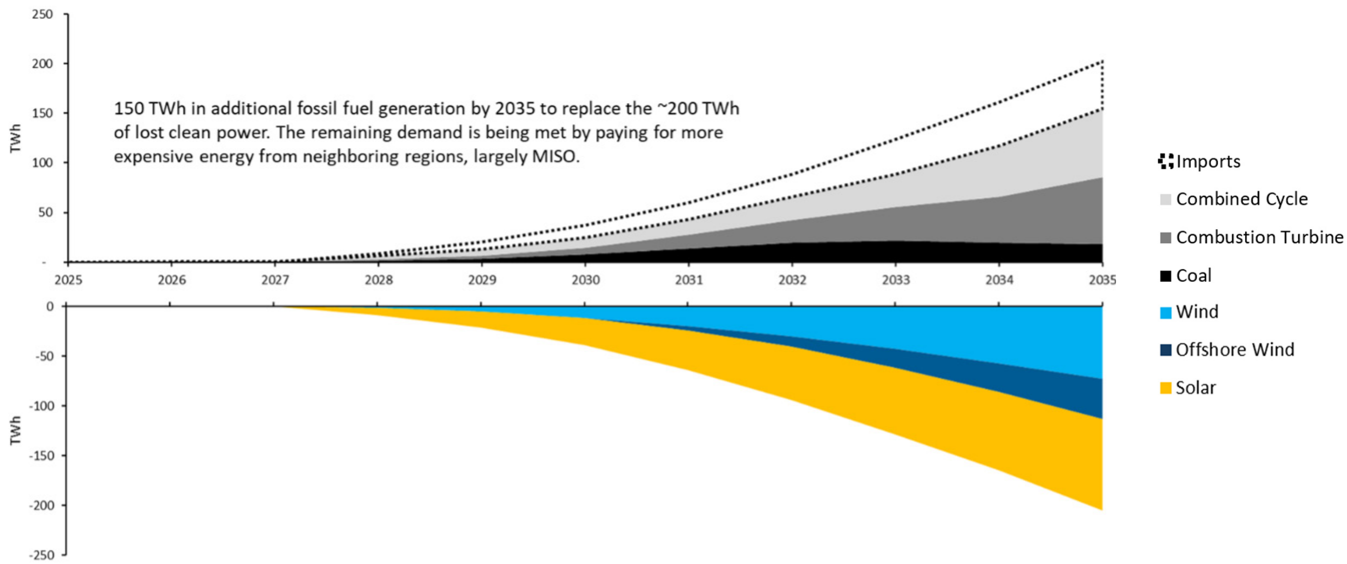
# Results

ACP modeled the two PJM scenarios using capacity expansion and production simulation software, representing 8,760 hours per year over a 25-year forecast.[2] The results of that model represent the hourly wholesale electricity system in PJM and in turn feed into the retail rate analysis. All methodologies and assumptions are described in the Appendix.

