

# Data Center Briefing

December 25, 2025

Global

## Key themes:

UK hyperscale campus momentum: QTS Northumberland £10bn buildout; US pre-commit colocation economics: Nscale \$865m / 40MW at WhiteFiber NC-1; India scale-up: Adani >1GW AI data-centre expansion; Karnataka new builds; Power sourcing friction: 4.4GW gas plant permit appeal tied to data-centre campus; Reliability vs decarbonisation: peaker retirements delayed amid AI load growth; Grid bottlenecks: ~2,300GW interconnection queues and copper supply risk; Resilience and connectivity: Taiwan armored subsea cable program; AI platform infrastructure: Cloudflare-JD Cloud inference routing; vector DB backup/DR

## Market overview (Global | 25 Dec 2025 UTC)

Data-centre capex and power procurement continue to tighten around a few recurring constraints: (i) grid interconnection backlogs and permitting risk, (ii) rising scrutiny on emissions and water use, and (iii) growing demand for low-latency AI inference platforms and resilient connectivity.

Notable themes today include large new/advancing campus commitments in the UK and US, renewed reliance on gas/peaker capacity to meet near-term load growth, and policy/operational moves aimed at resilience (subsea cables) and distributed energy data/controls (India rooftop solar telemetry).

## Risks and watchpoints (near-term)

### Execution/permitting and environmental litigation

- **Gas-to-data-centre linkage under challenge:** Environmental groups appealed a Pennsylvania DEP permit for a proposed **4.4 GW natural gas plant** at the former Homer City coal site, intended to supply power to a **planned 3,200-acre data center campus**—raising risk of timeline

slippage, redesign, or additional mitigation requirements ([Pa. environmental groups appeal permit for 4.4 GW gas plant](#)).

- **Reputational and policy risk from “backsliding” generation:** Surging AI-related demand is contributing to delayed retirements of fossil assets; NRG postponed retirement of Chicago’s Fisk peaker, with PJM noting many planned retirements delayed and citing large summer price spikes and DOE actions as drivers ([The AI Boom Revives Polluting Fossil-Fuel Peaker Power Plants](#)). This increases risk of stricter local restrictions, EJ challenges, and higher compliance costs.

### Grid bottlenecks and supply-chain constraints

- A broader energy-transition roundup flags **~2,300 GW** stuck in US interconnection queues and a potential **30% copper shortfall by 2035**, both of which can delay substation, line, and data-centre power delivery schedules ([2025 energy transition: breakthroughs, gridlock and supply risks](#)).

### Water and sustainability constraints

- Commentary on India warns rapid hyperscale/colo growth could drive very large sector water withdrawals and higher emissions; it calls for measures such as mandatory water disclosure, treated-wastewater usage, and sustainability-linked approvals ([India’s data centres: an emerging environmental and water menace](#)). Expect heightened permitting sensitivity in water-stressed regions.
- US Pacific Northwest environmental roundup explicitly highlights **concerns about data centers’ high water use for AI**, signalling sustained media/political attention ([10 biggest environmental stories of 2025 in Pacific Northwest](#)).

### Connectivity and resilience

- Taiwan is pursuing additional **armored undersea cables** plus satellite and backup power measures. While supportive for resilience, subsea programs can face procurement, routing and geopolitical risks ([Taiwan plans five armored undersea cables for resilience](#)).

## Key deals & projects (data centres and digital infrastructure)

### UK: QTS advances Northumberland mega-campus

- [Work to start soon on Northumberland QTS datacentre:](#)
  - QTS (US) to start work on the **first building** of a **£10 billion, 5.8 million sq ft** campus at **Cambois, Northumberland**.
  - Planned buildout: **10 buildings over the next decade**.
  - Blackstone agreed to finance a **£110 million local employment fund**.

- Reported employment impacts: **1,200 long-term construction jobs** and up to **2,700 indirect jobs**.

## US (North Carolina): Capacity pre-commit supports WhiteFiber NC-1 buildout

- [Nscale commits \\$865M for 10-year, 40 MW at WhiteFiber NC-1:](#)
  - Nscale to invest **\$865 million** for a **10-year colocation contract for 40 MW** at **WhiteFiber's NC-1** data center in **Madison, North Carolina**.
  - Payment profile: **staged payments starting April 2026**.
  - WhiteFiber has invested **\$150 million** in the site and is **seeking lenders** to fund buildout.
  - Context from the same report: Nscale previously raised **\$1.1 billion Series B** and contracted with Microsoft for **104,000 Nvidia GPUs** in a separate **240 MW** project.

