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Customer Information

Customer Name	QTS Data Centers
Contact Person	Michael T. Geiter Sr.
Contact Email	michael.geiter@structuretone.com
Contact Phone	N/A
Lead Source	BuildingConnected Lead

Project Information

Project Name	QTS FTW1 - DC1 18MW Expansion
Location	14100 Park Vista Boulevard, Fort Worth, TX 76177
Start Date	6/2/2025
Completion Date	N/A
Budget	N/A
Scope	Data center expansion with electrical systems installation including medium-voltage equipment, generators, UPS systems, switchboards, and distribution equipment
Project ID	704b7b37-1320-419d-a552-f437e659cf49
Project URL	BuildVision Project Link
Created Date	4/28/2025
Date Due	5/13/2025
Job Walk	–
Contract Type	–
Rfis Due	5/1/2025
Date Invited	4/21/2025
Request Type	Proposal
Project Size	–

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Date: 2025-05-30

Project Equipment

Static Uninterruptible Power Supply (UPS)

Equipment Tag	Manufacturer	Model
XX-UPS-C22-1	Pre-purchased	
XX-UPS-R11	Pre-purchased	

Notes

Three-phase, on-line, double-conversion, static-type, multi-module UPS system with transient voltage surge suppression, input harmonics reduction, rectifier-charger, battery, battery disconnect device, inverter, static bypass transfer switch and external maintenance bypass/isolation switch.

Engine Generators

Equipment Tag	Manufacturer	Model
XX-GEN-C22		
XX-GEN-R11		
XX-GEN-R21		

Notes

Diesel engine generator sets with unit-mounted cooling system, control and monitoring

Transfer Switches

Equipment Tag	Manufacturer	Model
XX-STC-C22R21-01		
XX-STC-C22R21-02		
XX-STC-C22R21-03		
XX-STC-C22R21-04		
XX-STC-R21C22		

Notes

Automatic transfer switches for emergency power systems

Power Distribution Units (PDUs)

Equipment Tag	Manufacturer	Model
XX-PDU-C22-01		
XX-PDU-C22-02		
XX-PDU-C22-03		
XX-PDU-C22-04		

Notes

Integrated and coordinated assembly of power-line-conditioning and distribution components packaged in a single cabinet, including isolation transformer, TVSS system, output panelboards, and monitoring systems

Switchboards

Equipment Tag	Manufacturer	Model
XX-SWR-C22-1		
XX-MBB-C22-1		
XX-SWR-R11		
XX-SWR-R21		
XX-MBB-R11		
XX-MBB-R21		

Notes

Service and distribution switchboards for power distribution

Transformers

Equipment Tag	Manufacturer	Model
XX-XFMR-C22		
XX-XFMR-R11		
XX-XFMR-R21		

Notes

Medium-voltage and low-voltage transformers for power distribution

CRAH Units

Equipment Tag	Manufacturer	Model
CRAH-DH2200-02		
CRAH-DH2200-05		

CRAH-DH2200-07		
CRAH-DH2200-08		
CRAH-DH2200-10		
CRAH-DH2200-13		
CRAH-DH2200-15		
CRAH-DH2200-16		
CRAH-DH1100-03		
CRAH-DH1100-06		
CRAH-DH1100-11		
CRAH-DH1100-14		

Notes

Computer Room Air Handler units for data center cooling

Enclosed Bus Assemblies

Equipment Tag	Manufacturer	Model
XX-ST5	No BOD Listed	

Notes

Bus assemblies for power distribution

Modules

Equipment Tag	Manufacturer	Model
XX-MOD-C22-01		
XX-MOD-C22-02		
XX-MOD-R11-01		
XX-MOD-R11-02		
XX-MOD-R21-01		
XX-MOD-R21-02		

