NRDC

Data Centers: Climate and Environmental Considerations

PA DEP Climate Change Advisory Committee

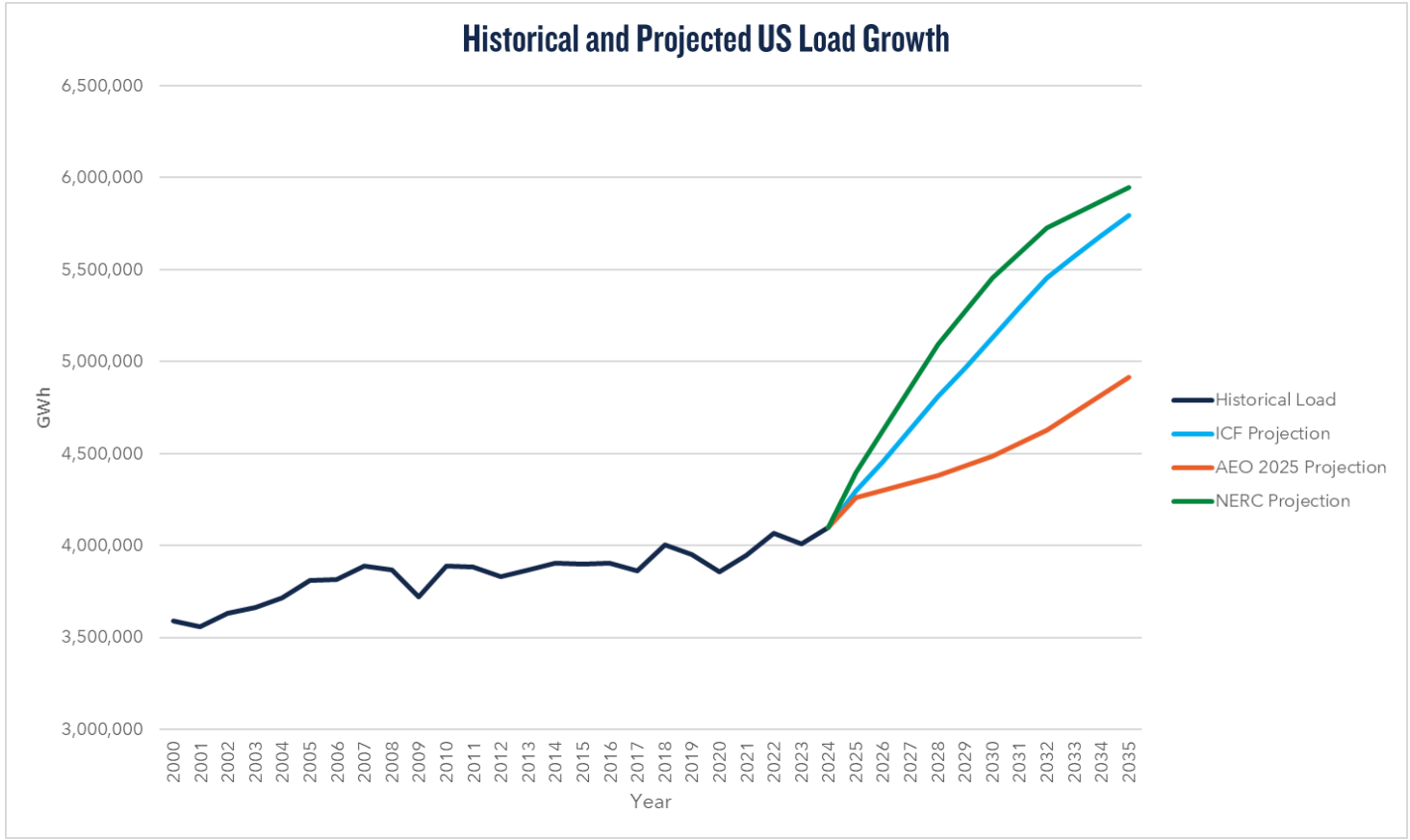
February 19, 2026

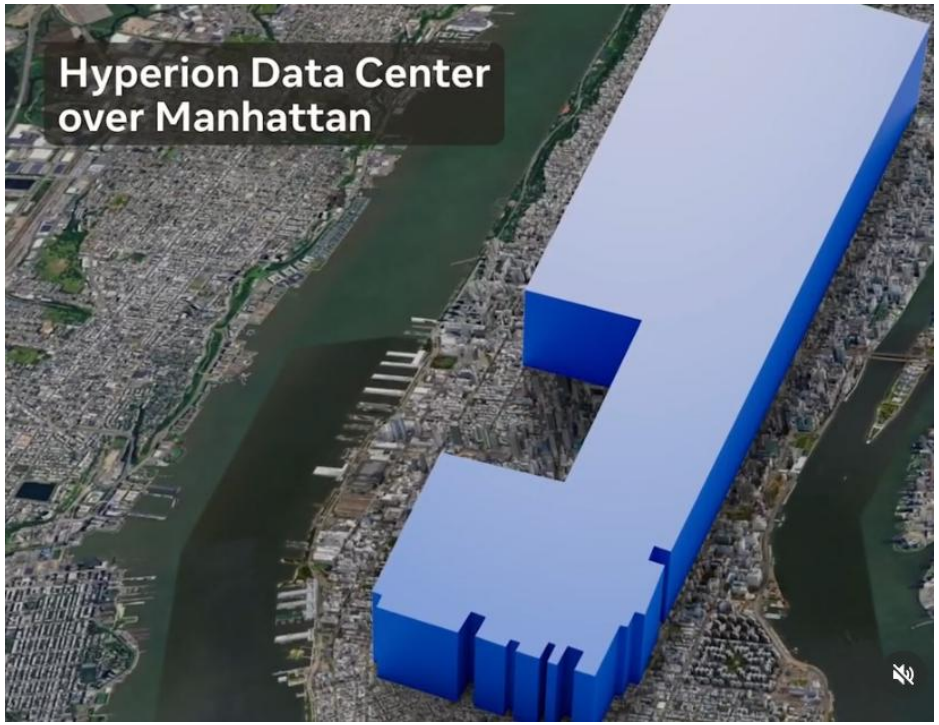
1

Context

- Historical load growth vs. current projections of data center demand
- Growth is coming faster, larger, and more concentrated than expected, overwhelming key data center markets

