DYNAMO

DYNAMO INSIGHTS REPORT

Insights from the AI & the Grid Executive Roundtable

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Words of Appreciation

Dynamo Energy Hub and Alvarez & Marsal extend their sincere thanks to all participants in the AI & the Grid Executive Roundtable. The insights, expertise and collaboration shared during this closed-door session were instrumental in advancing the industry's understanding of the challenges and opportunities at the intersection of artificial intelligence and energy infrastructure.

This report reflects a joint effort by cohosts **Dynamo Energy Hub** and **Alvarez & Marsal** to distill and publicly share the most critical concepts that emerged from the discussion. The roundtable was conducted under the Chatham House Rule to foster open and candid dialogue; however, this summary includes anonymized insights alongside select, approved attributions to key contributors.

Special appreciation goes to **Google**, whose thought leadership and partnership were essential in convening this cross-sector dialogue.

Contributions from technology leaders, utilities, investors and policymakers helped surface actionable strategies for accelerating "speed to power" solutions in a rapidly evolving landscape.

It is the hope of all participants involved that this report serves not only as a resource but as a catalyst for continued innovation, collaboration and leadership in powering the next era of digital and industrial growth in the energy transition

Companies represented include **AES, Alvarez & Marsal, Brookfield Renewables, BWX Technologies, CoreWeave, Dynamo Energy Hub, Electron, Evercore, Google, Kairos, Microsoft, Mintz, S2G, TRIO** and **X Tapestry**.

Purpose and Overview

The convergence of artificial intelligence and power infrastructure presents both unprecedented challenges and opportunities for the energy sector. To address the mounting urgency of powering AI infrastructure in a rapidly changing landscape, **Dynamo Energy Hub** and **Alvarez & Marsal** convened an intimate group of select leaders from technology, energy, finance and policy for a closed-door roundtable discussion on practical solutions to the critical challenge of "speed to power," issues defining these challenges, and how AI itself, ironically, may help solve these grid connectivity issues.

This report provides a front-row seat for the three core discussion topics: regulatory and policy, planning process and investment risk, along with a preamble from **Google** describing the scale and urgency of the challenge with real-world deal applications for developers and grid operators.

Key Takeaways

AI-driven electricity demand is accelerating at unprecedented rates: U.S. data centers may consume up to 12 percent of national electricity by 2028 and could account for nearly half of all demand growth through 2030, creating both tremendous grid pressure and opportunity.

Speed has overtaken price as the primary constraint: Today's planning and permitting cycles are the principal obstacle to adding both generation and load to the grid, with typical interconnection studies stretching five to seven years in some regions, threatening economic growth and national competitiveness.

Policy and permitting reform is necessary but not sufficient: Recent FERC orders and federal permitting reform bills could help reduce planning times, but meaningful acceleration hinges on implementation at both transmission and distribution levels, and the industry cannot afford to wait.

AI can dramatically accelerate grid planning and interconnection: Emerging AI applications can reduce permitting and interconnection study times from months to hours, but only if stakeholders embrace secure information sharing across traditional silos, and regulators understand the value opportunity.

Novel risk-sharing models are emerging: Hyperscalers, utilities and developers are crafting innovative off-take agreements and cost-allocation structures to de-risk first-of-a-kind (FOAK) projects while ensuring sustainable long-term infrastructure development.

"The noticeable thing that is missing in most proposed solutions is speed. The focus is always five to 10 years away, but the unlock for economic growth is by the end of this decade, which we will miss while we debate the best solution."

