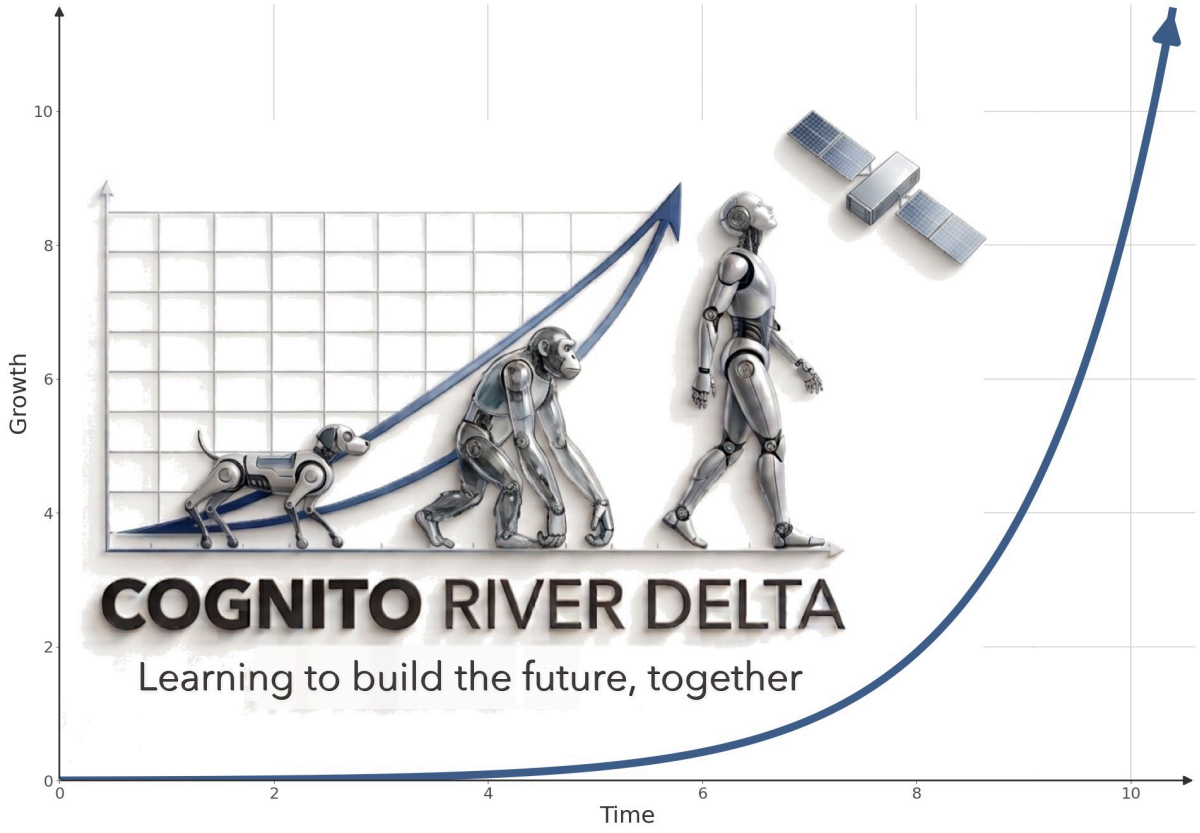


CATEGORY ROLLUP

Grid, gas & utilities - 2026-W45

Week of November 2, 2026

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Grid, gas & utilities

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Overview

The defining storyline of this week is the violent collision between the hyper-scaling ambitions of the AI revolution and the stubborn, physical realities of the terrestrial electrical grid. We are witnessing a fundamental decoupling of "compute intent" from "grid capacity." While major players like SpaceX, Tesla, and NVIDIA are announcing projects measured in hundreds of megawatts and multi-gigawatt complexes, the actual mechanisms required to power them—stable, high-voltage grid connections—are becoming increasingly scarce, politically fraught, and slow to deploy.

The week's developments suggest that the "AI era" is transitioning from a software-and-chip-focused growth phase into a massive, industrial-scale infrastructure war. This is no longer just a competition of algorithmic efficiency or GPU procurement; it is a fight for land, water, and, most critically, "time to power." We are seeing a divergence in deployment philosophy: while traditional utilities like DTE Energy are attempting to play catch-up by injecting tens of billions into long-term infrastructure, "frontier" companies like SpaceX are attempting to bypass the grid entirely through modular, temporary solutions—and even looking toward the stars to find a way out of the terrestrial bottleneck.

