

Term	Definition
AEGL	Acute Exposure Guideline Levels, describe the human health effects from once-in-a-lifetime, or rare, exposure to airborne chemicals. Used by emergency responders when dealing with chemical spills or other catastrophic exposures, AEGLs are set through a collaborative effort of the public and private sectors worldwide.
AERMOD	A steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.
BAFE	British Approvals for Fire Equipment, BAFE is the independent registration body for third-party certificated fire safety organisations across the UK.
Battery System	Refers to the components inside the BESS container (cells, modules, electronic boards, cables, etc.).
BESS	Battery Energy Storage System.
BESS Enclosure	Refers to the enclosed structure surrounding the BESS
BSMP	Battery Safety Management Plan.
BMS	Battery Management System, a system that monitors, controls, and optimizes performance of an individual or multiple battery modules in an energy storage system and has the ability to control the disconnection of the module(s) from the system in the event of abnormal conditions. This system can be completely independent of the EMS.
Cell	The basic functional electrochemical unit containing an assembly of electrodes, electrolyte, separators, container, and terminals. It is a source of electrical energy by direct conversion of chemical energy (UL Definition).
CHSPL	Cleve Hill Solar Park Ltd
Data Analytics (DA)	Integrated directly into BMS or integrated as bolt on additional monitoring and control system.
Deflagration	Subsonic propagation of the combustion zone.
DNV GL	Det Norske Veritas Germanischer Lloyd (DNV GL) is a technical consultancy.
EA	Environment Agency, (within England) responsible for: regulating major industry and waste, treatment of contaminated land, water

	quality and resources, fisheries, inland river, estuary and harbour navigations, conservation and ecology.
Electrolyte	Lithium salts e.g. Lithium hexafluorophosphate, dissolved in organic solvents.
EnerC+ BESS	CATL BESS unit, 4.083 MWh battery energy containing 40 modules in 5 battery racks.
EPRI	Electric Power Research Institute, US based organisation conducting BESS safety research in the following key areas: safety practices, safety hazards, community safety & resilience.
EMS	Energy Management System, is a system that monitors, controls, and optimizes the performance of an energy storage system and has the ability to control the disconnection of the energy storage system in the event of abnormal conditions.
ERA	Explosion Risk Assessment.
ERP	Emergency Response Plan, at minimum (NFPA 855, 2023), the ERP shall include the following: procedures for safe operational shutdown, inspection testing and maintenance, BESS response procedures, fire response procedures, safety data sheets, emergency contract information, FRS operations and response procedures, etc.
E-Stop	Emergency Stop facility for BESS battery system. This function should be capable to be triggered remotely (24/7 monitoring) and locally on site (site control room and / or BESS areas).
ESS	Energy Storage System refers to electrical equipment required for power generation.
FAT	Factory Acceptance Tests (BS EN IEC 62933-5-2 standard).
Fire Suppression System	Internal BESS active fire protection system.
FLACS (Flame Acceleration Simulator) Deflagration Analysis	Industry leading CFD explosion consequence modelling software.
FMEA	Failure Modes and Effects Analysis (BS EN IEC 60812 standard).
FM Global	Factory Mutual (FM) Global is an American mutual insurance company specialising in loss prevention for large corporations in the Highly Protected Risk property insurance market sector.
FPE	Fire Protection Engineer.

FRA	Fire Risk Assessment, a process to characterize the risk associated with BESS fire that addresses the fire scenarios of concern, probability, and potential consequences.
FRS	Fire and Rescue Service.
FSS	Fire Suppression System.
Gas exhaust system	Explosion prevention system designed to vent explosive gases from the BESS enclosure.
HAZID	Hazard Identification Study, a systematic and structured analysis to identify hazards early in the design or operational phase of a project.
HAZOP	Hazard and Operability Analysis, a systematic approach to determining potential problems that may be uncovered by reviewing the safety of designs and revisiting existing processes and operations.
HCl	Hydrogen chloride, can be formed during the burning of plastics. Upon contact with water, it forms hydrochloric acid. Both hydrogen chloride and hydrochloric acid are corrosive.
Heat Flux Analysis	This type of analysis is usually conducted using FDS CFD modelling of the ignition of flammable gases resulting from thermal runaway events within the BESS enclosure and ignition of the modules, under various scenarios and configurations.
Heating and Cooling System	System which regulates temperature and humidity within the BESS enclosure. Commonly referred to as HVAC.
HF	Hydrogen fluoride is an inorganic compound. It is a poisonous, colourless gas or liquid that dissolves in water to yield an aqueous solution termed hydrofluoric acid.
HMA	Hazard Mitigation Analysis, evaluation of potential BESS failure modes and safety-related consequences attributed to the failures.
HRR	Heat Release Rate, the rate at which fire releases energy, generally measured in Kilowatts for BESS fire testing. This is essential for the prediction of fire cascading effects (propagation effects) in general to flammable materials in the environment and particular to adjacent cells in a battery system.
HSE	Health and Safety Executive (HSE) is a UK government agency responsible for the encouragement, regulation and enforcement of workplace health, safety and welfare including research into occupational risks.
IAFC	International Association of Fire Chiefs
IDLH	

