

Data Center Briefing

January 02, 2026

Global

Key themes:

India CERC issues first formal VPPA framework for RECs and RCO compliance; US state-level environmental and water scrutiny creates permitting and incentive risk (Michigan, Kentucky); Taiwan industrial parks show large investment pipeline including Foxconn affiliate + NVIDIA AI Factory supercomputing center; Cloud GPU commercialization continues with NVIDIA GeForce NOW adding Blackwell RTX 5080-class tier; Operational/SLA risk highlighted for MoE inference under DoS-style router imbalance attacks; Emerging efficiency/interconnect concepts: waste-to-energy absorption cooling and terahertz wireless data centre roadmaps

Market overview (Global | as of 2026-01-02 UTC)

Demand signals continue to concentrate around AI-capable compute and the enabling infrastructure stack (industrial parks, grid access, and procurement of clean power attributes). Two policy threads stand out for institutional capital: (1) formalization of **renewables procurement instruments** for large power users (India's VPPA framework), and (2) **rising local environmental and water scrutiny** around new data centres (notably US state-level politics in Michigan and Kentucky). On the supply side, Taiwan is highlighting large, multi-project industrial-park investment momentum—including an AI supercomputing “AI Factory” initiative tied to Foxconn and NVIDIA.

Risks and watchpoints

Near-term downside risks / execution bottlenecks

- **Local opposition and shifting incentive regimes (US states):**
Michigan reporting includes resident opposition following state tax breaks

and discussion of a **proposed repeal of data center tax breaks** ([Michigan's 2025 environmental roundup](#)). This raises permitting and reputational risks and could affect underwriting assumptions on incentives.

- **Water-related constraints and permitting capacity:**
 - Michigan Senate reference to a **water-withdrawal cap at 2,000,000 gallons/day** ([Michigan's 2025 environmental roundup](#))—a potential siting constraint for water-intensive cooling approaches.
 - Kentucky debate highlights water protections (SB 89) and the governor's estimate of **\$1.8m/year** needed for permit-review staff under new water rules ([Kentucky 2026 General Assembly](#)). Even if rules are supportive, under-resourced review processes can slow project timelines.
- **Security/SLA risk for MoE inference services:** Research shows an inexpensive black-box pattern attack can increase inference latency by **3.063x** on a Mixture-of-Experts model (Mixtral-8x7B), potentially driving device bottlenecks and SLA breaches ([RepetitionCurse](#)). This is a near-term operational risk for AI-serving platforms that can translate into customer churn/penalties.

Near-term upside risks / accelerants

- **Faster route-to-market for clean power attribute compliance (India):** A formal VPPA framework can broaden access to REC-backed procurement for designated consumers including data centres ([CERC VPPA framework](#)). This could accelerate hyperscaler/colo decarbonization roadmaps and reduce compliance uncertainty.
- **AI capacity deployment momentum in Asia:** Taiwan's industrial-park pipeline (166 projects in 2025) and named AI compute initiatives suggest continued build-out demand for powered shells and high-density facilities ([Taiwan industrial parks investment](#)).
- **Cloud GPU productization signaling sustained utilization:** NVIDIA added Blackwell RTX with RTX 5080-class GPUs to GeForce NOW's Ultimate tier and emphasized higher-end streaming features (e.g., 5K/120 fps) ([GeForce NOW update](#)). While consumer-facing, it reinforces ongoing commercialization of GPU-backed cloud services.

Key deals and projects

Taiwan: industrial park investment pipeline (manufacturing + compute adjacency)

- The Bureau of Industrial Park (BIP) facilitated **166 investment projects in 2025 totaling NT\$174.5bn** ([Taiwan industrial parks investment](#)).
- Named investors and capex signals:
 - **ASE Group:** annual investments > **NT\$35bn**.
 - **Dynamic Computing Technology (Foxconn affiliate):** partnering with **NVIDIA** on an **AI Factory supercomputing center**.

- **Yung-Shine Electric:NT\$2.66bn** expansion.

