

The Intersection of Data Centers and Power Supply – Trends, Challenges and Opportunities

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As reported across news outlets on a near-constant basis, advances in artificial intelligence (AI) are driving demand for construction of new data centers that will house the infrastructure necessary to support AI advancement. This demand for computational power is in turn driving sharp increases in projected demand for electric power nationally, thereby increasing power prices and fueling rapid deployment of capital to fund projects of unprecedented magnitude. As market leaders in both electric power and digital infrastructure, we are working closely with our clients to solve emerging regulatory, finance, and development challenges for data center deployment, which places extraordinary electric power intensity demands on an already-stressed national power grid.

While industry players desire 100% renewable power, practical realities require that developers lean on traditional resources, including large-scale natural gas-fired and nuclear power plants. To avoid interconnection delays and the expense associated with transporting power across the grid to serve data centers, the industry has pivoted to exploring “behind-the-fence” development configurations that bypass use of the networked power grid.

With respect to siting choices, we have observed a shift from overwhelming interest in developments near urban centers due to latency issues, to expanding interest in large language model (LLM) data centers, which do not require the same geographic specificity. Our market-leading work for players at the intersection of the power and data center industries includes strategic advice on arrangements for electric power supply and transmission, virtual and corporate power purchase agreements, the acquisition and reconfiguration of existing electric power facilities to supply power to data centers, and the development and financing of new generation and transmission infrastructure that will power AI advancement.

Some in the market have already begun deploying novel arrangements that lack precedent and trigger legal questions that no regulator has yet answered, and we are closely monitoring developments. As a specific example, we are closely watching FERC’s pending review of Talen’s deal to reconfigure the Susquehanna Steam Electric Station, a nuclear power plant, for the purpose of directly powering a new data center via “behind-the-meter” co-location of load and generation on contiguous sites. While the intent of the project was to rapidly deploy co-located power and data centers with nearly a gigawatt of power, the associated FERC proceedings have provided a forum for protestors to raise grievances regarding reliability and competitive market concerns associated with removing large sums of generation from the market. The proceedings also provided a platform for electric grid customers to raise “free ridership” disputes concerning who will pay for hundreds of millions of dollars in transmission costs that protestors allege should be paid for by the project. FERC took notice of these arguments as evidenced by its response to Talen’s Susquehanna Steam Electric Station’s non-conforming interconnection agreement, requiring the applicants to demonstrate “that the non-conforming aspects of the agreement...are in fact necessary” due to “reliability concerns, novel legal issues, or other unique factors.” Moreover, in seeming acknowledgement of the broader implications of the proceeding, FERC announced that it would hold a technical conference to explore generic issues related to the co-location of large loads at generating facilities. Such technical conferences are often precursors to more formal efforts to develop guidance on emerging issues.

FERC's reaction may have been driven in part by new political attention directed to these issues. On July 16, 2024, the Chairs of the House Committee on Energy and Commerce and the House Subcommittee on Energy, Climate, and Grid Security sent a joint letter to FERC Chairman Willie L. Phillips, soliciting FERC's plan for navigating grid reliability concerns and mitigating the adverse impact of data on ratepayers' capacity and transmission costs due to the data center boom. On July 24, 2024, committee members quizzed FERC Commissioners on their plans for dealing with the rapid increase in power demand projections combined with the expected retirement of large quantities of coal and gas generation. The market dynamics and increase in regulatory interest in data center power supply will shape the rapidly evolving industry. Our regulatory, power supply and data center specialists are closely monitoring progress and anticipate rapid developments in the coming months with respect to data center power supply issues.

We encourage clients to reach out for advice on structures that both optimize economics and minimize regulatory burdens for data centers and their power supply.

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