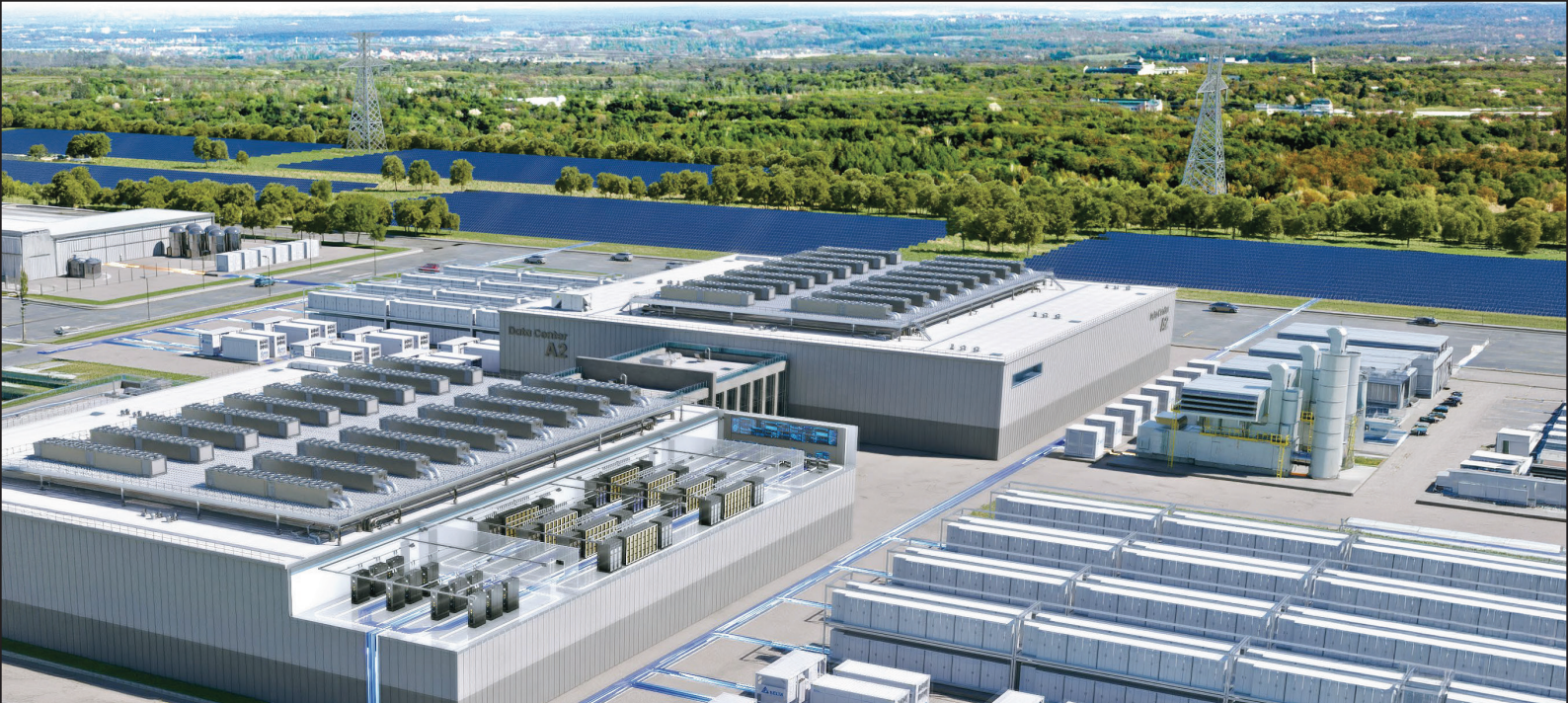




Delta Microgrid For AI Data Centers

Microgrid for AI Data Centers solves operators' two greatest challenges: speed to power and operational continuity. As primary power at launch, Delta Microgrid energizes compute capacity fast—no waiting in a utility interconnection or power transformer supply chain queue—without relying on local grid capacity. Built grid-to-chip for the unique availability, stability, and resilience demands of AI workloads, the platform also integrates inverter-based and conventional generation under one control architecture.

