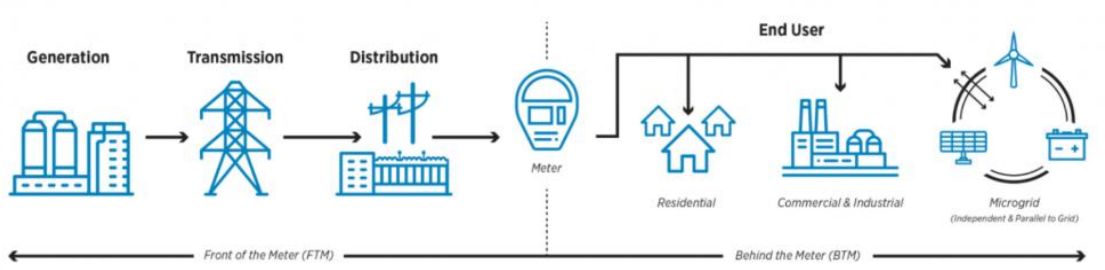
Case Study

Nexus Data Center Campus – Hubbard, Texas

Nexus Data Centers' Hyperscale AI Campus with Integrated Behind-the-Meter Power Generation

Executive Summary

Nexus Data Centers is developing a large-scale hyperscale Data Center campus in Hubbard, Hill County, Texas (approximately 80 miles south of Dallas-Fort Worth). The project features a **behind-the-meter natural gas-powered** model, making it largely independent of the ERCOT grid while providing dedicated, reliable power for AI and high-density computing workloads.



The initial phase targets **~500–612 MW** of Data Center capacity on a ~2,000-acre site (with an ~800-acre developed footprint). Full buildout envisions multi-gigawatt scale (up to ~7+ GW data center load supported by ~7.2 GW on-site generation).

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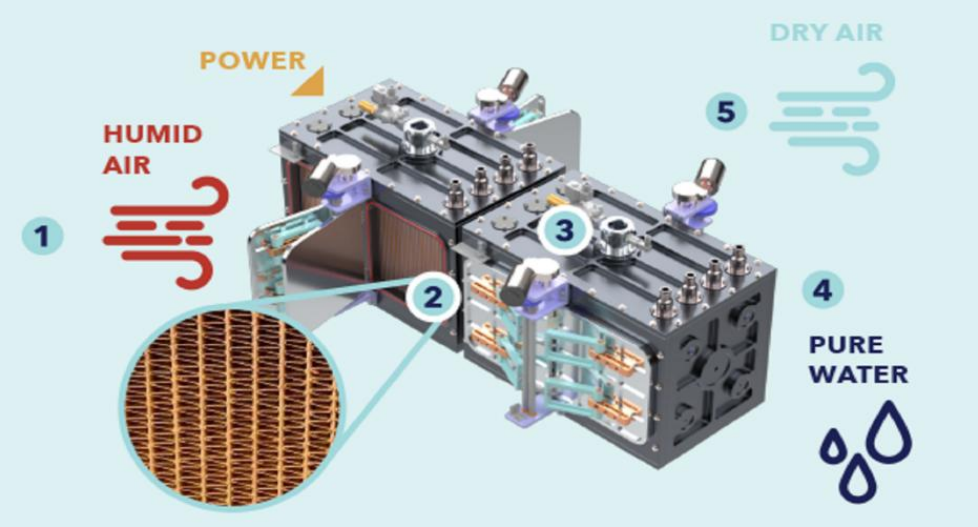
Key innovations include partnership with **AirJoule Technologies** for waste-heat-to-water systems that generate high-purity water onsite, plus use of treated wastewater and rainwater. The project emphasizes sustainability features (noise reduction, high-efficiency cooling, circular water use) alongside a **$50 million Community Partnership Program.**



Construction began in late 2025, with first-phase Data Halls and water systems targeted for operational status in the second half of 2026. The Project has received significant local government support (e.g., reinvestment zone approval) but faces typical community concerns around light, noise, air quality, and visual impact.

This **Case Study** covers project overview, location/site, technical specifications (including individual buildings), timeline/phases, economic impact, environmental/sustainability aspects, community engagement, regulatory process, challenges, and outlook.

