Data Center Briefing

December 26, 2025

Global

Key themes:
Hyperscale power procurement driving new thermal + renewables + storage proposals; Rising local opposition and bill-impact scrutiny for data-centre-linked generation; Grid stability solutions for 500 MW–2 GW load loss events gaining attention; Policy and grant-funding volatility complicating clean power and grid upgrade timelines; Distributed energy zones (South Korea) explicitly targeting AI/data-centre loads; Public-sector AI platform buildout (DOE Genesis Mission) as a demand signal; Fiber infrastructure monetization and open-access wholesale models (Indonesia FiberCo); Data-centre supply chain adjacency expanding (fluids via Castrol JV)

Market overview (Global | 26 Dec 2025)

AI-driven compute demand continues to pull forward investment in power, grid interconnection, and network infrastructure, with several datapoints underscoring the tight coupling between hyperscale buildouts and local energy/policy dynamics. Today's flow is dominated by (i) power-supply and grid-stability considerations for gigawatt-scale loads, (ii) emerging national and local policy friction around environmental impacts and permitting, and (iii) enabling infrastructure (fiber and fluids) positioning for the data-centre value chain.

Risks and watchpoints (near-term)

- **Power procurement and bill-impact backlash:** In Arkansas, Entergy's proposed **745 MW Jefferson Power Station** tied to a renewable + storage package for Google's West Memphis data center comes with **estimated bill increases up to $20/month** for customers—raising the risk of political/regulatory intervention and schedule slippage (Arkansas's Most Notable Farm and Environment Stories 2025).

- **Regulatory whiplash / grant funding uncertainty (US):** Reported rollbacks and cancellations include **~$150m for rooftop solar** and **nearly $600m in methane/grid grants**, increasing downside risk to distributed generation, grid-upgrade timelines, and decarbonization-linked data-centre power strategies (Trump, AI's thirst and Mayor Johnson's stalled environmental ordinance).
- **Local permitting & "data centre sprawl" pushback:** Michigan reporting highlights opposition dynamics (including a cited **$7bn proposed Saline Township data center**), reinforcing entitlements risk and potential constraints on greenfield pipelines (Planet Detroit 2025: Michigan environment coverage, accountability and tools).
- **Grid disturbance / curtailment risk for very large single-site loads:** Research suggests practical mitigation but underscores the operational risk profile of 500 MW–2 GW trip events and the need for substation-level solutions (High-voltage braking resistors to stabilize gigawatt data centers).
- **Climate/heat and water constraints in emerging hubs:** The Philippines push to scale from **~200 MW today to 1.5 GW by 2028** faces elevated cooling-efficiency and resource-risk exposure in hot/humid conditions (regions averaging **>27°C**) (Environmental concerns amid rising data center demand in Philippines).

Key deals & strategic moves

Energy/industrial adjacency

- **BP / Stonepeak — Castrol JV:** BP agreed to sell **65% of Castrol to Stonepeak for $6bn**, valuing Castrol at **$10.1bn** (Stonepeak 65%, BP 35%). Castrol's strategy includes diversifying into **data centre fluids** alongside mobility/industrial lubricants (BP sells 65% of Castrol to Stonepeak for $6B).

Digital infrastructure (connectivity enabling data centres)

- **Indonesia — FiberCo JV:** Indosat Ooredoo Hutchison signed an investment agreement with Arsari Group and Northstar Group to spin off fiber assets into **FiberCo**, valued at **~IDR 14.6tn (~$869.87m)**. Indosat retains **~45%**. Asset footprint: **86,000 km** integrated fiber (backbone, domestic subsea, access) on an **open-access wholesale** model; coverage cited at **~45% of Java** and **~55% of non-Java** regions (Indosat, Arsari and Northstar form FiberCo to expand fiber nationwide).

Power & grid / interconnection highlights

US (Arkansas): thermal + renewables + storage package tied to hyperscale load

- Entergy proposal: **Jefferson Power Station (745 MW)**; paired project: **Cypress Solar (600 MW solar + 350 MW battery)**, described as serving

Google's West Memphis data center; customer affordability impact flagged (bill increases up to **$20/month**) (Arkansas's Most Notable Farm and Environment Stories 2025).

