



## **EVC response to ESO Discussion paper:**

### **‘A response to the Review of Queensland’s Electrical Safety Act 2002 – key definitions and emerging technologies’**

**June 2023**

**With reference to:**

<https://www.oir.qld.gov.au/public-consultation/electrical-safety-act-2002-review>

[https://www.oir.qld.gov.au/sites/default/files/2023/documents/es-act-review-discussion-paper\\_1.pdf](https://www.oir.qld.gov.au/sites/default/files/2023/documents/es-act-review-discussion-paper_1.pdf)

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**Preamble:**

The Electric Vehicle Council (EVC) appreciates the opportunity to provide feedback on the ESO Discussion Paper titled "A response to the Review of Queensland's Electrical Safety Act 2002 – key definitions and emerging technologies" regarding electric vehicle (EV) safety.

As Australia's national representative body for the EV industry, our primary goal is to promote investment certainty through policy development, knowledge sharing, and educational initiatives.

The Electrical Safety Office (ESO) regulates electrical safety standards and practices in Queensland, Australia.

In this response, the EVC will address issues the ESO (Electrical Safety Office) raised in framing EV safety matters. The ESO has sought input on potential amendments to the Electrical Safety Act to account for emerging technologies such as electric vehicles (EVs).

The EVC will also analyse the proposed options presented in the paper and offer our commentary. We will provide insights on the ESO's discussion paper, including identification of areas where relevant data has been omitted or misrepresented.

## Executive summary of EVC position:

The discussion paper runs to 78 pages and includes six main questions. We are providing a brief response to this paper. Individual EVC members may have a range of views on this proposal.

As the national representative body for the Australian EV industry, we aim to cultivate a legislative environment that prioritises safety and pragmatism and promotes the widespread adoption of electric vehicles (EVs). The EVC's stance is that work on electric vehicles should be conducted by individuals who possess the necessary competence.

The current regulatory framework, supplemented by self-regulation and strong workplace safety measures, has effectively managed safety in EV maintenance to date. Imposing burdensome licensing requirements on mechanics should be approached with caution – if the existing regulatory arrangements are to be changed, a robust evidence-based, and consultative review process should be applied to identify any safety-related shortcomings in the existing arrangements.

Lengthy apprenticeships or training programs for mechanics to obtain electrical licences could disrupt the industry, increase service costs, and limit the availability of skilled workers.

Introducing onerous licensing requirements specific to Queensland may discourage vehicle manufacturers from supplying EVs to the region. The increased costs and administrative burdens may lead manufacturers to prioritise other markets, reducing the availability of EVs for Queensland consumers and, as a result, jeopardising the state's ability to achieve its own EV sales targets.

In the event that a robust, evidence-based and consultative review process identifies that the appropriate regulatory setting in this domain is electrical licencing, the EVC proposes the implementation of an upskill licence, akin to the plumbing industry's restricted electrical licence obtained through a 40-hour training program. Based on the requirements for the restricted licence, it is reasonable to assume that a comparable course for EVs involving a short competency program would be suitable and attainable. This approach offers a pragmatic and accessible solution for mechanics to work on EVs without the necessity of completing a full four-year electrical licence.

Striking a balance between safety and regulatory efficiency is paramount. The key focus should be targeted training, education, and awareness initiatives that address specific safety concerns based on competencies. This pragmatic approach ensures the maintenance of safety standards within the EV industry without imposing unnecessary regulatory burdens.

Furthermore, including all types of EVs within the proposed licence requirements is vital. The current terminology inadvertently excludes certain vehicles, such as motorcycles and cars, from the same regulatory framework applied to buses and trucks. We recommend revising legislation and regulations to encompass a voltage range of 100V to 1000V, encompassing a wide array of EVs and ensuring comprehensive coverage. This comprehensive approach would include all road-registered EVs, such as Battery Electric Vehicles (BEVs), Plug-in Hybrid Electric Vehicles (PHEVs), Hybrid Electric Vehicles (HEVs), Fuel Cell Electric Vehicles (FCEVs), Electric Motorcycles, Electric Trucks, Electric Vans, Electric Buses, and other Electric Vehicles including forklifts.

