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Underappreciated AI opportunities in power and resources

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OpenAI's ChatGPT service suffered an hours-long outage on Wednesday, with reports its global integration into Apple's iOS operating system led to a rush of new user requests. Just days prior, the company's newly released Sora video generator was forced to close registration after demand outstripped capacity.

Meta also faced unexplained infrastructure pressure this week, with users reporting disruptions across the firm's major platforms, including Facebook, WhatsApp, and Instagram. Alphabet's release of its new upgraded Gemini AI model this week was smoother, with the firm rolling out new data-intensive services like virtual assistants, image generation, and realistic conversational audio.

As large-cap tech companies deliver more computationally intensive AI services, we expect continued robust AI capex investment in the years ahead. We expect the big four (Alphabet, Amazon, Meta, Microsoft) will raise their AI capex by another 20% in 2025 to USD 267bn, a significant boost for earnings of chip and cloud companies.

While many investors have built portfolio exposure to AI chip companies and platforms, we also see underappreciated opportunities adjacent to this trend in power and resources:

Data center operators can't build new capacity fast enough. Existing data center capacity is quickly filling up, with vacancy rates in the US now in the low single digits. Major tech companies see leadership in AI as an imperative and are

likely to continue spending on capacity expansion to the extent supply constraints allow. For the data center electrification equipment end market itself, we see 20-25% growth in the short term and 10-15% growth in the medium term.

AI is a significant new catalyst for energy demand. Data centers have always been heavy users of power and electrical equipment. But demand is accelerating significantly. In the US, electricity demand from data centers has grown 50% since 2020, now accounting for 4% of the country's consumption. The Electric Power Research Institute estimates that this share could grow to 9% of all US electricity as soon as 2030. The story is similar outside the US, with the International Energy Agency forecasting global data center consumption could more than double by 2026 relative to the 2022 base of 460 terawatt hours (TWh).

Investors should expect major capital spending on electricity grids and equipment. Until a few years ago, there was a decade of underinvestment in developed markets electrical grids. Consequently, replacement capital spending may be similar in scale and cost to both expansion capex and to maintenance spending to improve the resilience of grids, according to Edison Electric Institute estimates.

More metals and other resources will be needed to meet electricity needs. Access to critical metals is key to the rapid deployment of transition energy technologies—especially those related to infrastructure and energy storage. We think natural resource markets—such as copper, aluminum, and lithium—will likely tighten further as strong demand comes up against bottlenecks in production and processing.

So alongside areas like semiconductors, foundries, and megacap tech platforms, we believe an AI-linked rise in energy demand will fuel transformational opportunities in power and resources. We forecast around USD 3.0tr in combined annual investment by the end of the decade in power generation, energy storage, grid infrastructure, data centers, and transportation and industry.

Without taking any single-name views, we believe the best opportunities are in transmission, distribution, data centers, transport, and energy storage. We anticipate the US Infrastructure Investment and Jobs Act (IIJA) will remain a tailwind for many years, and that Trump criticism will not result in a sharp drop in spending. Investing in private infrastructure, like data centers or power infrastructure, may provide stable, attractive returns for investors willing to bear the illiquidity involved in such investments.

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Original report - [Semis and megacaps aren't the only beneficiaries from AI, 13 December 2024.](#)

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