Hybrid and Electric Vehicle Emergency Planning and Postattack Response Considerations

SCOPE: This product provides first responder planning, safety considerations, and mitigation measures for responding to terrorist attacks involving hybrid and electric vehicles (EV) with high-voltage (HV) battery hazards. While this product is focused on emergency responses to events involving HV vehicle batteries, HV batteries are increasingly used in two-wheeled vehicles, such as electric bikes and scooters.

FTO official and supporter messaging continues to call for attackers to use vehicles as weapons. FTO media routinely encourages supporters to conduct copycat attacks, and in February 2025—shortly after the deadliest FTO-inspired vehicle ramming attack in the United States using an EV—ISIS-K supporters released an image of an apparent attacker using an EV to ram pedestrians. Terrorist attacks involving EVs might be particularly lethal because physical damage to HV batteries from gunfire, IEDs, or vehicle ramming may result in fire, toxic gases, or an explosion that may be more complex, resource intensive, and dangerous to extinguish. Past vehicle ramming attackers have used secondary weapons, such as edged weapons, firearms, or IEDs, after the vehicle stopped.

On 1 January, an ISIS-inspired US-born citizen drove a rented electric pickup truck into a crowd of people in New Orleans, Louisiana, killing 14 people and injuring at least 57 others. After striking the crowd, the individual shot at local law enforcement, who returned fire, killing the subject. Secondary weapons, including firearms, were recovered at the scene along with two potential IEDs that were located in the surrounding area of the attack.

First responders should follow departmental policies and procedures if there is damage or fire to the area near an HV battery. Always proceed with caution even if signs of damage are not visible because a chain reaction of uncontrolled heating may lead to fire or explosion within seconds.

Possible Response Hazards to HV Fires

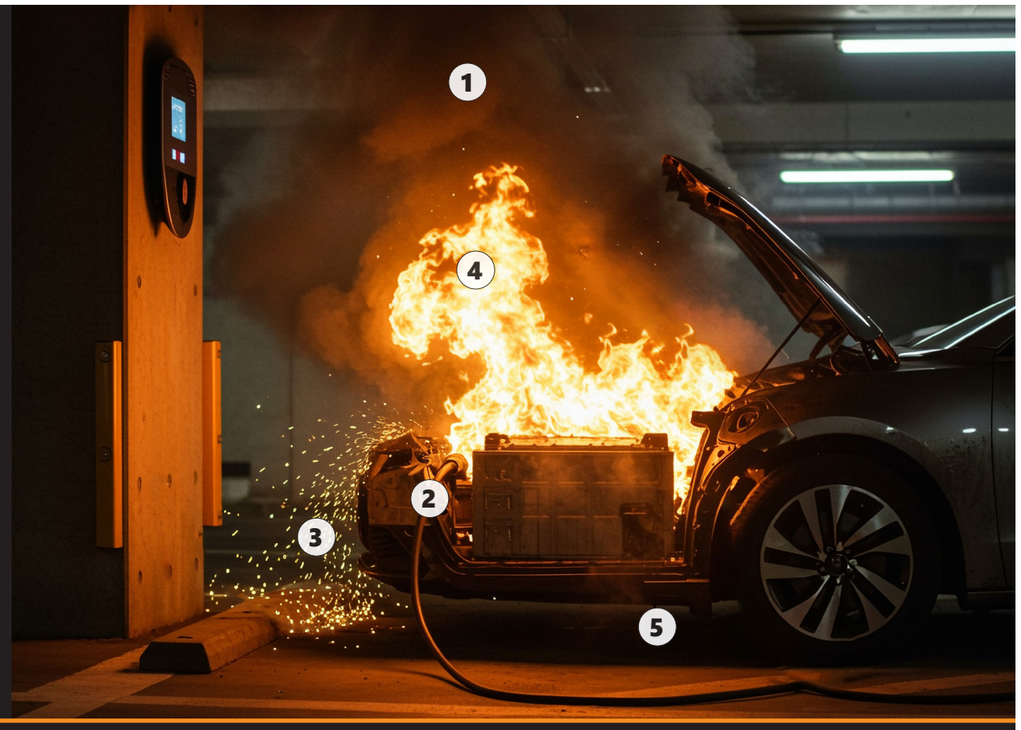
1. Flammable and toxic gases: Gases can combine during thermal runaway creating a flammable, explosive, or toxic environment, depending on the specific battery type and manufacturer.