The tension is no longer purely technical; it has become socio-political. As data centers scale, they are moving from being invisible neighbors to central figures in local elections and utility rate disputes. This week shows that the "tollbooth" for AI growth is no longer just the cost of

silicon, but the regulatory approval of local municipalities and the political willpower of state governments to prioritize massive compute loads over residential stability.

Energy production and the grid

The industry is currently split between two competing philosophies of deployment: the "long-term grid integration" model and the "rapid bypass" model.

The long-term model relies on massive capital commitments to traditional, permanent infrastructure to accommodate surging demand. DTE Energy has signaled the scale of this necessity by increasing its five-year utility investment plan by nearly $10 billion, bringing its total projected spend to $44 billion. This represents the heavy-lifting required by traditional utilities to integrate massive new loads. Similarly, National Grid is making significant land acquisitions, such as its recent 73-acre purchase for what could become Britain’s largest substation, reinforcing the idea that the "old way" of building large-scale, permanent grid nodes remains the primary method for handling massive capacity increases. Even NVIDIA is looking toward legacy assets for a solution; by working with Preussen Elektra GmbH to repurpose decommissioned nuclear power plants, NVIDIA is prioritizing access to existing grid interconnection infrastructure over the generation of new nuclear fuel. This strategy acknowledges that the bottleneck is often not the power source itself, but the high-voltage connection to the grid that older, established sites already possess.

In direct opposition to this slow-moving model is the emerging "rapid bypass" model, pioneered by SpaceX. Recognizing that permanent grid connections in major markets can take upwards of four years—a delay that is unacceptable in the current AI arms race—SpaceX is developing "Colossus 2." This project aims for 1.2 million Blackwell GPUs by late 2026, but its true innovation lies in its power strategy. To circumvent the four-year wait for utility connections, SpaceX plans to utilize temporary gas turbines and Tesla Megapacks to provide immediate, on-site power. This strategy prioritizes "time to useful work" over long-term grid efficiency or environmental idealisms, creating a massive competitive advantage in a market where speed of deployment is the ultimate metric. This aggressive scaling is further exemplified by SpaceX’s proposed 6-gigawatt compute complex in Arizona. This massive installation is intended to feature up to nine halls and will utilize a hybrid mix of solar, coal, and natural gas to ensure the operational continuity required for such a massive load.

However, this drive for speed is hitting a massive regulatory and political wall. In Texas, the TCEQ has halted permits for data centers, a move that Dylan Patel warns could place 30.3 GW of potential capacity at risk. This creates a high-stakes "shell" risk: the possibility of massive,

partially constructed data center campuses that sit idle because they lack the legal or physical ability to connect to a power supply. Patel further warns of the systemic danger here; if the regulatory pendulum swings too far and a sudden loss of 1.5 GW of load occurs due to these halts, it could trigger actual grid instability or blackouts. This regulatory friction is also manifesting as a populist movement. We are seeing a rise in "data center moratoriums," with 14 Ohio municipalities already passing bans or restrictions, and 33 ballot measures appearing nationwide to limit expansion. The driver for this resistance is often economic; as data centers consume massive amounts of power, residents are seeing the consequences in their own utility bills. This has turned AI infrastructure into a central political issue, with Scott Galloway noting that 23% of voters cited AI and data centers as a deciding factor in their recent voting decisions.

The most radical response to these terrestrial constraints is "StarMind"—a proposal by Elon Musk to move AI computing into orbit. By utilizing space-based computing and orbital solar power, the goal is to bypass the terrestrial grid, cooling constraints, and regulatory hurdles altogether. While the physics of this are hotly contested, it represents the ultimate expression of the industry's current desperation to escape the bottlenecks of Earth's aging and politically sensitive infrastructure.

Cross-cutting themes

The most significant cross-cutting theme this week is the **weaponization of infrastructure as a competitive moat.** In previous technological cycles, the barrier to entry for AI was the ability to design superior models or secure high-end chips. Now, the barrier has shifted to the ability to secure 400MW of immediate power or 6GW of long-term capacity. Companies like SpaceX are not just competing on compute; they are competing on their ability to build private, temporary utilities (gas turbines + Megapacks) that allow them to start working while their competitors are stuck in multi-year permitting queues. In this environment, "energy security" is becoming as critical to a tech company's valuation as "algorithmic superiority."