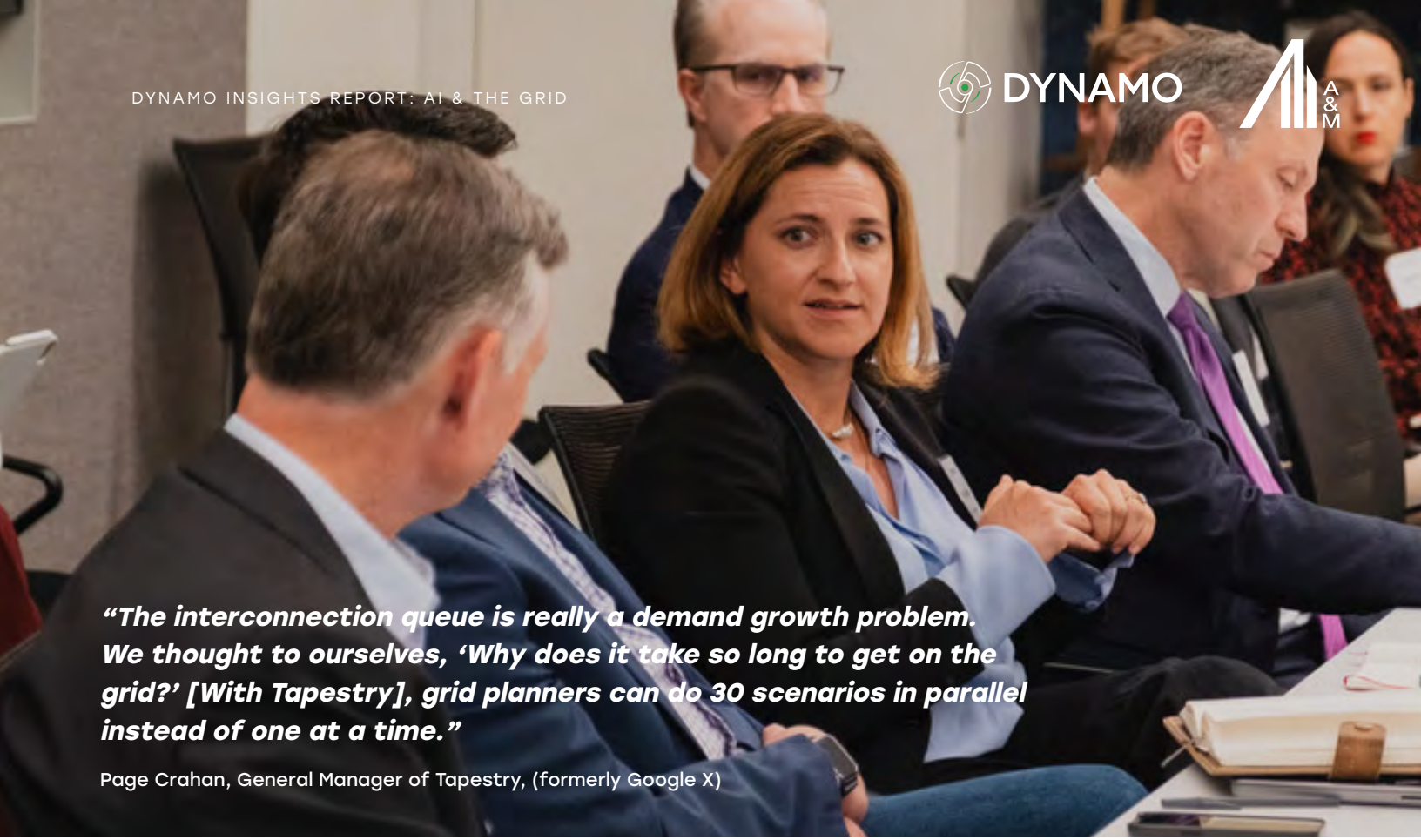
Amanda Corio, Global Head of Data Center Energy, Google

Opening Remarks: The Scale and Urgency of the Challenge

The roundtable opened with a stark assessment of AI's impact on power infrastructure. Global data center load has jumped three-fold from 58 TWh in 2014 to 176 TWh in 2023, with analysts projecting a further two-to-three times rise by 2028, driven largely by generative AI workloads. While these data centers will consume significant electricity, multiple studies suggest that AI-enabled efficiencies in heavy industry, logistics and buildings could potentially offset associated emissions, but only if deployed rapidly enough.