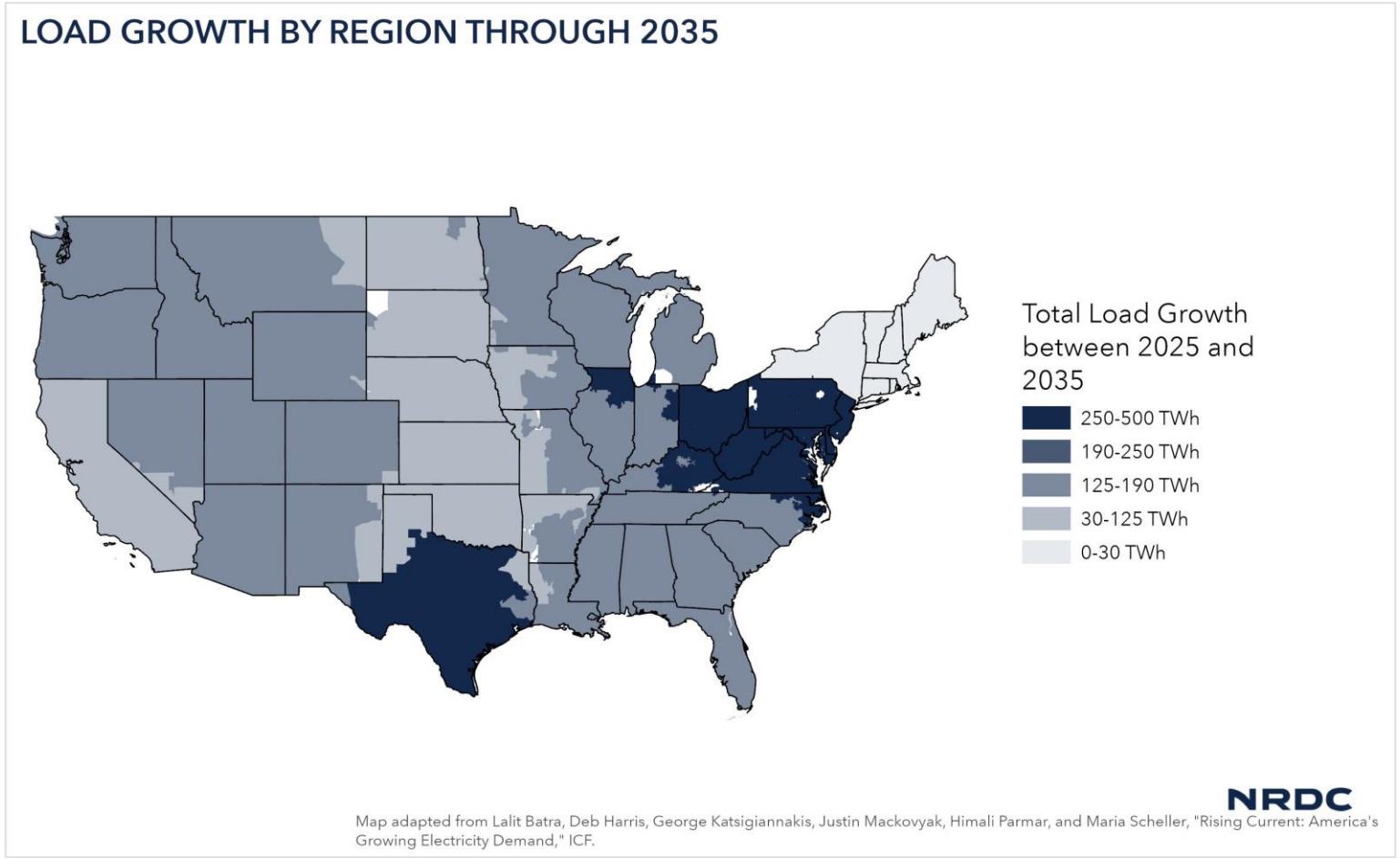
Load Growth: National Context

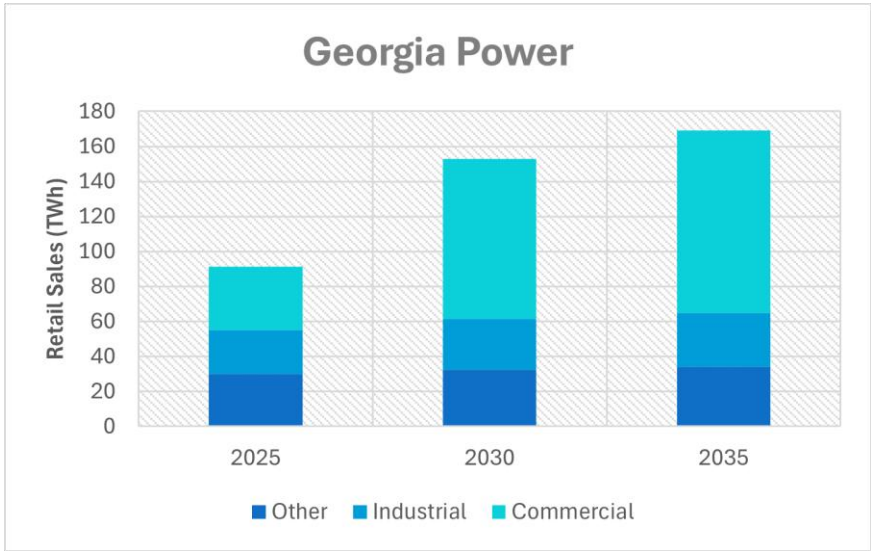