Like all our infrastructure solutions, Delta Microgrid for AI Data Centers is easily customizable, extremely reliable, energy efficient, and fully bankable.

Your Fastest Path to Continuous, Exceptionally Reliable and Efficient Power

Delta Microgrid for AI Data Centers combines grid-forming control, near-instant dynamic response, and automation to keep critical operations online while reducing total cost of ownership.

Maintain power stability
with real-time balancing

Maximize energy
resource efficiency

Ensure ongoing operation
of mission-critical loads

Minimize outage risk
and downtime

Key Solution Features and Benefits

Products

Delta draws on decades of power electronics expertise to integrate its industry-leading devices with real-time control and smart energy management.

Short Interconnection Path

IT compute loads are energized independent of utility interconnection timelines.

No Conventional Power Transformer Dependency

Next-gen solid-state transformer—compact, intelligent, and future-ready—and string-based power conversion system let operators skip the supply-chain wait for power transformers.

Grid-Capacity Independence

Islanded operation supplies full mission-critical load regardless of local grid headroom.

End-to-End Integrated Platform

Combined power electronics, control systems, and management software streamlines deployment and ensures seamless, single-vendor operation.

Utility-Scale Control Architecture

Clearly defined control hierarchy across power plant controller (PPC), energy management system (EMS), and device layers enable stable, consistent operation.

US-based Manufacturing and R&D

Local production and engineering to meet regulatory, compliance, and interconnection requirements.

Global Supply Chain

Delta's flexible, extensive supply chain minimizes parts and material procurement risks.

Scalable from MW to GW

Modular architecture supports everything from data centers to large inverter-based power plants.

Standards and Compliance Ready

IEEE 1547 / 2800, UL 9540, NEC, and cybersecurity framework (e.g. NERC CIP and IEC 62443) compliant.

Services

From custom design to fast deployment to ongoing maintenance, Delta ensures microgrid customer success across the full project lifecycle.

US-based R&D, Execution, and Support

Local engineering and lifecycle services to meet regulatory, compliance, and interconnection requirements.

Custom Design and Engineering

Architecture and system modeling align power infrastructure to site-specific requirements from day one.

Prevalidated Factory Testing

Simulation and digital twins confirm performance before equipment arrives, speeding deployment and reducing risk and onsite troubleshooting.

Fast Commissioning

Site deployment and performance validation bring systems to full, specification-compliant operation from first power, backed by structured acceptance testing.

Ongoing Operations and Maintenance (O&M)

Continuous monitoring and lifecycle services protect uptime and extend equipment life.

Typical Microgrid Architecture

Delta's integrated, coordinated system replaces or augments UPS and diesel backup with sustainable, energy-saving storage systems while providing millisecond-level responses for long-term stability and predictive optimization.



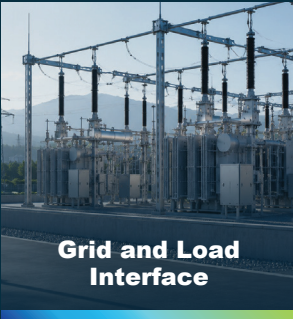
Generation Sources

Solar PV, wind, gas turbines, and solid oxide fuel cells, as well as inverter-based resources and synchronous generation



Energy Storage

Large-scale, grid-forming battery energy storage system (BESS)



