

**WHY ARE OUR
ELECTRIC RATES SO
HIGH?
AND WHAT CAN WE
DO ABOUT IT?**

**Pat and Steve Miller
Earth Day
April 19, 2026**

- 1. The Basics of Electricity Pricing**
- 2. Data Center Impacts and Recommendations**
- 3. Energy Efficiency and Conservation in Our Own Lives**
- 4. Advocating for Changes in Laws and Regulations**
- 5. New Technology CAN Save Us**

**In NJ a 20%
Increase in
Electricity
Prices (So Far)**

**The Miller household is
almost all-electric.**

- **Our electricity bill for December was \$450.**
- **Our highest bill a year ago: \$350.**
- **This jibes with a 20% increase (plus monthly \$10 deferred summer payment).**
- **There will almost certainly be future increases, unless we act.**

Cost of Energy by Source

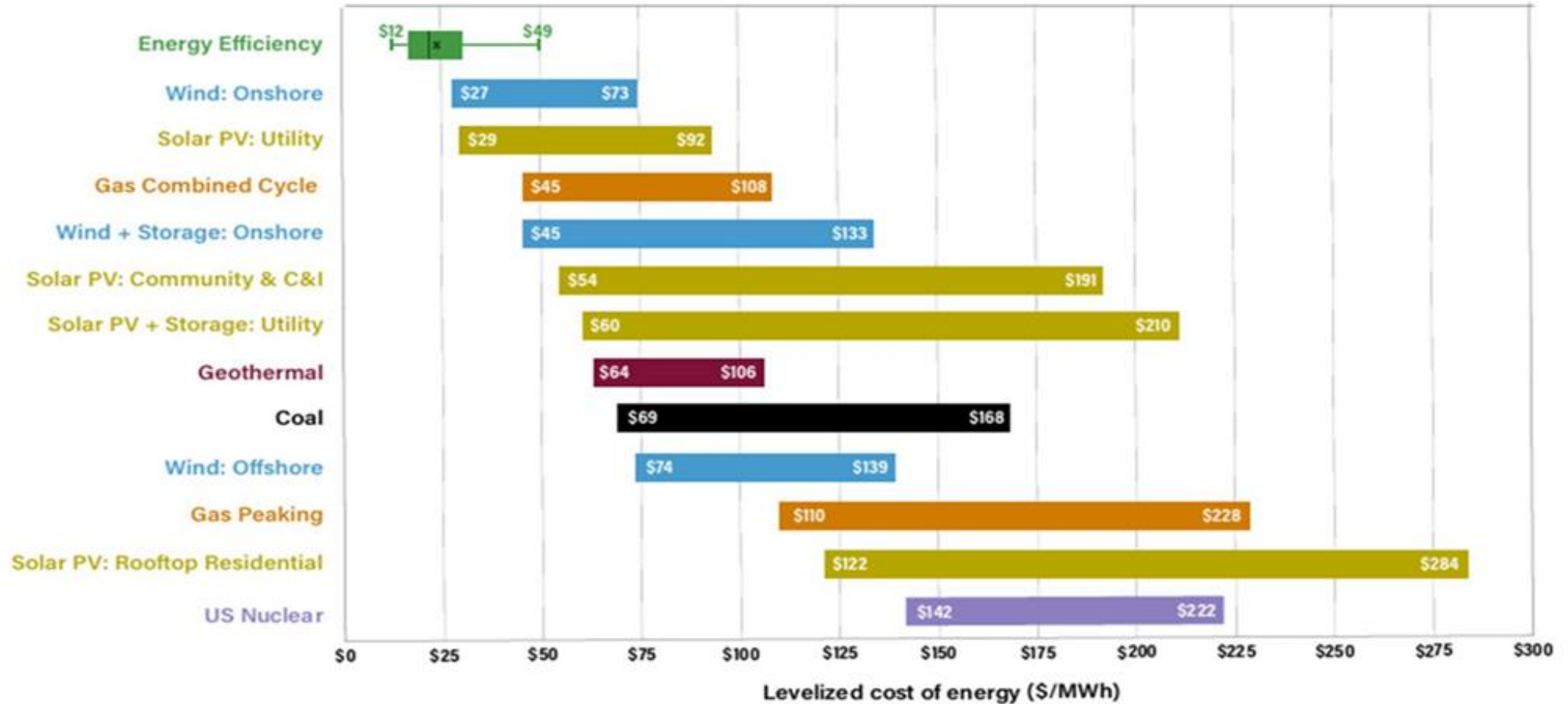
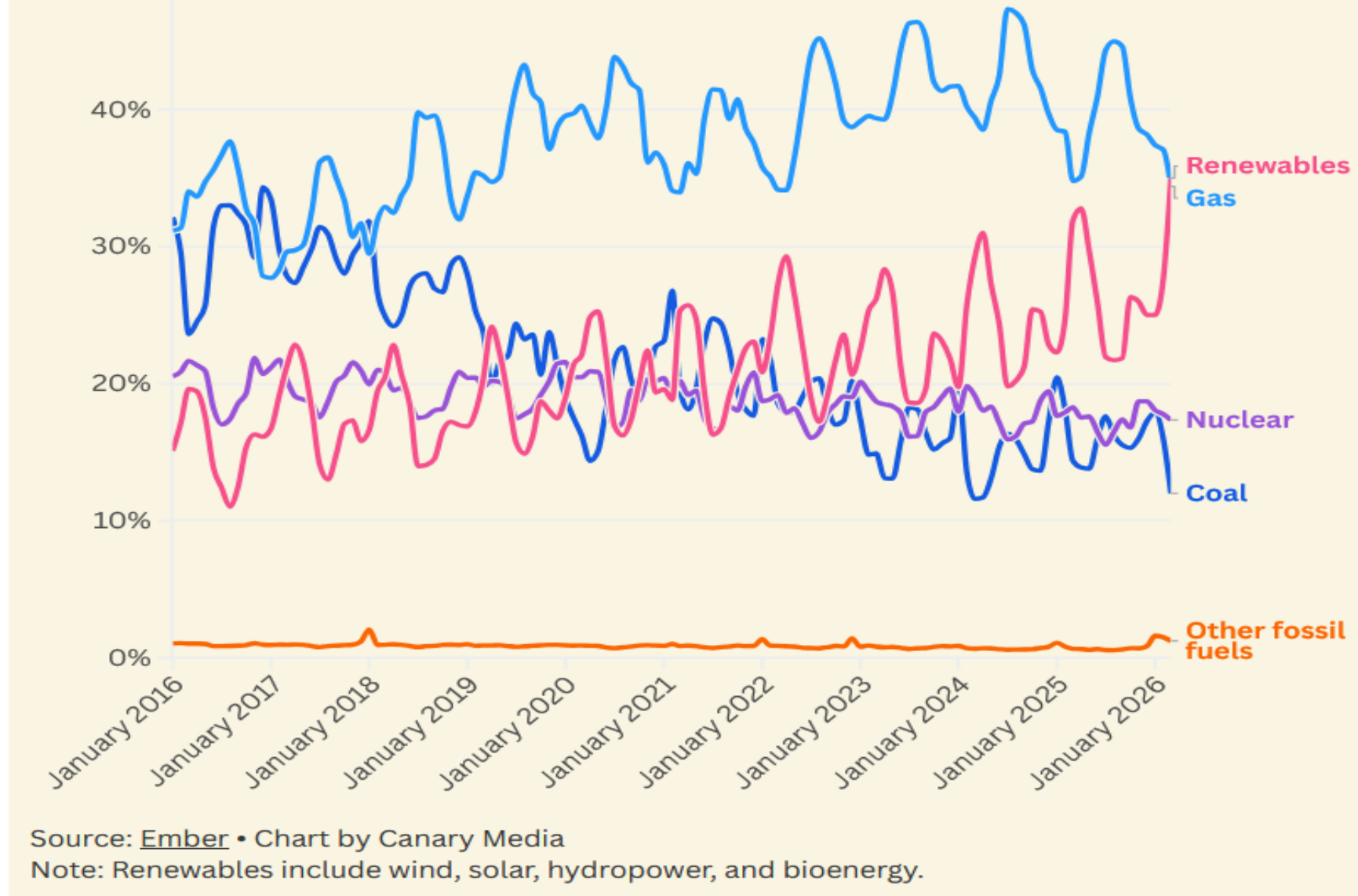


Figure ES-1. A comparison of the levelized cost of energy efficiency and supply-side resources. Vertical line and "X" represent the median and mean costs of energy efficiency, respectively. Cost data for supply-side resources calculated by Lazard (2024).

