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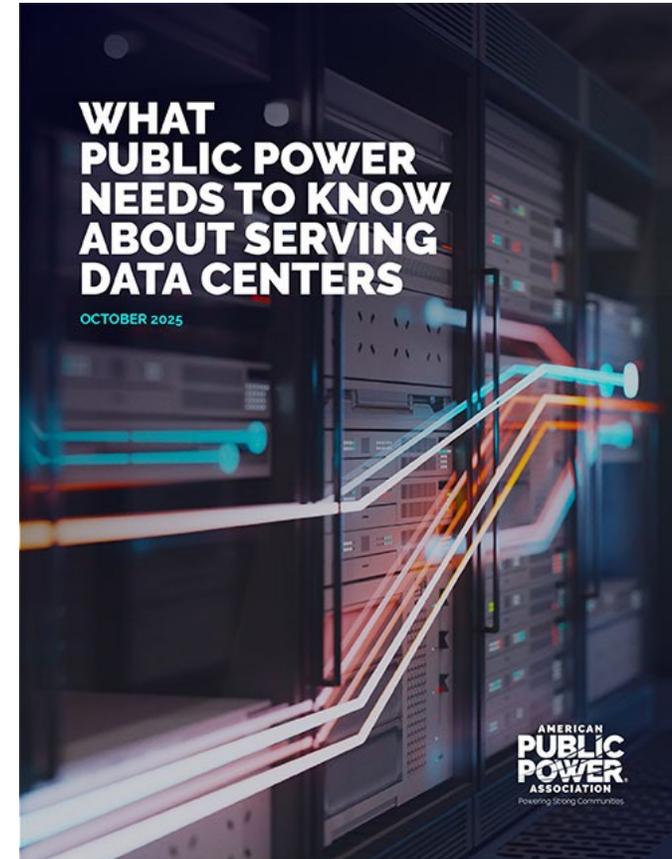
From Load Growth to Grid Impact: Meeting the Data Center Energy Challenge

Connections Summit

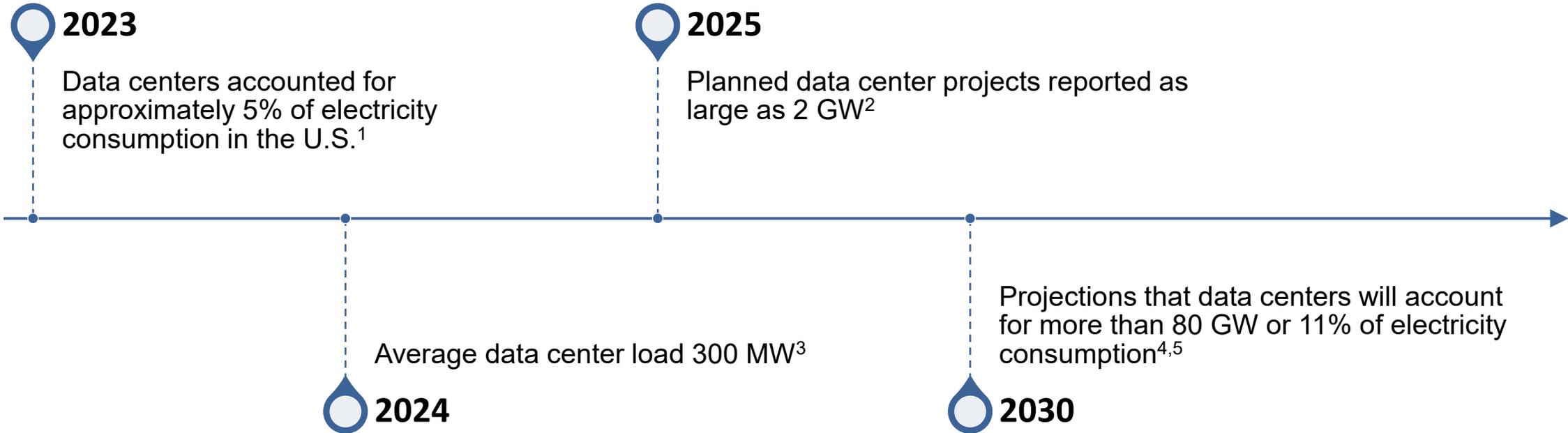
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What Public Power Needs to Know about Serving Data Centers

- [October 2025 report for APPA members](#)
- Report features:
 - Market landscape
 - Industry challenges
 - Data center background
 - Utility considerations and strategies
 - Public power case studies



Data Center Market



¹www.woodmac.com/horizons/gridlock-demand-dilemma-facing-us-power-industry

² <https://www.deloitte.com/us/en/insights/industry/power-and-utilities/data-center-infrastructure-artificial-intelligence.html>

³www.woodmac.com/horizons/gridlock-demand-dilemma-facing-us-power-industry

⁴ <https://www.mckinsey.com/featured-insights/week-in-charts/ais-power-binge>

⁵ <https://www.mckinsey.com/industries/private-capital/our-insights/how-data-centers-and-the-energy-sector-can-sate-ais-hunger-for-power>