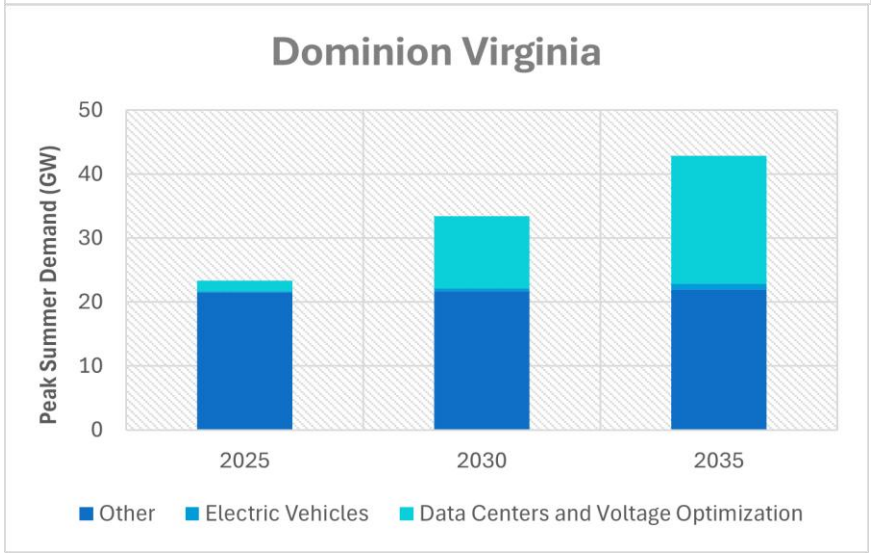


Source: NRDC (data from EIA, ICF, AEO, NERC)