Cost data from ACEEE's 2026 Research Report "Faster and Cheaper." <https://www.aceee.org/research-report/u2601>

In March, renewables outdo gas on the U.S. grid

Share of electricity generation, by month



Part 1

The Basics of Electricity Pricing



PJM is the Regional Transmission Organization That Manages Our Power Who are they?



Your Bill

(40%)
Delivery cost

- Distribution lines, meters, etc managed by local utility
- Regulated by NJ BPU. It is increasing but is not the cause of the major jump in rates.

(60%)
Supply cost

- Energy cost, managed by PJM, NOT the State of NJ
- Price is determined by auctions

SUPPLY COST: Long Term & Short Term Planning

Yearly Auctions/Fixed Costs

Buying
Capacity

~15%

Paid to Standby

Daily Auctions/Operating costs

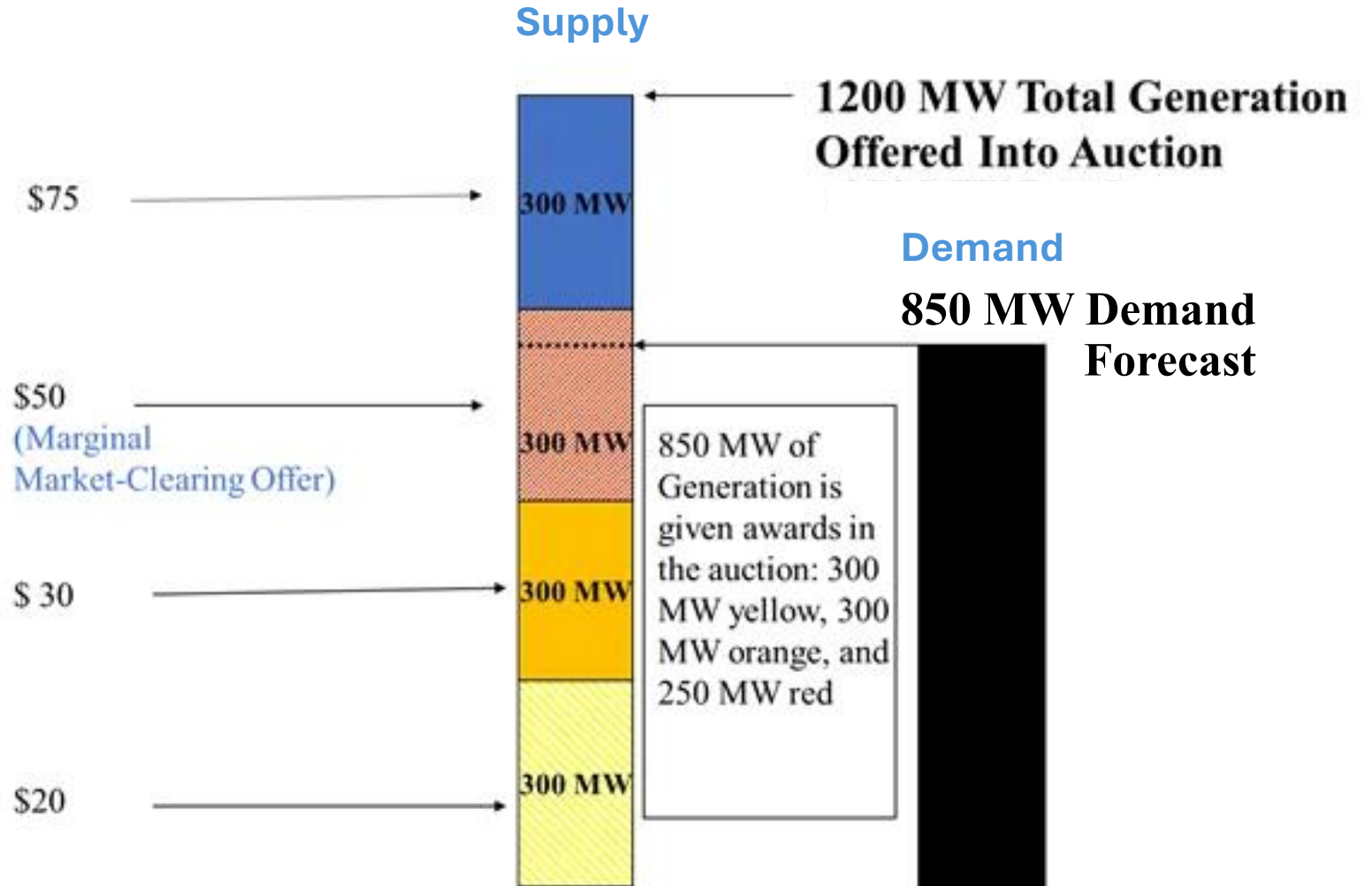
Buying
Energy

~75%

Energy you actually use

HOW THE AUCTION WORKS

- PJM forecasts the demand
- Power generators bid a price and amount
- At end of auction, keep choosing least price supplies until all demand is covered
- All suppliers are paid the same maximum price accepted