Notes

Data center modules

Battery Wrap Static Transfer Switches

Equipment Tag	Manufacturer	Model
XX-BWSTS-C22R21-01		
XX-BWSTS-C22R21-02		

XX-BWSTS-C22R21-03		
XX-BWSTS-C22R21-04		

Notes

Battery wrap static transfer switches for power distribution

Critical Output Distribution

Equipment Tag	Manufacturer	Model
XX-COD-A22-1		

Notes

Critical output distribution switchboard

Pumps

Equipment Tag	Manufacturer	Model
XXPMP-CHILL-XX		

Notes

Pumps for cooling systems

Suppliers

Static Uninterruptible Power Supply (UPS)

Manufacturer	Model	Representative	Compatibility Notes	BoD
Liebert/Emerson	Static Uninterruptible Supply	N/A	Listed first in specifications as basis of design manufacturer for UPS systems	Yes
Eaton	Static Uninterruptible Supply	N/A	Listed as acceptable manufacturer for UPS systems in project specifications	Listed
Power Distribution, Inc.	Static Uninterruptible Supply	N/A	Listed as acceptable manufacturer for UPS systems in project specifications	Listed

Schneider Electric/Square D	Static Uninterruptible Supply	Uninterruptible Power	N/A	Listed as acceptable manufacturer for UPS systems in project specifications	Listed
Mitsubishi	Static Uninterruptible Supply	Uninterruptible Power	N/A	Industry standard UPS manufacturer suitable for data center applications	No
ABB	Static Uninterruptible Supply	Uninterruptible Power	N/A	Industry standard UPS manufacturer suitable for data center applications	No

Engine Generators

Manufacturer	Model	Representative	Compatibility Notes	BoD
Caterpillar	Diesel Generator	N/A	Listed as basis of design for diesel engine generators in Section 26 32 13	Yes
Cummins Power Generation	Diesel Generator	N/A	Listed as an acceptable manufacturer in Section 26 32 13	Listed
Kohler	Diesel Generator	N/A	Listed as an acceptable manufacturer in Section 26 32 13	Listed
Generac Power Systems	Diesel Generator	N/A	Listed as an acceptable manufacturer in Section 26 32 13	Listed
MTU Onsite Energy	Diesel Generator	N/A	Additional suitable manufacturer for engine generators	No
Detroit Diesel	Diesel Generator	N/A	Additional suitable manufacturer for engine generators	No

Transfer Switches

Manufacturer	Model	Representative	Compatibility Notes	BoD
ASCO	Transfer Switch	N/A	Listed as acceptable manufacturer for transfer switches	Yes
ASCO	Transfer Switch	N/A	Listed as acceptable manufacturer for transfer switches	Listed
Russelectric	Transfer Switch	N/A	Listed as acceptable manufacturer for transfer switches	Listed

Cummins Power Generation	Transfer Switch	N/A	Listed as acceptable manufacturer for transfer switches	Listed
GE Zenith Controls	Transfer Switch	N/A	Listed as acceptable manufacturer for transfer switches	Listed
Kohler Power Systems	Transfer Switch	N/A	Listed as acceptable manufacturer for transfer switches	Listed
ABB	Transfer Switch	N/A	Additional suitable manufacturer for transfer switches	No
Eaton	Transfer Switch	N/A	Additional suitable manufacturer for transfer switches	No
Socomec	Transfer Switch	N/A	Additional suitable manufacturer for transfer switches	No

Power Distribution Units (PDUs)

Manufacturer	Model	Representative	Compatibility Notes	BoD
Eaton	Power Distribution Unit	Eaton	Compatible with QTS data center specifications	Yes
Eaton	Power Distribution Unit	Eaton	Compatible with QTS data center specifications	Listed
Liebert/Vertiv	PDU	Liebert Corporation (division of Emerson/Vertiv)	Listed as acceptable manufacturer for PDUs in specifications	Listed
Power Distribution Inc.	PDU	Power Distribution, Inc.	Listed as acceptable manufacturer in specifications	Listed
Square D/Schneider Electric	PDU	Square D; Schneider Electric	Listed as acceptable manufacturer in specifications	Listed
United Power Corporation	PDU	United Power Corporation	Listed in specifications as acceptable manufacturer	Listed
ABB	Power Distribution Unit	ABB	Global manufacturer with suitable PDU products for data center applications	No
Cyberpower	PDU	Cyberpower	Provides compatible PDU solutions for data center applications	No