The discussion quickly coalesced around "speed to power" as the defining constraint for digital and industrial growth. **Amanda Corio**, **Google**'s Global Head of Data Center Energy, emphasized that most proposed solutions focus on grid planning timeframes that are many years out, while the economic growth challenge for grid support exists within much shorter timelines.

Participants stressed that every architecture, behind-the-meter, front-of-the-meter, co-located, and transmission, will be required, yet none can scale fast enough under current permitting timelines. National security considerations surfaced repeatedly, with comparisons between U.S. build cycles and China's accelerated deployment of AI-ready infrastructure.



"The interconnection queue is really a demand growth problem. We thought to ourselves, 'Why does it take so long to get on the grid?' [With Tapestry], grid planners can do 30 scenarios in parallel instead of one at a time."

Page Crahan, General Manager of Tapestry, (formerly Google X)

AI Solving AI's Power Problem

Page Crahan, General Manager of **Tapestry**, (**formerly Google X**), highlighted how their company is working with the energy industry to leverage AI to solve the very infrastructure challenges created by AI's explosive growth.

A newly announced Google-funded collaboration with PJM will deploy agentic-AI tools that analyze complex interconnection packages and harmonize dozens of legacy grid models, for this very purpose – streamlining the planning process. Tapestry's prototype results have cut scenario-planning runtimes from months to hours, compressing 30 transmission cases into the window previously needed for one. However, they also flagged a trust gap: Without investor and operator confidence, regulators will assume lower potential value from new solutions, stalling deployment.

Regulatory and Policy Landscape

While the power industry is beginning to see promising collaborations between AI leaders and grid operators, such as PJM-Google-Tapestry and CAISO's machine learning applications, these remain exceptions rather than the rule. Across the U.S., efforts to integrate AI into grid planning and operations, especially at the transmission system level, remain fragmented and experimental due to legacy infrastructure, institutional silos and regulatory uncertainty.

Meanwhile, interconnection and permitting reform efforts continue at various levels:

- FERC Order 1920-A (May 2025) mandates long-term regional transmission plans, cost-allocation frameworks and greater stakeholder transparency.

- The Energy Permitting Reform Act of 2024 aims to impose two-year federal review clocks on major energy projects, mirroring fast-track regimes in Canada and the EU, but faces continued delays.

Participants identified several immediate opportunities within existing regulatory frameworks, particularly:

- Tightening definitions of "material modification" to avoid triggering full re-studies
- Early adoption of colocation rules to maximize existing interconnection capacity
- Unified load-queue data sharing and interregional cost sharing

However, most agreed that without these changes, state-level heterogeneity will keep distribution grid planning across the U.S. in a "Wild West" posture. Several noted ERCOT's single-regulator model as an instructive, if imperfect, counterexample that enables faster decision-making.

Planning Process Evolution

As AI begins to transform both operations and planning within the grid, traditional models rooted in long-range, top-down resource planning at the RTO level are being challenged. With increasing distributed energy resources, renewables, electrification and reliability concerns, distribution-level planning must evolve in parallel with transmission planning.

Recent developments suggest growing openness to expedited paths:

- PJM's latest milestone cleared 204 projects (72 GW) into phase-two studies.
- Fifty-one quick-turn resources totaling 9.3 GW were selected for near-term reliability.
- The UK and Australia have begun pricing distributed-generation locational value in distribution queues, potentially shortening average connection times.

The dialogue centered on using AI to identify "no-regrets" upgrades inside the existing queue, such as re-rating lines, implementing dynamic line-ratings and deploying phase-shifting transformers, before pursuing green-field transmission. Capacity-matching algorithms were identified as potential game changers if integrated with state commissions and utilities.

However, participants acknowledged hesitance to assume ownership of cross-jurisdictional datasets. As Page Crahan of Tapestry noted, "Better information is critical for better affordability for customers." The consensus was that transparency is necessary but not sufficient; governance for secure shared-data models must be codified to sustain momentum – emphasis on secure.