## Results on Wholesale

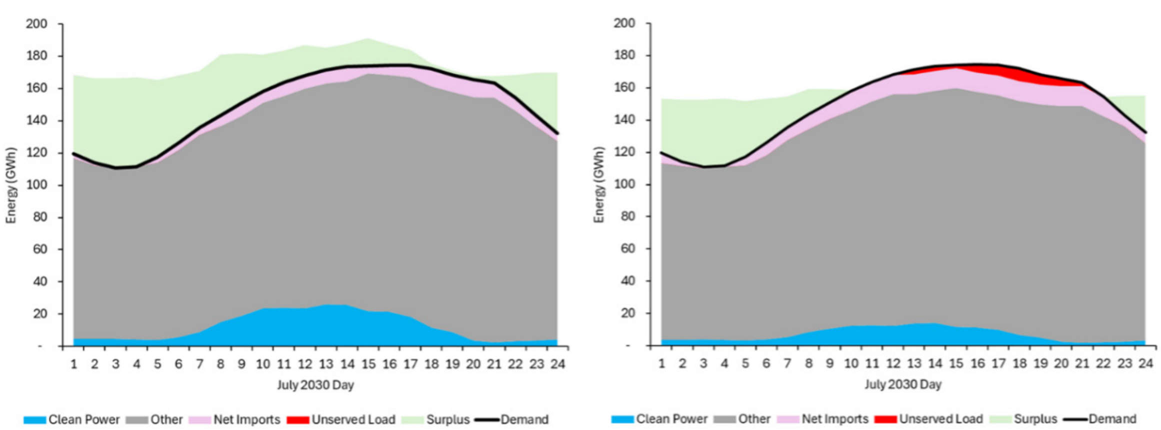
Under the No Clean Power Case, we see more expensive fossil fuel generation, an overreliance on imports from neighboring regions, and a severe risk to reliability. In ACP's Base Case, PJM builds out 137 GW of new clean power by 2035, representing 20+% of generation that year. Gas grows from 91 GW to 141 GW. In the No Clean Power Case, fossil fuel generation increases by 20+% and net imports increase by 292% relative to the Base Case in 2035.

*FIGURE 4: Change in Generation in No Clean Power Case Relative to Base Case*




Evening hours prices spike significantly in the No Clean Power Case. This is due to increased dispatch of gas peaking units, import dependence, and unserved energy hours. This bleeds into both afternoon as well as non-summer periods. Clean Power isn't displacing other resources in PJM but enabling all-of-the-above to meet peak demand and limit high-priced hours.

*FIGURES 5 & 6: Hourly Dispatch on Peak Day July 2030 in Base Case (Left) vs No Clean Power Case (Right)*




2 As of Fall 2025. Updated load forecast from PJM were released in January 2026 after the conclusion of writing this report. However, the load growth trends identified in PJM's 2025 forecast continue to by-and-large stay consistent in their 2026 forecast.

## State Retail Results

Differences in wholesale power prices, RECs, and capacity prices are rolled into residential retail rate impacts as described in the Appendix.

The result is that **the average resident in PJM will spend an additional $3,000-$8,500 over the next ten years** if no new clean power is allowed to be built. West Virginia will see the highest increase at $8,500 while Ohio and Pennsylvania will see additional spending over $6,000.

By 2035 all ratepayers[3] in these states would cumulatively pay an additional $360 billion over the next 10 years. Ohio and Pennsylvania represent almost half of that given their high electricity consumption via the industrial sectors.

*FIGURE 7: Cumulative Ten Year Cost to Average Resident Without New Clean Power*

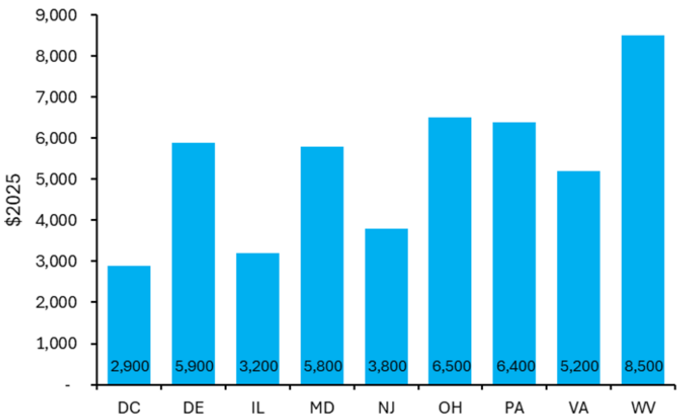
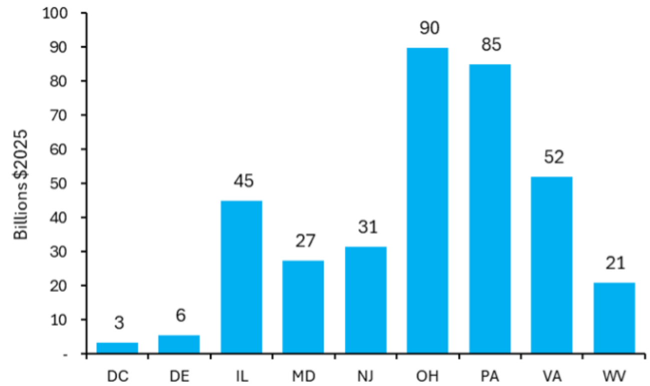


