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CSA evaluates products to the following standards for safety and fire performance

- CSA C22.2 No. 340 Battery Management Systems
- CSA C800 Testing Protocol for Energy Storage System Reliability and Quality Assurance Program
- CSA TS-800 Large-Scale Fire Testing (LSFT) Procedure
- NFPA 855 Installation of Stationary Energy Storage Systems
- UL 1973 Batteries for Use in Stationary and Motive Auxiliary Power Applications
- UL 1974 Evaluation for Repurposing Batteries
- UL 9540 Energy Storage Systems and Equipment
- UL 9540A Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

Current Problem or Insight

Invisible Risks in Data Center Power Distribution: Where Compliance Breaks Down

- System Compliance \neq Component Compliance
 - Certified components \neq certified system
 - Integrated systems (UPS \rightarrow switchgear \rightarrow PDU \rightarrow BMS) introduce new risks
 - AHJs may reject energization if system-level compliance is unclear
- Field Modifications Invalidate Certification
 - Changes to control wiring, protection logic, or interconnections
 - Even minor adjustments can void original listing if it invalidates the conditions of acceptability (outdoor vs indoor)

Current Problem or Insight

Invisible Risks in Data Center Power Distribution: Where Compliance Breaks Down

- Imported / Custom Equipment Gaps
 - Non-aligned standards, incomplete documentation
 - AHJs may not recognize certifications → project delays
- Late Discovery = Highest Impact
 - Compliance issues often appear **just before energization**
 - Leads to rework, delays, and commissioning risk

What We Don't Know That Breaks Everything

The Real Unknowns: Data Center Standards & Information Gaps

- System-Level Responsibility Gap : Critical risks fall between OEMs, EPCs, and integrators
 - Standards certify **products**, not always **integrated systems**
 - No clear ownership for:
 - Interconnection design
 - Control logic integration
 - Fault current coordination

What We Don't Know That Breaks Everything

The Real Unknowns: Data Center Standards & Information Gaps

- Misconception of “Certified = Compliant” : False confidence at commissioning stage
 - Industry assumption:
 - If everything has a mark, the system is compliant
 - Reality:
 - Integration creates **new hazards not covered by listings**

What We Don't Know That Breaks Everything

The Real Unknowns: Data Center Standards & Information Gaps

- AHJ Interpretation Variability : Unpredictable approvals & last-minute red tags
 - Field approval depends on:
 - Local codes
 - Inspector interpretation
 - Documentation clarity
 - Lack of standardized guidance for complex data center systems

What We Don't Know That Breaks Everything

The Real Unknowns: Data Center Standards & Information Gaps

- Gap in Public Guidance for Emerging Architectures : Designs move faster than compliance frameworks
 - Rapid evolution:
 - Modular data centers
 - High-density AI loads
 - Complex UPS + energy storage integration
- Limited Awareness of Field Evaluation Pathways : Unnecessary rework or project delays
 - Many project teams don't know:
 - SI/FE can resolve non-certified or modified equipment
 - It's accepted by AHJs when certification is not feasible