OHIO'S ELECTRIC COOPERATIVES
Your Touchstone Energy® Cooperatives

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Data Centers, Power Supply, and Electricity Rates—How They Impact Each Other & Electric Cooperatives

Electricity Supply-Demand

Ohio and America's appetite for electricity is at an all-time high. Why? Our world is more electrified today with hi-tech gadgets, electric cars, and the need to stay warm or cool during extreme weather seasons. When demand is high and supply is low, prices go up in a volatile energy market. Consumers of public utility companies, also called investor-owned utility companies (or IOUs), experienced rate spikes firsthand this summer. Thankfully, rates among Ohio's electric cooperatives have remained stable. Co-op members are shielded from volatile energy markets and rate spikes because they own their power generation plants.

Why is the supply of electricity shrinking? Less power generation in the state. In 2009, Ohio had 21 coal-fired power plants generating electricity. Today there are just 3 remaining after closures due to expensive, tightening EPA regulations. The impending imbalance between supply and demand is the root cause of the high electric bills for public utility consumers. But the increasing price of transmission of electricity is impacting everyone.

More Power Demand at Our Doorstep

As supply is shrinking, power demand is growing at a steep rate. Data centers are driving the surge in power demand across the country. In 2020, the big four in data—Amazon, Microsoft, Google and Meta—were collectively spending $25 billion every quarter for capital investment in data centers. Today, in 2025, they are spending four times that amount—$100 billion a quarter—according to their own websites.

What Are Data Centers?

Data centers are the place where our favorite television shows, movies, photos, websites, and other cloud data gets stored. More recently, they are the training ground for artificial intelligence tools like ChatGPT, and they consume a lot of power. A single ChatGPT search for information requires ten times the power of a standard Google internet search. To put it into a power perspective, historically, one of the largest industrial manufacturing plants in Ohio used 500MW, and most large plants use less than 50MW. A single hyperscale AI data center can use 1,500 MW—enough to power 1.5M homes.

Data Centers in Ohio

Data centers are increasing power demand in Ohio too. Central Ohio is currently experiencing massive data center growth, mainly outside electric cooperative territory. But

that is changing. Soon, the first Ohio electric cooperative will begin serving a small data center, and several more cooperatives are in discussions with data centers now, and interest continues to grow.

The largest investor-owned utility in the state, AEP Ohio, states that electric demand from data centers in Central Ohio today accounts for 4,000MW of the 9,400MW it serves across the state. By 2030, AEP Ohio expects electric demand from Central Ohio data centers to double to 8,000MW. Another 30,000MW of proposed data center projects are seeking to connect. That's more electric demand than the entire state of Ohio. Serving these new loads will require billions of dollars of investment in the transmission system, plus take years to build.

The Generation Gap

PJM, the regional transmission organization that manages supply and demand on the grid in Ohio and 12 other states, is indicating there may not be enough power generation resources to serve the projected demand from data centers.

Renewables are coming online, but wind and solar can't always meet peak demand. To make matters more challenging, more baseload generation is expected to retire because of USEPA rules and business decisions made several years ago.

Again, it's this impending imbalance between generation supply and power demand that's causing concern across the state and impacting the price of electricity for customers of investor-owned utilities, or IOUs, like AEP Ohio, AES, and Duke Energy.

Impact on Electricity Reliability

Power reliability has been a concern for several years, even before data centers entered the picture. Power demand was climbing due to our more electrified society, and particularly during extreme winter cold snaps and extremely hot summer days when electricity usage is high. The curve for increased power demand looks even more steep for the coming years.

Will there be enough power to meet Ohio's power needs year-round, especially if data centers come online?

The reliability of electricity in Ohio and the PJM region has been a concern since 2022. Ohio's electric cooperatives have been alerting members and the public to the risk to electricity reliability and affordability since December 2022 when Ohio narrowly escaped blackouts on Christmas Eve during a stretch of extreme cold. Power demand was very high as people tried to stay warm, and supply was low due to plant closures and some natural gas plants freezing. The explosive growth of data centers is increasing a concern that already existed.

Thankfully, for Ohio electric cooperative members own Buckeye Power, Inc., the power generation cooperative for Ohio's distribution cooperatives. It has enough generation assets to meet all Ohio electric cooperative members' current power demands, even during extreme hot and cold weather. As future demand may be driven upward by data

centers, Buckeye Power leadership affirms it will not bring on new load until there is enough generation to support the load.

However, Buckeye Power and Ohio's Electric Cooperatives operate only one part of a large, shared electric grid, and we collectively share the responsibility of keeping the lights on. We must continue to advocate for responsible planning, operation, and cost sharing of the grid so that all of us can continue to reap the benefits of reliable electric power.

If We Build It, Will They Come?

"We're not going to build $2 billion in new generation on the hope that a data center meets its load forecast," said Ben Wilson, Vice President, Power Generation, Buckeye Power, Inc.

The company believes it is critical to get upfront cost commitment from data centers that come online before any new generation is developed to meet the data center's load projections.

"Our focus is making sure all additional costs to serve a data center aren't shifted to electric cooperative members," Craig Grooms, President and CEO, Buckeye Power, Inc.

The transmission system is paid for by everyone that uses it through transmission rates. Calculating a transmission rate is relatively straightforward. In simple terms, it's the value of the transmission system itself divided by the number of megawatts served by the system during peak demand, which is a one-hour point when usage of the transmission system is at its highest.