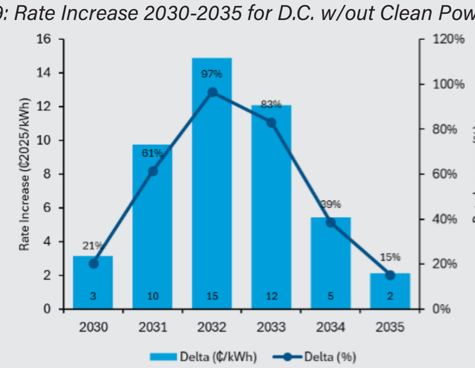

*FIGURE 8: Cumulative Ten Year Spend by All Ratepayers Without New Clean Power*




### DC

If no new clean power is added, rates in D.C. will almost double by 2032 relative to the Base Case. That's an almost ₵15/kWh increase. The average residential customer in D.C. uses 7,700 kWh of electricity a year. The result is **the average D.C. resident will pay an additional $1,400 from 2026-2032 and almost $3,000 by 2035.**

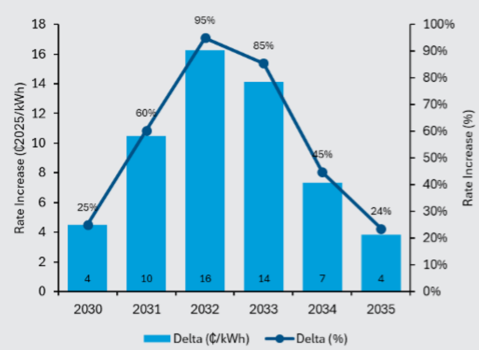
*FIGURE 9: Rate Increase 2030-2035 for D.C. w/out Clean Power*




### Delaware

If no new clean power is added, rates in Delaware will increase by 95% by 2032 relative to the Base Case. That's over a ₵16/kWh increase. The average residential customer in Delaware uses 11,000 kWh of electricity a year. The result is **the average Delaware resident will pay an additional $3,000 from 2026-2032 and almost $5,800 by 2035**.

*FIGURE 10: Rate Increase 2030-2035 for Delaware w/out Clean Power*

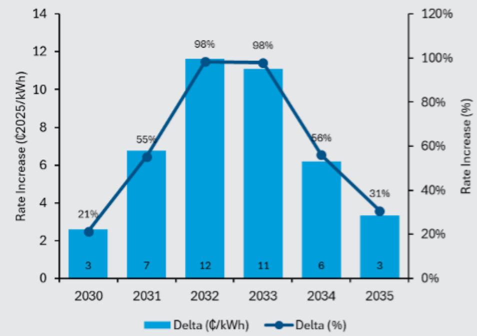



3 Residential, commercial, industrial, & transportation assuming EIA's 2024 electricity usage by state

## Illinois

If no new clean power is added, rates in Illinois could almost double by 2032 relative to the Base Case. That's an almost ₵12/kWh increase. The average residential customer in Illinois uses 8,400 kWh of electricity a year. The result is **the average Illinois resident will pay an additional $1,500 from 2026-2032 and over $3,200 by 2035.**