Factors that Impact Forecasting

 Energy efficiency

 Cost-effectiveness for AI business applications

 Tariff uncertainty

 Grid and supply chain constraints

 Multiple interconnection requests for a single project

 Public policy changes

Industry Challenges

Reliability

- NERC's [2025 State of Reliability](#) report says data centers are “one of the greatest near-term reliability challenges”

Permitting and Interconnection

- Difficult and time consuming to build new infrastructure

How Data Centers Are Different from Traditional Commercial & Industrial Customers



Scale



Pace



Operating
Profile



Community

Hyperscalers



Refers to companies like Alphabet, Amazon, Google, Meta, and Microsoft that deploy large-scale data centers



Data centers can be for AI and conventional use cases



Major driver for clean energy deployment

Data Centers and Load Flexibility



Conventional and AI data centers typically run 24/7



What can help flexibility?

Shifting operations to different times and locations
Behind-the-meter assets
Changing operating temperatures



What to watch: DCFlex Initiative

Utility Considerations

Serving data center customers can present challenges across the following utility functions, but there are also opportunities and strategies to mitigate risk

- Electric revenue
- Reliability
- Power supply
- Transmission & distribution infrastructure
- Interconnection queue

Public power communities may also consider factors such as siting, competitive appeal, and the benefits to the broader community

Utility Strategies

Interconnection

Rate Tariffs, Riders, Rules, and Regulations

Power Supply

Customer Engagement

Interconnection



Develop a process



Require customer to pay a fee



Collect credit rating and collateral or customer deposit



Require customer to pay a deposit for capital costs and line extension with additional capital payments or financial commitments as costs to the utility increase



Establish facility design and customer performance criteria

Rate Tariffs, Riders, Rules, and Regulations

01

Establish new rate

02

Establish customer revenue, load, load factor, and/or ramp rate requirements

03

Define rate or contract duration

04

Implement exit fees

05

Offer demand response rider or program

06

Offer interruptible rate or rider

Power Supply



Offer clean energy rate or rider



Leverage a power purchase agreement or market purchases to serve customer

Customer Engagement



Engage key stakeholders early and often during the interconnection process



Work with customer to understand their needs and operations



Discuss behind-the-meter distributed energy resource opportunities

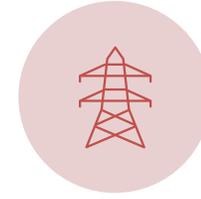


Discuss siting opportunities

Major Developments Since Publication



AFFORDABILITY



RELIABILITY



SPEED

- [Department of Energy Request for Information: Accelerating Speed to Power/Winning the Artificial Intelligence Race: Federal Action to Rapidly Expand Grid Capacity and Enable Electricity Demand Growth](#)
- [Secretary of Energy's Advanced Notice of Proposed Rulemaking: Ensuring the Timely and Orderly Interconnection of Large Loads](#)
- [North American Electric Reliability Corporation: Preliminary Reliability Guideline: Risk Mitigation for Emerging Large Loads](#)
- [Federal Energy Regulatory Commission orders PJM to establish rules to facilitate service to data centers and large loads that co-locate with generating facilities](#)
- [National Energy Dominance Council and Mid-Atlantic Governors announce agreement to urge PJM to make electricity more affordable and reliable, including asking data centers to pay for new generation built on their behalf](#)

North Carolina Spotlight

Map of data centers in North Carolina

Here is a map of all data centers in North Carolina. Blue markers indicate operating data centers, while orange markers show planned facilities.