As an industry, we have to develop a fitness to build again, but we can't solely rely on government or a consortium of utilities to do this for us. Kairos Power's iterative development approach provides the necessary repetition for us to gain proficiency in project delivery to be successful with and for our stakeholders.

Jeff Olson, Vice President of Business Development & Finance, Kairos

Investment and Risk Cost-Allocation

Changes in planning processes, increasing regulatory uncertainty and new operational risks are shifting the traditional boundaries between utility, customer and developer responsibilities. The roundtable explored who bears the costs and risks as data-driven grid modernization and first-of-a-kind deployments become the norm.

Advanced-reactor developers expect first commercial microreactor deployments before 2030, with transportable units such as BWXT's Project Pele targeting government customers by mid-decade. Meanwhile, ERCOT's approach to regulation demonstrates how low-cost, investor-driven buildouts can lower wholesale prices while still attracting record peak-load investments, although the tradeoffs of such "deregulated" systems remain unresolved. For example, real-time hub average prices dropped from $48/MWh in 2023 to $26/MWh in 2024.

The group debated who ultimately pays for speed in ways that support new infrastructure, manage risk and protect affordability:

- **Hyperscalers:** Increasingly willing to anchor FOAK nuclear and long-duration storage through direct equity, fixed-index PPAs or lease-back structures provided regulatory timelines are predictable
- **Utility Executives:** View the demand surge as a growth pivot but remain wary of stranded-asset risk under traditional rate-of-return models
- **Investors:** Emphasized the need for iterative builds to tame cost overruns mirroring shipyard learning curves

There was strong consensus that building trust through stand-alone steps that deliver value is crucial to prevent investors from being scared off by the inherent challenges of first-of-a-kind projects. **Jeff Olson**, Vice President of Business Development & Finance of **Kairos** observed a potential cultural shift.

So what does this mean... and how do we move forward?

The roundtable discussions revealed several strategic insights for stakeholders navigating the intersection of AI and power infrastructure. Here's a summary of key concepts as guidelines for next-level actions.

1. Treat speed as the primary constraint, not cost

- Today's data center and AI developers often prioritize time-to-market over marginal electricity costs.
- Project finance must adapt to value acceleration over traditional cost metrics.

2. Deploy AI tools to accelerate traditional processes

- Focus on AI applications that compress existing workflows rather than reinventing them.
- Incentivize data sharing across traditional utility and regulatory boundaries.

3. Embrace parallel strategies rather than silver bullets

- Each interconnection strategy (behind-the-meter, front-of-meter, co-located, transmission) has merits and limitations.
- The scale of demand requires all approaches simultaneously.

4. Develop new risk allocation frameworks

- Traditional utility risk models are poorly suited to the pace and scale of AI infrastructure.
- Hyperscalers can absorb certain risks that utilities cannot, while utilities provide stability that technology companies need.

5. Create transparent data governance structures

- Information sharing is necessary but insufficient without clear rules and responsibilities.
- Cross-jurisdictional data models require institutional frameworks to maintain trust and security.

Conclusion

The AI revolution presents another facet of the energy transition – both an unprecedented challenge to our power infrastructure and a powerful tool to help solve it. Meeting the explosive growth in electricity demand from data centers will require not just technological innovation but institutional transformation in how we plan, permit and finance energy projects.

By leveraging AI to accelerate grid planning, developing new risk-sharing models between utilities and technology companies, and implementing targeted regulatory reforms, the industry can potentially unlock the economic and societal benefits of AI while building a more resilient and efficient power system. The race is on – not just between companies but between nations – to develop the energy infrastructure that will power the next technological revolution.

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Dynamo Energy Hub is the leading network for the energy transition. Dynamo bridges innovation and capital to build a resilient energy future. We bring together corporates, energy innovators, investors, and thought leaders to drive the energy transition and shape the future of energy.

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