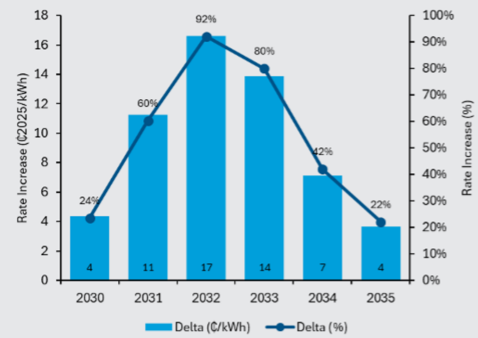
*FIGURE 11: Rate Increase 2030-2035 for Illinois w/out Clean Power*




## Maryland

If no new clean power is added, rates in Maryland could almost double by 2032 relative to the Base Case. That's an almost ₵17/kWh increase. The average residential customer in Maryland uses 11,200 kWh of electricity a year. The result is **the average Maryland resident will pay an additional $3,000 from 2026-2032 and almost $5,800 by 2035.**

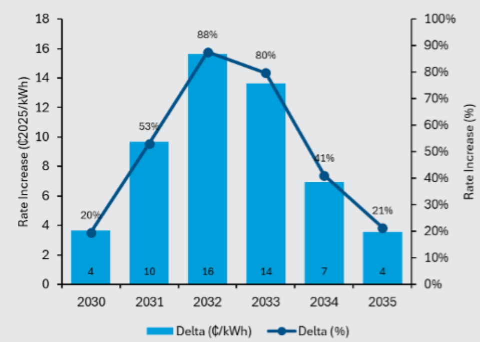
*FIGURE 12: Rate Increase 2030-2035 for Maryland w/out Clean Power*




## New Jersey

If no new clean power is added, rates in New Jersey will increase by almost 90% by 2032 relative to the Base Case. That's an almost ₵16/kWh increase. The average residential customer in New Jersey uses 8,000 kWh of electricity a year. The result is **the average New Jersey resident will pay an additional $1,900 from 2026-2032 and almost $4,000 by 2035.**

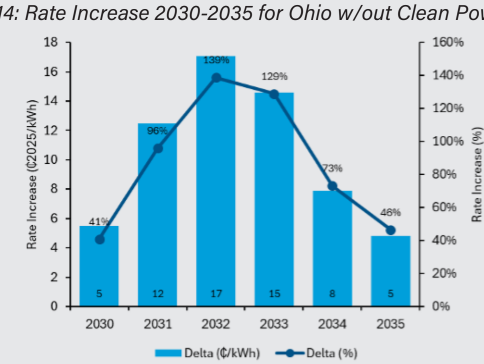
*FIGURE 13: Rate Increase 2030-2035 for New Jersey w/out Clean Power*




## Ohio

If no new clean power is added, rates in Ohio will increase by 140% by 2032 relative to the Base Case. That's a ₵17/kWh increase. The average residential customer in Ohio uses 10,300 kWh of electricity a year. The result is **the average Ohio resident will pay an additional $3,700 from 2026-2032 and over $6,500 by 2035.**

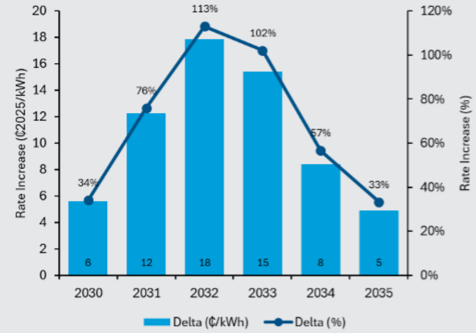
*FIGURE 14: Rate Increase 2030-2035 for Ohio w/out Clean Power*



## Pennsylvania

If no new clean power is added, rates in Pennsylvania will increase by over 110% by 2032 relative to the Base Case. That's an ¢18/kWh increase. The average residential customer in Pennsylvania uses 9,900 kWh of electricity a year. The result is **the average Pennsylvania resident will pay an additional $3,500 from 2026-2032 and $6,400 by 2035.**