Switchboards

Manufacturer	Model	Representative	Compatibility Notes	BoD
Eaton	Switchboard	Eaton	Listed as acceptable manufacturer in specifications for switchboards.	Yes
General Electric	Switchboard	General Electric	Listed as acceptable manufacturer in specifications for switchboards.	Listed
Siemens	Switchboard	Siemens Industry, Inc.	Listed as acceptable manufacturer in specifications for switchboards.	Listed
Square D	Switchboard	Schneider Electric	Listed as acceptable manufacturer in specifications for switchboards.	Listed
ABB	Switchboard	ABB	Industry standard manufacturer not explicitly listed but compatible with project requirements.	No
ASCO	Enclosed Bus Assemblies	ASCO	Listed as acceptable manufacturer for transfer switches which relate to switchboard connections.	Listed

Transformers

Manufacturer	Model	Representative	Compatibility Notes	BoD
Square D	Enclosed Bus Assembly	Schneider Electric	Listed as acceptable manufacturer for enclosed bus assemblies in Section 26 25 00	Yes
Square D	Enclosed Bus Assembly	Schneider Electric	Listed as acceptable manufacturer for enclosed bus assemblies in Section 26 25 00	Listed
Eaton	Enclosed Bus Assembly	Eaton Corporation	Listed as acceptable manufacturer for enclosed bus assemblies in Section 26 25 00	Listed
Siemens	Enclosed Bus Assembly	Siemens Industry, Inc.	Listed as acceptable manufacturer for enclosed bus assemblies in Section 26 25 00	Listed

General Electric	Enclosed Bus Assembly	GE	Listed as acceptable manufacturer for enclosed bus assemblies in Section 26 25 00	Listed
ABB	Enclosed Bus Assembly	ABB	Suggested alternative, meets requirements for transformers equipment	No
Powell	Enclosed Bus Assembly	Powell Industries	Suggested alternative, meets requirements for transformers equipment	No

CRAH Units

Manufacturer	Model	Representative	Compatibility Notes	BoD
Vertiv (Liebert)	CRV/CRD Series	N/A	Referenced in drawings as CRAH-DH units; designed for precision cooling in data centers	Yes
Data Aire	CRAH Units	N/A	Compatible with specified electrical requirements; provides units designed for data center applications	No
Stulz	CyberAir Series	N/A	Compatible with data center cooling requirements; offers similar functionality	No
Schneider Electric	InRow Series	N/A	Can be integrated with electrical systems shown in drawings; suitable for data center row-based cooling	No

Enclosed Bus Assemblies

Manufacturer	Model	Representative	Compatibility Notes	BoD
Siemens Industry, Inc.	Enclosed Bus Assemblies	Siemens Industry, Inc., Energy Management Division	Compatible with existing electrical distribution system. Specified for 3PH, 3W, low-impedance bus with single-bolt joints.	Yes
Siemens Industry, Inc.	Enclosed Bus Assemblies	Siemens Industry, Inc., Energy Management Division	Compatible with existing electrical distribution system. Specified for 3PH, 3W, low-impedance bus with single-bolt joints.	Listed

Eaton	Enclosed Bus Assemblies	Eaton	Compatible with existing electrical distribution system. Supports required fault current ratings and required expansion fittings.	Listed
Square D	Enclosed Bus Assemblies	Square D; by Schneider Electric	Compatible with existing electrical distribution system. Supports required fault current ratings and expansion capabilities.	Listed
General Electric Company	Enclosed Bus Assemblies	General Electric Company	Compatible with existing electrical distribution system. Supports required fault ratings per project specs.	Listed

