

# Data Center Briefing

January 03, 2026

Global

## Key themes:

Transformer deficits and procurement lead times; SMR momentum (Sweden Ringhals; India private nuclear); Data-centre PPAs and power contracting (Google Ohio); Malaysia renewables tenders vs 7 GW load pipeline; DERs/microgrids and BESS scaling for resilience; Water and environmental permitting tightening (Ohio, Michigan); Transmission and supply-chain investment to meet AI load growth

## Market overview (Global | 2026-01-03 UTC)

Power and grid constraints are tightening around the data-centre buildout, with equipment availability (notably transformers), interconnection/transmission spend, and local environmental permitting emerging as practical gating items. At the same time, several jurisdictions are explicitly aligning generation and policy tools—ranging from large-scale solar tenders to SMR frameworks—to support AI-driven load growth.

## Risks and watchpoints (near-term)

- **Transformer availability and lead times remain a binding bottleneck:** U.S. deficits are still being cited at **~30% for power transformers** and **~10% for distribution units (2025)** despite **~\$1.8-\$2.0bn** in announced North American factory investments (Hitachi Energy, Siemens Energy, Eaton) ([U.S. transformer shortage persists despite major factory investments](#)). Execution risk sits in procurement timing, specification/engineering capacity, and delivery schedules.
- **Procurement/pricing uncertainty:** Some market participants dispute the severity of the shortage, claiming **standard-unit delivery in 12-14 months** and **12%-15% service margins**—highlighting the risk of overpaying or mis-timing orders depending on scope and spec ([U.S. transformer shortage persists despite major factory investments](#)).

- **Interconnection and transmission build risk:** Sector commentary points to large planned grid spend (e.g., **Dominion: \$2.1bn transmission spend last year; National Grid: £35bn supply-chain investment**) but delivery pace, permitting, and supply-chain constraints remain key uncertainties ([Industry leaders map power sector challenges and opportunities 2026](#)).
- **Local environmental permitting and water regulation are becoming more material:** Ohio is debating a general permit for data-centre wastewater discharge with extended comment deadlines, and Michigan lawmakers are urging closer review of new facilities after state approvals—raising timeline and reputational risk ([Ohio EPA Considers Permit Allowing Data Center Wastewater Discharge](#); [Michigan lawmaker on data centers, water affordability and pollution](#)).
- **Upside risk: accelerated “regulatory relief” pathways** could reduce cycle times for data-centre and chip-fab construction, though the approach is contested and could shift with politics or legal challenge ([EPA clears regulatory path for AI infrastructure, snubs AI for protection](#)).

## Key deals and projects (data centres, generation, and nuclear)

- **Sweden - Ringhals SMR development steps forward (conditional on state risk-sharing):** Vattenfall and Industrikraft i Sverige AB agreed to co-invest in SMRs at Ringhals. Industrikraft will take a **20% stake in Videberg Kraft AB** and invest **SEK 400m (~\$42.2m)** to advance a **1,500 MW SMR** project, **pending state risk-sharing** ([Vattenfall and Industrikraft advance SMRs at Ringhals site](#)).
- **U.S. - Data-centre load underpinned by corporate PPA:** TotalEnergies signed a **15-year PPA** to supply **1.5 TWh** to **Google’s Ohio data centers** ([Vattenfall and Industrikraft advance SMRs at Ringhals site](#)).
- **India - Nuclear policy opening for private build; SMRs positioned for AI data centres:** India’s Union Minister Ashwini Vaishnaw highlighted **containerized SMR designs** with **15-30 MW** unit sizes and **~14 acres** footprint as a power solution for AI-focused data centres and railways. The **SHANTI Bill** has passed both houses and received presidential assent, enabling **private companies to build nuclear plants** ([India promotes small modular reactors for data centres and railways](#)).
- **Malaysia - Renewables and load pipeline scaling together:** Government preparation for **LSS6 solar tenders** could add **up to 2 GW** (Kenanga) with an estimated **RM6bn** in construction jobs. Tenaga Nasional Bhd reportedly has agreements for **49 data centre projects** that could require **up to 7 GW** of electricity; **CRESS committed capacity** reached **1.3 GW (as of June 2025)** ([Malaysia ramps up LSS6 solar and CRESS for data centres](#)).
- **Pennsylvania - Brownfield/thermal + data-centre redevelopment sensitivity:** Plans discussed to convert the retired **Homer City coal plant**

site into a **gas-fired power plant and data center**, with expressed concerns on grid and community impacts ([Pennsylvania 2025: Mineland Reforestation, Coal Plant Data Center](#)).