2. Electric shock: The energy remaining in a damaged HV battery poses a risk of electric shock.

3. Explosive: HV battery rupturing may cause a powerful ignition, resulting in extensive fire damage.

4. Reignition risk: Batteries may reignite weeks after the initial incident, despite being initially extinguished.

5. Thermal runaway: Thermal runaway is a chain reaction of uncontrolled heating, which may cause a fire or explosion in seconds. Warning signs include bulging, rupture, popping or hissing sounds, visible gases venting, and rising temperatures.



Resources

CISA: Vehicle Ramming Self-Assessment Tool https://www.cisa.gov/vehicle-ramming-self-assessment-tool

Department of Transportation: Emergency Response Guidebook, Guide 147: Lithium Ion and Sodium Ion Batteries https://www.phmsa.dot.gov/training/hazmat/erg/emergency-response-guidebook-erg

Department of Energy: Electric Vehicle Safety Training Resources for First and Second Responders https://afdc.energy.gov/vehicles/electric-responders

National Transportation Safety Board: https://www.ntsb.gov/Pages/home.aspx

NCTC-JFRT-2025-16385

5 AUGUST 2025
AUTHORED BY NCTC, DHS, FBI

Hybrid and Electric Vehicle Emergency Planning and Postattack Response Considerations *(continued)*

HV Fire Considerations

The following are general first responder safety considerations for terrorist attacks that might result in HV battery fires to hybrid and electric vehicles. They do not represent the full emergency response that may be required in an incident.

Preincident

- Establish or update standard operating procedures related to EVs and associated technologies, including charging stations, storage lots, and parking garages. Coordinate with surrounding agencies to establish a mutual aid response plan. Conduct recurring training about responding, managing, and recovering from critical incidents involving EVs.
- Maintain emergency response guides from original equipment manufacturers. Routinely consult with EV manufacturers for recommended procedures and best practices in dealing with EV emergency incidents, such as battery fires.
- Remain familiar with EV emergency shutdown procedures to isolate the power source.
- Remain aware of suppression and containment methods ranging from letting the HV battery cool, burn, or submerging it. Departments may explore options, such as EV-rated fire blankets[a] and chemical fire extinguishers, based on the environment.

On the Scene

- Upon arrival, wear appropriate personal protective equipment (PPE), including a self-contained breathing apparatus with facepiece to protect against toxic hazards. Assess the type of vehicle, victim status, nearby hazards, and the extent of fire damage. Intact battery packs should remain as is; do not attempt to breach, cut, or pierce a battery pack.
- Establish a perimeter and stage resources uphill and upwind of the hazards.

[a]Hazardous fumes may become trapped under the blanket, and removal from the source may cause an energetic fire if gases are released. Always use full PPE and follow departmental safety protocols if using a fire blanket.

- Coordinate with public health and environmental protection agencies for hazardous materials; work with the local law enforcement agency for community emergency alerts, shelter-in-place orders, and evacuation needs; and communicate with transportation officials to facilitate a safe response, and if necessary, reroute or shut down traffic.
- Remain alert while establishing command posts or conducting routine operations that terrorists may exploit for secondary attacks.
- Consider use of a thermal imaging camera to assess the scene and to monitor battery temperature, potential elevated heat signatures, and fire or vapors emanating from the battery pack.
- Conduct a search for battery cells that may have become dislodged during the incident, fire, or extinguishment, and remove using nonconductive tools.
- Secure a continuous water supply (3,000-8,000 gallons may be required) as sustained suppression on the battery pack may be necessary once the fire is extinguished.
- Response to HV battery fires can drain departmental resources and burden limited staffing because post–fire mitigation efforts for a single unit may take up to 24 hours.
- Do not assume an EV is powered off or the vehicle will not move; chock the wheels when safe to do so.