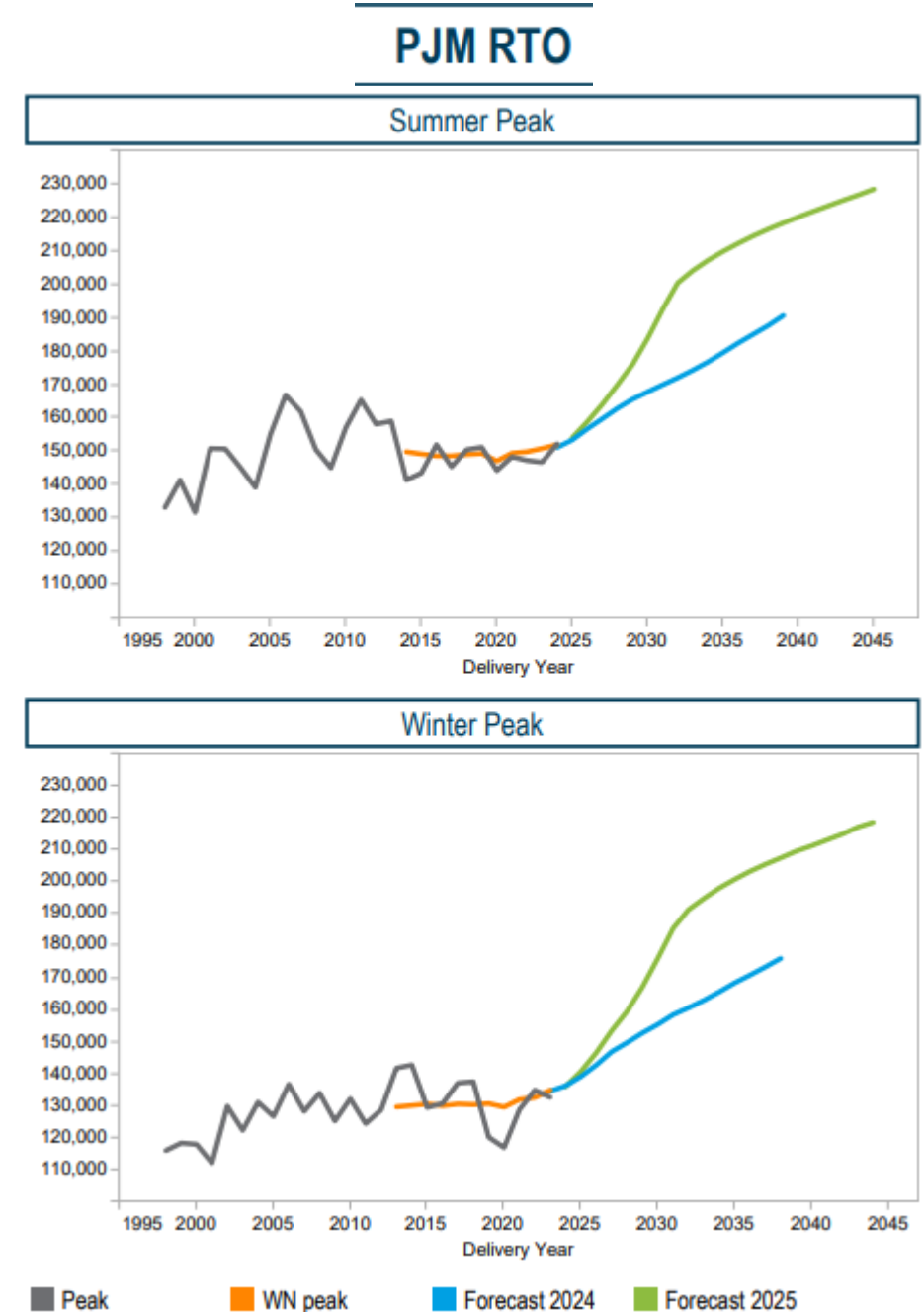
ACTUAL DEMAND FORECAST:

- PJM is forecasting **large increases in demand**, after years of steady demand. **But is it real?**
- Forecast is still increasing from 2024 to 2025
- Mostly due to data centers - ~40% of capacity auction cost was data center loads, most of which haven't been built yet.

<https://www.utilitydive.com/news/data-centers-pjm-capacity-auction/808951/>

Bad news!
Demand is
skyrocketing!

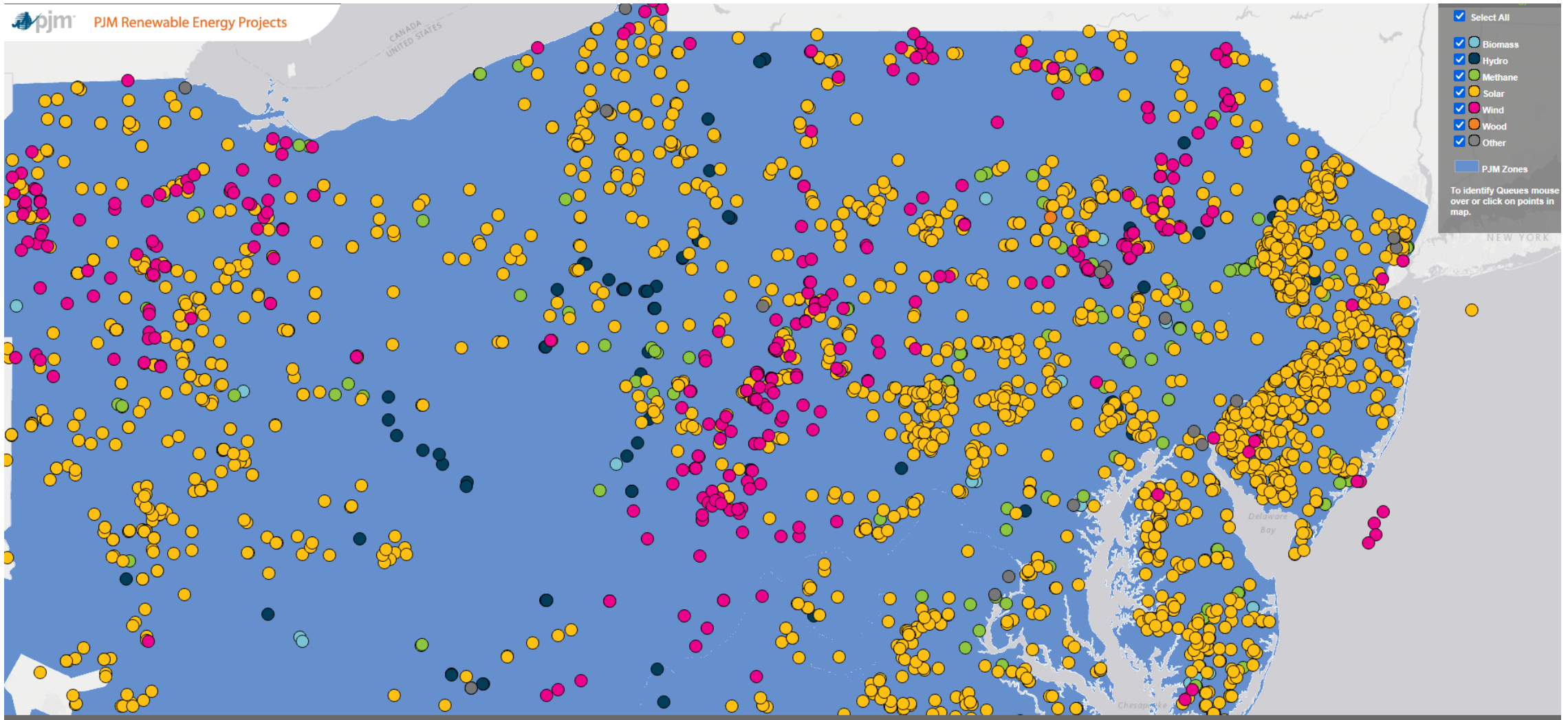
News flash!
Latest
projection is
down slightly



<https://www.pjm.com/-/media/DotCom/library/reports-notice/load-forecast/2025-load-report.pdf>