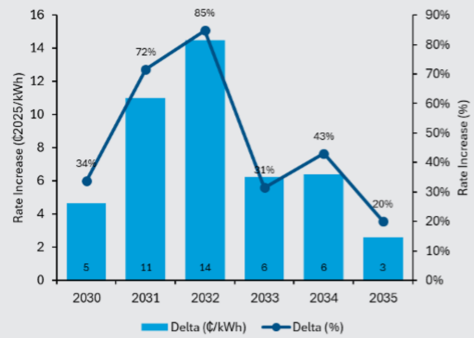
*FIGURE 15: Rate Increase 2030-2035 for Pennsylvania w/out Clean Power*




## Virginia

If no new clean power is added, rates in Virginia will increase by 85% by 2032 relative to the Base Case. That's over a ¢14/kWh increase. The average residential customer in Virginia uses 12,400 kWh of electricity a year. The result is **the average Virginia resident will pay an additional $3,300 from 2026-2032 and $5,200 by 2035.**

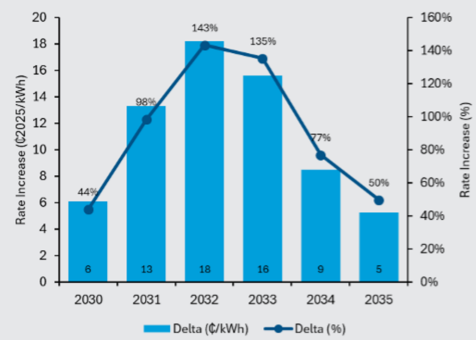
*FIGURE 16: Rate Increase 2030-2035 for Virginia w/out Clean Power*




## West Virginia

If no new clean power is added, rates in West Virginia will increase by over 140% by 2032 relative to the Base Case. That's over an ¢18/kWh increase. The average residential customer in West Virginia uses 12,300 kWh of electricity a year. The result is **the average West Virginia resident will pay an additional $4,800 from 2026-2032 and almost $8,500 by 2035.**

*FIGURE 17: Rate Increase 2030-2035 for West Virginia w/out Clean Power*



# Appendix

ACP completed the capacity expansion and production simulation modeling in Fall 2025. Assumptions are thereby constrained to the information and data at that time.