1. Project Overview and Developer

Nexus Data Centers is a relatively new developer focused on **purpose-built, large-scale Hyperscale campuses** powered behind-the-meter. The approach prioritizes energy sovereignty, speed of deployment, and resilience for AI workloads. The company is backed by **Transition Equity Partners**. **CEO Ivan Van der Walt** (energy industry background) has publicly represented the project. Nexus distinguishes its facilities from cryptocurrency mining operations, emphasizing high-quality jobs, grid independence, and environmental compliance.

The Hubbard campus serves as the company's **Cornerstone Project**.

2. Location and Site Details

- Address: Approximately 880 State Highway 171, Hubbard, Hill County, Texas 76648.
- Position: Immediately southeast of the City of Hubbard (population ~1,400), between Highway 171 and County Road 3369, near the Hill/Navarro County line.
- Total Land: ~2,000 acres.
- Developed Footprint: ~800 acres per air permit documentation.
- Context: Rural/semi-rural area with sensitive receptors (church, school/daycare, medical clinic, park) clustered northwest in/near Hubbard. The site offers good highway access and distance from major urban centers while being relatively close to Dallas-Fort Worth demand.

3. Technical Specifications and Individual Buildings

Data Center Buildings (DTC Halls)

Public reports reference an initial phase with four Data Center buildings of approximately 400,000 sq ft each. Air permit modeling for full buildout references 23 data center buildings, each with dimensions of roughly:

- Footprint: 122 m × 396 m (~400 ft × 1,300 ft)
- Area per building: ~520,000 sq ft
- Height: 10.67 m (~35 ft)

These are purpose-built Hyperscale Halls designed for high-density AI racks, with professional noise-reduction features and high-efficiency cooling.

Power Generation Infrastructure

The Project uses a **behind-the-meter** model: on-site natural gas turbines and engines generate power directly for the Data Centers (grid-connected but not grid-reliant).

Full buildout generation capacity (per air permit): ~7.23 GW from:

- 31 combustion turbines (mix of GE Frame 7F.03/.04, 7HA.01, LM6000 PF+ and PC Sprint models — some combined-cycle capable).

- 24 reciprocating engines (Everllence 18V51/60G natural gas).
- 6 emergency diesel standby generators (Generac, ULSD fuel, limited runtime).

Initial phase supports the ~500–612 MW Data Center load with corresponding generation (phased rollout).

Other major structures:

- Large Battery Energy Storage System (BESS) building (~472 m × 101 m / ~1,550 × 330 ft).
- Power-block buildings, manifold enclosures, cold storage, etc.

Cooling and Water Systems

- High-efficiency chilled water loops and advanced cooling technologies.
- AirJoule partnership (MOF-based atmospheric water generation using waste heat from power generation and Data Center operations) to produce distilled water onsite for cooling and process use. Systems targeted for Q2/H2 2026 deployment.
- Supplemental sources: treated wastewater and surface runoff/rainwater capture.
- Goal: circular, water-efficient operations.

Closed-loop Cooling: Nexus emphasizes closed-loop cooling systems using reclaimed, non-potable, and sustainably sourced water. The goal is to minimize (or eliminate) reliance on municipal water supplies

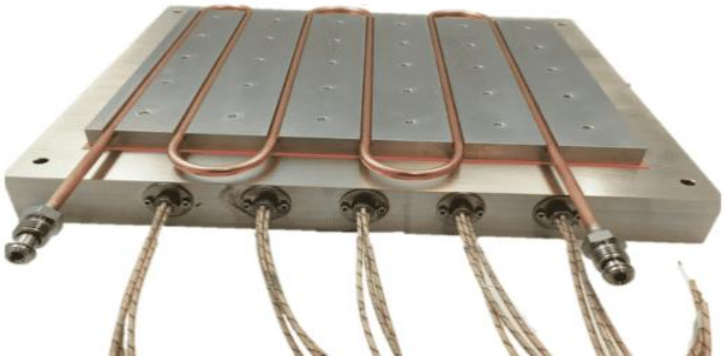
Additional water sources: Plans include capturing surface runoff/rainwater (up to billions of gallons in some references) for cooling use

What This Likely Means in Practice

For AI Hyperscale Data Centers of this scale (hundreds of MW), the facility-level cooling is almost certainly a hybrid liquid cooling architecture:

- **Facility side**: Closed-loop chilled water or similar loops, potentially with evaporative components enabled or enhanced by the on-site produced water.

- **IT/rack side**: Advanced liquid cooling (most likely direct-to-chip cold plates or similar, which is currently the most common for high-density AI deployments; full dielectric immersion is less common at hyperscale but possible).