	Immediately Dangerous to Life and Health Limits, defined by the US National Institute of Occupational Safety and Health (NIOSH).
IEC	International Electrotechnical Commission. Key BESS safety standards are IEC 62282, IEC 62433, IEC 62619, IEC 63933, IEC 63056.
IEEE	Institute of Electrical & Electronics Engineers. Key BESS safety standards are IEEE 1679.1, IEEE 1815, IEEE 2686, IEEE 2688, IEEE 2962, IEEE 3189.
KFRS	Kent Fire & Rescue Service
KWh	Kilowatt hours, measurement of energy storage capacity, maximum amount of battery energy that can be discharged.
LEL/LFL	Lower Explosive Limit / Lower Flammable Limit, minimum concentration of fuel that can support a flame; fuel/air mixtures below the LEL / LFL are too lean to propagate a flame.
Lithium dendrite formation	Lithium dendrites formed by the heterogeneous deposition of lithium to the current collector cause short-circuit risks and capacity loss for batteries.
LFP	Lithium Ferro Phosphate / Lithium Iron Phosphate cathode material, more commonly referred to as the battery chemistry.
Mitigation	Measures including any process, activity, or design to avoid, prevent, reduce, or, if possible, offset any identified significant adverse effects on the environment.
Module	A subassembly that is a component of a BESS that consists of a group of cells or electrochemical capacitors connected together either in a series and/or parallel configuration (sometimes referred to as a block) with or without protective devices and monitoring circuitry (UL definition).
MWh	Megawatt hours, measurement of energy storage capacity, maximum amount of battery energy that can be discharged, 1 MWh = 1000 KWh.
NFCC	National Fire Chiefs Council.
NFPA	The National Fire Protection Association (NFPA) is an international non-profit organisation devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. Key BESS codes and standards are NFPA 855, NFPA 68, and NFPA 69.
NO ₂	Nitrogen dioxide is a gaseous air pollutant composed of nitrogen and oxygen and is one of a group of related gases called nitrogen oxides

	(NOx). Nitrogen dioxide causes a range of harmful effects on the lungs.
Off-Gassing	The event in which the battery cell emits volatile organic compounds (VOC) signalling electrolyte breakdown as a precursor to thermal runaway.
Overpressure	Transient air pressure, such as the shock wave from an explosion which is greater than the surrounding atmospheric pressure.
PHE	Public Health England.
PHRR	The peak heat release rate defines the maximum release rate of heat during the combustion process. PHRR occurs when the decomposition process is occurring at its fastest rate; and the peak value is considered a reliable measure of the maximum flammability and flashover potential of a material.
Plume Analysis	Site specific dispersion modelling and risk analysis for toxic gases potentially emitted during thermal runaway by BESS systems.
Rack	Unit for housing multiple modules connected in series, can include their management system (BMS).
SAT	Site Acceptance Tests (BS EN IEC 62933-5-2 standard).
SME	Subject Matter Expert, normally incident response, or BESS decommissioning specialists.
SOC	State of Charge (Battery).
SOH	State of Health (Battery data can be provided by Data Analytics / BMS).
SSRI	Site Specific Risk Assessments, kept on file by local FRS to inform first response strategies.
THR	Total Heat Release is a measure of the amount of heat energy evolved by a battery cell during its burning time. It is expressed in terms of energy or also as surface area normalized energy.
TR (Thermal Runaway)	Thermal Runaway, incident when an electrochemical cell's temperature increases at an accelerating rate in an uncontrollable fashion (exothermic) sufficient to result in damage to the cell. The thermal runaway progresses when the cell's generation of heat is at a higher rate than the heat it can dissipate. This may lead to fire, explosion and gas and smoke evolution (UL definition).
Tier One OEM	North American, Korean or European Battery OEM / BESS Integrator, CATL & BYD (China)

VOC	Volatile Organic Compounds, electrolyte solvent off-gas released from battery cell as a precursor to thermal runaway.
UEL / UFL	Upper Explosive Limit / Upper Flammable Limit, maximum concentration of fuel that can support a flame; fuel/air mixtures above the UEL / UFL are too rich to propagate a flame.
UKHSA	The UK Health Security Agency (UKHSA) is responsible for protecting every member of every community from the impact of infectious diseases, chemical, biological, radiological and nuclear incidents and other health threats.
UL	UL Solutions is a global safety science company. Key BESS and battery safety standards and testing include UL 1642, UL 1741, UL 1973, UL 9540, UL 9540A.
Unit	UL 9540A terminology: A frame, rack, or enclosure that consists of a functional BESS which includes components and subassemblies such as cells, modules, battery management systems, ventilation devices and other ancillary equipment.