Energy Storage and Battery System Services

NATTBatt 2019 Member Update

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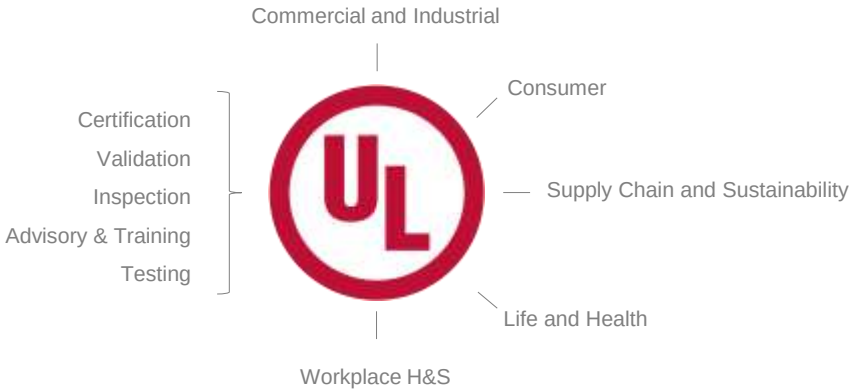
UL LLC


Founded in 1894 by William H. Merrill as Underwriters Electrical Bureau, Monroe Street in Chicago, Ill.
First test was conducted March 24th, 1894 with a fire resistant isolation material

UL in numbers – Providing services for a Safer World



120+ years

Founded in 1894
Headquartered at Northbrook, IL (USA)
#1 Safety mark in North America
22 Billion UL marks appear on products

104+ countries

With UL customers
152 UL laboratories for testing and certification
73 Facilities in the UL family of companies

We Provide Global Market Acceptance

Our marks are on nearly 22 billion products worldwide, per year, signaling peace of mind to consumers, customers, businesses, and governments.

1,400+ Standards

Published standards and 20,000 types of products were evaluated by UL

Know UL ? Think Again – We Provide Solutions Across The Value Chain










Value Chain

Materials

Certification
Performance
Traceability
ISO 9000
Lean Sigma

Manufacturer
Distributor

Component

Certifications
Performance
Advisory service
FUS inspection
Traceability
ISO 9000
Education
Lean Sigma

Manufacturer
Assembler

System Component

Certification
Performance
Advisory service
Traceability
FUS inspection
ISO 9000
Education
Lean Sigma

Manufacturer
Distributor
Intermediary

Planning & Design

Project development
Advisory service
Design review
Education

Developer
Financier
EPC
Installer

Construction

Monitoring
Site inspection
Field inspection
Field evaluation
Performance
Lean Sigma

Owner
Developer
Financier
EPC
Construction

O&M and Asset management

Site inspection
Field Inspection
Field Evaluation
Lean Sigma

Owner
Operator

Providing Leadership in the Code Community to Support Principles for Safe Integration of Batteries and ESSs into the Infrastructure



Electric Vehicle

- LEV/ EV/ PEV/ E-Bus


Stationary Batteries

- Facilities power backup modular
- UPS, telecom equipment




Industrial Vehicles & Tools

Train, airplane, fork-lift truck, etc.

Energy Storage System

Battery + Inverter + Energy sources (PV/Wind/others)

Using Safety Science to Characterize Fire Risks in ESS Through the Development of UL 9540A in Support of the Regulatory Environment

NFPA 1, Fire Code 2018

- Limits size and MAQ based upon technology
- Limits on separation distances
- Provides exceptions based upon large scale fire testing and Listing of BESS - UL9540A

ICC IFC, International Fire Code 2018

- Limits size (per technology and Listing) and separation distances for BESS installations
- Has MAQs per technology
- Provides exception based upon large scale fire testing – UL9504A
- Listing to UL 1973 (battery system) or UL 9540 (BESS)

Advancing Battery Safety and the Circular Economy Through the Publication of UL 1974 to Support Safe Repurposing of EV Batteries

- UL 1974 is a “manufacturing process” standard that looks at the methods used to determine the safety and performance of batteries, modules, and cells from used EV battery systems (i.e. repurposing process)
- Assembled batteries need to meet the end product requirements when re-assembled into a 2nd use battery
  - e.g. UL 1973 is used for stationary batteries

Progressing Solar + Storage and New Technology Platforms to Support Expanded Use of Battery Technologies

Safety Certification of ESS Technologies

- Lithium Ion
- Flow Batteries
- Flywheels
- Capacitors
- Thermal Battery
- Sodium Sulfur

Large Scale Fire Testing

Due Diligence – UL AWS TRUEPOWER

WORKING WITH GLOBAL REGULATORS TO DEFINE APPROPRIATE MEASURES FOR SAFE AND SUSTAINABLE BATTERY DEPLOYMENTS, FROM THE US CPSC, TO ASIA, TO THE EU, TO AFRICA

40+
Office locations

500+
Renewable energy experts

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