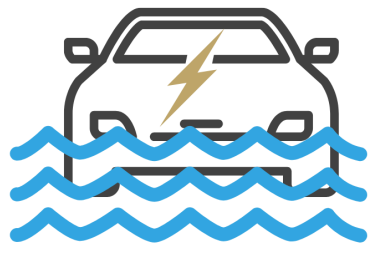


ELECTRIC VEHICLES IN FLOOD WATERS

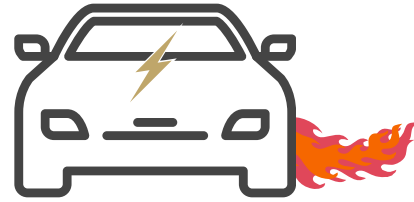


Potential risks with submerged EVs; Identification, Fire, Electrocution, Immobilisation, Isolation, Reignition, Towing, Storage

The risk of EV battery fire following submersion in water is low (but there is still a risk!):



EV battery packs are designed to be safe in water, even if fully submerged, however the risk of battery fire remains



As of early 2025, at least 36 EV battery fire events have occurred (globally, since 2010) following submersion of electric vehicles in **salty** flood water

Identification of an EV:

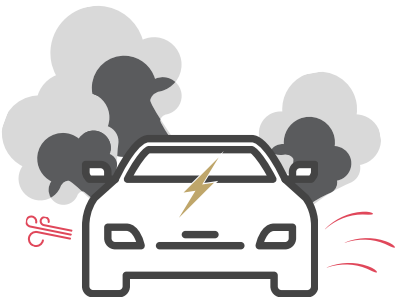
Look for blue 'EV' badge (Australia only), external badging or QR code on the vehicle. Download the **ANCAP Rescue &/or EURO Rescue Apps** to access EV emergency response guides (ERGs):



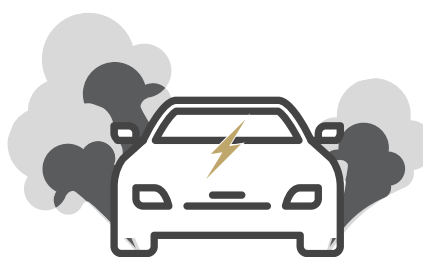
IMPORTANT: Do not attempt to DRIVE or CHARGE an EV that has been submerged in flood water. This may increase the risk of lithium-ion battery fire!

Battery fire risk:

As flood waters subside & submerged EVs start to drain, there is a risk of EV battery fire. EV owners & emergency responders should watch for the signs of battery fire, which include:



Popping, whistling or hissing noises



Dark & light clouds that look like smoke coming from underneath the EV



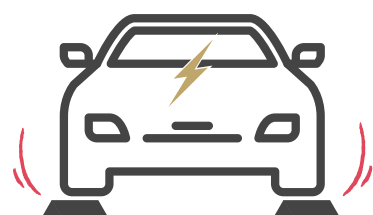
Jet-like flames from underneath the vehicle

If signs are identified, EVACUATE the area immediately & call 000.

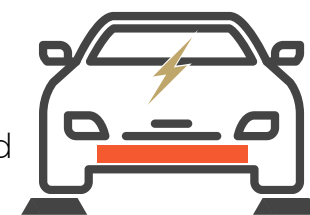
Electrocution risk - also see [NFPA Submerged Hybrid / Electric Vehicles guide](#):

- EV high voltage (HV) battery is isolated from the vehicle chassis & electrocution risk is low (but still a risk!)
- Emergency responders should always wear full PPE & breathing apparatus when dealing with a submerged/previously submerged EV.
- High voltage systems are isolated from EV chassis & can be handled in accordance with manufacturer emergency response guide (ERG).

Once flood waters have subsided & EV is drained, **IMMOBILISE & ISOLATE** the EV as per manufacturer ERG, which will typically advise:



Chock wheels to prevent unexpected movement

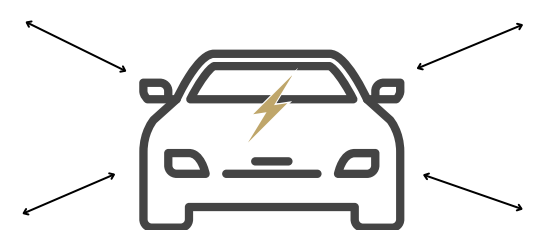
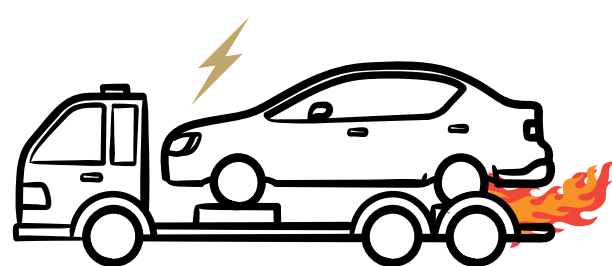


Isolate the EV using low voltage method such as cut loop or pull fuse/plug (see ERG)

See ERG for specific electric vehicle to find 12V battery locations, as these may vary.

Fire reignition risk, towing & storage:

- Once an EV has been immobilised & HV battery isolated, it should be towed as per manufacturer ERGs, typically using a flatbed truck. Do not tow an EV with wheels on the ground (unless advised by ERG).
- Rarely, an EV battery may ignite or reignite (secondary ignition) on a tow truck, following movement of a damaged battery pack.
- Advise secondary responders it's an EV & to look up manufacturer ERG for towing instructions
- Make them aware of the signs of EV battery fire (above)
- Submerged EVs should be stored at a distance from other vehicles, in case of reignition
- Reignition can occur hours, days or weeks later, & stored EVs should be monitored for signs of battery fire



If signs are identified, EVACUATE the area immediately & call 000.



This poster is designed for general guidance only & should not be considered regulatory in any way. EV FireSafe & EV FireSafe for Business accepts no liability for losses caused to any entity from lithium-ion battery fire. EV FireSafe is an Australian company funded by the Department of Defence to research electric vehicle battery fires & emergency response. **See our research at [evfiresafe.com](#) & train with us at [evfiresafe.training](#)**