

**Submission
No 17**

ELECTRIC AND HYBRID VEHICLE BATTERIES

Organisation: Insurance Council of Australia

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Insurance Council
of Australia

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To whom it may concern,

NSW Legislative Council's Joint Standing Committee on Road Safety – Inquiry into Electric and Hybrid Vehicle Batteries

The Insurance Council of Australia (**Insurance Council**) thanks the NSW Legislative Council's Joint Standing Committee on Road Safety for the opportunity to provide input into the committee's work on electric vehicles. We appreciate the collaborative approach the Committee has taken to welcome submissions from interested stakeholders.

The Insurance Council is the representative body of the general insurance industry in Australia and represents approximately 89% of private sector general insurers. As a foundational component of the Australian economy, the general insurance industry employs approximately 60,000 people, generates gross written premium of \$64.5 billion per annum and on average pays out \$147 million in claims each working day (\$36.5 billion paid out per year).¹

The Insurance Council and its members support the electrification of Australia's transport sector, including the electrification of passenger and commercial vehicles, as it will play an important role in decarbonising our economy. Insurers are working to reduce emissions across their operations, investments, underwriting and supply chain, and a faster transition to electric vehicles in Australia will facilitate faster decarbonisation.

However, strong policy is required from all levels of government to support this transition and ensure potential risks are managed in an evidence-based way. Different types of electrified transport can present different potential risks and it is important that policymakers avoid a 'one size fits all' approach.

Further detail is provided below.

Managing the potential fire risk associated with lithium-ion batteries in electric and hybrid vehicles, including light electric vehicles.

Rechargeable lithium-ion batteries are contained in common household items, such as mobile phones, power tools and personal mobility devices such as e-scooters and e-bikes, and also electric vehicles such as cars, buses and trucks.

If severely damaged, abused or faulty, lithium-ion batteries may go into 'thermal runaway', a heat-generating unstable chemical process that can lead to three main hazards: off-gassing, fire and gas explosion. All hazards of thermal runaway pose serious life and property safety risks when they occur.² Whilst incidents are currently rare, a recent report by the ACCC finds that they appear to be increasing.³

There are three distinct types of electrified transport that use lithium-ion batteries for propulsion and require connection to power to recharge the battery pack. These are:

1. Personal Mobility Devices, including electric bikes, scooters, skateboards, hoverboards and unicycles.

According to EV FireSafe data, personal mobility devices have a higher risk of battery fire overall and a higher risk of causing injury, fatality and property loss. This is primarily due to market demand leading to

¹ APRA Statistics February 2023

² ACCC (2023), Consumers urged to use and store lithium-ion batteries safely to prevent deadly fires

³ ACCC (2023), Consumers urged to use and store lithium-ion batteries safely to prevent deadly fires

poor design and manufacturing, high wear and tear, poor regulation and enforcement, and the storage and charging of personal mobility devices inside buildings. EV FireSafe's data shows that for personal mobility devices, there is at least one battery fire incident every day in New York and London, and they are occurring weekly in Australia. There is at least one verified death from a personal mobility device battery fire in Australia and multiple serious injuries.

2. Light Delivery Electric Vehicles, including electric golf buggies, carts and tuk-tuks.

Data is emerging to suggest light delivery electric vehicles are a moderate fire risk. This is primarily due to market demand leading to poorly constructed battery cells. EV FireSafe's data indicates that for light delivery electric vehicles there have been at least 35 battery fires in Europe, one verified in Australia and one currently being investigated.

3. Road Registered Electric Vehicles, including electric cars, buses, trucks and motorbikes.

According to EV FireSafe data, electric vehicles have a very low risk of battery fire. Electric vehicles are subject to stringent regulations and testing, and use very high quality battery cells encased in a protective (IP rated) battery pack. EV FireSafe has found that for electric vehicles there have been six battery fires in Australia, with one fatality (still under investigation). None of these vehicles were charging, or connected to charging equipment, at the time of the fire.

Research indicates that road registered electric vehicles do not present a greater risk of fire occurrence than ICE vehicles⁴, however when electric vehicle battery fires do occur, they need to be managed differently and may require more time, resources and firefighting water to manage the incident.

The Insurance Council and its members have developed a set of policy recommendations to help mitigate the fire risk associated with all batteries in all electric vehicle types, and strongly recommends the adoption of these recommendations by state, territory and federal governments. These recommendations include:

- **Strengthen regulation and enforcement for personal mobility devices, such as e-scooters and e-bikes, to ensure the importation and sale of safe equipment only:** While the technical standards associated with personal mobility devices may be adequate, the broader regulatory environment for these products in Australia is presently inadequate, leading to the importation and sale of cheap, non-compliant products. Stronger regulatory enforcement activity around the importation and sale of this type of product will help to reduce the rising incidence of unsafe products.
- **Increase investment in research and training for fire authorities and other first responders to enable safe management of electric vehicles involved in collisions and fires:** As outlined above, when lithium-ion battery fires do occur, they need to be managed differently, and may require more time, resources and firefighting water to manage the incident. More research and training will help to minimise the risks associated with electric vehicle fires. This could include supporting EV FireSafe to undertake a robust and independent review of global literature about electric vehicle fire safety in the built environment.
- **Educate consumers about the safe operation and maintenance of electrified transport and charging infrastructure:** The fire risk associated with lithium-ion batteries can be minimised with appropriate operation, such as storing batteries in a cool, dry place, and by avoiding hazardous operation, such as charging batteries that have been damaged.

⁴ Boehmer HR, Klassen MS and Olenick SM (2021) Fire Hazard Analysis of Modern Vehicles in Parking Facilities, Fire Technology, No 5; Burke G (2021) EV Risk Assessment. Risk Impact Pty Ltd; Bisschop R, Willstrand O and Rosengren M (2020) Handling Lithium-Ion Batteries in Electric Vehicles: Preventing and Recovering from Hazardous Events, Fire Technology, 56, 2671–2694; Sun P, Huang X, Bisschop R and Niu H (2020) A Review of Battery Fires in Electric Vehicles, Fire Technology, 56, 1361–1410.

- **Work with insurers to conduct evidence-based risk modelling to inform decision-making on the transition to electric vehicles:** Insurers are well-placed to provide advice on electric vehicle adoption, from ensuring charging infrastructure is built to withstand future extreme weather events or providing risk assessments on electric vehicle performance. Governments should provide funding to insurers to develop systems to capture this information. Governments should also work with insurers and collaborate with stakeholders such as building developers, original equipment manufacturers and charging station providers to facilitate the provision of verifiable and credible information to consumers.

We trust that our initial observations are of assistance. If you have any questions or comments in relation to our submission please contact [REDACTED], Climate Change Adviser,

Yours sincerely,



Andrew Hall
Executive Director and CEO