



Marshall & Stevens

DATA CENTERS FORUM

Part Two – Key Takeaways

Overview

The Marshall & Stevens Data Centers Forum – Part TWO: Construction, Infrastructure, Energy, Cooling, & Connectivity, explored strategies shaping the next wave of data centers. Discussions emphasized the interplay of location, energy supply, and build-to-suit models—highlighting how AI workloads and accelerated delivery timelines are reshaping industry priorities. Panelists examined financing implications, regulatory pressures, and new technologies that balance cost, resilience, and scalability in an era of unprecedented demand.

Panelists: Charles Miller, President & CEO, NgenX Energy; Akash Deshpande, Founder & CEO, Sky Blue AI; Anthony Festa, National Practice Leader, Machinery & Equipment, Marshall & Stevens; Paul Costanzo, Director of Mission Critical, Kais-AIR; Dino Barajas, Chair, Project Finance Practice Group (Americas), Baker Botts LLP

Marshall & Stevens is a leading independent valuation consulting, transaction advisory, and litigation support firm. We work with clients across industries to deliver clarity and perspective on complex financial and infrastructure matters. Hosting this forum reflects our long-standing commitment to bringing together expertise, insight, and forward-looking discussion on the forces shaping tomorrow's economy.

The following themes and key takeaways highlight critical insights from Part One of the Data Centers Forum.

Themes

- **Strategic Location & Infrastructure Planning:** Power, water, fiber, and tax incentives drive siting decisions, while developers seek rack-density flexibility and must navigate permitting and supply chain delays.
- **Energy Supply, Cost & Flexibility:** Bridge power, on-site generation, modular skids, and energy storage are redefining power strategies amid regulatory uncertainty and rising equipment lead times.
- **Build-to-Suit & Scaling Approaches:** Modular deployment, phased capex, liquid cooling, cost segregation, and zero-trust security balance resilience with speed-to-market, now the decisive factor for investment.



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Key Takeaways

Strategic Location & Infrastructure Planning

- **Power, water, and fiber access** remain the top siting factors, with tax abatements and insurance costs also critical for project economics.
- **Natural gas** is increasingly considered alongside grid power, both for bridge power and long-term resilience.
- **Developers demand flexibility in rack density** (10–20 kW today with capacity to scale to >100 kW for AI) when selecting sites.
- **Delivery constraints** are driven by multi-stage permitting, equipment lead times, and GPU (Graphics Processing Units) supply chain bottlenecks.
- **Growth hotspots** include U.S. hydrogen hubs, natural gas corridors, and regions near DOE (Department of Energy) modular reactor sites, as well as international markets where data sovereignty is driving sovereign data centers.
- **Ad valorem tax and insurance premiums** vary widely by location; PILOT (Payment In Lieu of Taxes) agreements can help manage long-term property tax costs.
- **Site choices** increasingly require consortium planning—aligning developers, utilities, and financiers to ensure “failure is not an option” for multi-billion-dollar projects.
- **Valuations** must now factor in that many projects resemble utility-scale power plants, adding new risks and capital exposures.

Energy Supply, Cost & Flexibility

- **Bridge power strategies** (on-site generation until grid interconnection) are increasingly mainstream, with some developers now viewing on-site power as primary and grid as backup.
- **Modular electrical skids and prefabrication** reduce time to market and site labor demand by up to 60%.
- **AI's highly variable loads** require battery storage integration at multiple levels (rack, UPS, grid) to stabilize performance.
- **Energy storage** allows operators to tolerate less reliable grid power at lower cost.
- **Supply chain** delays for turbines, switchgear, and chillers are shaping development timelines and financing strategies.
- **Regulatory shifts and tariffs** are raising cost uncertainty.
- **Developers are exploring revenue** from ancillary grid services, selling excess or flexible on-site generation back into the market.
- **The equipment going into racks** (AI and crypto-ready hardware) is reshaping energy demand profiles, pushing higher density.
- **Cooling** for these units has now been adapted to air cool, liquid cool, or a combination of both.



Build-to-Suit & Scaling Approaches

- **Modular deployment** in 10 MW blocks enables phased revenue generation while deferring major capex.
- **Smaller modular engines** and distributed redundancy creates economies of scale and improve scalability.
- **Cooling strategies are evolving:** high-density racks (>100 kW) are pushing liquid cooling, but air-cooled GPUs can still support 50–75 kW per rack.
- **On-site generation** can recycle waste heat into chilled water, lowering PUE (Power Usage Effectiveness) to below 1.0 in some designs.
- **Cost segregation studies** accelerate depreciation for federal tax benefits, strengthening project economics.
- **Security must be approached with “zero trust”** across physical and digital domains, with encryption adding up to 10% to facility power demand.
- **Developers weigh economies of scale against speed-to-market**, with modularization often preferred when time-to-market premiums outweigh efficiency
- **Phasing strategies** require balancing fungibility of components (usable across liquid and air-cooled designs) with shelf-life and obsolescence risks.
- **Collaboration across trades, contractors, and financiers** is essential to reduce stranded capacity and optimize scaling decisions.

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For more information on how Marshall & Stevens can support your data center valuation and advisory needs, please contact Ralph Consola