EPRI Powering Intelligence 2026 FAQs

February 2026

What is the main takeaway from this report?

Data centers are becoming one of the fastest-growing sources of U.S. electricity demand, and their growth—driven in part by AI—could reshape regional power systems within this decade. By 2030, data centers could consume between 9% and 17% of all U.S. electricity, up from about 4–5% today.

EPRI analyzed three scenarios that varied assumptions regarding the execution of data center projects that are under construction or planned:

- **Low**: Most under construction + 25% of advanced planning are operational by 2030 implies data centers comprise 9% of U.S. electricity by 2030
- **Medium**: All under construction + 75% advanced + 10% early planning implies 13% of electricity by 2030)
- **High**: All under construction & advanced + 30% early planning implies 17% of electricity by 2030

How much electricity do data centers use today, and how much could they use by 2030?

In 2024, U.S. data centers are estimated to use about 177–192 terawatt-hours (TWh) of electricity. By 2030, that could rise to roughly 380–790 TWh, depending on how many planned projects are actually built and how quickly they ramp up.

A single large data center (100–1,000 MW) uses about as much electricity as 80,000 to 800,000 homes — roughly the size of a mid-size to large city.

Using that comparison: Today's data center electricity use is equivalent to the power demand of dozens of large cities combined. By 2030, data centers are estimated to add the equivalent of multiple major metro areas' worth of demand.

Why are these projections higher than EPRI's 2024 estimates?

The updated projections are about 60% higher mainly because of a surge in announced and under-construction data center projects over the past 18 months. Unprecedented data center investment levels observed in early 2024 have steadily increased, especially for large AI-focused facilities.

How much of today's data center electricity use comes from AI?

AI workloads currently account for an estimated 15–25% of data center electricity use, but that share is rising quickly as AI applications expand and become more computationally intensive.

Why is AI such a wild card in electricity forecasts?

AI demand is uncertain because it depends on:

- How widely AI tools are adopted
- How much computation is needed to meet these needs (how fast algorithms improve)
- How quickly hardware and software efficiency improves

Project development timelines and three-to-five-year outlooks for IT hardware production suggest that today's announcements can provide a view towards 2030. The post-2030 outlook is likely driven by future announcements.

Don't efficiency gains usually offset growth in computing demand?

Historically, efficiency gains have helped moderate electricity growth, and they continue to matter. AI algorithms and hardware are rapidly becoming more efficient, making high performance increasingly affordable - a key to broad adoption. However, the scale and intensity of new AI workloads—such as image, video, and agent-based systems—are growing so quickly that efficiency improvements may not fully offset demand in the near term.

Which states are most affected by data center growth?

Virginia stands out nationally. Today, data centers consume more than 25% of the commonwealth's electricity, and that share could rise to 41–59% by 2030.

By 2030, up to seven additional states-- Arizona, Indiana, Iowa, Nebraska, Nevada, Oregon, and Wyoming—could see data centers exceeding 20% of their respective electricity usage.

Why are data centers spreading to new states?

Developers are increasingly prioritizing:

- Access to large amounts of power
- Available land
- Faster permitting

As a result, growth is spreading beyond traditional hubs to states that can meet these needs, especially for very large AI training centers. In most cases, tax breaks and other state and local development incentives continue to play a key role in siting.

How big is a typical new data center in power terms?

The average size of planned data centers is increasing rapidly. A single new data center can require 100 to 1,000 megawatts of electricity, roughly equivalent to the power demand of 80,000 to 800,000 average homes. This creates major planning challenges because data centers can often be built much faster than new grid infrastructure.

There's been talk about BYOG (bring your own generation). What is the reality of this trend and is it captured in this analysis?

A significant number of sites are developing onsite power to partially or fully supply their energy needs. EPRI's recently issued speed2power paper discusses the trade-offs developers face when doing this.

As part of this analysis, the demand estimates and REGEN modeling of electricity supply were agnostic to generation ownership or location (near, behind, or in front of the meter). The modeling also did not address the potential benefits of data center flexibility in reducing peak demands. The development of energy assets (generation or storage) at or near a data center site can enable the data center to reduce its demand when the grid is stressed, making it a flexible grid asset.

Can the electric grid handle this growth?

The grid can support data center growth, but timing is a major challenge. Power plants, transmission lines, and substations often take many years to plan and build, while data centers can come online in just a few years. This mismatch puts pressure on utilities and regulators.

That’s why collaboration between data center developers, energy and equipment providers, policymakers, and communities is key to data center buildout. Efforts like EPRI’s DCFlex initiative are key to accelerating progress.

- DCFlex: an effort to balance the needs of power systems with the energy requirements of large loads, such as data centers.
- 60 members+. The global initiative brings together hyperscalers – like Google, Microsoft, Meta – with data center developers, technology companies, utilities, grid operators, and equipment suppliers.
- Nine global demos testing grid flexibility in real-world applications. Press Releases

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What does this mean for electricity rates?

This paper didn’t analyze electricity rates, which are largely set and approved by state regulators. Win-Win Watts discusses some of the basic issues around load growth, rates, and emerging tariff designs.

Do announced data center megawatts equal immediate grid impact?

No. Announced or “headline” capacity should be treated as a pipeline indicator, not a near-term peak forecast. New data centers ramp up over several years, and their actual peak demand is typically well below their stated maximum capacity.

What types of power generation are most likely to meet new data center demand?

Under current federal and state policies, natural gas is projected to be the dominant source of new power generation in the near term. In the highest-growth scenario, gas build rates more than double recent historical averages.

If data centers adopt and achieve 24/7 carbon-free energy targets, which some have committed to, renewable and battery additions dominate, with new nuclear generation coming online when possible.

How does data center load growth impact overall load growth?

Total U.S. electric load is projected to growth from 2% to 3.6% per year, depending on the data center growth scenario, a significant increase from 0.8% annually observed from 2019-2024.

How do data centers affect emissions?

Without carbon-free commitments, each additional megawatt-hour of data center electricity carries an emissions intensity similar to today's grid average. That means rapid data center growth could increase power-sector emissions unless cleaner supply or flexibility strategies are used.

What are the biggest uncertainties in the projections?

Key uncertainties include:

- Whether announced projects are actually built
- How fast new facilities ramp up
- Future AI adoption and efficiency trends
- Supply chain, labor, and permitting constraints

That's why the report presents a range of scenarios rather than a single forecast and focuses on 2030 rather than further in the future.

How do these projections compare with other studies?

Despite using different methods, EPRI's projections are broadly consistent with December 2024 estimates from Lawrence Berkeley National Laboratory (LBNL). The LBNL team's estimates start with projections of chip and equipment shipments rather than project announcements.

What does the report say needs to happen next?

The report emphasizes:

- Better short- and long-term load forecasting
- More effective use of existing grid assets
- Greater collaboration among data center developers, utilities, policymakers, and communities

Initiatives like EPRI's DCFlex, Mercury, and other efforts aim to turn data centers into flexible grid assets.