A second theme is the **divergence between the "Compute Class" and the "Resident Class."** The massive capital commitments from tech firms (estimated by Wissner-Gross at $3 trillion in combined hardware and lease spend) are creating a zero-sum game for energy. When a data center scales, the "cost" is often externalized to the local community through rising utility bills or environmental litigation. This tension is what is driving the "data center bans" in Ohio and the widespread ballot measures. We are witnessing the birth of a new type of political conflict:

the fight over whether a region's energy and land should serve global compute needs or local residential stability. This is no longer a technical debate; it is a struggle over the social contract of utility consumption.

Finally, there is a theme of **technological hedging across scales.** Because the terrestrial path is so fraught with risk—ranging from permit halts in Texas to rising social backlash—we are seeing a move toward extreme diversification. This ranges from the "micro" level—using Tesla Megapacks to buffer local loads and provide immediate stability—to the "macro" level—the speculative leap toward orbital solar and space-based computing via "StarMind." The industry is effectively placing bets on multiple versions of the future to ensure that, regardless of whether the terrestrial grid holds or fails, the path to compute scaling remains open.

Where sources agree

- **The Grid is the Primary Bottleneck:** There is a consensus across all analyzed sources—from specialized analysts like Dylan Patel to news outlets—that the massive AI infrastructure build-out is creating severe, physical friction for land, water, and power. The current electrical grid is fundamentally unprepared for the scale and speed of the deployment being attempted.
- **Public Backlash is a Material Risk:** There is broad agreement that the expansion of AI infrastructure is causing significant social and political friction. This is specifically manifesting as resident concerns regarding rising utility costs and the environmental impact of massive energy consumption, which in turn fuels local regulatory resistance.
- **Deployment Speed is the New Strategic Metric:** Sources agree that the ability to bypass traditional grid delays—whether through modular builds, temporary power solutions, or repurposing existing infrastructure—is becoming a critical strategic differentiator for the industry's dominant players.

Where sources disagree

- **The Future of the Energy Mix:** There is a deep disagreement on what will power the next decade of compute. Tony Seba argues for a 100% renewable grid, achieved through the massive overbuilding of solar and wind (3x–5x) to eliminate the need for seasonal storage. In contrast, the current trajectories of SpaceX and NVIDIA—which include gas

turbines, coal, and the repurposing of nuclear sites—suggest a much more heterogeneous and fossil-fuel-dependent energy mix in the near term.

- **The Viability of Orbital Compute:** This remains a major point of scientific and economic contention. Joseph Farah argues that space-based compute is fundamentally impractical due to the laws of thermodynamics and the extreme solar energy requirements. Conversely, Jo Bhakdi contends that the plummeting costs of Starship launches will make orbital compute economically superior to terrestrial centers by 2028, shifting the debate from physics to launch economics.
- **The Nature of the Regulatory Threat:** Some analysts see regulatory hurdles as "tollbooths"—manageable delays that can be overcome with enough capital (Wissner-Gross). However, others, like Dylan Patel, view them as systemic risks that could lead to "stranded assets" (unpowered shells) or even trigger actual grid blackouts if massive loads are suddenly disconnected.

Numbers and claims to verify

- **Tesla's Cortex Target:** Verify the current capacity versus the 400 MW target for "SI" training compute at Giga Texas.
- **The $3 Trillion Figure:** Verify Wissner-Gross's claim of $3 trillion in combined infrastructure commitments (lease and hardware spend) by major tech firms.
- **Finland's Energy Surge:** Check official national energy data to verify the Gamers Nexus claim of a 40% projected rise in Finland's energy consumption due to AI.
- **Texas Capacity at Risk:** Verify the scale of the 30.3 GW of potential capacity at risk following the TCEQ permit halts.
- **SpaceX/Anthropic Agreement:** Verify the reported $1.25 billion monthly payment from Anthropic to SpaceX.
- **SpaceX Valuation:** Verify the $2 trillion market valuation cited by Randy Kirk and Nick Gibbs.
- **Arizona Power Scale:** Verify the 6GW capacity requirement for the proposed Arizona compute complex.
- **DTE Investment:** Confirm the updated $44 billion five-year utility investment plan.
- **Residential Bill Reductions:** Verify the terms of the claim that SpaceX/Arizona projects could offer a 40% reduction in residential power bills for members.
- **Ballot Measures/Bans:** Verify the number of ballot measures (33) and the specific number of Ohio municipalities (14) implementing data center restrictions.