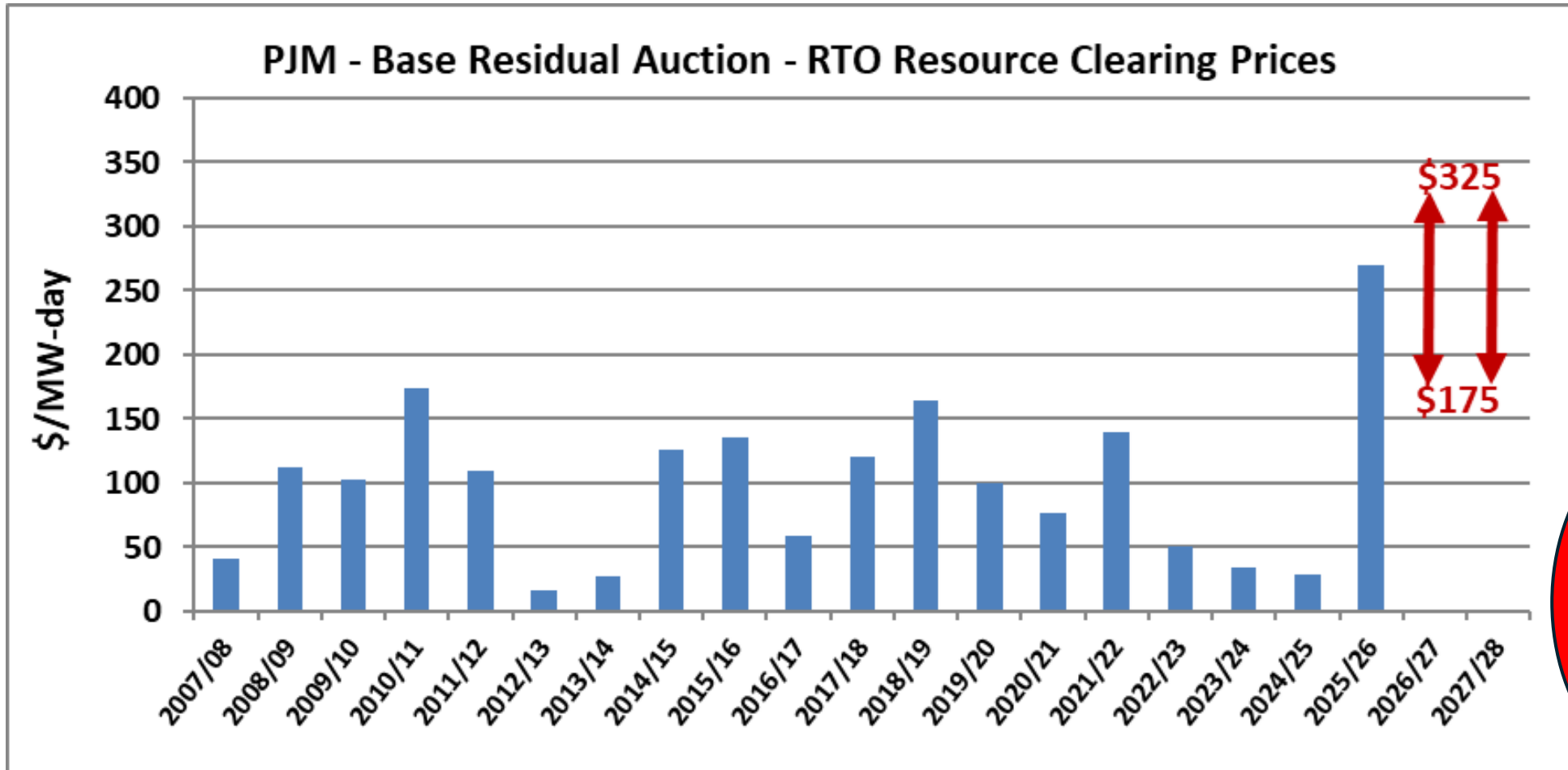
Proposed PJM Renewable Energy Projects

Queue is large but has been worked on in 2025; Building solar is a lot faster and cheaper than building a gas plant; Accepting a project often requires transmission line upgrades



So, What Happened in the Last Capacity Auction?

Prices ↔ Supply & Demand

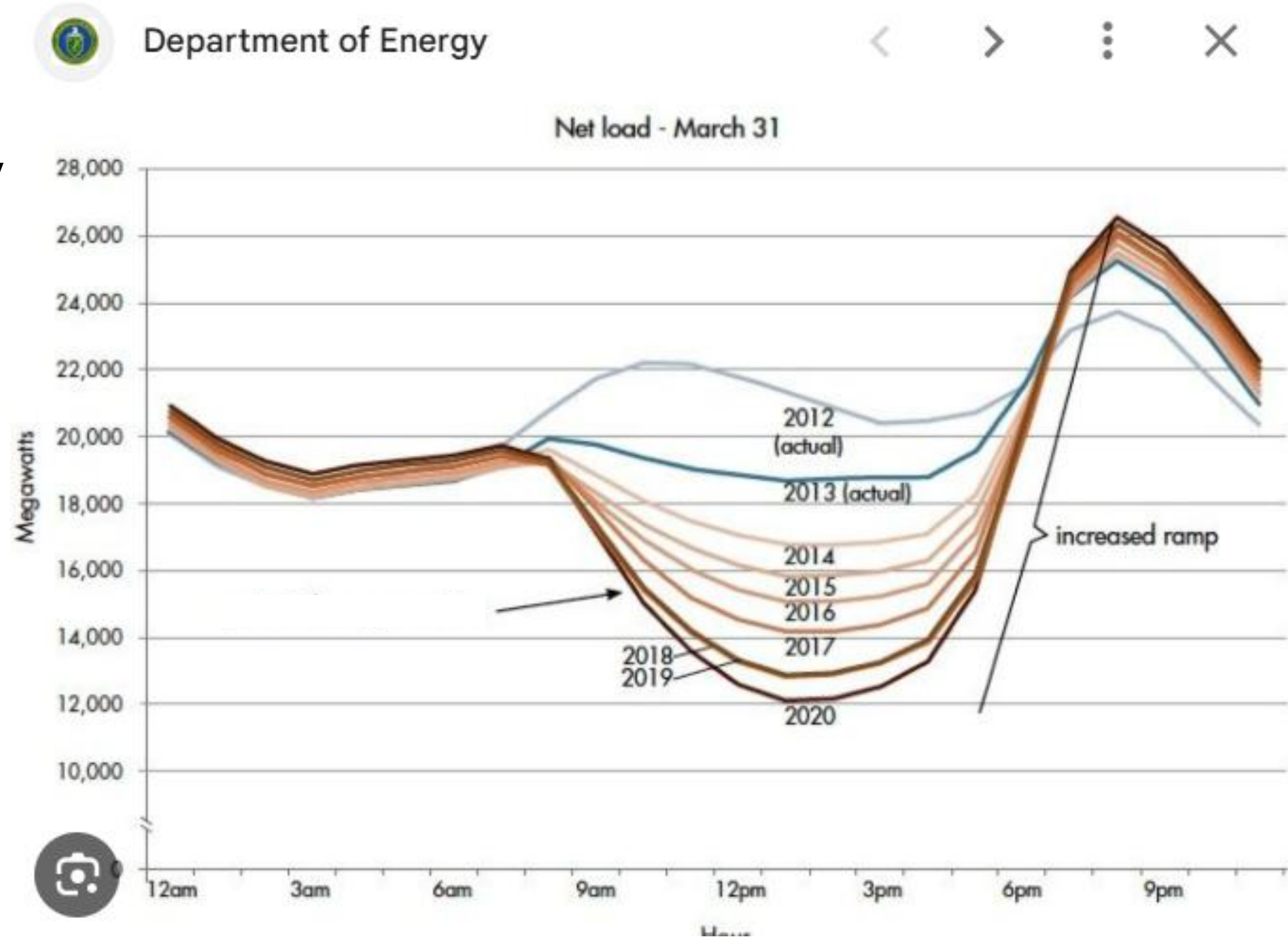


Law of
supply vs
demand!

PEAK ENERGY

Can we smooth out daily energy demand?

