

**Submission  
No 11**

## **ELECTRIC AND HYBRID VEHICLE BATTERIES**

**Organisation:** Motor Traders' Association NSW

**Date Received:** 24 November 2023



MOTOR TRADERS'  
ASSOCIATION OF NSW

# Inquiry into electric and hybrid vehicle batteries

Submission

NSW Joint Standing Committee on Road Safety  
(Stay Safe)





Mr Greg Warren MP  
Chair  
Joint Standing Committee Road Safety (Stay Safe)  
NSW Parliament  
Macquarie Street  
SYDNEY NSW 2000

By Email: [staysafe@parliament.nsw.gov.au](mailto:staysafe@parliament.nsw.gov.au)

Dear Chair

The Motor Traders' Association of New South Wales (MTA NSW) would like to thank the Joint Standing Committee for the opportunity to provide a submission for this inquiry.

Public and worker safety are paramount in the minds of the motoring industry as we move towards a more electric future.

The transition to an alternative powered future will be one of the most profound shifts in the way that people move, goods are transported, and the economy operates in over a century.

While the concept of electric vehicles (EVs) is not new, mass production, technological advancements, and evolving consumer demand have brought about a transformative shift in the industry.

Consumer sentiment continues to shift for a desire to drive electric vehicles. Sales both internationally and in Australia show that the shift to electric vehicles is well underway.

In response to the growing consumer sentiment favoring electric vehicles (EVs), an increasing number of manufacturers are now committing to producing EVs. In addition to well-known brands such as Tesla, Volkswagen, BMW, Audi, Hyundai, and Kia, manufacturers including Nissan, General Motors, Ford, and Toyota have all made the strategic decision to expand their electric vehicle product offerings.

The world's leading automakers are gearing up for an extraordinary level of investment, estimated at over \$1.2 trillion USD, to develop and produce millions of electric vehicles. This includes not only the vehicles themselves but also the batteries and raw materials essential for supporting large-scale production over the next eight years.

As more manufacturers enter the EV market, there is a notable increase in their investment in technological innovations. These advancements aim to secure a competitive advantage, focusing on improvements in battery technology and the reduction of battery costs—key factors essential for the widespread adoption of EVs in the future.

Nevertheless, as with any transformative industry shift, there are challenges that both the industry and decision-makers must overcome.

### **Workforce transition.**

- Skill shifting – The entire workforce will need new skills to work on electric vehicles which will require significant training and re-skilling efforts.
- Displacement – With any transition there will be a measure of job displacement and the transition to EVs is no different with some traditional automotive jobs related to internal combustion engines being at risk. How the industry and decision makers deal with this will require co-operation and care.

### **Supply Chain Challenges.**

- Components – Electric vehicles require a new and different range of components including batteries. The current supply chain will need to adapt, and adapt quickly, to ensure there is a consistent and sustainable supply of components for the growing fleet.

### **Consumer Confidence.**

- Range anxiety – Consumer concerns around driving range of EVs needs to be addressed.
- Charge time anxiety – Consumers concerns when travelling longer distance, the wait time to access a charger at a highway rest place.
- Cost – Electric vehicles are still comparatively more expensive than their internal combustion engine cousins. Until the market can become competitive enough to equalize the costs, incentives and subsidies will be required to assist consumers make the change to electric vehicles.

### **Safety.**

- Ensuring the public's safety is paramount. MTA NSW members are acutely aware of this fact which is why our members align themselves with the MTA NSW Code of Ethics and why the industry continues to support the Motor Dealers and Repairers Act and the licensing regime that underpins it.
- Safeguarding the workforce runs parallel to the safety and security of the public. The men and women who service, maintain and repair the state's fleet of over 6 million vehicles need to be assured that they can work safely on EVs.

The transition to an electric future poses challenges for the automotive workforce, decision makers and the industry. Collectively industry and government need to work to ensure that as the fleet transitions, contingencies have been examined in depth so that the motoring public can have confidence in the vehicles that they drive every day.

Our submission will address the issues raised within the Terms of Reference for this inquiry and make recommendations that the industry believes will assist the Committee in its inquiry.

The Motor Traders' Association of NSW would welcome the opportunity to elaborate further on both our submission and the recommendations contained in our submission with the Joint Standing Committee, at your convenience.