● Operating ● Planned

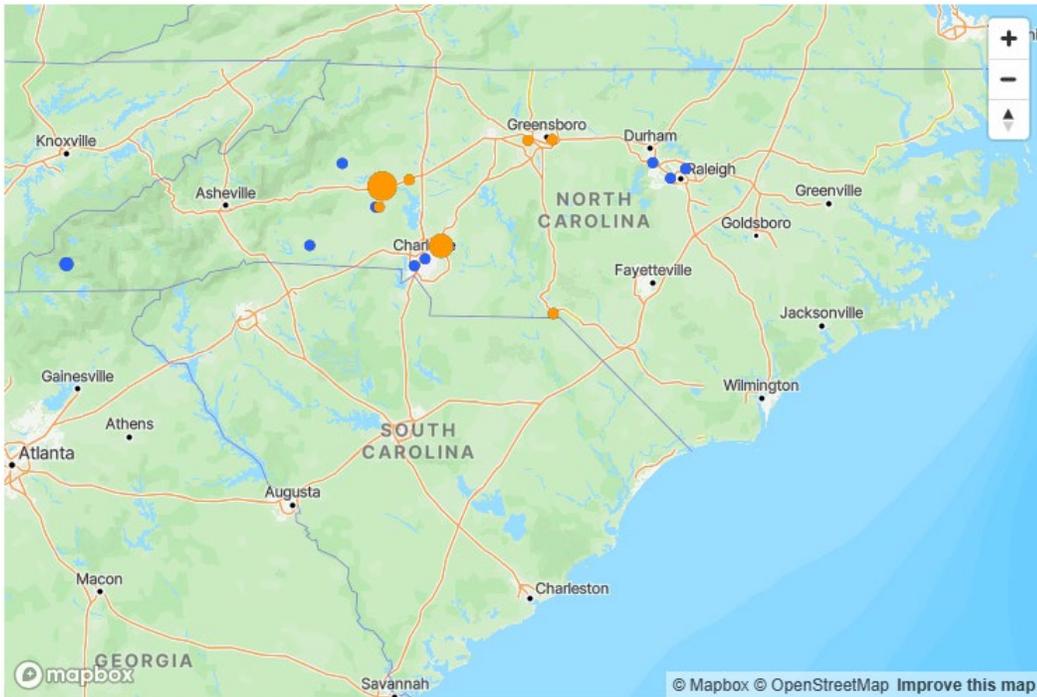


Figure from Cleanview¹

Amazon plans to invest \$10 billion in North Carolina to expand cloud computing infrastructure and advance AI innovation

Planned investment in Richmond County will create hundreds of jobs and support new workforce development training programs and local community projects.



Figure 3: Surging Energy Needs

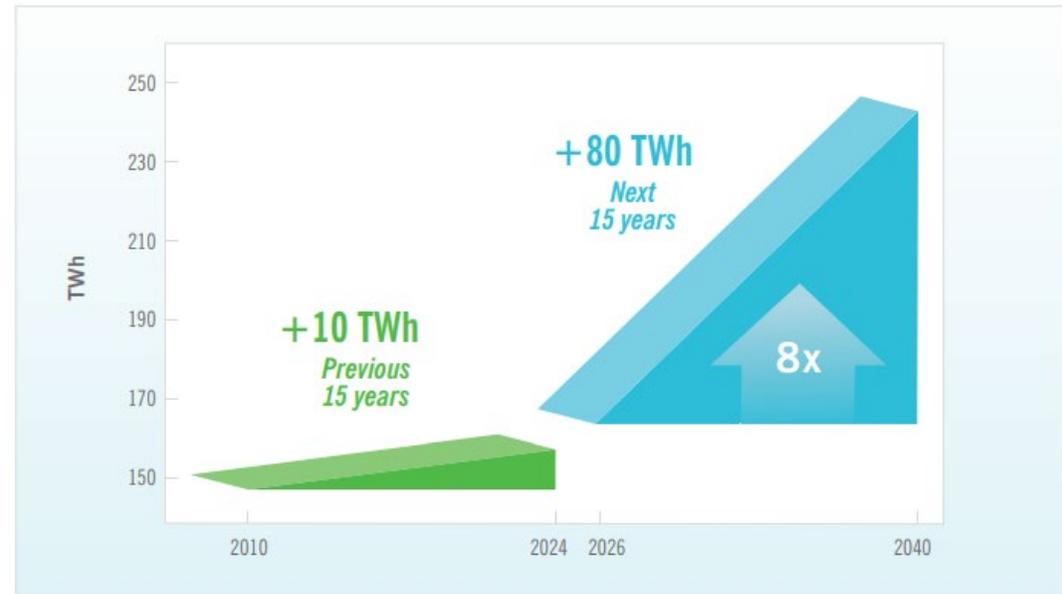


Figure from 2025 Carolinas Resource Plan Submitted by Duke Energy²

North Carolina Policy Considerations

- The state has policies to attract data centers like sales and use tax exemptions for the following:¹
 - Electricity and support equipment purchased for a “Qualifying Data Center”
 - Electricity and certain business property purchased for an “Eligible Internet Data Center”
 - Computer software at a “Data Center”
- 2025 headlines suggest that NC is grappling with the same challenges we are seeing nationally—communities seeking to balance the potential benefits of serving a data center along with the challenges
- Local zoning appears to be a hot button issue
- North Carolina Utilities Commission held a technical conference last fall on large load customers and advised utilities to propose rates or contract provisions for large loads in future rate cases²

Next Steps

Prior to Data Center Request

- Review and evaluate utility rates, rules, and policies related to interconnection.

Update or develop if needed.



Tip: Use the report tables to help frame a conversation with your leadership team and subject matter experts to evaluate your readiness for serving data center customers

After Receiving Data Center Request

- Work with customer to understand its needs and operations.
- Discuss distributed energy resource and demand response load management options.
- Talk to customer about siting opportunities.
- Share applicable rates, rules, and policies.

Want to Learn More?

APPA Website

<https://www.publicpower.org/>

What Is Public Power?

<https://www.publicpower.org/public-power>

Where Is Public Power?

<https://www.publicpower.org/where-public-power>

Stats & Facts

<https://www.publicpower.org/public-power/stats-and-facts>

Contacts

Patricia Taylor

Policy Director

American Public Power Association

PTaylor@PublicPower.org