Constructing new transmission lines and stations are investments in the transmission system that increase the system's value and cause transmission rates to rise. Increasing demand on the system (while making little to no investment) can have the opposite effect and lower transmission rates; but present a risk to reliability.

So how are transmission rates affected by connecting data centers? It would require billions of dollars of investment in the transmission system to serve these loads, but data centers also increase the number of megawatts served by the transmission system during peak demand. If the data centers increase system demand by as much as they claim, transmission rates could remain unchanged or even decrease.

We know transmission owners like AEP Ohio are planning to make billions of dollars of investment in their transmission systems, and those investments will lead to higher transmission rates. If the data centers don't show up as planned and fail to increase demand on the transmission system, transmission rates would skyrocket.

To prevent huge increases in transmission rates, it is critical for data centers to commit to coming online and meeting their load projections. This will ensure that the transmission system investments are used and useful, and the cost of those investments is not burdening other customers using the transmission system.

It's like sharing a pizza with a group of friends where everyone pitches in a certain amount to pay for pizza they plan to eat. If someone doesn't show up to eat or pay for their share of pizza, everyone else is left to pay more. Plans have already surfaced to prevent this from happening with data centers.

- **Retail level plan:**
  Investor-owned utility, AEP Ohio just received approval for a retail tariff for data centers aimed at weeding out speculative data center requests. The plan also incentivizes data centers to accurately forecast their load and would require them to pay for 85% of the load they forecast, whether the load is reached or not, so the utility isn't overbuilding transmission and negatively impacting rates. AEP Ohio also included exit requirements to prevent a data center from coming in and leaving a year later after transmission is built. AEP Ohio's plan protects their retail customers but does not protect wholesale customers like electric cooperatives.

- **Wholesale level plan:**
  AES Ohio came up with a similar plan but would put all monies collected from the data center's requirement to pay a minimum percentage of its forecasted load and apply it at the wholesale level so rates for electric cooperative would not be impacted by stranded costs. Buckeye Power, Inc. favors this approach.

- **Wholesale level plan:**
  Dominion in Virginia took another wholesale level approach supported by Buckeye Power, Inc. Instead of basing transmission rates on one hour of peak demand per year, the plan proposes averaging 12 hours of peak demand a year to make it more difficult for a data center to fool the system by shutting off for one hour during peak load to defer the costs to everyone else. In this scenario, the data center would pay for its actual usage on the system.

- **Pay to play plan:**
  Another plan supported by the Ohio Consumer Council proposes making data centers pay for any new transmission built for them, but that is difficult to do in practice if you have many new large loads on the system.

Again, it is critical to get commitment from data centers that they will come online and meet their load projections.

Data Center Impact on Electricity Rates

How do, or will, data centers impact electricity rates for electric cooperative members?

If done correctly and carefully, a data center load coming into a co-op service territory could positively impact members and their rates. The key is to establish appropriate rates

for the data center to ensure that they contribute to the shared costs of the grid and that they fund any new grid investment that must be made to accommodate their business.

Another analogy might help to better understand how a data center entering a co-op's service territory might benefit co-op members and rates. Imagine you operate a small farm that produces high-quality beef. You sell this beef to over a thousand loyal area customers. One day, Costco contacts you to say that they love your product and want to start selling it through their stores. They want to do this as soon as possible, and they want to buy 3x the amount of beef you currently produce. This presents a great opportunity: Costco's size will help cover a lot of your existing costs, which will help keep costs down for your existing customers! However, it must be managed wisely: you'll need to triple the size of your farm, requiring you to buy more land and more machinery, so you'll want to make sure that Costco is making a firm long-term commitment to your farm.

If a large data center locates in the co-op service area, its electricity demand could be bigger than a co-ops entire current system. That's like the farm adding Costco as a customer. The co-op's overhead costs can now be spread across a lot more units of energy, positively impacting the rest of the membership—with lower per kilowatt prices for everyone. The key is making sure it's the right data center, one that commits long-term and uses the amount of electricity it believes it is going to use on a regular basis.

And remember, Buckeye Power will not bring on new load without proper power generation to support it. And Buckeye Power will not invest in new generation to support a new load without a commitment from the data center causing the load increase to pay for the generation investment.

Build Power Generation Faster

Data centers are willing to build their own generation, but historically, they've only built renewables. The demand growth has data centers now realizing they need reliable, dispatchable generation resources. They are making investments in small modular nuclear, as well as Bloom Energy fuels cells, which convert natural gas, biogas and hydrogen into electricity, with low to no carbon emissions. Some have even installed thermal resources with plans to island those resources, meaning they won't connect to the grid so they can avoid transmission costs and the length of time it takes to build transmission.

Some data centers have also sought to locate next to existing generating resources (like nuclear plants) so that the generation from those plants would be dedicated to serve the data center rather than the rest of the grid. These options help data centers to come online faster but do not resolve the overall capacity shortfall Ohio and the PJM region are facing.

Ohio legislators support a competitive energy market in the state and are incentivizing generation companies to build new generation in Ohio. Higher market prices may also help

encourage new generators to construct new plants but have driven up energy costs for customers whose utility does not own generation to serve its customers.

Impact on Distribution Cooperatives

Data centers are connected at the transmission level, but they are still considered retail loads. Since little to no cooperative-owned distribution equipment is required to serve a data center, it can be difficult to allocate fixed distribution costs to data centers.

Co-ops serving data centers can see a benefit—possibly lower rates, more stable, slow-to rise rates if they've vetted the data center carefully and obtained firm commitments from data centers, including lengthy contract terms and collateral requirements, prior to establishing service.