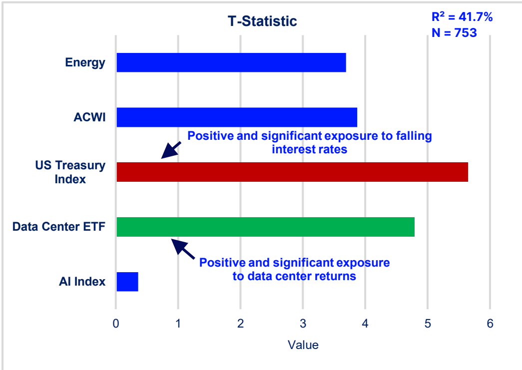
The New Energy Trade

How Data Centers Are Transforming Energy Markets

The emergence of artificial intelligence since late 2022 has been one of the defining drivers of global equity markets. As AI workloads surge, global data center power demand is expected to rise from approximately 415 TWh in 2024 to 945 TWh by 2030, with data centers accounting for nearly half of U.S. electricity demand growth over the period[1]. Across the industry, operators of massive computing facilities have raced to secure long-term power supplies, invest in grid infrastructure, and expand access to renewable generation. What began as a technology story has quickly become an energy story.

Exhibit 1: Clean Energy Exposures : Data Center and AI



Source: State Street Associates, Regression Analysis Period : 2023 - 2025

Specifically, a clean energy story. While policy support for clean energy has faded, the need for quick and modular upscaling of power for datacenters has supported robust demand for clean energy generation. This has asset pricing implications that we lay out in our recent paper "The AI-Energy Nexus: Data Center Demand and the Dynamics of Clean and Traditional Energy Stock Returns". Analyzing daily returns between 2023-2025 we find that, clean energy returns are significantly more sensitive to data center infrastructure performance than traditional energy returns. At the same time, what appears to be an "AI effect" in simpler analyses largely disappears once broader market movements are accounted for, indicating that the true transmission mechanism operates specifically through physical infrastructure rather than AI technology firms themselves.

We find that:

- **AI means compute => compute means data center demand = > data centers need quick and scalable energy => clean energy fits the bill:** empirically, we see this because data center infrastructure explains substantially more variation in clean energy returns than does traditional energy.
- **A new structural force is shaping energy markets**: AI-driven expansion of data center infrastructure operates alongside traditional drivers such as commodities, policy, and interest rates.
- **Clean energy behaves like a long-duration asset** tied to both data center growth and bond market dynamics, fundamentally redefining how investors should interpret its return drivers.

Investors can use these results to bridge AI, energy transition, and macro factors (rates, market beta) into a unified empirical framework. For the first time in decades, US power consumption is growing as compute-hungry AI models require ever more power-hungry datacenters, and modular, scalable clean energy is part of the all hands on deck effort to provision that power.

[1] International Energy Agency (IEA), *Energy and AI* (April 2025)

For more on this topic, see our 2026 working paper: **"The AI-Energy Nexus: Data Center Demand and the Dynamics of Clean and Traditional Energy Stock Returns"** by Alexander Cheema-Fox, Megan Czasonis, Piyush Kontu and George Serafeim

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