



MARCH, 2019

CSA Group

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NAATBatt Member Presentation 2019



100 Years of Heritage

FOCUSING ON THE FUTURE SINCE 1919

Testing, Inspection, and Certification



Reliable testing expertise across major industries around the world

4

Business Units

2000

Employees

+2250

Accredited
Certification Programs

39

Offices

+200

Countries

Our Services Stack

CREATING SOLUTIONS THAT ENABLE YOUR BUSINESS

Consumer Product Evaluation

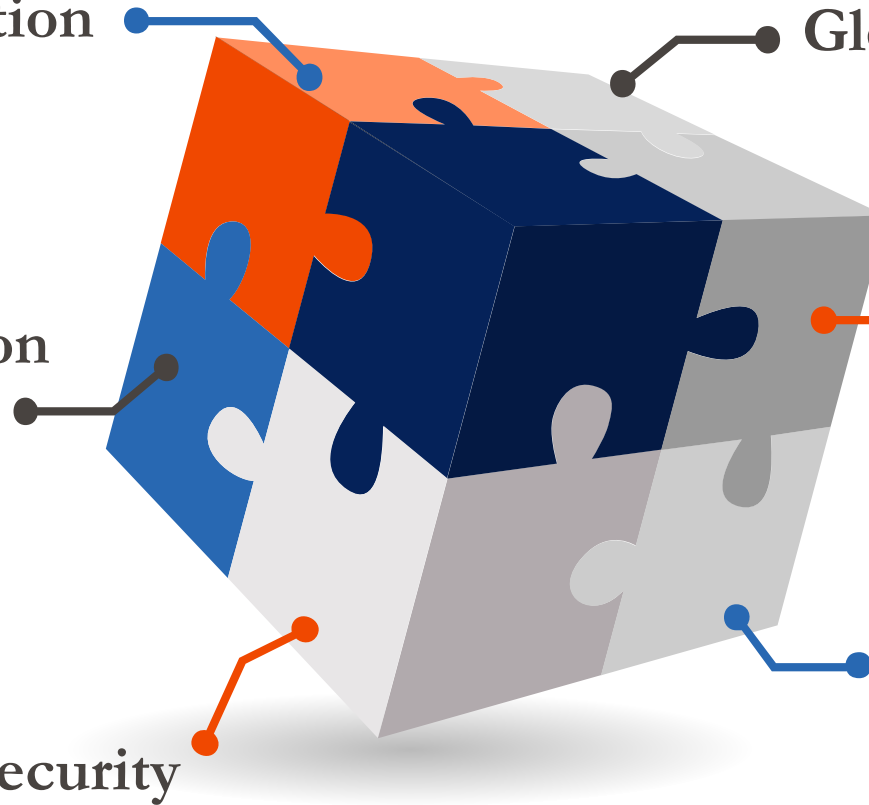
Global Market Access

Functional Safety

Energy Efficiency Verification

Field Evaluation/Special Inspection

Cyber Security



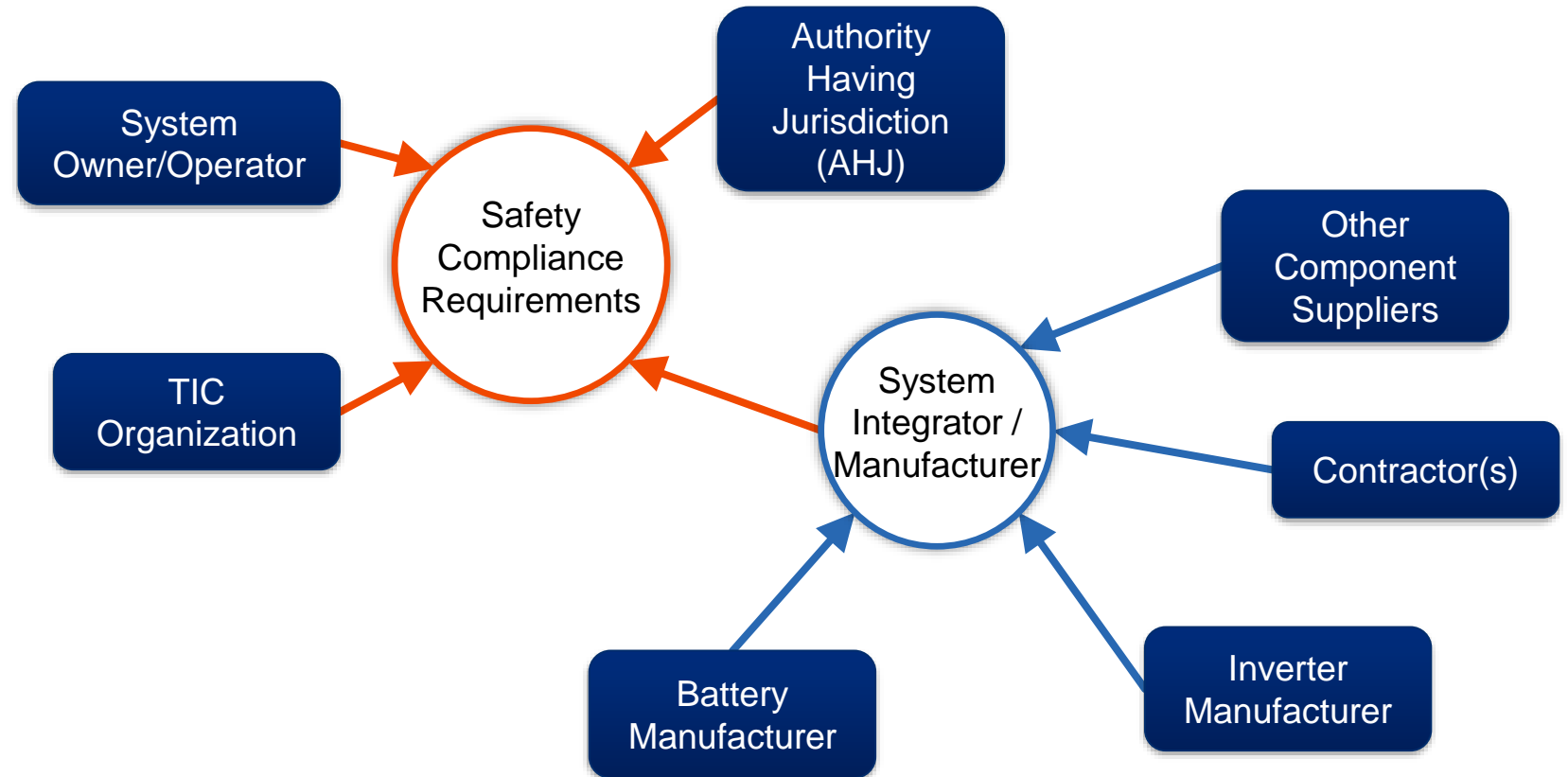
Certification Marks and Labels

CSA Group certification marks are recognized throughout the world on many common household items, as well as commercial equipment. Some examples shown below:



Responsibility for the Safety of ESS is Shared

- ESS are commonly a complicated integration of components from multiple organizations, often assembled on site
- Compliance can involve certification and field evaluation



Requirements and challenges for ES compliance

- **Component and sub-system certification**
 - Ensure all critical components meet their respective standards
 - Major components include battery (UL 1973) and inverter (UL 1741)
- **Safety analysis**
