

The Evolving Challenge of Electric Vehicle Fire Safety

Electric vehicles (EVs) are rapidly transforming the global transportation landscape. However, from a fire safety perspective, while manufacturers have made significant efforts to ensure safety, some risks associated with EVs are still being identified and better understood through real-world operation. With less than two decades of large-scale deployment, the sector continues to evolve at an unprecedented pace. This rapid technological progression introduces a critical challenge: **risk is dynamic and continuously evolving**. Battery technologies, charging systems, and vehicle configurations are changing faster than our ability to fully understand their fire behaviour. At the same time, real-world incidents continue to emerge across different contexts, highlighting the complexity of EV-related fire risks.



Zahir Tohir

Associate Professor
Dept. of Chemical &
Environmental Engineering
Faculty of Engineering
Universiti Putra Malaysia

Global EV Fire Incidents – April 2026 Snapshot

Recent events across the world illustrate the diversity and unpredictability of EV fire scenarios:

Industrial Context – BYD Facility Fire (Shenzhen, China)

A fire broke out at a multi-storey automated parking garage within BYD's Pingshan campus. The affected area stored test and scrapped vehicles, and no casualties were reported. Investigations indicate that the fire originated from external construction activities rather than battery ignition.

The incident highlights risks associated with **large-scale EV storage facilities** and interactions with surrounding operational activities.

Residential Context – Tesla Vehicle Fire (New York, USA)

A residential garage fire involving a Tesla EV escalated rapidly, with flames extending through the roof of the structure. While the structural fire was controlled within minutes, the EV required prolonged firefighting efforts due to **thermal runaway in lithium-ion batteries**.

The vehicle continued to pose a **re-ignition risk**, requiring monitoring and controlled removal after suppression.

High-Fatality Incident – EV Charging Explosion (Indore, India)

A severe fire linked to an EV charging point resulted in **eight fatalities** in a three-storey residential building. Initial findings suggest that an explosion at the charging point triggered the fire, which spread rapidly through the structure.

Additional hazards, including gas cylinder explosions and electronic locking systems, contributed to the severity of the incident and complicated evacuation efforts.

Looking Ahead

These incidents reflect the growing complexity of EV fire safety, where risks are influenced not only by the vehicle itself, but also by its surrounding environment, infrastructure, and human interaction. As EV adoption continues to expand globally, understanding and addressing these evolving fire risks remains an urgent priority.

Collaboration Opportunity

The **eRISIKO** project welcomes collaboration from researchers, industry partners, and fire safety professionals interested in advancing knowledge and solutions in EV fire safety. If you are interested in collaborating or contributing, please feel free to reach out to the project team.

References:

1. Electric-Vehicles.com: Industrial fire at BYD Shenzhen campus facility
2. CBS6 Albany: Residential structural fire involving electric vehicle in Niskayuna
3. The News Mill: Fatal EV charging point incident and investigation in Indore