THE KILOWATT TKC LLC COLLABORATIVE

The Nuances of Data Center Development

Fayetteville Economic Development – 01/29/2026

About me – John Geib

More than 40 years in utility business serving in various roles ranging from Distribution engineering to Commercial/Industrial Account Management and Economic Development.

While with Duke Energy:

- successfully attracted large industrials and data centers
- helped build Duke's site readiness program
- worked with external parties to assemble and execute North Carolina's first Mega-Sites.

Formed the Kilowatt Collaborative, LLC to assist clients with understanding regulatory affairs and utility infrastructure and navigating Electric Utility operations, policies and practices.

Definition of a Data Center

A large group of networked computer servers typically by organizations for the remote storage, processing, or distribution of large amounts of data

A Casual observer's history of Data Centers

- Pre '95 – Data centers were located in small rooms in the corporate office.
- 1995 – Internet begins to build out on West coast
- 2000 - Internet bubble bursts and Utilities left holding "stranded assets"
- 2005 - 2010 East coast Enterprise and Internet Data Center booms 20-30MW – North Carolina Enters the fray!
- 2017 - Crypto currency mining hits the scene 50-200 MW
- 2023 - Initial Hyper-scaler inquiries 300-1000 MW
- 2025 – Utility industry overhauls service regulations on projects > 100 MW

Understanding electrical terms – The Watt (Kilo, Mega, Giga)

- The watt is a unit of the rate of flow of electricity. Peak flow is called demand or load.
- 1 Kilowatt (KW) = 1000 Watts
- 1 Megawatt (MW) = 1000 Kilowatts = 1,000,000 Watts
- 1 Gigawatt (GW) = 1000 Megawatts > the capacity at Duke's Shearon Harris Nuclear Plant
- In the Carolinas, Duke Energy has 35 GigaWatts of capacity, which serves customers and local providers including PWC, South River & municipal power systems
- The peak power flow of a client is a main determinate of the cost to serve them

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Samples of Peak load requirements for various uses

- Cell phone charger – 6 watts or 0.006 KW
- One question with Chat GPT 12 watts or 0.012 KW
- Residential – 5 KW
- Walmart -500 KW
- Textile Mill – 5,000-10,000 KW or 5-10 MW
- Crypto currency mining operation 20,000 KW or 20 MW
- Automotive assembly facility – 25,000 KW or 25 MW
- Paper Mill – 100,000 KW or 100 MW
- Hyperscaler – 300 – 500 MW – (currently largest feasible in Cumberland County)
- A/I Training Data Center 1000 MW and beyond

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Different Types of Data Centers

AIT – Downtown
Fayetteville, NC

Apple Campus –
Maiden, NC

Segra Data Chambers –
Kannapolis, NC

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Types of Data Centers

Types of data centers are confusing and evolving and have different business models:

Corporate – 10-30 MW

Edge 20-40 MW

Cloud – 100 MW

Co-Location – Data Center developers 100-500 MW

Cryptocurrency mining – ultra large calculators – 20-200 MW

Hyperscalers – Dominated by Meta, Google, Microsoft, and Apple

Artificial Intelligence Training, Storage, Inference, etc. 300-1000 MW

Large Users Required a Change in Policy – Not just in NC

Electric Grid was not designed to serve ultra large loads.

Cost to serve is very high

Historical utility cost recovery models were not suited to these projects

Traditional service regulations are insufficient.

Risk – 10 year growth models

Will these projects grow to where they say they will?

And what happens if they don't? – Stranded Assets

Arising New Technologies (eg Deep Seek)

Timely Power Grid expansion

Time lags between Duke's construction and Project's needs

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What changes were made in NC?

Substantial upfront charge for system modeling studies

Customer must own the land and have it zoned / entitled for Data Centers

Project must fund transmission costs upfront (typically $30-100 MM)

(Generation costs still under study)

Revenue credit disappears

Customer must sign full power service agreement in 90 days.

Customer acknowledges that required capacity is not in the IRP.

Customer must agree to interrupt service 100 hours / year.

Much of this done to prevent Data Center costs from increasing rates to all customers.

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Data centers – The Good, The Bad, and The Ugly

Disadvantages:

Huge power consumers

Modest employment requirements

Potentially large water consumers (similar to a large textile operation)

Could utilize a large portion of available power/water supplies locally

On site generation means potential environmental concerns

Advantages:

Huge investments mean big tax base

Incentives are not the primary driver

Modest high tech employment reqs

Infrastructure of the future

Most clients support the community

Client's creditworthiness

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Recommended Community Conversations

With existing infrastructure and industrial zoned land, projects will be interested in your community, understand capacity corridors

If projects are not seeking incentives, there must be other tools in place to ensure community expectations are met?

From small users in existing buildings to large users on industrial sites, what locations are suitable for which type of project

Advocate for proactive adoption of development standards and regulations to limit potential impacts on the surrounding community (noise, emissions, etc.)

When a project comes forward, ask the tough questions

Stay abreast of new developments in technologies and related issues which are rapidly evolving

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