Should the Committee require further information please contact, [REDACTED] – Head of Government Relations and Advocacy on [REDACTED] or at [REDACTED]

Yours faithfully,

[REDACTED]

Stavros Yallouridis  
Chief Executive Officer



## Who we are.

Founded in 1910, the Motor Traders' Association of New South Wales (MTA NSW) is the largest motor industry association in the state dedicated to representing businesses – large and small, metropolitan and regional across NSW. We achieve this by assisting members in the daily running of their businesses as well as working to ensure the public's confidence in dealing with MTA NSW members through our Code of Ethics, a landmark statement that sets out the standard behaviour MTA NSW members must follow in their dealings with the public.

MTA NSW represents the Australian lifecycle of the automotive industry through our 28 divisions, some of which include:

- Automotive Dealers
- Automotive Electricians
- Heavy Vehicle Repairers
- Body Repairers
- Vehicle inspection and assessment
- Parts and accessories
- Service stations
- Motorcycles
- Tow truck operators
- Dismantlers
- Tractor and Agricultural equipment

For over sixty years, MTA NSW has been a stalwart provider of specialised training to the automotive industry. In 1996, the organisation took a significant step by formalising its training program, establishing itself as a Registered Training Organisation (RTO).

Today, MTA NSW's RTO stands as the second-largest automotive training provider in New South Wales, following TAFE, and holds the distinction of being the largest independent provider of automotive training across Australia. With a dedicated team of 65 professionals, including 50 qualified trainers, MTA NSW's RTO serves over 2500 students throughout the state.

The organisation's strength lies in its flexible training model, specialising in workplace delivery. This approach aims not only to facilitate the achievement of nationally recognised qualifications but also to meet the licensing requirements in NSW under the Motor Dealers and Repairers Act.

Recognising MTA NSW's expertise, the organisation has been appointed to the recently formed Jobs and Skills Council's SWAP Committee. This committee plays a crucial role in shaping national qualifications for electric vehicles within the automotive industry. The significance of this work cannot be overstated, as it ensures that automotive professionals possess the most up-to-date qualifications, aligning with industry needs and ultimately benefiting the public.



Our subsidiary, Motor Trades Care (MTC), specialises in delivering a comprehensive work and safety service tailored specifically for the automotive industry. MTC offers expert guidance on creating safe workplaces, enhancing employee safety, and conducting thorough safety audits for automotive workplaces.

The distinctive services provided by MTC have earned recognition from the NSW government, notably through ICARE. As the sole industry-leading provider of safety audits for the state insurance company, MTC's unique offerings have prompted ICARE to extend the contract, emphasizing MTC's pivotal role in ensuring safety across the entire automotive industry.

Beyond safety audits, MTC plays a crucial role in supporting injured workers in their swift return to work. This not only saves time and money for both workers and businesses but also strikes a balance between the needs of injured workers and the overall productivity of businesses.



## Terms of reference

The Joint Standing Committee on Road Safety inquire into and report on:

- a) The risk and management of fires and other issues caused by batteries in electric and hybrid vehicles, including light electric vehicles.
- b) The risk to workers in the automotive industry and emergency services personnel caused by batteries in electric and hybrid vehicles.
- c) The adequacy of training and equipment for workers in the automotive industry and emergency services personnel regarding potential hazards of batteries in electric and hybrid vehicles
- d) Any other related matters.



## Introduction

Our country and our industry are at a pivotal point. There can now be no mistaking that the transition to electric vehicles is well underway. New car sales for electric vehicles in Australia show that Australians are moving toward either full battery electric vehicles or hybrid vehicles.

Battery electric sales now equate to around 7% of all new vehicle sales in NSW up from 3.2% in 2022.

While Australia has been extremely slow in its uptake of EVs the data shows that Australians are starting to embrace the change from internal combustion engines to electric vehicles. However, while there is market appetite for electric vehicles there are several challenges that need to be overcome if Australia and NSW are to meet the desired targets of new car sales being electric by 2030.

Recent incidents of electric vehicle fires in NSW have raised questions as to the safety of battery electric vehicles. However, data from both here in Australia and overseas shows that the incidents of fires in electric vehicles is extremely low.

Battery electric vehicle design matches that of their internal combustion engine cousins. What separates the two are the fire intensity and the higher risk of secondary ignition and the chemical output from any fire that occurs in the battery.

The question at the heart of this inquiry is – are electric motor vehicles safe? The short answer to this question is – yes.

The increasing number of lithium-ion fires in light electric mobility devices such as electric scooters and electric bikes are a matter of concern, however for light passenger vehicles incidents of fire involving the battery are rare.

There needs to be nuance when examining the preponderance of lithium-ion fires between those that occur from e-mobility devices such as e-scooters and those that occur in electric motor vehicles.

For decision makers this nuance is important so that motorists are aware of the safety of electric motor vehicles.