- Duck curve shows energy usage during the day
- The grid has to handle the peak. **The peak determines the price since all chosen suppliers are paid the maximum accepted price.**
- If we can cut off the spike 6pm-10pm, much less peak energy is needed.
 - Batteries
 - Demand response
 - Virtual power plants

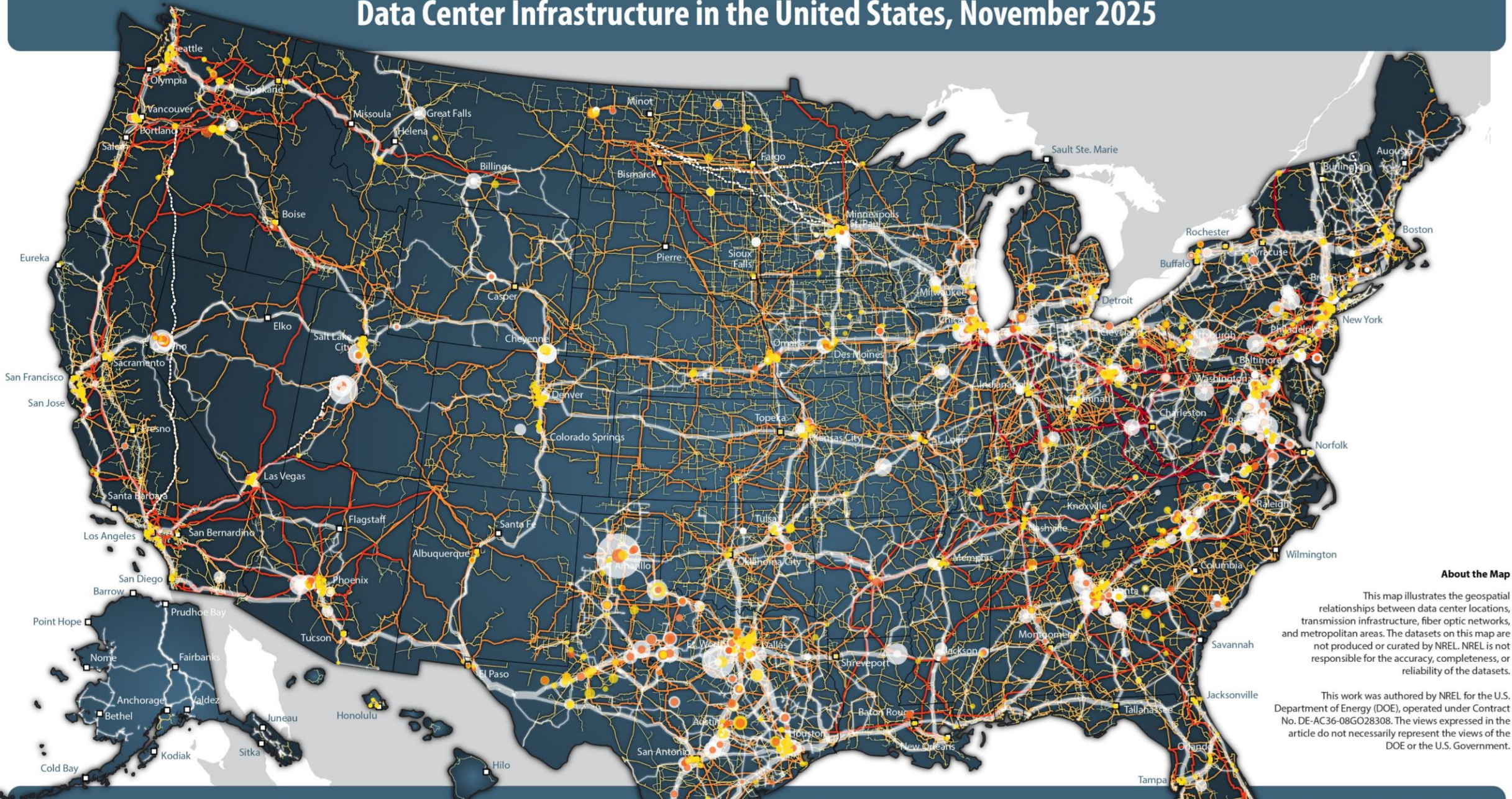


Part 2

Data Center Impacts and Recommendations



Data Center Infrastructure in the United States, November 2025



About the Map

This map illustrates the geospatial relationships between data center locations, transmission infrastructure, fiber optic networks, and metropolitan areas. The datasets on this map are not produced or curated by NREL. NREL is not responsible for the accuracy, completeness, or reliability of the datasets.

This work was authored by NREL for the U.S. Department of Energy (DOE), operated under Contract No. DE-AC36-08G028308. The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government.

Transmission Lines

voltage class (kV)
 > 725
 100-161

Fiber Optic Lines

capacity unavailable
 approximately

Data Centers

demand capacity (MW) operating status

Data Sources

Data center information © 2025 Baxtel. Transmission network © 2025 Hitachi Energy, Velocity Suite. Fiber optic lines acquired from the

November 2025 NREL/OT-6A20-98020

Cartography by Billy J. Roberts

National Renewable Energy Laboratory

Miami

WHAT IS A DATA CENTER?

- A data center is one or more buildings that house servers, hardware, networking equipment, etc. Growth is driven mostly by demand for AI.
- There are more than 80 data centers in NJ, with more proposed.
- Energy use can be from 20 MW (size of an industrial plant) to 100s of MW or more.
- Data centers were responsible for 63% of PJM price increase in 2024.

Residents in Vineland, NJ, are fighting a 2.6 million square ft, 300 MW AI data center surrounded by farms. The plan for it is to supply electricity entirely by on-site gas-fueled generation. 100% dirty fossil fuel would threaten NJ's climate-related carbon emission reduction goals.



DATA CENTER IMPACTS TO ENERGY AND LAND

- **Energy usage** impact on the grid and **skyrocketing utility bills**
- **Air and noise pollution** from dirty gas generators with highly-polluting and noisy diesel backup
- **High water usage** straining water supplies, worsening drought. A 100 MW data center consumes enough water for **2600 households**.
- **Irresponsible siting:** farmland, wetlands, green space, near residents. In parts of VA, more than half are within 200 ft of homes.
- **Lack of transparency:** no regulation or reporting, back door financial and tax deals. Water use from local sources can go unreported.

PROTECTING RESIDENTS FROM LARGE ENERGY USERS

- 1. Energy & Infrastructure Planning:** Ensure data centers contribute to grid stability as well as fund necessary, clean, renewable energy infrastructure, rather than shifting costs to ratepayers.
- 2. Fair Taxation:** End the Data Center Tax Exemption, or place conditions, to ensure Big Tech builds efficient, renewable-powered facilities.
- 3. Water Use Regulations:** Impose limits on data center water consumption to protect local resources.

PROTECTING RESIDENTS FROM LARGE ENERGY USERS, Cont.

- 4. Stronger Environmental Protections:** Require sustainable energy such as on-site renewable generation requirements and stricter emissions controls on backup generators.
- 5. Land Use Oversight:** Establish state-level planning standards to prevent reckless expansion adjacent to residential areas and on agricultural land.
- 6. Transparency: Mandate full disclosure** of energy and water use, emissions data, and expansion plans to allow for informed public discourse and policy decisions.