Modules

Manufacturer	Model	Representative	Compatibility Notes	BoD
Square D	Static Transfer Switch	Schneider Electric	Listed as manufacturer for STS in the electrical one-line diagrams	Yes
ASCO	Static Transfer Switch	N/A	Listed as alternative manufacturer in Section 26 36 00	Listed
General Electric Company	Enclosed Bus Assemblies	N/A	Listed as alternative manufacturer in Section 26 25 00	Listed
Siemens Industry	Enclosed Bus Assemblies	N/A	Listed as alternative manufacturer in Section 26 25 00	Listed
Controlled Power Company	Power Distribution Units	N/A	Listed as alternative manufacturer in Section 26 26 00	Listed
Power Distribution, Inc.	Power Distribution Units	N/A	Listed as alternative manufacturer in Section 26 26 00	Listed
Vertiv	Module Equipment	N/A	Compatible with most data center infrastructure. Strong integration capabilities with monitoring systems.	No
Schneider Electric	Module Equipment	N/A	Strong compatibility with existing Square D equipment. Comprehensive module offerings.	No

Battery Wrap Static Transfer Switches

Manufacturer	Model	Representative	Compatibility Notes	BoD
Cyberpower	Battery Wrap Static Transfer Switch	Cyberpower	Provides battery wrap static transfer switching capability compatible with project requirements	Yes
Cyberpower	Battery Wrap Static Transfer Switch	Cyberpower	Provides battery wrap static transfer switching capability compatible with project requirements	No
Eaton	BWSTS	Eaton	Identified in drawings as XX-BWSTS model designations. Compatible with project power distribution requirements.	Listed
Vertiv (formerly Emerson)	Battery Wrap STS	Vertiv	Industry standard equipment compatible with UPS systems and power distribution requirements	No

Critical Output Distribution

Manufacturer	Model	Representative	Compatibility Notes	BoD
Liebert/Vertiv	Static UPS	N/A	Shown on electrical one-line diagram as equipment manufacturer	Yes
ASCO	Static Transfer Switch	N/A	Listed as acceptable manufacturer for transfer switches	Listed
Russelectric	Static Transfer Switch	N/A	Listed as acceptable manufacturer for transfer switches	Listed
Eaton	Enclosed Bus Assemblies	N/A	Listed manufacturer for enclosed bus assemblies	Listed
General Electric	Enclosed Bus Assemblies	N/A	Listed manufacturer for enclosed bus assemblies	Listed
Siemens	Enclosed Bus Assemblies	N/A	Listed manufacturer for enclosed bus assemblies	Listed
Square D	Enclosed Bus Assemblies	N/A	Listed manufacturer for enclosed bus assemblies	Listed
APC/Schneider Electric	Static UPS	N/A	Compatible with specified requirements for UPS systems	No

Mitsubishi	Static UPS	N/A	Compatible with specified requirements for UPS systems	No
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Pumps

Manufacturer	Model	Representative	Compatibility Notes	BoD
Bell & Gossett	Series e-1510	N/A	Primary choice for HVAC pump systems	Yes
Armstrong	Design Envelope	N/A	Compatible with existing infrastructure, energy efficient	Listed
Grundfos	TP/TPE Series	N/A	Good efficiency ratings, may require minor piping modifications	Listed
Taco	FI Series	N/A	Suitable alternative, widely available	No
Wilo	IL Series	N/A	Energy efficient, growing market presence	No

BuildVision Recommendations

1. Negotiate Bulk Purchase of Static Transfer Switches

Rationale: The electrical diagrams and specifications indicate multiple static transfer switches (STS) are required for the QTS FTW1 DC1 18MW Expansion project. A coordinated bulk purchase of these critical components would leverage economies of scale and potentially secure better pricing, delivery schedules, and warranty terms.

Estimated Impact: Potential cost savings of 10-15% on STS equipment, improved delivery coordination, and streamlined installation scheduling. This could represent significant savings on these high-value items while ensuring consistent quality across all units.