Postincident

- Tow using a flatbed and avoid towing with wheels on ground as this may initiate an electrical fire.
- Notify the tow truck driver of potential hazards and provide recommendations for isolation; coordinate with towing services regarding EV storage and containment specifications and regulations, along with reignition safety monitoring for stored vehicles.
- Coordinate with HAZMAT for potential evacuation, shelter-in-place procedures, or hazardous material clean up.
- Monitor for potential chemical exposure symptoms and know when to seek medical attention. Determine need for personnel and PPE decontamination.
- Notify an authorized service center or vehicle manufacturer representative as soon as possible because there may be additional steps they can take to secure and discharge the HV battery.

Evidence Recovery and Investigation

- Batteries should always be treated as energized; do not make contact with HV components.
- Most EVs contain a variety of telematic, infotainment, and cellular systems that may provide recoverable digital forensic data, depending on the vehicle model. Potential event data include vehicle speed, acceleration, braking, destinations, and routes. Potential device data include contents from mobile phones or other devices that were wirelessly or physically connected.
- The vehicle's interior may contain human biometrical signatures, such as DNA.
- Billing records from EV charging providers can provide digital forensic data, such as dates and locations the vehicle traveled.
- Remote keyless entry systems and smart key systems can provide odometer readings and time and date stamps indicating when they were last used.

Collaboration and Partnerships

- During the 911 call, emergency operators and dispatchers should inquire about hybrid or EV type and if a charging station is involved in the fire. Detailed reporting to responding officials enables efficient emergency response and provides opportunity for specialty units, such as HAZMAT and investigative partners, to respond and recover evidence.
- It is important to collaborate with vehicle manufacturers and industry partners to identify and increase awareness about firefighting tools, response, techniques, and safety considerations.

HV Vehicle Ramming Considerations

FTO messaging has highlighted the use of trucks, including commercial-grade and heavy-duty, to conduct ramming attacks. Terrorists may begin to advocate specifically for the use of EVs in ramming attacks because of their quiet operations, rapid acceleration, weight, and how they complicate incident responses. Layered defensive systems—which includes static, operable, redeployable, and improvised barriers—may help mitigate vehicle ramming attacks. The appropriate use, type, and location of vehicle barriers may require a site assessment and traffic engineering study. The following are general first responder safety considerations for hybrid and EV crashes.

Physical Damage to the HV Battery

- Once subject is neutralized, advise dispatch and all responders that a hybrid or EV is involved to support effective resource allocation.
- In the event of leaking fluids, sparks, smoke, flames, increased temperatures, gurgling, popping, or hissing noises from the HV battery compartment, open the doors and request fire department response.
- Inspect for evidence of external battery leaks. The electrolyte of a lithium-ion battery has a sweet odor that might indicate a battery leak. Leaking electrolyte normally creates drops that evaporate and does not create puddles.
- If you detect any unusual odors or experience eye, nose, or throat irritation, move away from vehicle and evacuate others from the immediate area. Rapid extraction may be needed for injured or trapped occupants.
- Remain a safe distance upwind and uphill from the vehicle and out of the way of other dangers.
- Avoid contact with orange high-voltage cabling and areas with high-voltage warning labels.

Vehicle Shutdown

- Approach the vehicle from its sides to stay out of potential travel path as it may be difficult to determine if the vehicle is running because of its quiet operation.
- If possible, place the vehicle in park, use the wheel chocks, and set the parking brake.
- Turn off the vehicle and move the vehicle keys at least 16 feet away from the vehicle.
- Disconnect the vehicle's 12-volt battery. Safety restraints, air bags, and other safety systems may be active for up to 5 minutes after disconnecting the 12-volt battery.

JCAT

JOINT COUNTERTERRORISM ASSESSMENT TEAM

PRODUCT FEEDBACK

Please use the link below to complete a short survey. Your feedback will help JCAT develop counterterrorism products that support the public safety and private sector community.

https://www.JCAT-url.com

For further information, please email JCAT
jcat@odni.gov

(U) The Joint Counterterrorism Assessment Team (JCAT) is a collaboration by NCTC, DHS, FBI, state, local, tribal, and territorial government personnel to improve information sharing and enhance public safety. The First Responder's Toolbox is an ad hoc, unclassified reference aid intended to promote counterterrorism coordination among federal, state, local, tribal, and territorial government authorities and partnerships with private sector officials in deterring, preventing, disrupting, and responding to terrorist attacks.