

Energy Storage Leading on Safety

Utility-scale battery energy storage is safe and highly regulated, growing safer as technology advances and as regulations adopt the most up-to-date safety standards.

CLAIM: The incidence of battery fires is increasing

FACTS: Energy storage battery fires are decreasing as a percentage of deployments.

Between 2015 and 2020, U.S. energy storage deployments increased by more than 10 times, from 2 MWh to 21.1 MWh, while worldwide safety events over the same period increased by a much smaller number, from two to 11.

During this time, codes and standards regulating energy storage systems have rapidly evolved to better address safety concerns

CLAIM: Today's larger battery systems use tens of thousands of cells, so fires are inevitable

FACTS: Cell failure rates are extremely low, and safety features in today's designs further reduce the probability of fires.

One estimate from NREL quotes a failure rate ranging from 1 in 1 million to 1 in 10 million cells, and there are undoubtedly improvements from these

CLAIM: E. bike and e. scooter fires have resulted in deaths so large batteries for energy storage may be even more deadly

FACTS: No deaths have resulted from energy storage facilities in the United States. Battery energy storage facilities are very different from consumer electronics, with secure, highly regulated electric infrastructure that use robust codes and standards to guide and maintain safety

E. mobility devices have been lightly regulated in the past, and some products have used poor quality battery cells and ineffective safety systems

They are also charged inside homes, sometimes along egress routes, creating a high level of risk

Like EV batteries, ESS battery systems are highly regulated and subject to stringent certification and testing requirements

The difference in regulation is evident in vehicle statistics Worldwide, for the first half of 2020, EV FireSafe cites 14 + light electric vehicle (E. bike and E. scooter) battery fires, but only 2 passenger EV fires

Additionally, utility scale energy storage systems are located within secure facilities with site plans explicitly designed around maximizing safety of those operating the facilities and their neighbors

The ESS industry meets with and shares best practices with first responders and communities

Lessons learned from earlier ESS incidents have been reflected in the evolution of codes and standards Often, companies go beyond mandatory testing to test more extreme failure scenarios

Altogether, like other electric grid infrastructure, energy storage systems are highly regulated and there are established safety designs, features, and practices proven to eliminate risks to operators, firefighters, and the broader community

The industry is committed to meeting these standards, such as NFPA 704, which are regularly updated to reflect the latest evidence based best practices

CLAIM: Battery fires emit toxic fumes and pose a risk to the community

FACTS: Past incidents demonstrate that fires are contained within the facility, and air quality in neighboring areas remains at safe levels.

Laboratory testing of emissions from Li. ion cells in thermal runaway shows negligible (el) (ion fume) (s a i(el))k (s) (gNe),