## Power and grid / interconnection highlights

- **Transformers: configuration choices intersect with harmonics and grounding requirements in data centres:** Technical guidance recommends **Delta-primary/Wye-secondary (D/y)** for many commercial/industrial/data-centre applications due to **harmonic noise suppression** and a **grounded neutral** ([Selecting the Right Three-Phase Transformer Configuration for Distribution](#)). This is relevant as facilities push higher power density and power quality becomes more critical.
- **Transformer types and voltage ranges (context for procurement strategy):** The same piece contrasts **dry-type** (e.g., open-frame up to **1,000 V / 500 kVA**; cast-resin up to **36 kV / 40 MVA**) versus **liquid-filled** transformers (noted **6 kV-1,500 kV** and **>1,000 MVA**)—useful for aligning specs to utility interconnect and on-site distribution design ([Selecting the Right Three-Phase Transformer Configuration for Distribution](#)).
- **DERs, microgrids, and storage as resilience tools:** Utilities are expanding microgrid deployments (e.g., **SDG&E launched four microgrids**) and exploring VPPs/demand response. Analysts project the **global BESS market at \$120-\$150bn by 2030** (including **>\$30bn in the U.S.**) ([Distributed energy resources boost grid resilience and reliability](#)). For data-centre investors, this supports the investment case for behind-the-meter resilience and grid-services optionality where market rules permit.
- **Storage penetration (California):** Battery storage reached **16,942 MW** (headline statistic cited alongside other power-market updates) ([Vattenfall and Industriekraft advance SMRs at Ringhals site](#)).
- **Sector outlook and AI load uncertainty:** Power-sector leaders emphasize AI tools for grid efficiency and flag uncertain but potentially large incremental demand from AI-driven data centres; example project metrics cited include **Hale Kuawehi 30 MW PV + 30 MW / 120 MWh** and an **IEA projection of 3.68 TW solar by 2030** ([Industry leaders map power sector challenges and opportunities 2026](#)).

## Policy and regulation

- **Ohio - wastewater permitting for new data centres:** Ohio EPA extended the public comment period to **Jan. 16** for a draft **general wastewater permit** allowing new data centres to discharge treated wastewater (with standard NPDES language referencing a potential “lowering of water quality”). Stakeholders have requested more time for review ([Ohio EPA Considers Permit Allowing Data Center Wastewater Discharge](#)).

- **Michigan - increased political scrutiny on ratepayer and water impacts:** A state representative urged closer review of new data centres after the Michigan Public Service Commission approved a **Saline Township** facility and required **DTE** to absorb potential rate impacts. The same commentary references revived water affordability proposals and “polluter-pay” discussions ([Michigan lawmaker on data centers, water affordability and pollution](#)).
- **U.S. federal - push for faster AI infrastructure build (contested):** Commentary criticizes EPA leadership for prioritizing regulatory relief to accelerate construction of data centres and chip factories, while not using AI tools to enhance environmental enforcement; it calls for a Project XL-style pilot approach for AI-enabled inspections ([EPA clears regulatory path for AI infrastructure, snubs AI for protection](#)).
- **India - enabling private nuclear builds:** Presidential assent for the **SHANTI Bill** enabling private companies to build nuclear plants may alter long-term power contracting options for data-centre platforms seeking firm low-carbon supply ([India promotes small modular reactors for data centres and railways](#)).

## What to watch

- Transformer lead times and pricing discipline as North American factory capex ramps, versus continued cited **2025 deficits** ([U.S. transformer shortage persists despite major factory investments](#)).
- Whether **state risk-sharing** materializes for the **1,500 MW Ringhals SMR** development pathway ([Vattenfall and Industrikraft advance SMRs at Ringhals site](#)).
- Follow-through from Malaysia’s **LSS6 (up to 2 GW)** tenders alongside the **49-project / up to 7 GW** data-centre demand pipeline ([Malaysia ramps up LSS6 solar and CRESS for data centres](#)).
- Ohio EPA’s final position on the data-centre **general wastewater permit** after the **Jan. 16** comment deadline ([Ohio EPA Considers Permit Allowing Data Center Wastewater Discharge](#)).
- Early projects and commercial structures enabled by India’s private nuclear build framework; practical deployment of **15-30 MW** SMR units for AI load ([India promotes small modular reactors for data centres and railways](#)).
- Uptake of microgrids/VPPs and the investable pipeline implied by the **\$120-\$150bn BESS by 2030** forecast ([Distributed energy resources boost grid resilience and reliability](#)).