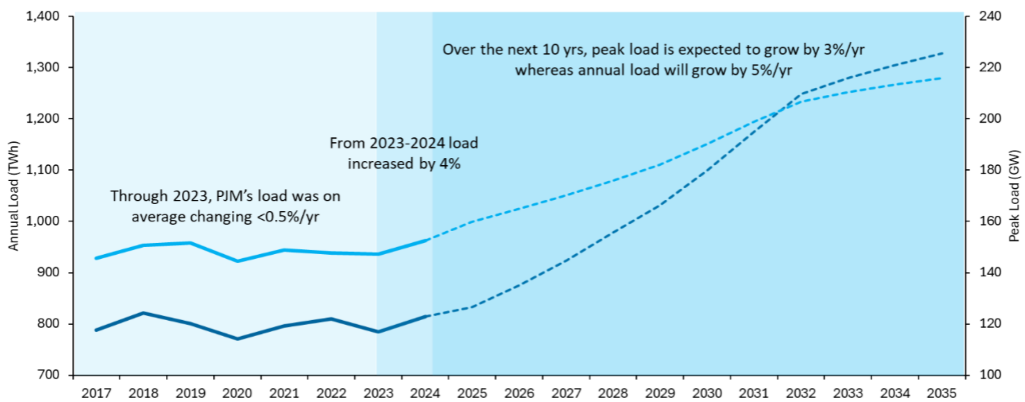
## Scenario Design

| Assumption | Base Case | No New Clean Power Case |
|---|---|---|
| Load | PJM 2025 Forecast | PJM 2025 Forecast |
| Planned Build | Advanced development + under construction projects as well as state mandated targets | Advanced development + under construction projects as well as state mandated targets |
| New Build Resource Eligibility | Solar, Onshore Wind, Battery Storage, Offshore Wind, Gas CCGT, and Gas CT | Gas CCGT and Gas CT |
| Tax Credits | Solar and wind eligible for tax credits through 2030. Storage through 2032 at full rate and steps down | N/A |
| REC Price | Yes | No (assumed no RPS requirement, i.e. no compliance payment) |
| Gas Price | ACP Mid Case | ACP Mid Case |
| Gas Turbine Limits | Step-up from 1.5 in 2028 to 12 GW by 2035. Cumulative 54 GW by 2035 | Step-up from 1.5 in 2028 to 12 GW by 2035. Cumulative 54 GW by 2035 |

## Load Growth

ACP utilizes PJM's 2025 load forecast.[4] Northern Virginia data centers dominate headlines but Ohio & Pennsylvania utilities are planning for data center and manufacturing as well.

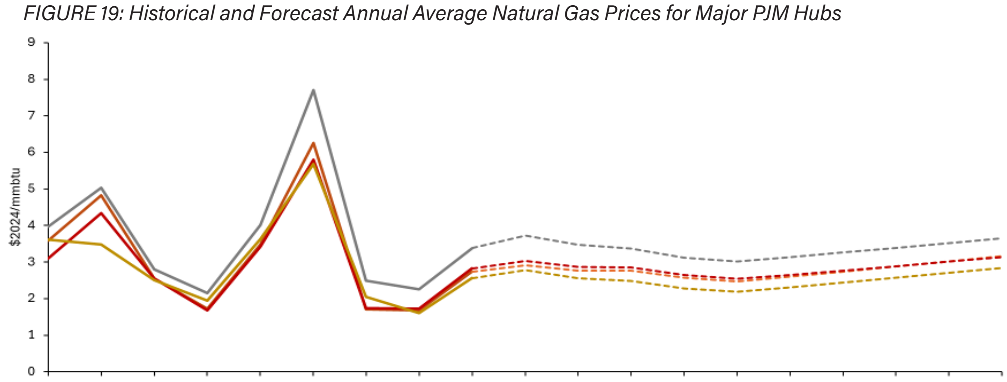
*FIGURE 18: Annual and Peak Load in PJM Historical and Forecast*




## Gas Price

ACP uses near-term five-year forwards pulled from S&P[5] trended to EIA's Annual Energy Outlook.[6] Monthly shapes based off blended historical and forward prices.

*FIGURE 19: Historical and Forecast Annual Average Natural Gas Prices for Major PJM Hubs*

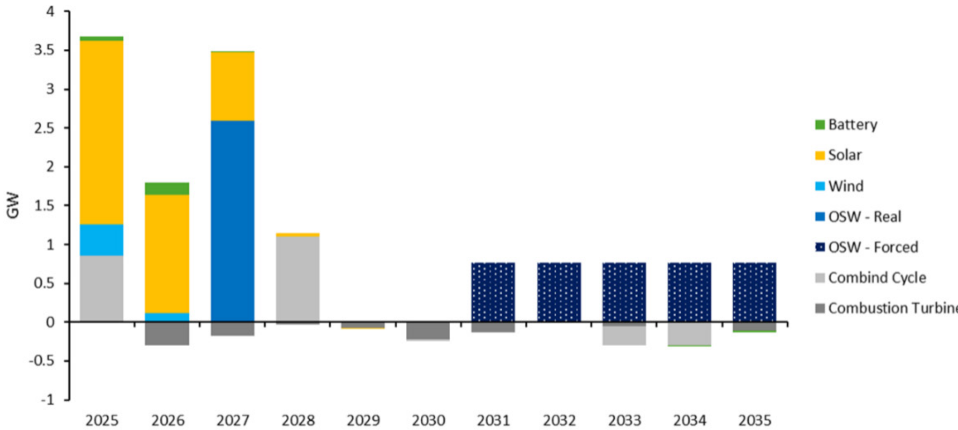



4 2025-load-report.pdf
5 S&P Commodity Charting
6 Annual Energy Outlook 2025 - U.S. Energy Information Administration (EIA)

## Planned Builds

Near term clean power builds align with ACP CPIQ database. Natural gas builds are from EIA 860M under construction projects.[7] Some offshore wind build is "forced in" to meet VA and MD state mandates. Retirements align with EIA's most recent 860M report. The model cannot build anything additional prior to 2028.