 - Detailed analysis, typically Failure Mode and Effects Analysis (FMEA) is required to determine fault conditions & functional safety requirements
- **Functional safety (FS)**
 - Review of software and electronics/controls is required when they provide primary safety for the system
- **System certification**
 - UL 9540 now encompasses the entire ES system
 - UL 9540A required to satisfy fire testing requirements for NFPA 855
- **Field evaluation**
 - Final inspection in the field may be required to confirm that the system meets installation requirements and codes

See CSA Group for:

- **UL 1973**
- **UL 9540**
- **UL 9540A**
- **Component Standards**
 - Enclosure – UL 50E, CAN/CSA-C22.2 No. 60529
 - Inverter – C22.2 No. 107.1; UL 1741; IEEE 1547
 - Functional Safety – UL 991, 1998; IEC 61508
- **Field evaluation**
- **Cybersecurity**

C22.2 No. 340 – Battery Management System Standard

- Scope
 - Design, performance, and safety of battery management systems.
 - Battery management systems in all applications including:
 - Stationary batteries
 - Batteries used to power mobility applications
 - Appliances and machinery used in consumer/residential, commercial, and industrial settings.
- Status
 - Seed document under development under CSA Group guidance
 - Sub-committee of industry participants
- Next steps and timeline
 - Seed document submitted to full committee in Spring 2019
 - Draft for public review in late 2019





Thank you.

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