No sources mention Dielectric fluid immersion, two-phase immersion, or specific cold-plate vendors for this Project. The emphasis is on sustainability, water efficiency, and high-efficiency cooling rather than naming a particular liquid cooling subtype.

4. Development Timeline and Phases

- **Late 2025**: Project revealed; public community meeting held; construction commenced.
- **February 2026**: Major air permit application filed with TCEQ (expedited review); Hill County approves reinvestment zone.
- **H2 2026**: First phase Data Halls and initial AirJoule water systems targeted for operation.
- **Multi-year phased buildout:** Initial ~500–612 MW phase, scaling toward mid-buildout (thousands of MW) and full multi-GW potential. Power generation permitted at full scale upfront to support phased data center growth.

5. Economic Impact

- **Jobs**: Hundreds of construction jobs during buildout; long-term operational, technical, security, and support roles. Indirect jobs in retail, hospitality, and services via community revitalization.
- **Tax Revenue**: Significant ongoing property and other tax contributions to Hill County and local entities (full local taxes paid).

- **$50 Million Community Partnership Program** (announced ~Feb 2026): Direct investments in Hubbard and Hill County for infrastructure, quality of life, emergency services, schools (e.g., technology/STEM donations to Hubbard ISD), trade programs, and downtown revitalization (restoration of historic Jarvis-Matson Building).
- Nexus Hub (nonprofit arm) supports education, public safety, and local organizations.
- Broader economic multiplier through supply chain and induced spending.

6. Environmental Impact and Sustainability

Strengths:

- Behind-the-meter power reduces reliance on strained grid during peak periods.
- Innovative waste-heat-to-water technology improves water circularity.
- High-efficiency cooling, noise-reduction design, green buffers, and rainwater/reclaimed water use.
- Strict adherence to permitting and BACT (Best Available Control Technology) for emissions.

Challenges:

- Natural gas combustion results in significant criteria pollutant and GHG emissions at scale (major PSD source; modeling shows substantial NOx, CO, etc., potential).
- Large industrial footprint and visual/operational impacts.
- Water use, though mitigated, remains a focus in Texas.

The Project undergoes full environmental review as part of air permitting.

7. Community Engagement and Social Impact

Nexus has emphasized transparency post-initial planning, held public meetings, and launched the substantial community investment program. Activities include local volunteering (e.g., food pantry support) and partnerships with schools and emergency services.

Some residents and groups (e.g., anti-Data-Center Facebook communities) have raised concerns about:

- Light pollution (construction lighting visible from miles away).
- Potential noise, air quality, traffic, and visual impacts.
- Broader questions about data center proliferation in Texas.

Nexus highlights purpose-built design, buffers, and economic/community benefits to address these.

8. Regulatory and Permitting Process

- **Air Permits**: State NSR, federal PSD, and GHG PSD applications filed Feb 2026 (expedited). Under TCEQ review with public notice requirements; potential for contested case hearing.
- **Local Approvals**: Hill County Commissioners approved reinvestment zone (Feb 2026).
- **Other**: Standard building, environmental, and utility permits. Nexus emphasizes in-house permitting expertise for speed and compliance.

9. Challenges, Risks, and Mitigation

- **Community Opposition**: Addressed via investments, design features (noise, buffers), and engagement.
- **Emissions and Permitting**: Mitigated through advanced controls (SCR, oxidation catalysts, etc.) and modeling.
- **Water Resources**: Innovative AirJoule technology + reclaimed sources.
- **Scale and Phasing**: Full buildout is ambitious; success depends on customer demand (likely Hyperscalers) and phased execution.
- Market/Technology Risks: AI demand is strong, but execution speed and cost control are critical in a competitive landscape.

Conclusion and Outlook

The Nexus Hubbard Campus represents a bold, vertically integrated model for Hyperscale AI infrastructure in Texas, combining massive on-site power generation with innovative water solutions and substantial community investment.

If successfully executed, it could deliver significant economic benefits to a small rural community while providing resilient, high-capacity computing resources. The phased approach and behind-the-meter design offer flexibility, though full-scale environmental and community impacts will require ongoing management and transparency.

As of mid-2026, the project is advancing with construction underway and initial operations targeted later in the year. It serves as an interesting Case Study in the evolving landscape of energy-intensive data center development, where power self-sufficiency and circular resource use are becoming key differentiators.

Ted J. Pappas, Director of Operations