*FIGURE 20: Forced in Near Term Build in PJM*



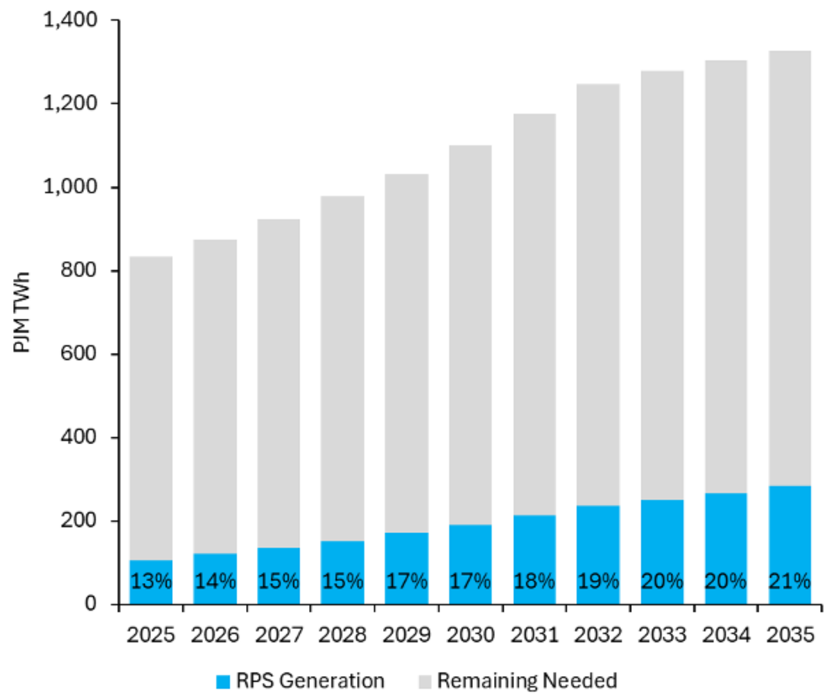

## RPS Requirements

The capacity expansion model maps their zonal topology to the states and apply the state RPS or CES to the zonal load. The model must then solve to meet the PJM wide RPS target.

*TABLE 1: RPS by State Assumption*

| State | RPS/CES by 2035 |
|---|---|
| Delaware | 40% |
| D.C. | 100% |
| Illinois | 45% |
| Indiana | 0% |
| Maryland | 50% |
| Michigan | 80% |
| New Jersey | 50% |
| North Carolina | 13% |
| Ohio | 8% |
| Pennsylvania | 8% |
| Tennessee | 0% |
| Virginia | 55% |
| West Virginia | 0% |