While electric vehicles are inherently safe, they – like all vehicles – do carry risks, how industry and governments strategically and collectively work to minimize these risks will need to be established over time.

The twin goal of industry and government should be to assist the workforce and consumers manage this transition in a safe way with as little disruption as possible.





## **Recommendations.**

- The NSW Government and MTA NSW work to ensure that workshops and repair shops in NSW are conversant with the Australian Standard AS5732:2022 Electric vehicle operations – maintenance and repair and can comply with the Australian Standard.
- The NSW Government permits holders of trade certificates in the automotive industry access to electrical vehicle safety training.
- The NSW Government works with MTA NSW to design a tow truck specific training package.
- That the NSW Government allocates funding for licensed tow truck operators to undertake safety training.
- The NSW Government works with MTA NSW and Fire and Rescue NSW to develop a license certificate and process for emergency services to use to allow operators to remove the damaged vehicle from the scene of the accident or incident.
- That the NSW Government works with industry to develop a long-term funding agreement for the training of the automotive industry for electric vehicles.



## Submission

### What is the risk of fire caused by electric batteries?

Statistically, the risk of fire in an electric motor vehicle battery is extremely low.

While currently there is little data on the prevalence of electric battery fires, the statistics that are available demonstrate that the risk of fire is low.

In 2023 there have been only six electric vehicle battery fires<sup>1</sup> out of an electric vehicle fleet of over 120 000 in Australia.

EV Fire Safe notes that, globally, there have only been 393 verified fires between 2010 and 2023<sup>2</sup>. In 2022 there were over 10 million new electric vehicle sales globally<sup>3</sup> taking the total number of electric vehicles globally to over 26 million.<sup>4</sup>

Research conducted by Western Sydney University found that battery electric vehicles have a lower fire rate in fatal collisions than gasoline vehicles.

It is important to note that the recent spate of lithium-ion battery fires recently have occurred within electric mobility devices such as e-scooters.

It is understandable that the committee is examining the risks of electric vehicle battery fires given the recent events in Penrose and Mascot. Given the close proximity in time between the two incidents this may lead to a conclusion that electric vehicles are not safe and that the batteries in these vehicles have a predilection to ignite for no reason.

However, the data shows that electric vehicle fires are – in the main – caused by collision or misadventure to the battery (such as debris breaching the battery cell) rather than instantaneous combustion.

Motor vehicles in Australia are subject to a range of standards, safety tests and design rules all of which ensure that motorists are safe.

All electric vehicles imported into Australia are tested for their safety by ANCAP, the independent vehicle tester.

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<sup>1</sup> [EV Fire Safe Electric Vehicle Fires](#)

<sup>2</sup> [https://www.evfiresafe.com/files/ugd/8b9ad1\\_01aa449ee5074086a55cb42aa7603f40.pdf](https://www.evfiresafe.com/files/ugd/8b9ad1_01aa449ee5074086a55cb42aa7603f40.pdf)

<sup>3</sup> <https://www.iea.org/energy-system/transport/electric-vehicles>

<sup>4</sup> <https://www.iea.org/reports/global-ev-outlook-2023/trends-in-electric-light-duty-vehicles>



ANCAP recently modified their testing methodology for electric vehicles to ensure that in the event of a crash that the vehicle is safe for the driver and passengers. As of October 2023, ANCAP tested over 40 battery electric vehicles, all of which received a five-star safety rating from the examiners<sup>5</sup>.

This is not to say that electric vehicles – like any vehicle – may catch fire in the event of a crash, however, the risk of fire in an electric vehicle is comparable if not less than an internal combustion engine.

For the automotive industry the challenges of electric vehicle batteries are:

- Removal of a damaged vehicle
- Storage of a damaged vehicle
- Maintenance and repair of the vehicle.

Risks for the automotive sector relate to damaged vehicles through the risk of ignition and/or secondary ignition.

It is important to note that while there are risks associated with damaged EV batteries, incidents of battery fires are rare, and the industry is continuously working to enhance the safety of vehicle technology.

### **What are the risks to workers in the automotive industry caused by batteries in electric vehicles?**

Electric vehicle batteries can have a voltage range upwards of 60V and can typically operate between 400 and 800V DC, far higher than the standard voltage in most vehicles. Without comprehensive knowledge of working on an electric vehicle these voltages can present risks to workers.

When a motor vehicle's battery is damaged, especially in the context of electric vehicles, several risks can arise. These risks are related to safety concerns and the unique nature of lithium-ion batteries commonly used in EVs.

