

IF YOU BUILD IT, THEY WILL COME... BUT WILL THEY STAY?

Data Center Challenges and Opportunities for the Power Industry

Over the past year, the phrase “artificial intelligence” (AI) has infused itself into discussions of practically every topic imaginable. This has been particularly true in the investing world, where stocks of the “magnificent seven” technology companies dominated the headlines in a year that was not lacking for news. The magic of AI—or, more specifically, expectations of unprecedented amounts of energy to power it—also rubbed off on the otherwise boring world of utilities.

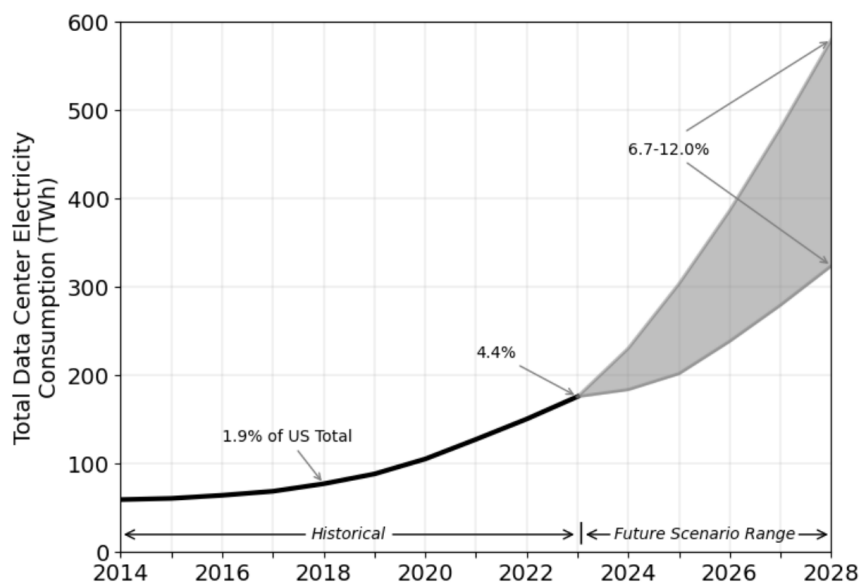
Throughout much of 2024, data center development fueled expectations of concentrated and rapid around-the-clock electrical demand growth in several regions of the U.S. Lofty expectations for exponential growth of data-driven power demand proliferated, such as the example in Figure 1.

In short order, AI and related data-crunching surpassed vehicle electrification as the Next Big Thing for power demand. Investors bid up shares of non-regulated merchant power producers (often erroneously referred to as “utilities” in popular media) as AI derivative plays, reflected in Figure 2.

While not as lofty as the power generator stocks, plain vanilla regulated utilities weren’t left behind either, posting a gain of nearly 25% to tie the S&P 500 (and reversing two years of negative returns). Questions about data centers and AI development dominated almost every discussion between utility managers and Wall Street analysts, creating a natural temptation to jump on the data-driven load growth bandwagon—and chase the soaring stock prices that came with it.

That was, at least, until a pesky AI upstart managed to crank out a large language model over a weekend,

Figure 1: Power Demand from Data Centers (in terawatt-hours)



Source: Berkeley Lab, December 2024
United States Data Center Energy Usage Report

seemingly with little more than a Nintendo Game Boy, some duct tape, and a couple of flashlight batteries. Holders of U.S. power-related stocks were jolted by a 30% share price drop as markets rudely questioned the durability of boundless electricity growth projections.

Without making any predictions, we'd point out that the U.S. electric power sector is no stranger to the maxim that "if you build it, they will come." But the real question is "will they stay?" Industry veterans will recall the massive buildout of nuclear and coal plants in the 1970s and subsequent financial upheaval that bankrupted at least one utility when projected load growth did not materialize. This

was followed by the early-21st-century surge in natural-gas-fired generation that ran headlong into an economic slowdown and energy efficiency measures (e.g., LED lighting). Providing power at data center scale means committing lots of investor capital to assets with life spans that (still) measure in decades. That may not align well with customer needs that can turn on a dime.