Grid and Load Interface

Utility interconnection, substations, feeders, and critical loads



Control and Management Layers

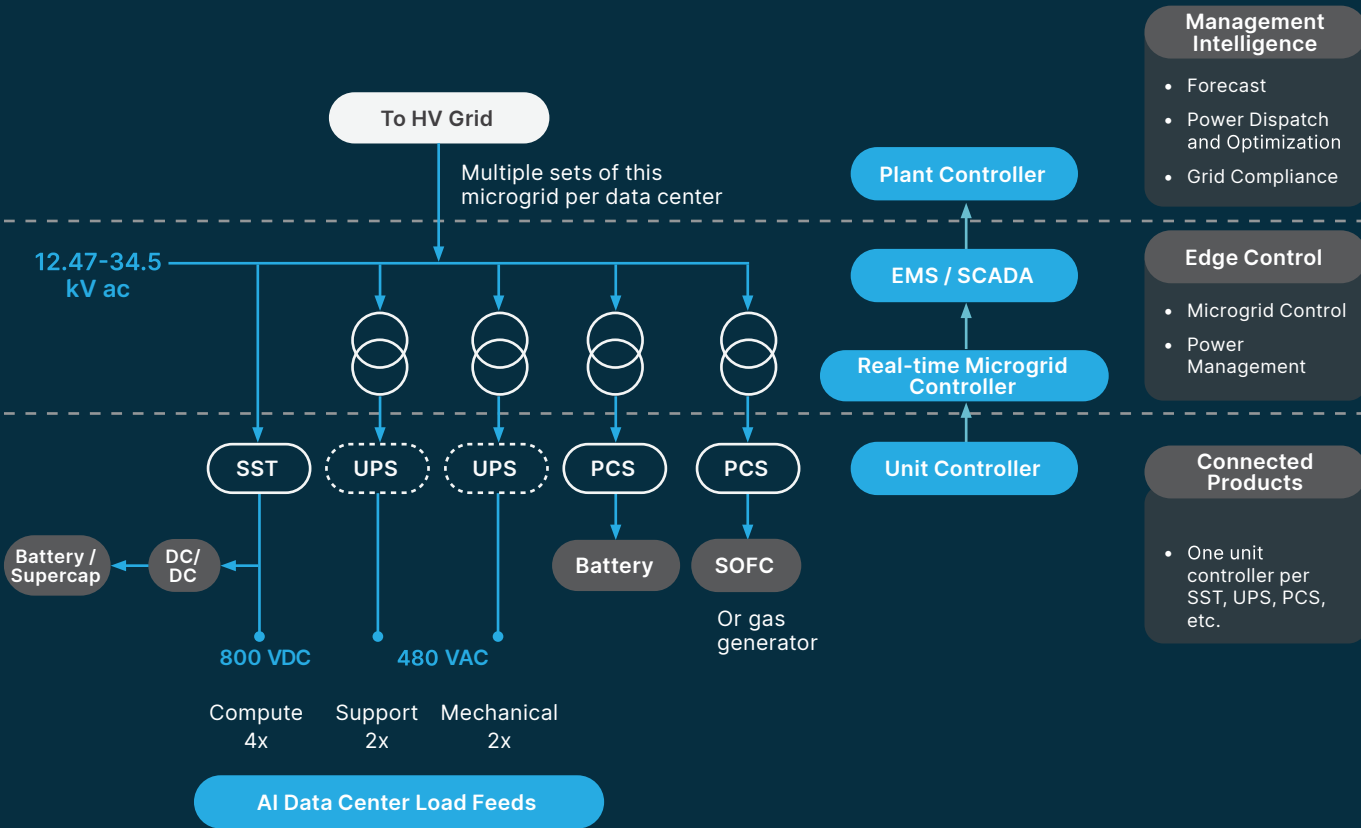
Power plant controller, real-time microgrid controller, and EMS/SCADA platform

Operating Modes

Automatically and seamlessly transfer between modes without disruption.

- **Grid-Connected**—Optimized dispatch with full participation in grid services
- **Islanded**—Autonomous operation with grid-forming stability

Example: AI Data Center Microgrid with 3+1 Compute Power Trains and 1+1 Support and Mechanical Power Trains



Core Delta Microgrid Components

Delta offers a complete suite of integrated microgrid components and integration capabilities.