*FIGURE 21: Share of Wind and Solar Generation in PJM*

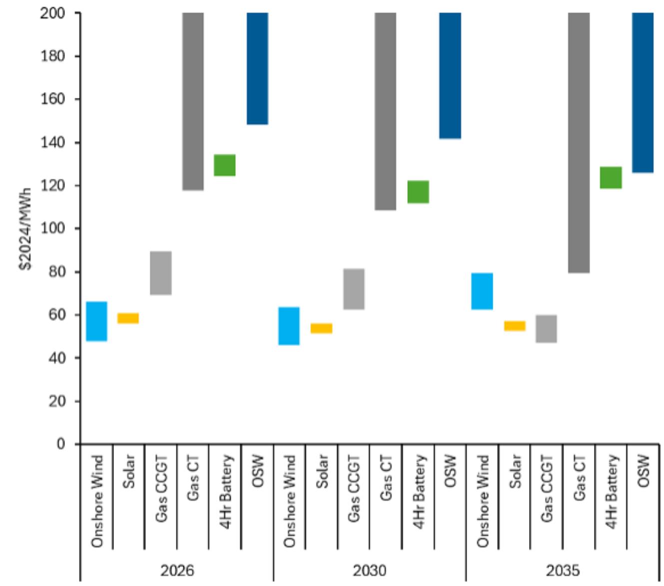



7 Annual Electric Power Industry Report, Form EIA-860 detailed data with previous form data (EIA-860A/860B) - U.S. Energy Information Administration (EIA)

## Resource Costs

ACP developed their own resource cost forecast model based off of private member information as well as public financing and resource CAPEX trends. Regional labor, land, and interconnection cost multipliers are incorporated as well.

FIGURE 22: Realized Levelized Cost of Energy in PJM– Snapshot Years

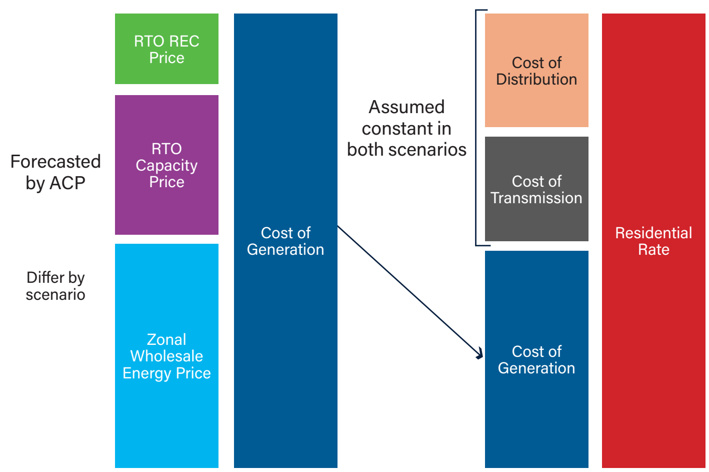



# Methodology

ACP uses the EnCompass software model to conduct capacity expansion and production simulations, generating 8,760 hourly prices and system dynamics for PJM over the modeled period. Outputs from these models are then used to calculate capacity prices, renewable energy credit (REC) prices, and residential retail electricity rates.

Capacity prices are calculated in a manner consistent with PJM's market design using a Variable Resource Requirement (VRR) curve, which reflects customers' willingness to pay for incremental reliability. The VRR curve is based on Net Cost of New Entry (Net CONE), representing the cost of building a new reference power plant—typically a natural gas combined-cycle unit—net of expected energy market revenues.

FIGURE 23: Visual View of Retail Price Methodology




REC prices are calculated as the revenue required for a new wind or solar project reaching commercial operation in a given year to recover its remaining costs over its operating life after accounting for energy and capacity revenues. ACP defines this remaining value as Cost minus (Energy Value plus Capacity Value).

Using the capacity price, REC price, and wholesale electricity prices, ACP calculates total generation costs, with changes in these costs reflected as differences in retail rates between scenarios. Transmission and distribution costs are assumed to remain constant. The cost of generation component of their retail rate is modeled as a function of wholesale energy price, capacity price, REC price, reserve margin, and load factor. ACP assumes a distribution loss factor of 5%.

The American Clean Power Association (ACP) is the leading voice of today's multi-tech clean energy industry, representing energy storage, wind, utility-scale solar, clean hydrogen, and transmission companies. ACP is committed to meeting America's energy and national security goals and building our economy with fast-growing, low-cost, and reliable domestic power.

Learn more at www.cleanpower.org.

X / @USCleanPower

LinkedIn / American Clean Power Association

AMERICAN CLEAN POWER