South Korea: distributed energy "special zones" with explicit data-centre linkage

- The Ministry of Climate, Energy and Environment designated **three new distributed energy special zones: Pohang, Ulsan, Seosan** (total now **seven**). Planned projects include:
  - **Pohang (North Gyeongsang): 40 MW green-ammonia fuel-cell**.
  - **Ulsan: 300 MW LNG combined-cycle** supplying petrochemical firms, SK facilities and **Amazon AI data centres**.
  - **Seosan: LNG CCGT** with revenues supporting local solar and transformer upgrades. (South Korea designates three new distributed energy special zones)

Bulk power system resilience (research signal)

- Substation-level stabilization concept: **high-voltage (345 kV) circuit-breaker-operated braking resistors** inserted for **0.25–0.85 seconds** to stabilize frequency/voltage following sudden loss of **500 MW–2 GW** data-centre loads; positioned as scalable for gigawatt-scale clusters (High-voltage braking resistors to stabilize gigawatt data centers).

Policy & regulation / public-sector demand signals

United States

- **DOE Genesis Mission:** DOE launched the **Genesis Mission** to build an integrated AI platform across **17 national laboratories**, targeting an initial operating capability within **270 days** and milestones at **60/90/120/240/270 days**. Collaboration agreements cited with **24 organizations**, including AWS, Google, Microsoft, NVIDIA, OpenAI, Anthropic, IBM, Intel, AMD and xAI—potentially supportive of incremental public-sector compute demand and associated infrastructure requirements (DOE launches Genesis Mission to integrate AI across labs).
- **Environmental policy uncertainty:** Reporting cites EPA rule rollbacks, termination of a local EPA employees' union in Chicago, and cancellations of **~$150m rooftop solar** and **~$600m methane/grid grants**, while Illinois officials grapple with AI data-centre energy/water demand and a stalled environmental-justice ordinance (Trump, AI's thirst and Mayor Johnson's stalled environmental ordinance).

Philippines

- Government push: DICT promotes the Philippines as a data-centre hub targeting **1.5 GW by 2028** (from **~200 MW** today), with emphasis on attracting **US investment**; article highlights environmental/resource concerns given climate and cooling load challenges (Environmental concerns amid rising data center demand in Philippines).

Technology & efficiency notes (operators / supply chain implications)

- **PUE forecasting (research):** A Bidirectional GRU (BiGRU) model was developed to predict data-centre **PUE** using an **EnergyPlus-simulated Singapore dataset** with RFECV feature selection; performance compared versus a GRU baseline (MSE/MAE/R^2) and presented at **IJCNN 2025** (BiGRU neural model predicts data center PUE).
- **Multi-datacenter networking for AI training (research):** A framework for pipeline-parallel LLM training across **multi-datacenter optical networks** reports **31.25% lower iteration time** and **13.20% fewer blocking requests** vs baselines—relevant to campus-to-campus fiber capacity planning and latency-sensitive design (Framework optimizes LLM training over multi-datacenter optical networks).

What to watch

- Whether Entergy's **745 MW** Arkansas proposal and the **600 MW solar + 350 MW battery** package draw regulatory conditions, timeline extensions, or cost-allocation changes (Arkansas's Most Notable Farm and Environment Stories 2025).
- Implementation details and procurement implications from DOE's **Genesis Mission** milestones over the next **60–270 days** (DOE launches Genesis Mission to integrate AI across labs).
- South Korea distributed-energy zones: contracting structure and whether the **Ulsan 300 MW LNG CCGT** meaningfully de-risks power for **Amazon AI data centres** (South Korea designates three new distributed energy special zones).
- US funding/policy volatility (solar, grid grants) and downstream impacts on interconnection queues and grid-upgrade capex cadence (Trump, AI's thirst and Mayor Johnson's stalled environmental ordinance).
- Philippines capacity ambition (**1.5 GW by 2028**) vs practical constraints (heat/humidity, resource impacts, financing) (Environmental concerns amid rising data center demand in Philippines).
- Timing and valuation read-throughs from the **Stonepeak/BP Castrol** JV as it positions into data-centre fluids (BP sells 65% of Castrol to Stonepeak for $6B).