- **Thermal runaway** – This occurs when the battery cell overheats and can ignite. Most commonly this occurs when the battery cell suffers from physical damage such as after a vehicular accident.

With thermal runaway when one battery cell ignites it causes the surrounding cells to ignite due to the excessive heat generated, thus causing a 'runaway' of ignitions through the battery.

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<sup>5</sup> [ANCAP Safe and Green](#)



- **Secondary ignition** – Unlike internal combustion engines, lithium-ion batteries can experience secondary ignition. Even after the initial fire is extinguished, the damaged battery may reignite due to the presence of flammable materials.

The time between the initial fire and secondary ignition is difficult to predict accurately, making it challenging to ensure the complete safety of a damaged battery. This risk is especially difficult for tow truck drivers who are tasked with moving the vehicle. Incidents in the United States have shown damaged electric vehicles igniting after being moved onto a tow truck.

- **Toxic Smoke** – Electric vehicle batteries contain various materials, including lithium, cobalt and nickel. When ignited electric batteries can release toxic gases and fumes, which can pose health hazards to individuals in the vicinity of the fire, including first responders.

For the automotive workforce in NSW establishing protocols, procedures and policies to mitigate these risks are critical. Various safety measures and practices are essential, including:

- Emergency response procedures
- Battery containment
- Regular maintenance
- Research and development.

Real risks occur when unqualified persons (those who do not have training in automotive technologies) attempt to engage with an EV battery. The recent fire at Sydney airport where a damaged electric vehicle battery was removed, and left outdoors is a perfect example.

Establishing proper safety protocols and emergency response procedures are essential to mitigate these risks.

Risks within workshops and the correct handling and isolation of electric vehicles can be reduced through the use and compliance with Australian Standard AS5732:2022 *Electric vehicle operations – maintenance and repair*.

AS 5732:2022 outlines the requirements for premises and the procedures for the types of work on plug-in hybrid vehicles, hybrid electric vehicles, battery electric vehicles, plug-in hybrid vehicles and fuel cell electric vehicles.

#### **Recommendation.**

- *The NSW Government and MTA NSW work to ensure that workshops and repair shops in NSW are conversant with the Australian Standard AS5732:2022 *Electric vehicle operations – maintenance and repair* and can comply with the Australian Standard.*



## What is the adequacy of training and equipment for workers in the automotive industry?

Training automotive technicians in electric vehicle technology is of paramount importance in the industry's transition to electrification. The adequacy of this training is crucial to ensure that technicians can effectively and safely work on EVs.

It is imperative that the current workforce in NSW has access to safety training, especially to depower the battery so that technicians can safely repair, service and dismantle the vehicle.

NSW has the largest automotive workforce in Australia, with over 45 000 automotive workers employed across the state.

Training this sized workforce to safely work on electric motor vehicles is a large task and one that will take both time and resources.

Currently, EV training is only available to automotive technicians who hold a Certificate III in light automotive technology, heavy vehicle technology and automotive electrical technology.

While industry agrees that there should be pre-requisites for the delivery of skill sets the current restrictions limit the ability to deliver safety training to the whole of the workforce. Allowing technicians who hold a trades license in NSW access to safety training would widen the pool. Permitting trade certificate holders access to training would allow those with Certificate II qualifications and those in the body repair sector access to this crucial training.

### Recommendation.

- *The NSW government permits holders of trade certificates in the automotive industry access to electrical vehicle safety training.*

Delays in the development of skill sets and training trainers have held back an effective roll out of training.

There are several areas of training that will be required to effectively upskill the NSW workforce, including:

- ❖ **Safety and High Voltage awareness** – Adequate training should emphasise the unique safety aspects of working with high-voltage components, including battery systems and electric drivetrains.
- ❖ **Diagnosis and troubleshooting** – Technicians need to receive comprehensive training in diagnosing and troubleshooting EV-specific issues.
- ❖ **Battery technology** – A thorough understanding of battery technology and thermal management as well as aging characteristics are crucial.



Furthermore, training for first and second responders (tow truck drivers) is critical in areas such as:

- Hazard assessment before recovery
- Use of rescue cards
- Safe and fast shut down of the HV system
- Evaluation of the hazard potential of a HV battery (in use)
- Procedure for damaged EV vehicles
- Correct transport of damaged EV vehicles.

The industry sees that training of the licensed tow truck industry as crucial for the safe removal of damaged EVs.

A damaged battery may not initially ignite and there may be no outward sign of damage to the battery cell, however when the vehicle is moved this may cause the battery cell to ignite and cause a thermal runaway event to occur. If this incident occurs during the transport of the vehicle there is no other recourse for the operator than to abandon the vehicle and contact emergency services.

