

Taming the Li-ion

The latest fire safety standards for Li-ion BESSs

Li-ion BESSs: a sector on the rise

1 The stationary BESS market at a glance:

\$108bn
value (2024)¹

18.5%
CAGR (2025-2034)¹

2 Key growth drivers:

AI's increasing energy demand

Climate targets (decarbonization)

- 1 Detection of initial venting of batteries (off-gas detection)
- 2 Electrical isolation of affected cells
- 3 Thermal runaway prevention

BESS fire safety standards: hot trends



Expanding applications, stricter requirements

NFPA 855² Stationary Energy Storage Systems
Off-gas detection is

"THE MOST RELIABLE MEANS OF PRE-THERMAL-RUNAWAY WARNING"



NFPA 75³ (data centers)
Specialised detection devices are needed to detect vaporised electrolytes during the off-gas phase.

NFPA 76⁴ (telecoms)
Mandates automatic charging interruption upon off-gas detection



FM Property Loss Prevention Data Sheets 5-33⁵:

Off gas detection provides early intervention to prevent thermal runaway



Insurers lead the way

FM Approvals Standard 6540¹¹:
Sets testing and performance criteria for off-gas detectors

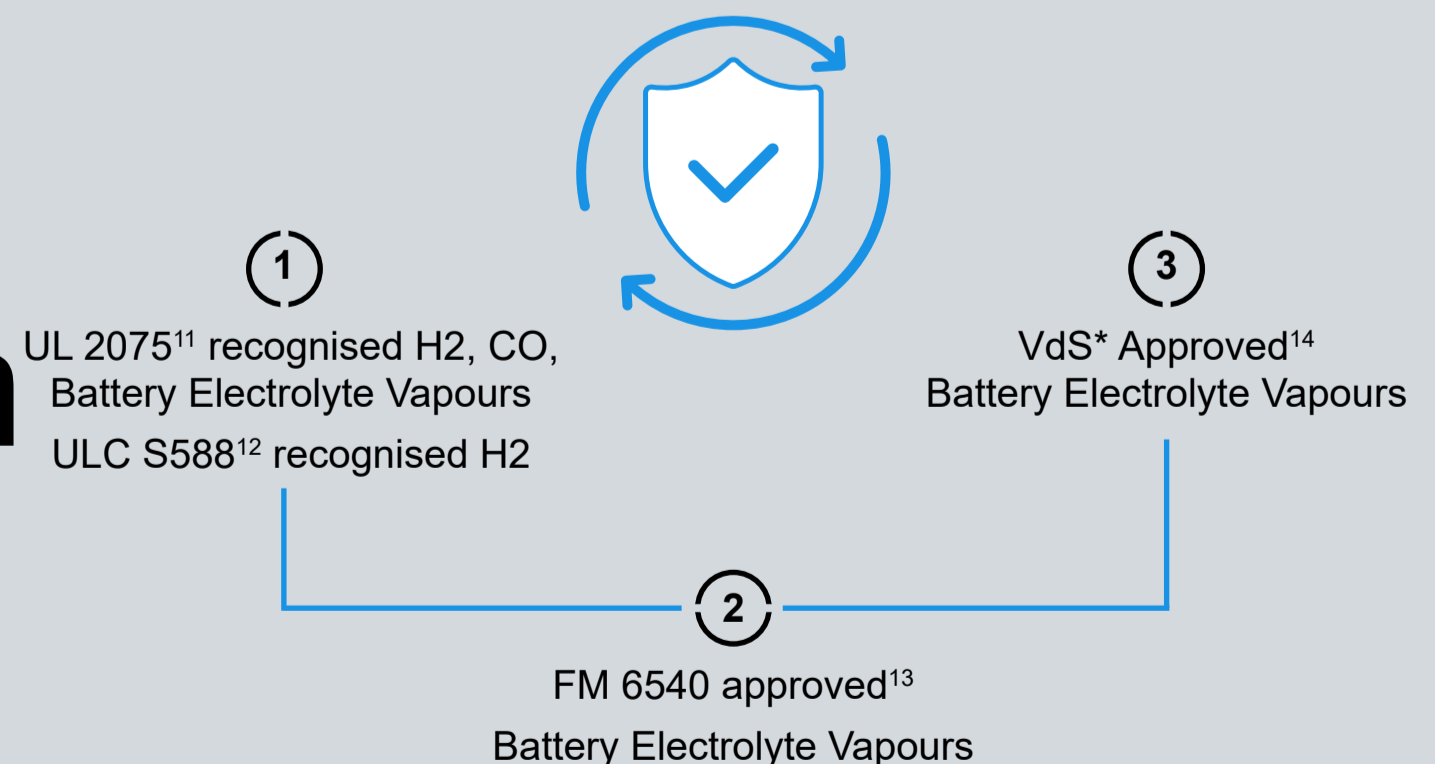
Additional industry guidance

- 1 **FIA:** Guidance on Li Ion Battery Fires⁶
- 2 **Euralarm:** Guidance on Integrated fire protection solutions for Lithium-Ion batteries⁷
- 3 **FPA:** Need to Know Guide RE1 Battery energy storage systems⁸

Off-gas detection in building codes

- 2022 Connecticut State Fire Safety Code⁹
- 2024 Austin City Council Technical Building Codes¹⁰

Why Li-ion Tamer leads in Compliance?



Want to learn more about the latest standards, and how Li-ion Tamer can help you stay compliant?

Download [The Ultimate Guide to Li-ion BESS Fire Safety Standards](#) now

* VdS approval expected in Q2 2026, subject to successful completion of the VdS factory audit.

¹ Global Market Insights, Stationary Lithium-Ion Battery Storage Market Size - By Chemistry, By Application, Analysis, Share, Growth Forecast, 2025 – 2034, December 2024 [Accessed May 15, 2025]

² NFPA, NFPA 855 Standard for the Installation of Stationary Energy Storage Systems, 2023 [Accessed May 15, 2025]

³ NFPA, NFPA 75 Standard for the Fire Protection of Information Technology Equipment, 2024 [Accessed May 15, 2025]

⁴ NFPA, NFPA 76 Standard for the Fire Protection of Telecommunications Facilities, 2024 [Accessed May 15, 2025]

⁵ FM, FM Property Loss Prevention Data Sheets 5-33 Lithium-Ion Battery Energy Storage Systems, April 2025 [Accessed May 14, 2025]

⁶ FIA, Guidance on Li Ion Battery Fires, December 2020 [Accessed May 15, 2025]

⁷ Euralarm, Guidance on Integrated fire protection solutions for Lithium-Ion batteries, February 15, 2022 [Accessed May 15, 2025]

⁸ FPA, Need to Know Guide RE1 Battery energy storage systems: commercial lithium-ion battery installations, December 13, 2022 [Accessed May 15, 2025]

⁹ Connecticut Department of Administrative Services, 2022 Connecticut State Fire Safety Code, October 1, 2022 [Accessed May 15, 2025]

¹⁰ Austin City Council, City of Austin Adopts 2024 Technical Building Codes, Effective July 10, April 10, 2025 [Accessed May 15, 2025]

¹¹ UL 2075 "Gas and Vapor Detectors and Sensors"

¹² ULC S588 "Gas and Vapour Detectors and Sensors, Including Accessories"

¹³ FM, FM Approved Lithium-Ion Battery Off-Gas Detector works to prevent thermal runaway and mitigate fire hazards, February 28, 2025 [Accessed May 15, 2025]

¹⁴ VdS Test Procedure No: 212092-AU01 "Device for the monitoring of initial out-gassing of Lithium-Ion battery systems"