Microgrid Controller / Power Plant Controller
Real-Time Microgrid and PP Controllers

- Real-time control with response time less than 4 ms
- Multipower source synchronization
- Plant-level coordination controller for grid-code compliance (IEEE 1547/2800)



VTScada SCADA System
Supervisory Control and Data Acquisition

- Monitoring for hundreds of thousands of I/Os
- Polling management, historian, trends viewer, report generation, application version control, alarm notification, and system backup



Energy Management System
Microgrid Management Platform

- Advanced control capabilities
- Optimization and energy management
- Monitoring, reporting, and operations



Solid State Transformer (SST)
34.5k VAC to 800 VDC Conversion

- MV / LV and AC / DC conversion
- More compact and less lossy than conventional 50/60 Hz Line Frequency Transformer-based solutions



Power Conversion System (PCS)
Bidirectional Energy Storage Inverters

- MW-scale inverter with integrated transformer and no need for external components
- Compatibility with major 1500V battery systems
- Rack-level management and cluster-level control



DC/DC Converter
Bidirectional Buck / Boost Converter

- Wide DC voltage range: 150-1300 VDC and 500-1500 VDC
- Max. continuous power up to 1500 kW
- Max. efficiency ≥ 98.5%



Utility PV Inverter
Support Voltage up to 1500 VDC

- High compatibility with M10/M12 solar modules
- Optimized yield with 12/8 MPP trackers, MPPT large power design, and global MPP scanning
- Built-in auto DC disconnect switch



Solid Oxide Fuel Cell
Optimal Onsite Power Generation

- Natural gas-based, 24/7 continuous and stable baseload power
- Beyond 60% efficiency, rising to 85% with heat recovery (combined heat and power)



Energy Storage System
Grid Regulation, Backup, and Islanding

- Millisecond-level physical responses for frequency and voltage stabilization
- Seamless islanding transitions and blackstart

Integration Capabilities

- Seamless integration of Delta and third-party distributed energy resources (DER) providers
- Support for IEC 61850, DNP3, Modbus, OPC UA, and other protocols
- Secure architecture with network segmentation and controlled remote access

The Intelligence Behind Data Center Microgrids

Delta's multilayer control architecture ensures stable, grid-compliant operation by clearly defining control authority across device-level, plant-level, and real-time systems.



The Delta Microgrid Advantage

Solid State Transformer: Fast Time-to-Power and Smart Architecture

- Direct 800 VDC integration
- Prefabricated and factory-verified
- Scalable, modular, small-footprint design
- 98.5% MV-to-LV conversion efficiency

Power Conversion System: Real-Time Stability and Bidirectional Control

- Real-time voltage/frequency and charge/discharge command execution
- State-of-charge and status reports through the control layer

System Capabilities

Grid Stability and Power Quality

Precise frequency and voltage control, inertia support, and fast fault response

Resilience and Reliability

Seamless grid-to-island operation, black start, and high availability

Advanced Energy Management

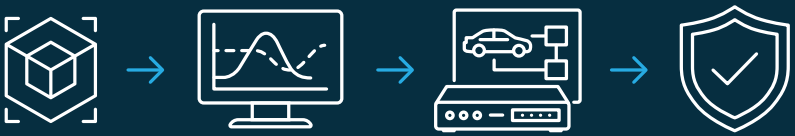
Forecast-based dispatch, renewable integration, and asset optimization

Operational Intelligence and Cybersecurity

Predictive maintenance, digital twin simulation, and secure remote monitoring with cybersecurity-aligned architecture

Validated Performance

System operation is verified through advanced modeling, simulation, and hardware-in-the-loop (HIL) testing to ensure reliable performance under real-world grid conditions.



Proven Microgrid Installations

Taiwan



Detroit



Dallas, TX



Quail Ranch, NM



Elberta, UT



Bankable, Compliant, and Grid Ready

Delta microgrid solutions meet key US regulatory, interconnection, and safety standards.

IEEE 1547 / IEEE 2800
Grid Interconnection

UL 9540
Energy Storage Systems

NEC
Electrical Safety

NERC CIP
Cybersecurity for Critical Infrastructure

IEC 62443
Industrial Cybersecurity Architecture

Inflation Reduction Act (IRA)
Federal Tax Credit Eligibility

Domestic Content
Bonus Credit Adder Requirement

Foreign Entity of Concern (FEOC)
Supply Chain Compliance Requirement



Let's Build the Next-Generation Grid

Whether you are developing a hyperscale data center, deploying an inverter-based power plant, or modernizing grid infrastructure, Delta provides the technology and expertise to deliver resilient, scalable microgrid solutions.

Microgrids@deltaww.com



Smarter. Greener. Together.



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