Data Center State Policies, 2026

Mitigating the Impacts of Data Centers on the Environment, Communities, and Affordability

Protect
Customers

Clean Energy
Comes First

Fair Rules
for Tech

Protect
Public Health

Protect Customers: Large Load Tariffs, Transparency

Rate Classes and Prevention of Cross Subsidies

Clean Energy Comes First:

Enforce RPS, BYO On-Site Clean Energy, Mandate Zero Fuel Cost Procurement

Fairness for All

Removing or Reducing Incentive Tax Rates and Incentive Utility Rates

Protect Public Health

Cumulative Impacts & Air Permits, On-site Battery Storage Requirements

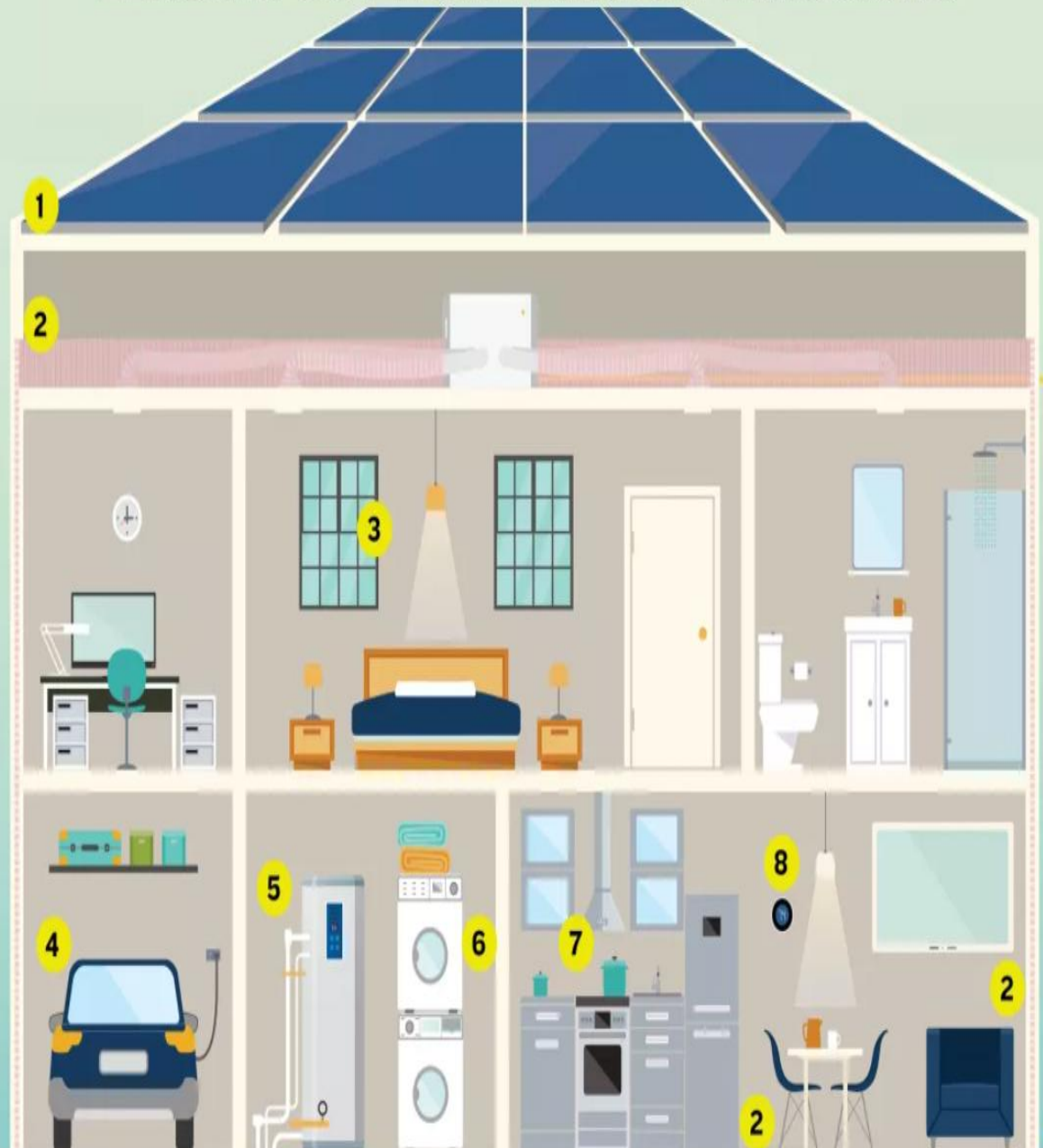
<https://www.sierraclub.org/sites/default/files/2026-01/policies-for-data-centers-2026.pdf>

ZEROING OUT HOME CARBON EMISSIONS

Part 3

Energy Efficiency and Conservation in Our Own Lives

1. Solar Panels
2. Insulated Walls, Floors and Attic
3. Energy Efficient Windows & Doors
4. Electric Car
5. Heat Pump Water Heater
6. Heat Pump Dryer
7. Induction Stove
8. Smart Thermostat
9. Heat Pump Heating and Cooling



CREDIT: NRDC

Fossil Fuels are the Problem

- Burning fossil fuels impacts our climate, air quality, and household energy costs
 - 3 sectors produce 77% of all Greenhouse Gas emissions in NJ
 - Electricity generation (18%)
 - Transportation (35%)
 - Residential/commercial buildings (24%)
 - Pollutants from burning fossil fuels contribute to smog and acid rain
 - Health risks associated with burning fossil fuels include asthma and cancer
 - Worldwide, air pollution from fossil fuels kills 8.7 million people every year [K Vohra, et al., *Environmental Research*, 2021]



Energy Efficiency – Use Less Energy



A SIMPLE DO-IT-YOURSELF PROJECT

DUCT SEALING

**CAULKING
CORD**

**PRESSURIZED
FOAM
FOR LARGE GAPS**

**ALUMINUM
FOIL TAPE
TO SEAL JOINTS
IN INSULATION**

**DUCT SEALANT
WATER BASE**



**REFLECTIVE
BUBBLE WRAP**

**WRAP
AIR DUCTS IN
UNHEATED AREAS**

HOME PERFORMANCE WITH ENERGY STAR**

NJ & Nation-wide Weatherization Program

South Brunswick, NJ	May 11, 2023
Install 50 Gallon Heat Pump Water Heater w. UEF of 3.88	\$5,460
Shell Test & Seal Incl. Applicable Air Seal Top-Plates & Penetrations	\$2,960
Attic Hatch Insulated to R-13	\$275
Attic Stair Cover Insulated to R-13	\$475
4" of Dense-Packed Cellulose in Exterior Walls R-13, 564 Sq Ft	\$3,412
4" of Dense-Packed Cellulose in Garage Buffered Walls R-13, 267 Sq Ft	\$1,775
Audit Refund (\$99)	(\$99)
Total Project Cost	\$14,258
Rebate to Ciel Power, LLC	\$5,000
Balance Due Upon Completion of Project	\$9,258*

* Can be paid with PSE&G 0% On-Bill Repayment

Project qualifies for a \$5,000 rebate to contractor through NJ HPwES Program

** HPwES is now replaced with Whole Home Energy Solutions Program

UUCMC 2022 Rooftop Solar



4 X Capacity of Old System

COMMUNITY SOLAR



Clean Energy

Lower Energy
Costs

No Panels on
Your Property

BPU/Sustainable Jersey Community Solar

www.sustainablejersey.com/communitysolar

OUR EV – PRIUS PRIME PLUG-IN (PHEV)



We Are Now Full EV

As federal incentives were ending in 2025, we leased our new Tesla and drove it home 2 days later.



**OUR FIRST
ELECTRIFIED
APPLIANCE
REPLACEMENT –
CERAMIC STOVETOP**

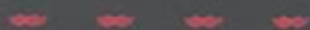


Induction cooktops heat using a magnetic current. The result is evenly heated pots and pans with much less energy lost during cooking.



Soup Water Fry Hot Pot Stir-Fry

Temp.



Power

Photo © Shutterstock



Timer/Pre.



Child Lock



Elec./Volt.



Function



ON/OFF



Experimental Induction Stovetop 1 Burner Portable Induction Hot Plate - \$109.



