Electric and hybrid vehicle batteries

What training should volunteer rescuers receive for them to safely respond to electric and hybrid vehicle fires, and how can this training be made accessible to volunteers?
The training requirements for volunteer rescue agencies such as VRA Rescue NSW are around the itinerant exposure to fire due to either a vehicle ignition post commencement of extrication efforts or when rescue agencies arrive prior to firefighting agencies or in rural and remote areas of NSW where resources are scarce.
The training required follows five distinct requirements:

1.) Recognition of EV or Hybrid vehicles and the determination by either the ANCAP app, ModiTech or similar of the vehicle construction, fuel type and safe approach angles for rescuers. Training for this involves exposing rescuers by either e-learning or facilitated session at dealers to various vehicles, looking up responder data and interpreting it correctly to establish a safe scene.
• TAFE EV Course modules to be made available for upload onto other agencies Learning Management Systems so we can onboard new volunteers as they come in to Volunteer Agencies
• Multi Agency training on site additional fire-specific training around suppression and thermal runaway issues, rescuers likely need tailored skills around “peek and pry”
• Consider Augmented or Virtual Reality training programs.
• Manufacturers to be engaged to support training initiatives with EVs etc and continuously updated information on the nomenclature of models in concert with ANCAP

2.) Training in identification of various isolation points on EV and Hybrid vehicles and safely undertaking the disconnect or isolation procedures. Many manufacturers have similar methods via plugs or cut loops. Several simple props could be created and utilised to demonstrate to rescuers the correct donning of PPC, selection of appropriate tools rated for DC voltage disconnection and the procedure to isolate the HV systems.
• Investment into EV training props for multiagency use across rural, regional, remote, AND metropolitan areas.
• Consider Augmented or Virtual Reality training programs or use of dummy vehicles to build the memory of where these are located etc
• Manufacturers to be engaged to support training initiatives with EVs etc and continuously updated information on the nomenclature of models in concert with ANCAP

3.) Training in the use of thermal imaging cameras to identify hot spots or potential thermal runaway within battery packs.

4.) Provision of Incident Command Level 1 to all rescue team leaders or captains.
Whilst the SERM Act and various Policies establish that NSW Police are the legislative authority at rescue scenes, this power is exercised at a strategic level with Police setting priorities if required and the rescue team leader deciding tactics.
• This effectively means the rescue team leader is deciding the extrication strategy in conjunction with the paramedics.
• Incident Command Level 1 is aimed at commanders who regularly work with 6-8 resources on scene and will engender consistent goal setting, briefing of plans and contingencies across agencies.

5.) Awareness & understanding of toxic contamination from EV Fires on Operators, PPE/C

- It has been suggested EV fires, "may create more harmful substances than other types of fire. PV modules and car battery fires emit a range of carcinogenic and highly toxic compounds that are not yet fully understood and may pose a threat to firefighters' health. This also raises the question of the impact on firefighters' clothing and the safe handling and cleaning after such fires."
- Further research and development of packages around impacts of potential highly toxic compounds on operators, and effective decontamination of PPE/C protocols.

Delivery of the training can follow two paths.

Firstly each agency can create the training internally and host it directly on their learning management system or e-learning platform.

Each of the agencies are at different maturity levels across these capabilities and this approach may have disparate approaches with varying time frames to implementation.

A second approach is to form a small SRB working group of experts from the agencies and create one series of packages available to any responder within NSW via an agency portal.

Continue the excellent multi agency approach adopted by FRNSW in this area.

This has many advantages including:

- Only one set of packages being created leading to far less waste.
- Some agencies already teach some elements of this. Shared learning will lead to reduced development times and a greatly reduced cost.
- It will allow the State Rescue Board to mandate the training by variation of the minimum training standards for rescue operators within NSW.

VRA Rescue NSW recommends this is reinvigorated and the training centrally created and hosted by the State Rescue Board in line with its continuing development of learning resources for agencies.

Potentially consider independent Australasian Rescue Organisation to enable National and International best practice EV rescue training as a peak body. Gathering world's best data and practice from other like minded International Rescue Organisations.