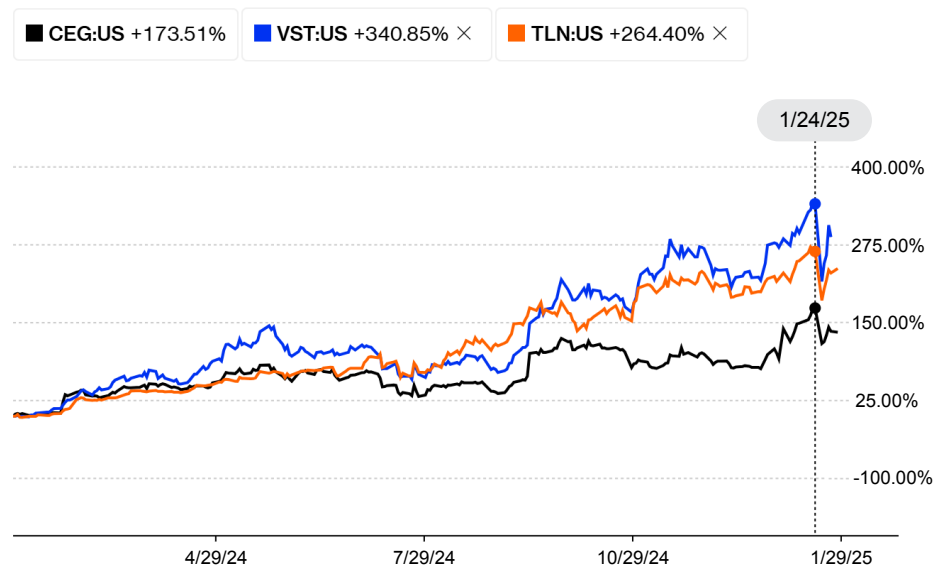
Regulated vs. Merchant Considerations

Of course, it's important to distinguish between the unregulated merchant power producers (which are free to sell power at whatever price they can fetch) and utilities whose rates are subject to state and federal regulation. A proposal last year by Talen Energy to "co-locate" a data facility adjacent to the Susquehanna nuclear generating facility quickly squared off regulated and non-regulated players in a battle over cost causation (and allocation) on the regulated transmission grid, raising the question of who pays for what. The Federal Energy Regulatory Commission (FERC) sided with the utilities in a split ruling that awaits rehearing (likely before some new commissioners).

On the other hand, Entergy—a fully regulated utility—recently announced an agreement to build new gas-fired generation and related transmission infrastructure to serve a proposed data center development in its home state of Louisiana. Importantly, revenue from the new facility is expected to "significantly" offset costs associated with serving the facility, and the developer has further agreed to share in future costs related to storm recovery, resilience, and adding renewable generating capacity. The agreement, announced in late 2024, is subject to regulatory approval.

Table 1 highlights some key considerations for regulated utilities and merchant players. Pricing, contract terms, and market share likely matter more in a non-regulated context, while cost causation, rate design, and customer

Figure 2: Merchant Generator Share Price Appreciation, January 2024–January 2025



Source: Bloomberg



benefits are concerns for utilities. Cost, financing, and counterparty credit quality matter to both. Merchant power companies tend to be valued on EBITDA growth and margins, while utilities are scored by earned returns on capital.

Similar to prior “build it” cycles, data center opportunities involve resource commitments measured in decades and billions of dollars. However, today’s decisions are made—and can change—in a very short time frame, as DeepSeek AI demonstrated. Data processing and associated energy usage offer significant growth potential that

can boost investor returns and lower per-unit costs for customers. However, this also seriously risks both financial and political capital if expected demand growth doesn’t materialize (i.e., will they stay?). Project structure can also challenge utility capital and resource planning as well as rate design and conventional wisdom on growing and financing rate base, managing large customer relationships, and basic grid operations.

Table 1: Key Considerations

Issue or Consideration	Regulated Utility	Merchant Energy
Pricing and Contract Terms	○	●
Scale, Market Share, and Competitors	○	●
Counterparty Creditworthiness	●	●
Cost and Duration of Financing	●	●
Margins	○	●
Return on Capital Employed	●	○
Cost Causation, Allocation, and Rate Design	●	○
Potential Benefits to Existing Customers	●	○
Political Gains (e.g., Jobs, Economic Impact)	●	○

○ ○ ○ ● ● ● MORE IMPACT

Navigating the Risk

Energy companies considering a potential opportunity to serve a data center face a wide range of planning and analytical challenges. Navigating these challenges calls for expertise on many fronts:

- Resource evaluation
- Energy efficiency and facility management
- Risk evaluation and probability analysis
- Capital and operating cost planning, budgeting, and modeling
- Scenario evaluation
- Regulatory planning and strategy, cost of service, and rate design

The risks of committing significant financial capital as well as regulatory and political goodwill in serving this evolving industry are significant. Decision-making informed by in-depth industry knowledge and experience can manage these risks while potentially lowering costs to utility customers, driving economic development, and delivering attractive returns to investors.