SPACE HEATING & COOLING WITH ELECTRIC HEAT PUMP

Gas Furnace Backup on Right



ELECTRIC HEAT PUMP WATER HEATER



HEAT PUMP COMBO WASHER/DRYER



How NJ Electrification Coaching Network Can Help

- We offer education, resources and electrification coaches
 - Provide free one-on-one advice when you sign up for an individual home electrification coach
 - Host a webinar or in-person talk on home electrification for community groups, Green Teams or local officials
 - Provide access to our incredible database of webinars, presentations, and home electrification case studies
 - Up-to-date articles on electrification on our NJ ECN Substack

Remember: Electrified homes are healthier and more comfortable – No gas leaks, no combustion byproducts, better indoor air quality, stable temperature and humidity



NJ Electrification Coaching Network's Resources

- The goal is to reduce GHG in NJ. NJ ECN offers resources for building a clean energy economy.
- Coaching request Intake Form <https://tinyurl.com/yc2ew6rc>
- BE Webinar Database <https://climate.smiller.org/50x30/building-electrification/All-heat-pump-webinars.html>
- NJ ECN Substack <https://njecn.substack.com/>
- Rewiring America <https://www.rewiringamerica.org/> for Personal Electrification Planner, IRA Incentive Tracker or to sign up for EC training



Part 4

Advocating for Changes in Laws and Regulations



How can future PJM price increases be prevented?

(Fed DOE, NJ BPU):
Make Offshore Wind
(OSW) a reality

*11GB of power substantially
affects supply & reliability*

(PJM):

Speed up the energy
review process

*145 GW of supply in queue
Shovel-ready projects jump the
queue*

(Legislators):

Clear the pathway for
more clean energy and
new technology projects
in NJ

(NJ BPU & Utilities):
Encourage Demand
Response Programs,
Plan transmission lines
that limit suppliers

(Fed FERC, PJM):

Change rules that
allowed artificially high
prices

(Legislators): Pass bills to
rein in data centers

*Such as requiring large users of
power to bring their own new clean
energy*

13 PJM State Governors Collaboratively or Separately

- In Feb 2026 PA Gov Shapiro successfully sued and negotiated with PJM to enforce a temporary price cap on PJM Auction.
- In Jan 2026, all 13 regional Governors joined 2 Cabinet Secretaries, to sign a [Statement of Principles Regarding PJM](#) to address ongoing affordability and reliability concerns in PJM.
 - 1) Cut through the backlog of projects pending interconnection and accelerate the speed at which new power comes online,
 - 2) Data centers cover their share of the costs of any new resources,
 - 3) Stem the increase in auction prices to bring affordability back to the PJM region.

Legislation, Regulation Needed To Rein In Data Centers

- **Improving the Grid (and Families' Lives) with Clean Energy Supply**
 - **Data Centers BYO Clean Energy (S680/A1170)**; Prioritize On-Site
 - **Enabling and Requiring Large Load Tariffs (S731/A796)** and Front-Loaded Costs
 - **Transparency and Reporting (S3379/A4096)** for both electricity and water
- **Fair Rules for Big Tech – Remove or Review Tax Incentives** that are unbounded & lucrative (no bills yet in NJ, but they exist in MI, MN, IL)
- **Responsible Siting and Water Use**
 - **Smart Growth (S1857/A177)** Away from Homes, Water Efficiency, Not Wetlands, Forests, Farms, etc.
 - **Noise Mitigation**
- **Protect Air and Water Quality and Public Health – On-site Battery Backup**, Assess Cumulative Emission Impacts from Clusters of Many Data Centers

Part 5

**New Technology
CAN Save Us**





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Photo © Shutterstock



Photo © 2023 Patrick Pleul/picture-alliance/dpa/AP Images



Caney Fork Farms/Skidmore College

We have the technologies in hand today to reduce emissions 50% in this decade.



Photo © Shutterstock



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Photo © Shutterstock

Legislation, Regulation To Speed Deployment of Emerging Technology

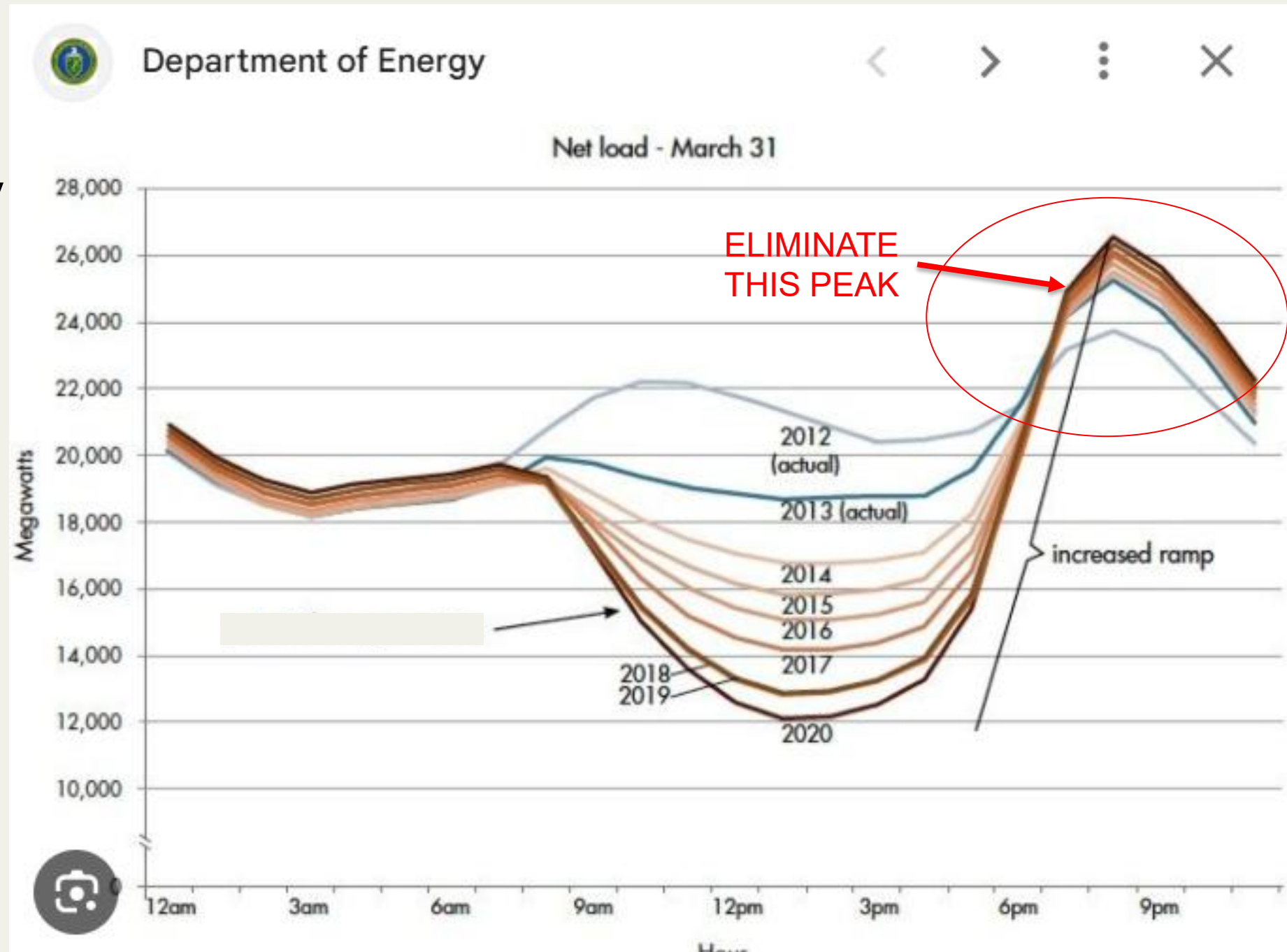
- **Permitting Reform to Speed Up Adoption of Rooftop or Community Solar, Agrivoltaics, Batteries**
- **Plug-In Balcony Solar**
- **Offshore Wind**



PEAK ENERGY

Can we smooth out daily energy demand?