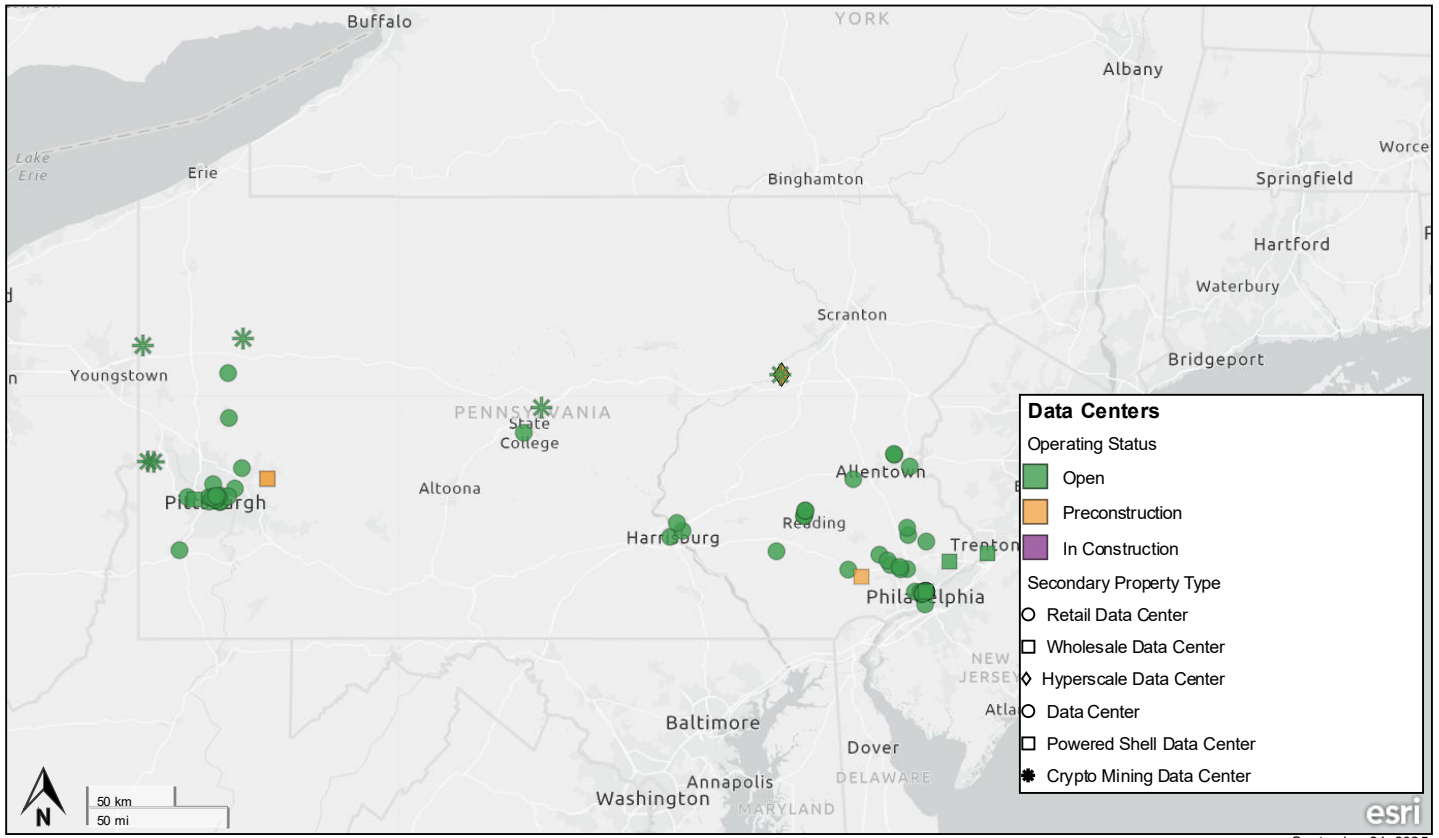
Growth is Highly Concentrated







Data Centers in Pennsylvania

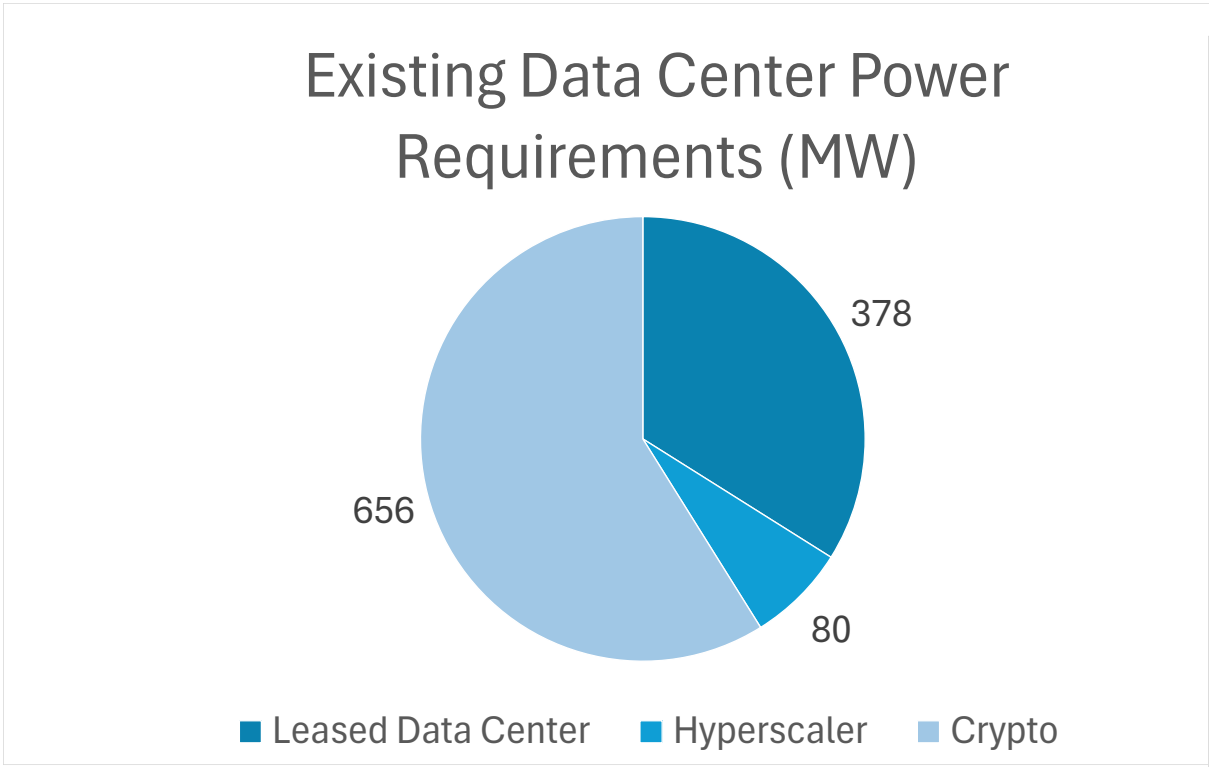


Data centers in PA currently require