While training is available to other areas of the automotive industry there are inhibitors for licensed tow truck operators including:

- **Course design.** While MTA NSW has taken the initiative in undertaking safety training for other sectors of the industry, the pre-requisites that only the holder of Certificate III in light or heavy vehicle technology or auto electrical technology can undertake EV training is a major barrier for the industry. As tow truck operators, generally, do not hold a Certificate III they cannot undertake safety training under the current settings.
- **Cost.** Should a specific safety course for tow truck drivers be designed it is unlikely that, under current state provisions, that the course would be funded, meaning the training would have to be paid for by operators.

#### **Recommendation.**

- *The NSW Government works with MTA NSW to design a tow truck specific training package.*
- *That the NSW Government allocates funding for licensed truck operators to undertake safety training.*

Additionally, first responders need to have confidence that a damaged electric motor vehicle requires towing that the operator has been trained to safely remove the vehicle from the scene.



### **Recommendation.**

- *The NSW Government works with MTA NSW and Fire and Rescue NSW to develop a license certificate and process for emergency services to use to allow operators to remove the damaged vehicle from the scene of the accident or incident.*

The industry also sees an urgent need to upskill the workforce in regional NSW.

At issue here is the repair and servicing of vehicles.

Motorists are advised that if they have concerns about the integrity of the battery to take their vehicle to a licensed automotive technician. However, if the technician is not trained in electric vehicle diagnosis and repair then the motorist is left stranded.

Furthermore, if the electric vehicle is damaged or, in a worst-case scenario, ignites in a regional or country area and a technician attempts to ascertain the damage without the requisite training this may lead to an injury to the technician.

Demand for electric vehicle training is increasing, however, beyond the training provided by MTA NSW there are few options to undertake this training.

Furthermore, funding for electric vehicle training from the state government is inconsistent and finite, leading to a funding shortfall against demand, leaving the cost of training up to business.

The automotive industry is predominately comprised of small businesses. Over 95% of all automotive businesses are small businesses, this is especially true in regional NSW.

The cost of a one-day course to depower and reinitialise an electric motor vehicle battery is approximately \$900. For small businesses this can be an inhibitor to undertaking staff training.

### **Recommendation.**

- *That the NSW Government works with industry to develop a long-term funding agreement for the training of the automotive industry for electric vehicles.*

Further skill sets are still needed to ensure that the motoring industry has a full suite of competency units ready for the continued rollout of electric vehicles.

As a member of the Australian Mining and Automotive Skills Alliance (AUSMASA) the jobs and skills council for the automotive industry in Australia, MTA NSW is playing a pivotal role in developing new skill sets for the automotive sector.



However, developing these skill sets takes a great deal of time, up to eighteen months, and the timeline from development to roll out can take additional time as trainers need to be trained, equipment purchased, and training material developed.

Automotive technicians need to be trained in the proper procedures for maintaining, repairing and disposing of EV batteries. This training should include:

- **Hands-On training** – Adequate training should involve hands-on experience, allowing technicians to work on EVs in a controlled environment.
- **Continuing education** – The transition to EVs means the industry is rapidly evolving and technicians and others need to stay updated with the latest advancements and procedures.
- **Certification programs** – Recognised certification programs, such as those offered by MTA NSW, can validate a person's expertise and knowledge of working with EVs.
- **Educational partnerships** – Collaboration between educational institutions and industry associations can help ensure that training programs are aligned with industry needs.

The adequacy of training for the automotive industry in EV technology is a critical factor in ensuring the safe and efficient maintenance and repair of EVs. With the growing adoption of EVs, it is essential that training programs continue to evolve and expand to meet the changing needs of the automotive workforce.

### **Conclusion.**

The shift towards electric vehicles poses many challenges for industry and decision makers.

Rapid advancements in technology, changing consumer preferences and government policies will pose more questions to both industry and governments.

While electric vehicles are a safe and secure transport option, there are risks as there are with all vehicles. How these risks are managed need to be balanced and well developed between industry and governments. Knee-jerk or reactionary decision making will only lead to further complications and can risk stymying the innovation that the industry needs to undertake to increase safety.

There can be no denying though that training, and education are critical for the uptake of electric vehicles, both for industry and consumers.

Ensuring the automotive workforce in NSW is properly trained will lead to safe workplaces and safety for motorists who place their trust in the trained technicians in our industry.

Supportive frameworks that assist the industry will help to encourage the transition to electric vehicles and provide confidence for consumers.