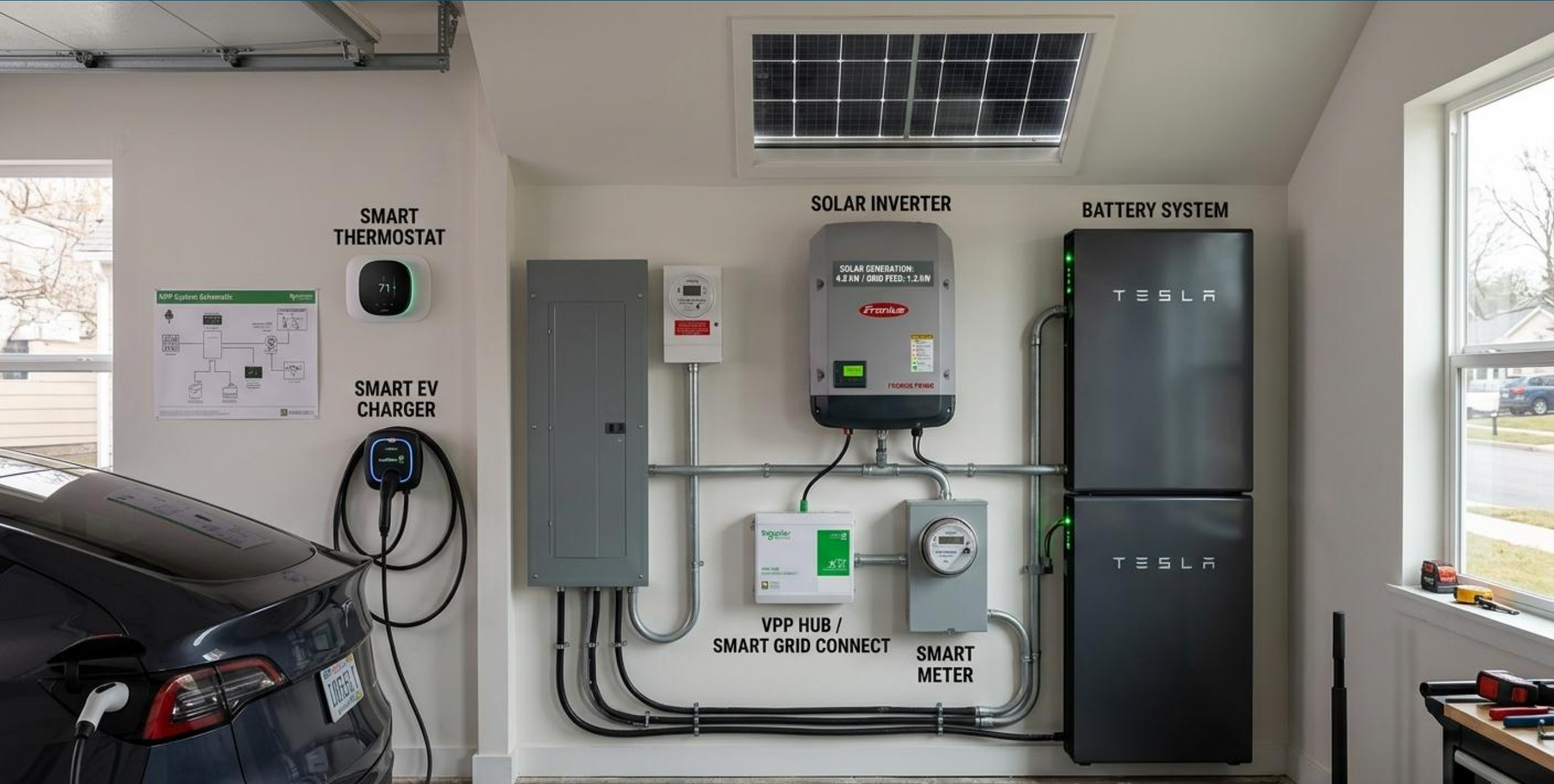
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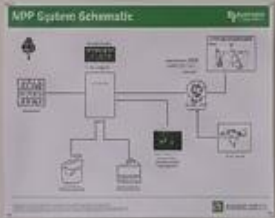
What Is a Virtual Power Plant (VPP)

- **A Virtual Power Plant (VPP) is a community of electric customers on the local power grid who agree to network their energy resources – such as home batteries, smart thermostats, EV chargers, and solar systems – via an “aggregator” – to support the grid in ways similar to a traditional power plant. Usually in return for compensation to the customers.**
- **Utilities have had Demand Response (DR) programs for a long time. They were limited to 1-way communication to a willing customer’s not-smart thermostat ordering it to curtail energy consumption during a peak-demand period.**

Typical VPP Customer Components



SMART
THERMOSTAT



SMART EV
CHARGER



SOLAR INVERTER



BATTERY SYSTEM



VPP HUB /
SMART GRID CONNECT



SMART
METER



Benefits of VPP

- **Adding large amounts (GWs) of capacity quickly and nationwide (without big siting/permitting issues)**
- **Economic Efficiency – the market delivers the value (but with rules)**
- **Energy Efficiency – better use of all the components in the system**
- **Better understanding of the energy system – education**
- **Cleaner with the same or better reliability, resiliency and affordability**

There ARE costs for deploying VPP programs. The costs are MUCH less than building more transmission infrastructure.

What Has Changed To Allow VPPs

- **For a few decades electricity use (and peak demand) have been relatively flat. Now demand is up and so is the peak. And so is cost.**
- **We now have smart meters and a smart(er) grid.**
- **We have microgrids.** A microgrid is a number of interconnected loads powered by small-scale on-site Distributed Energy Resources (DER) connected to the distribution system at a point of common coupling that can operate **in parallel** with the grid or **isolated** (islanded) from the grid. An example might be a college campus.
- **We have interoperability standards (IEEE, UL) and smart inverters that can ride through and correct noisy electrical voltage.**
- **And we have lower-cost solar, batteries, and EVs plus charging.**

Where We Are Today and Where We Are Going

- **Today – Utility Programs/Pilots for Energy Efficiency and Peak Demand Response (PDR)**
- **Federal Energy Regulatory Commission (FERC) Order 2222 (Dec 2025)**
promotes competition in electric markets by removing barriers preventing Distributed Energy Resources (DERs) from competing on a level playing field in the organized capacity, energy and ancillary services markets run by **ALL** regional grid operators.
- **Gov Sherrill’s Exec Order 2 (Jan 2026):**
 - Within 180 days develop a VPP program with the Utilities and Third-Party Aggregators
 - Build on existing programs with utilities and expand to TP and
 - Develop the rules need to implement FERC Order 2222
- **Senate Bill S3399 – VPP To Reduce Peak Load Act**
 - Establish a demand optimization program for public utilities to optimize demand and reduce the peak
 - Peak Demand reduction of 500 MW by 2030
 - No later than 12 months after the effective date

The Future for (Clean) Energy – Integrated and Holistic System



Now: You can

- Upgrade your home's building shell and weatherization
- Electrify your home with heat pumps, induction stoves and LED lights
- Upgrade your ride to an EV and EV charger
- Power your home and EV with solar and battery storage
- Manage your home with smart appliance and chargers

Coming soon: You can

- Send your stored energy to the grid as part of a virtual power plant