## India: New builds and large-scale AI capacity ambition

- [Adani plans 1GW+ AI data centre expansion across India:](#)
  - Adani Group plans **>1 GW** of AI data-centre expansion across **Visakhapatnam, Navi Mumbai, Noida and Hyderabad**.
  - Power strategy: rely mainly on **Adani Green Energy renewables**; evaluating **nuclear** as long-term baseload under a model where Adani **owns/operates plants** and specialised partners build reactors.
- [Datasamudra and Elmeasure invest in Karnataka data centre expansion:](#)
  - Datasamudra: **Rs 3-5 billion** for a **35-40 MW** AI-focused data centre in **Mangaluru** plus **5 MW edge sites** in **Mysuru** and **Hubballi-Dharwad**.
  - Karnataka narrative: KDEM aims to make Mangaluru a **1 GW cable-to-cloud cluster** (per a Deloitte study cited in the story).
  - Elmeasure: **Rs 8-8.5 billion** for **two manufacturing units** and a **centre of excellence** in Karnataka.

## Power & grid / interconnection highlights

- **Gas generation linked to campus-scale load:** [Pa. environmental groups appeal permit for 4.4 GW gas plant](#) underscores the growing practice of pairing data-centre campuses with dedicated thermal generation—and the associated legal/EJ exposure.
- **PJM-era reliability vs. decarbonisation tension:** [The AI Boom Revives Polluting Fossil-Fuel Peaker Power Plants](#) points to demand-driven economics delaying retirements, with PJM citing widespread delays and extreme price spikes.
- **Macro bottlenecks remain binding:** [2025 energy transition: breakthroughs, gridlock and supply risks](#) highlights interconnection queue scale (~**2,300 GW**) and materials risk (possible **30% copper shortfall by**

**2035)**—both directly relevant for substation/line delivery schedules to new campuses.

- **Ireland system planning context:** The IEA published pathways for a secure, renewables-led electricity system to 2035, noting wind supplied **about one-third** of Ireland’s electricity in 2024 ([IEA: Ireland’s Electricity System Central to 2035 Goals](#)).

## Policy & regulation (selected)

- **India rooftop solar monitoring/telemetry:** MNRE welcomed an Odisha ERC amendment allowing **M2M SIM-based RMS** and hybrid inverters for rooftop solar, and urged other state regulators to follow; MNRE referenced a July 21, 2025 memo requiring inverter connection to a **centralised rooftop solar data system hosted in India** ([MNRE Praises OERC Order, Urges M2M SIM RMS Adoption](#)).
- **Trade/tariff backdrop:** Taiwan stated Mexico’s 2026 tariff hike will not cover Taiwan ICT exports (including semiconductors) and it secured current or lower tariffs on **82 key export items** ([Mexico tariff hike spares Taiwan ICT and semiconductor exports](#)).
- **Resilient comms infrastructure:** Taiwan plans **two international and three domestic** armored undersea cables as part of a “three-dimensional defensive communications network,” alongside satellite constellations and backup power measures ([Taiwan plans five armored undersea cables for resilience](#)).

## Platform, software, and architecture signals (AI/data infrastructure)

- **Inference distribution and latency:** Cloudflare and JD Cloud expanded a five-year partnership to enable AI inference across Cloudflare’s global network and JD Cloud’s China infrastructure, targeting up to **80% inference latency** reduction via network-level routing to local data centres ([Cloudflare and JD Cloud expand AI inference partnership globally](#)).
- **Data protection for vector DBs:** Commvault partnered with Pinecone to deliver immutable backups and point-in-time recovery for Pinecone vector indexes via Commvault Cloud (AWS/Azure/GCP), with general availability targeted for **1H 2026** ([Commvault and Pinecone partner to backup and recover vector databases](#)).
- **Research (watch for longer-term infra implications):** Work on accelerators and optical links suggests ongoing pressure to improve energy efficiency and short-reach bandwidth, relevant to cluster design and interconnect roadmaps (e.g., [STAR spatial accelerator for sparse Transformer attention](#), [Ultra-broadband InP-DHBT mixer enables 582 Gb/s IMDD links](#)).

## What to watch (next 1-4 weeks)

- Pennsylvania: whether the appeal on the **4.4 GW gas plant** permit introduces material delays or additional conditions for the associated **3,200-acre** data-centre campus ([45581067](#)).
- UK: early works/timeline clarity on QTS's **£10bn Northumberland** campus and any further local infrastructure commitments ([45581744](#)).
- US capacity contracting: whether WhiteFiber secures lenders for NC-1 buildout following Nscale's **\$865m / 40MW / 10-year** commitment ([45578809](#)).
- India: pace and siting details for Adani's **>1 GW** expansion and how its renewables-plus-(potential) nuclear strategy is structured ([45577461](#)).
- Water scrutiny: whether jurisdictions move toward water disclosure/approval conditions in response to rising AI cooling concerns (US Pacific Northwest; India commentary) ([45581917](#), [45579972](#)).
- Interconnection and materials: any policy signals aimed at reducing interconnection queues and managing copper constraints highlighted in the energy-transition roundup ([45577277](#)).