Investment and strategic implications

- **The Rise of "Energy-as-a-Moat":** For technology companies, the ability to secure energy and the infrastructure to deliver it is becoming as important as the ability to design algorithms. Strategic investments in proprietary power solutions (like SpaceX's temporary gas turbines) or large-scale energy storage (Tesla's MegaPacks) are no longer auxiliary; they are essential for deployment speed and competitive survival.
- **Regulatory and Litigation Risk (The "Shell" Factor):** Investors should be highly wary of "stranded assets." The risk of "shells"—data centers that are successfully built but cannot operate because they lack the legal permit to connect to the grid (as seen in Texas) or are subject to municipal bans (as seen in Ohio)—is a significant tail risk for the sector. This could lead to massive capital being tied up in non-productive real estate.
- **Tesla’s Strategic Position:** Tesla appears uniquely positioned to benefit from the "bypass" trend. As companies like SpaceX seek to build rapid, modular compute sites that rely on intermittent or temporary power, the demand for large-scale battery storage (MegaPacks) to manage these loads provides a massive revenue tailwind. Tesla is effectively the "bridge" between the old grid and the new, rapid-deployment compute model.
- **The Orbital Hedge and Disruption:** While highly speculative, the development of "StarMind" suggests the industry is already preparing for a future where terrestrial energy becomes too expensive, too regulated, or too socially volatile to support AI scaling. If the cost of orbital launch continues to plummet as predicted, this could eventually disrupt the valuations of traditional terrestrial data center REITs and utility companies.

What to watch next week

- **Texas TCEQ Developments:** Monitor for any legal appeals or updated guidance regarding the halted data center permits in Texas, which will signal the severity of the regulatory risk.
- **Election/Ballot Results:** Track updates on the 33 ballot measures and local legislative votes in Ohio and other municipalities to see if the "data center moratorium" trend is accelerating.
- **SpaceX/Tesla Deployment Milestones:** Look for concrete progress updates on the "Colossus" or "Cortex" projects, specifically regarding the successful integration of

temporary power (gas turbines/Megapacks) into training workflows.

Appendix: Individual perspectives

We see further because we stand on the shoulders of giants. The people in this appendix are some of those giants: their public work, followed and studied every day and every week, is how CognitoRiverDelta brings the world's AI knowledge and concerns together, so that, in time, our expert panel can help shape real solutions and paths forward for all of us. We learn by observing them, and we think of them as kindred spirits: people helping humanity and AI educate each other and contribute to solutions. Together they form a much larger community of minds, a worldwide panel; ours is a small copy of it. Most people don't want to become expert kayakers, reading rocks and rapids every day; yet that is how this fast-flowing river of change feels to many of us, and the evidence that could ease those fears, the grounded ones and the imagined ones, is still being gathered. That is the work. We credit their ideas here with gratitude; they are not affiliated with us and do not endorse this report.

Dylan Patel Warns that political opposition and permitting halts in key US states (specifically citing Texas and Georgia) pose significant threats to data center capacity buildouts and overall grid stability. He notes the risk of "shells"—partially constructed buildings that cannot operate—and the potential for grid instability if a sudden 1.5 GW of load is lost.

Scott Galloway Observes that AI data center expansion is creating acute political and social friction by driving up utility costs for local residents, contributing to a broader trend of voter dissatisfaction with data center expansion.

Tony Seba Asserts a vision of a 100% renewable grid where solar, wind, and batteries entirely displace fossil fuels and nuclear power, driven by the economic efficiency of overbuilt renewable generation.

Dr. Alex Wissner-Gross Offers a more speculative/pessimistic view of the terrestrial landscape, suggesting the possibility of national data center moratoriums or outright bans in the near future.

Farzad Mesbahi Focuses on the competitive advantage of "speed to work," highlighting SpaceX's strategy of using temporary infrastructure to bypass the multi-year delays of permanent grid connections.

Jo Bhakdi Contends that the decreasing cost of Starship launches will make orbital, space-based computing economically superior to terrestrial data centers by 2028.

Joseph Farah Provides a skeptical counterpoint to orbital computing, arguing it is impractical due to the thermodynamic and solar energy requirements involved.

Randy Kirk Provides data on the massive scale of upcoming projects (SpaceX's 6GW Arizona complex) and the potential revenue benefits for Tesla via MegaPack deployments.

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