an estimated 1.1 GW for IT power alone.

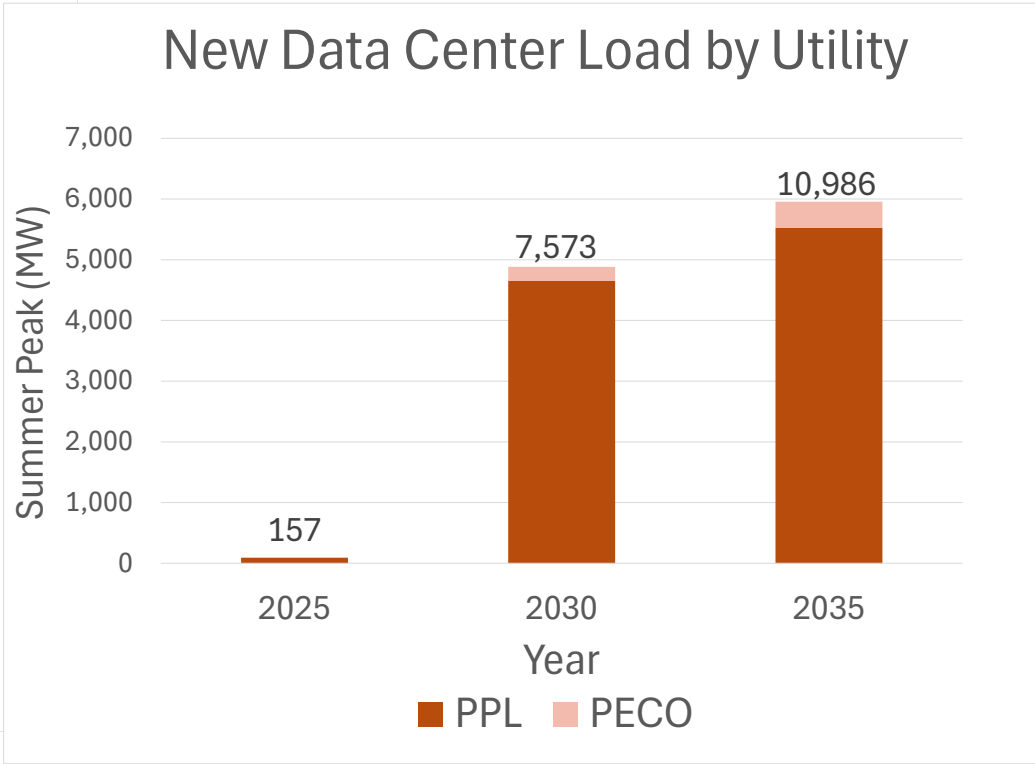
There are currently only 2 hyperscalers in the state, with total IT power demand of around 80 MW.