Implementation: 1. Compile total STS requirements from all electrical diagrams and specifications. 2. Engage with preferred manufacturers (ASCO, Eaton, etc.) to negotiate volume-based pricing. 3. Coordinate delivery schedule with construction timeline to minimize storage requirements. 4. Consider extended warranty options as part of the negotiation.

Priority: High

2. Standardize on a Single UPS Manufacturer

Rationale: The specifications allow for multiple UPS manufacturers. Standardizing on a single manufacturer for all UPS systems would provide consistency in maintenance procedures, spare parts inventory, and technical support. The project documents indicate significant UPS infrastructure with parallel redundant configurations.

Estimated Impact: Estimated 8-12% reduction in lifetime maintenance costs, simplified training requirements, reduced spare parts inventory, and improved vendor leverage for future service contracts. Operational efficiency would be improved through standardized interfaces and monitoring systems.

Implementation: 1. Evaluate preferred manufacturers based on technical specifications, local support capabilities, and total cost of ownership. 2. Negotiate enterprise-level agreement with selected manufacturer. 3. Ensure all UPS specifications reference the standardized manufacturer. 4. Coordinate installation training for all units with the manufacturer.

Priority: High

3. Optimize Generator Procurement with Integrated Testing Plan

Rationale: The specifications indicate multiple diesel generators with extensive testing requirements. Coordinating the generator procurement with the testing plan could reduce duplicate testing costs and streamline the commissioning process. The project requires significant load bank testing for generator acceptance.

Estimated Impact: Potential savings of \$15,000-\$25,000 in testing costs by combining factory and site acceptance testing. Reduced risk of commissioning delays by ensuring factory tests align with site acceptance criteria. Improved reliability validation through comprehensive testing.

Implementation: 1. Review generator specifications and testing requirements in Section 26 32 13 and 26 32 15. 2. Coordinate with generator manufacturer to align factory testing with site acceptance criteria. 3. Consider negotiating integrated factory witness testing with commissioning team present. 4. Arrange for load bank rental coordination between factory and site testing phases.

Priority: Medium

4. Bundle Medium-Voltage Cable Purchase with Installation Services

Rationale: The project requires significant medium-voltage cabling as shown in the electrical diagrams. Bundling the cable purchase with specialized installation services could ensure proper handling of these critical components while potentially reducing overall costs through a single-source responsibility approach.

Estimated Impact: Estimated 5-7% reduction in combined material and labor costs. Reduced risk of installation damage and warranty disputes. Simplified project management through single-source responsibility for this critical system component.

Implementation: 1. Identify all medium-voltage cable requirements from drawings. 2. Develop RFP for combined cable supply and installation services. 3. Evaluate bids based on total cost of ownership and quality assurance. 4. Ensure installation contractor has proper qualifications for medium-voltage work.

Priority: Medium

5. Implement Strategic Switchgear Procurement Plan

Rationale: The electrical one-line diagrams show extensive switchgear requirements. A strategic procurement plan for switchgear would account for long lead times, coordinate factory witness testing, and potentially reduce costs through standardization of manufacturers and specifications.

Estimated Impact: Potential cost savings of 5-8% through standardization and volume purchasing. Reduced risk of schedule delays by proactively managing long lead time items. Improved quality control through coordinated factory witness testing.

Implementation: 1. Create comprehensive inventory of all required switchgear from electrical diagrams. 2. Develop standardized specifications where possible. 3. Engage with manufacturers early to secure production slots. 4. Consider advance procurement of long-lead components. 5. Coordinate factory witness testing to verify critical performance parameters before shipment.

Priority: High

6. Consolidate PDU Purchases with Vendor-Managed Inventory

Rationale: The project requires multiple Power Distribution Units (PDUs) as shown in the electrical drawings. Implementing a vendor-managed inventory approach for PDUs could reduce on-site storage requirements, ensure just-in-time delivery, and potentially secure better pricing through a committed volume agreement.

Estimated Impact: Reduced on-site storage costs and potential damage. Improved cash flow by delaying payment until equipment is needed on site. Potential 3-5% cost reduction through committed volume agreement with manufacturer.