Investor take: This cluster indicates potential demand pull for utility upgrades, substations, and grid capacity around industrial parks, alongside high-density compute requirements tied to the AI Factory concept.

Cloud GPU services: NVIDIA GeForce NOW

- NVIDIA introduced **Blackwell RTX** with **GeForce RTX 5080-class GPUs** to GeForce NOW Ultimate, alongside platform enhancements (DLSS 4, 5K 120 fps, expanded Steam Deck support) and January game additions ([GeForce NOW update](#)).

Investor take: Continued rollout of higher-tier GPU classes into cloud offerings is consistent with sustained demand for GPU hosting, networking, and power/cooling upgrades across relevant facilities.

Power and grid / interconnection highlights

India: Virtual PPA framework for REC procurement (CERC)

- India's Central Electricity Regulatory Commission issued its first formal **Virtual PPA (VPPA) framework** enabling designated consumers—including **data centres**, C&I units, and discoms—to procure RECs via VPPAs for **RCO compliance** ([CERC VPPA framework](#)).
- Key mechanics and constraints:
 - **Minimum duration:** at least **one year**.
 - **Settlement clarity:** norms clarify settlement of the **VPPA Strike Price vs market Settlement Price**.
 - **Anti-double-counting:** requires REC Registry undertakings to avoid double counting.

Investor take: This is a material step toward standardizing contract structures for clean attributes in India, potentially improving bankability and compliance pathways for large-load projects.

Policy and regulation

United States (state/local): incentives, water constraints, and environmental politics

- **Michigan:**
 - Resident opposition to new data centers following state tax breaks; mentions a **proposed repeal of data center tax breaks** ([Michigan's 2025 environmental roundup](#)).

- Notes a **Senate water-withdrawal cap at 2,000,000 gallons/day** and other environmental/power items (including Consumers Energy reporting **\$80m** in coal plant extension costs) ([Michigan's 2025 environmental roundup](#)).
- **Kentucky:**
 - 2026 General Assembly preview emphasizes contention over **data centers** and **water protections (SB 89)**; also highlights a permitting resourcing gap with a stated need for **\$1.8m/year** for permit-review staff under new water rules ([Kentucky 2026 General Assembly](#)).

Investor take: Underwriting for new US capacity should increasingly stress-test for (i) incentive durability, (ii) water availability/withdrawal limits, and (iii) permitting throughput.

Technology & efficiency signals (research; longer-dated, but relevant to infrastructure economics)

- **Cooling and resilience concept:** A modeled **waste-to-energy coupled AI data center** configuration uses low-grade WtE heat to drive absorption cooling, aiming to displace grid electricity for cooling and improve resilience ([Waste-to-Energy Coupled AI Data Centers](#)).
- **Intra-DC interconnect roadmap:** A “Terahertz Wireless Data Center” vision targets up to **1 Tbps/link, 10 Tbps aggregate, sub-50 ns latency,** and **sub-10 pj/bit** over ~20m ([THz wireless AI data centers](#)).
- **Operational robustness for AI training/serving:** A fault-tolerant collective communications library reports **<1% training** and **<3% inference** overheads on evaluated systems ([R²CCL](#)).

What to watch (next 1-4 weeks)

- Whether India’s VPPA framework quickly translates into **contracting activity** from data centres and other designated consumers ([CERC VPPA framework](#)).
- Any concrete next steps in Michigan regarding a **repeal of data center tax breaks** and how that impacts pipeline economics ([Michigan's 2025 environmental roundup](#)).
- Kentucky legislative and regulatory movement on **SB 89 water protections** and the state’s capacity to staff permitting reviews ([Kentucky 2026 General Assembly](#)).
- Follow-through details on Taiwan’s **AI Factory supercomputing center** partnership (Foxconn affiliate + NVIDIA) and related site/power build-out needs ([Taiwan industrial parks investment](#)).

- AI-serving operational risk controls in light of **MoE latency DoS-style stress** research results ([RepetitionCurse](#)).

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