14 new data centers are in development, of which 11 are hyperscale facilities.

State-Level Data Center Growth



S&P Global Capital IQ Data Center Database



2025 PJM Long Term Forecast

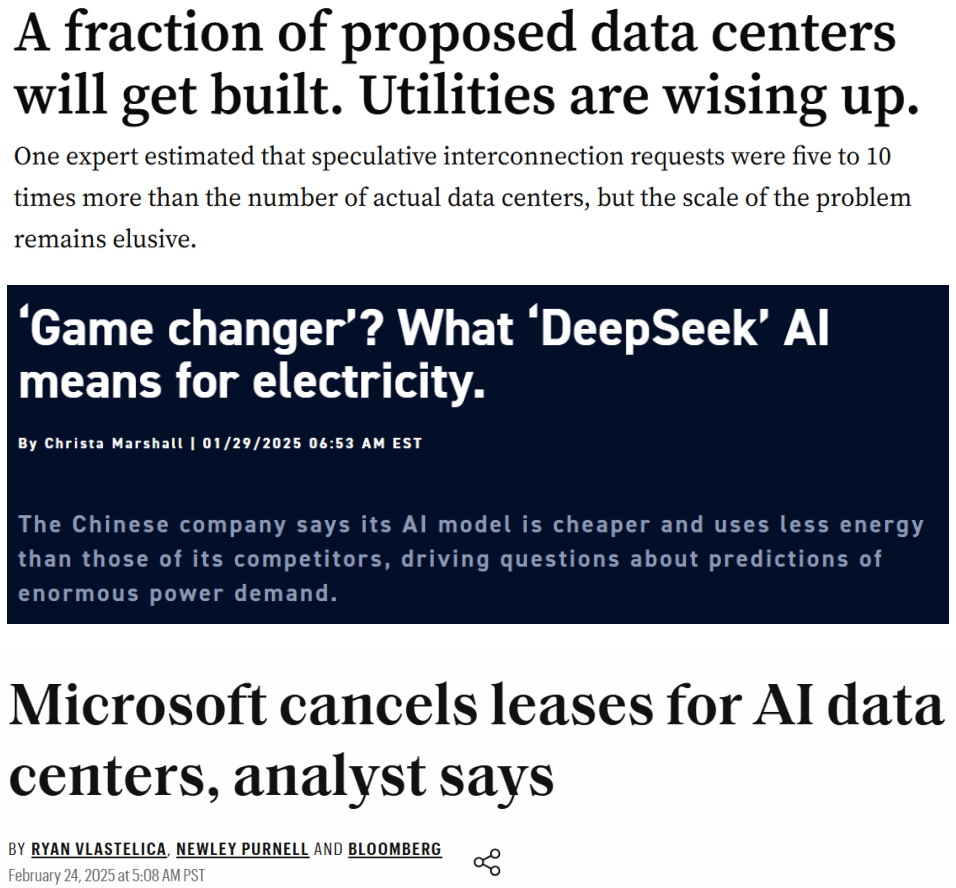
2

What's at Risk?

The worst case

- Data centers will pose unchecked risks to grid reliability
- Electricity costs for everyone will rise for decades
- Fossil fuels are given a new life, locking in emissions and blowing a hole in state climate targets

Affordability at Risk



A fraction of proposed data centers will get built. Utilities are wising up.

One expert estimated that speculative interconnection requests were five to 10 times more than the number of actual data centers, but the scale of the problem remains elusive.

'Game changer'? What 'DeepSeek' AI means for electricity.