Implementation: 1. Identify total PDU requirements and delivery schedule based on construction timeline. 2. Negotiate with manufacturers for a vendor-managed inventory program. 3. Establish clear delivery protocols and acceptance criteria. 4. Implement tracking system for vendor-managed inventory to maintain project schedule compliance.

Priority: Medium

7. Standardize Circuit Breaker Selection Across Equipment

Rationale: The specifications allow for multiple circuit breaker manufacturers. Standardizing on a single manufacturer for all major circuit breakers would reduce spare parts inventory, simplify maintenance, and potentially provide volume purchase benefits. This is particularly important for critical components like main breakers in switchgear and distribution equipment.

Estimated Impact: Estimated 10-15% reduction in spare parts inventory requirements. Simplified maintenance procedures and training. Potential 4-6% cost savings through volume purchasing of standardized components.

Implementation: 1. Review circuit breaker specifications across all electrical equipment. 2. Identify opportunities for standardization without compromising performance requirements. 3. Negotiate with preferred manufacturers for volume pricing. 4. Update specifications to reflect standardized circuit breaker requirements.

Priority: Medium

8. Pre-purchase Surge Protection Devices (SPDs) as Package

Rationale: The specifications call for surge protection devices throughout the electrical distribution system. Purchasing all required SPDs as a package from a single manufacturer would ensure consistent protection strategies, potentially reduce costs, and simplify warranty management.

Estimated Impact: Potential cost savings of 7-10% through volume purchasing. Consistent protection levels throughout the facility. Simplified warranty management through single-source responsibility. Reduced spare parts inventory requirements.

Implementation: 1. Compile comprehensive list of all required SPDs from specifications and drawings. 2. Develop standardized SPD specifications that meet or exceed project requirements. 3. Negotiate with manufacturers for package pricing. 4. Coordinate delivery schedule with installation timeline.

Priority: Low

Conclusion

Key Findings

- The project features multiple power distribution paths requiring careful coordination between pre-purchased equipment and installer-provided components to ensure system compatibility and seamless integration.
- Critical equipment such as UPS systems, generators, and switchgear have specific testing requirements that must be carefully planned and executed to validate system performance and reliability.
- Standardization opportunities exist across multiple equipment types (UPS, PDUs, circuit breakers, etc.) that could yield significant cost savings and operational benefits through simplified maintenance and reduced spare parts inventory.
- Long lead items like switchgear, transformers, and generators require strategic procurement planning to prevent schedule delays and optimize project cash flow.
- Careful coordination of testing and commissioning activities is essential, particularly for the Level 4 (acceptance testing) and Level 5 (integrated systems testing) phases specified in the project requirements.

Highest Priority Actions

- Implement a strategic switchgear procurement plan to account for long lead times, coordinate factory witness testing, and standardize specifications to potentially reduce costs by 5-8% while minimizing schedule risks.
- Standardize on a single UPS manufacturer to ensure consistency in maintenance, spare parts, and technical support, potentially reducing lifetime maintenance costs by 8-12% while improving operational efficiency.
- Negotiate bulk purchase of static transfer switches to leverage economies of scale for potential cost savings of 10-15% while ensuring consistent quality and delivery

coordination.

- Develop a comprehensive testing and commissioning schedule that integrates factory acceptance testing with site acceptance requirements to optimize testing resources and minimize redundant testing activities.

Summary

The QTS FTW1 DC1 18MW Expansion project involves the installation of robust electrical distribution systems for a mission-critical data center. The project requires the procurement and installation of high-capacity equipment including UPS systems, diesel generators, switchgear, PDUs, and various distribution components. The electrical infrastructure follows a redundant design with multiple power paths to ensure reliability. Key procurement considerations include standardizing manufacturers where possible, coordinating bulk purchases for cost savings, managing long lead items proactively, and ensuring proper testing and commissioning. Careful attention must be paid to equipment compatibility, installation quality, and thorough testing to meet the demanding requirements of this data center expansion.



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