

AT A GLANCE

Delta Products

- Delta PCS 4300
- Delta PCS 4300 Medium Voltage Skid

Environment

12.9 MW battery energy storage site designed and operated by CleanAmps

Goals

- Prove the viability of on-grid/off-grid energy storage architecture
- Show how grid-forming, string PCS adapts to evolving demands
- Identify the best mix of power hardware for 12.9 MW operation

Results

- Validated grid-forming, string PCS works reliably on- and off-grid at 12.9 MW
- Demonstrated seamless on/off-grid switching under real operating conditions
- Established a replicable, scalable blueprint for AI data center power infrastructure

Meadow Park Showcases AI Data Center Power Solutions for an Energy-Constrained World

Delta grid-forming string PCS proves hybrid (on-grid/off-grid) battery energy storage system effectiveness in AI data centers.



Meadow Park, a 12.9 MW battery energy storage system outside Plano, Texas.

Meadow Park Overcomes the Challenges of Powering AI Data Centers in Grid-Constrained Environments

The Situation: Simple Energy Storage Is Not Enough

As grid power becomes increasingly restricted and volatile, battery energy storage systems (BESS) have become critical to ensuring AI data center power reliability. Data centers need a platform that promotes grid stability and power resilience for AI workloads and enables operators to quickly implement new energy strategies—especially in grid-constrained, weak-grid, and off-grid environments.

How do you test such a platform? By building a megawatt-scale, live deployment.

Delta partnered with CleanAmps, an energy consultant and renewable energy services company, on just such a project. Meadow Park, fully commissioned as of March 2026, is a 12.9 MW US battery energy storage site outside Plano, Texas.

"We see Meadow Park as a practical platform for more than core controls integration. It supports the continued development of CleanAmps' Generation Management System, Load Management System, and a broader economic dispatch platform designed to enable automated, dynamic trading and dispatch decisions based on real-time grid conditions, asset availability, and market signals across both grid-interactive projects and microgrid applications."

—Josh Gunderson, Chief Operating Officer, CleanAmps

At the solution's core is the Delta PCS 4300, a modular, bidirectional, highly efficient (up to 98.7%), grid-forming, string-type power conditioning system (PCS) that delivers a more scalable way to store, optimize, and manage energy both on and off the grid.

Challenges: Proving a Power-Conversion Architecture for the AI Future

The project called for a largely untried power-conversion architecture. Because PCS

“Meadow Park required more than standard equipment. We needed a partner willing to work through customization, controls integration, commissioning, and the practical challenges of deploying advanced grid-forming technology in a demanding application. Delta has been a strong partner in that process.”

— Josh Gunderson, Chief Operating Officer, CleanAmps

string technology is newer than traditional PCS central designs, it hasn't yet entered the mainstream. Off-grid energy storage and operation, too, is still an emerging application. That raised expectations for performance, reliability, and execution.

Meadow Park also had to address a broader market shift. As AI data centers and other power-intensive facilities squeeze utility infrastructure, concerned (nervous? frantic?) owners are embracing necessary adaptations to an insufficient grid such as peak shaving, renewable integration, microgrids, and more.

Beyond demonstrating mere technical capability, Meadow Park proved it offered the flexibility and scalability required for a more distributed energy future.

Solution: Smooth, On- and Off-Grid, Replicable Power

Delta is a pioneer in PCS string technology and a current industry leader. At Meadow Park, the PCS 4300 is integrated with a Delta PCS 4300 medium voltage skid, creating a high-performance platform for efficient power conversion and modular scalability. Its grid-forming capability is designed to handle off-grid workloads with ease.

With up to 98.7% efficiency, the PCS 4300 reduces conversion losses, maximizes usable energy, and improves battery storage economics with stronger charge/discharge performance and more value from every megawatt.

“Delta's string PCS architecture brings meaningful advantages for applications where resilience, modularity, and control flexibility matter. It helps reduce single-point failure exposure and provides a better framework for managing battery string imbalance, which the storage industry is increasingly recognizing as an important performance and capacity issue.”

— Breck Boven, Chief Technical Officer, CleanAmps

PCS string modularity offers key advantages compared to PCS central designs. Foremost is reliability: If one of the PCS 4300's 20 modules goes down, the unit still provides roughly 95% of the power available; a central PCS system's failure, although rare, probably shuts down the entire show. That makes the PCS 4300 suited for projects that need to quickly expand or accommodate new energy realities.

Delta engineering and controls integration teams worked closely with CleanAmps and the local AHJ (authority having jurisdiction) to seamlessly integrate and deploy the hardware. Delta's efforts included customizing the PCS for off-grid load smoothing, analyzing live data, optimizing throughput and reliability, and more.

Meadow Park's commissioning took only two weeks. The site will continue to simulate and test various power combinations, including other Delta equipment.

Conclusion: Ready for Anything

Turns out the right AI power infrastructure can promote, rather than constrict, AI scale. Compared to traditional central PCS systems, string PCS provides data centers with higher reliability and modular scalability.

By proving the practicality of an on-grid/off-grid, modular energy-storage architecture in a live, 12.9 MW operation, Meadow Park establishes the data center value of grid-forming, PCS string technology and further positions Delta as an expert, innovative partner for energy storage projects.