By Christa Marshall | 01/29/2025 06:53 AM EST

The Chinese company says its AI model is cheaper and uses less energy than those of its competitors, driving questions about predictions of enormous power demand.

Microsoft cancels leases for AI data centers, analyst says

BY RYAN VLASTELICA, NEWLEY PURNELL AND BLOOMBERG

February 24, 2025 at 5:08 AM PST

Uncertainty in near-and long-term demand forecasts coupled with the highly risky nature of data center developments threatens affordability.

PA customers could see higher bills due to:

- Stranded costs from overbuilt infrastructure
- Cost shifts in the absence of fair ratemaking (large load tariffs)
- Volatile energy and capacity markets

Climate Targets at Risk

Musk Data Center Powered by 35 Unpermitted Gas Turbines, CNN

Concerning national trends in the face of surging demand:

- Increased reliance on existing fossil fuels
- Buildout of new gas
- Delayed retirements of coal and gas plants
- Existing carbon free energy cannibalized by data centers

Data centers in PJM could cause an additional 1,014 million tons of CO2 from 2025-2040 and raise residential bills by 10% (Synapse, Sierra Club)

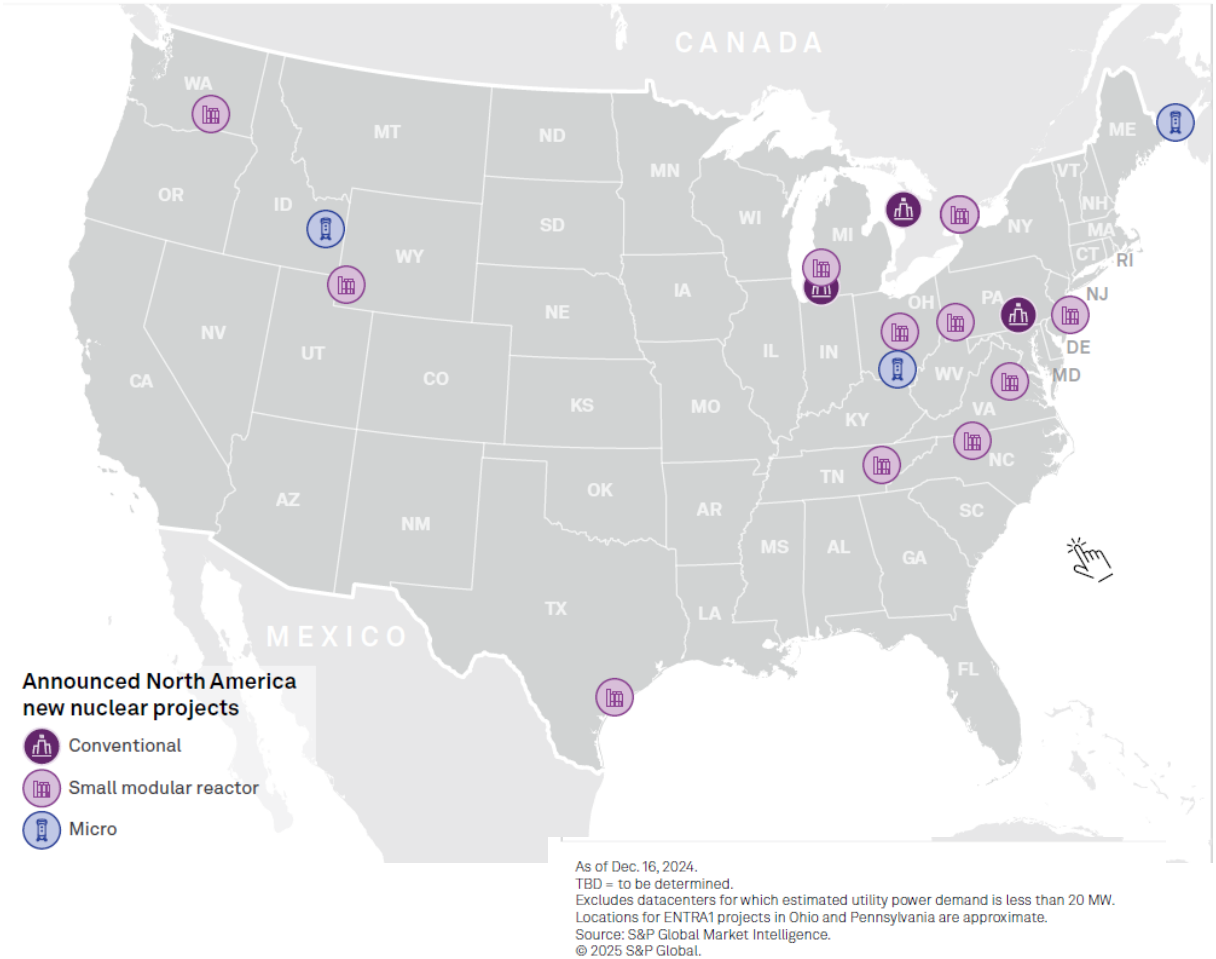
Announced Nuclear Projects

Conventional Nuclear in PA

- Amazon's Colossus campus collocated with Talen's Susquehanna plant
- Microsoft set to restart the Three Mile Island Unit 1 Reactor potentially by 2027

Advanced Nuclear

- Google & 500 MW Kairos advanced nuclear reactor fleet by 2035
- Amazon plans to bring 600 MW of SMRs through X-energy in WA and VA, and is partnered with Talen to explore SMR development in PA



As of Dec. 16, 2024.
TBD = to be determined.
Excludes datacenters for which estimated utility power demand is less than 20 MW.
Locations for ENTRA1 projects in Ohio and Pennsylvania are approximate.
Source: S&P Global Market Intelligence.

Google, Kairos Power ink 500-MW advanced nuclear reactor deal

The master development agreement has Kairos delivering the first small modular reactor by 2030 and developing, building and operating additional power plants through 2035.

Published Oct. 15, 2024

NATIONAL

Three Mile Island nuclear plant will reopen to power Microsoft data centers

SEPTEMBER 20, 2024 · 1:40 PM ET

ENERGYWIRE

Talen Energy sues over FERC's rejection of nuclear-powered data center

By Jeffrey Tomich | 01/29/2025 06:51 AM EST

The lawsuit targets an order that blocked an Amazon data center from connecting to a Pennsylvania power plant.

Existing Nuclear + Data Centers

- 93 GW in PJM, MISO, NYISO, ISO-NE
- If even half go BTM, could result in over 155 million tons CO2 annually
- **Importance of additionality**

PSEG nuclear plant in New Jersey

3

States Should Race to the Top, Not the Bottom

- Strong consumer protections built into large load tariffs
- Clean energy, efficiency, and flexibility requirements

Steering Data Centers in the Right Direction

36 states have data center tax incentives, including PA.
The bar is on the floor for eligibility, requiring at least $100 million of investments and 45 new jobs.

It takes 1-2 years to build a data center, but 5-8 years to connect one to the grid. Solutions which address this barrier are the same solutions which make the grid more connected, increase clean energy capacity, and drive down costs.

Improved planning

- Speculative loads
- Scenario based/ probabilistic modeling

Better investments

- GETs
- Renewables + storage
- Transmission

Customer obligations

- Technical requirements
- Demand response
- BYONCE

Consumer Protections

The collective baseline of load growth management should be data centers paying their fair share. The solution is to align *real* load with utility investments.

Elements of a Capacity Commitment Framework

Eligibility	Terms	Duration	Other
• High initial fee • Collateral • Size threshold (25-50 MW)	• Minimum bills • Exit fees	• 12+ year term • Ramp period • Resizing clauses	• Economic dev. payments • Reporting • Flexibility

Data centers should also contribute funds to low-income assistance, weatherization, and/or energy efficiency programs.

Clean Energy Requirements

Priority: Deliverable, additional clean energy – location (e.g., BTM) is not as important

Legislative Avenues

- **Incentive structures**
  - Speed to connect
    - IL – pending
  - Tax incentives
    - CA – pending
    - MI – enacted (90% annually)
- **Mandates**
  - OR – enacted
  - VA, NJ, IL, others - pending

Regulatory Avenues

- **Clean Transition Tariffs**
  - NV Energy + Google
  - Evergy KS Settlement

Ongoing Policy Opportunities

PA General Assembly

- HB 1834 (Matzie) – "Data Center Act"
  - House Energy Committee vote on Feb. 2, 2026

PJM

- Critical Issue Fast Path (CIFP) – Large Load Additions
  - Reliability Backstop Auction (RBA)
  - Expedited Interconnection Track (EIT)

PA PUC

- Large load model tariff
  - Comment period closed Dec. 22, 2025

FERC

- Advanced Notice of Proposed Rulemaking (ANOPR) – Interconnection of Large Loads
  - Final action expected by April 30, 2026

Robert M. Routh, Esq.
Pennsylvania Policy Director
Climate & Energy
NRDC
rrouth@nrdc.org