Adopting inclusive regulations covering the entire spectrum of EVs will enhance safety and facilitate the availability, growth and adoption of various types of electric vehicles in Queensland.

## **EVC comments on ESO framing of issues relating to EV safety with page references:**

### **In relation to Page 64: incidents and queries.**

The presence of tens of thousands of HEVs in Queensland, dating back to the 1990s, is ignored by the discussion paper in favour of reporting on globally reported fire risks. There has not been any concern raised of electric shock associated with the maintenance of HEVs in Australia; this should serve to demonstrate that there is not a failure of regulation at this point. Requirements for persons undertaking maintenance on these vehicles to be licenced electrical workers are explicitly ruled out at the legislative (ref: Electrical Safety Act 2002) and regulatory levels (ref: Electrical Safety Regulation 2013).

When reporting on the global fire incidence in BEV and PHEV, the paper does not attempt to relate this to petrol/diesel car fires, which occur with ~20 times higher frequency in recent global data<sup>1</sup>. The paper also omits to mention that there have been only three fires in Australia involving road-registered battery electric vehicles; two of these incidents were due to arson, while the third occurred when a garage caught fire, and the EV was not the cause<sup>2</sup>.

Given the inclination on the part of the ESO to look to global data, we suggest that it would be appropriate for the ESO to research the global incidence of mechanics suffering an electric shock while working on EVs, as part of the robust, evidence-based review we mention in our executive summary.

### **Page 67: Training in Queensland**

This section fails to discuss the availability of AUTETH101, a course offered by 185 Registered Training Organisations nationwide. These training options can be found on the official training website at:

<https://training.gov.au/Search?SearchType=Rto&searchTgaSubmit=Submit&scopeNationalCode=AURETH101&includeImplicitScope=true&registrationStatus=0%2C1%2C2%2C3>.

Moreover, the section neglects to recognise the existence of earlier courses like AURETH3001, which have been accessible since 2011. This omission creates a misleading impression that the training choices provided by Commonwealth-regulated Registered Training Organizations (RTOs) in this domain are recent additions, which is inaccurate.

In the event that a robust, evidence-based review determines that current regulatory approaches are inadequate, a practical alternative to a four-year licensing requirement would be the introduction of a short upskill licence akin to a "restricted electrical licence" obtained by plumbers, enabling safe, competent electrical work to be undertaken.

<https://www.worksafe.qld.gov.au/licensing-and-registrations/electrical-licences/electrical-worker-licences/restricted-electrical-work-licences-permits-other-than-apprentices>)

This approach would equip mechanics with the necessary safety knowledge to work on EVs without a full electrical licence's unnecessary and extensive requirements. For plumbers working on electric hot water services, this is typically a 40-hour course.

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<sup>1</sup> <https://www.msb.se/sv/aktuellt/nyheter/2023/maj/brander-i-eltransportmedel-under-2022/?ref=warppnews.org>

<sup>2</sup> <https://electricvehiclecouncil.com.au/submissions/evc-submission-to-accclithium-ion-battery-safety-consultation/>

In addition, it would also be valuable to consider within this review not just mechanics, but also first and second responder training – for example fire services and tow truck operators.

**EVC commentary with respect to options for consideration:**

**With reference to:**

### 3.3.3 Consideration of options

*Table 20: Options overview*

Options	Description
<b>Option 1</b>	Status quo. <ul style="list-style-type: none"><li>• Industry undertakes self-regulation on training requirements for work on electric vehicles.</li></ul>
<b>Option 2</b>	Legislative change. <ul style="list-style-type: none"><li>• Capture work on electric motors within the definitions of 'electrical equipment' and 'electrical work', for the purposes of a licensing requirement.</li></ul>
<b>Option 3</b>	Awareness and Education. <ul style="list-style-type: none"><li>• Produce an awareness and education campaign to address concerns regarding electric vehicles generally, including work.</li></ul>

**Option 1:**

This is not purely self-regulation. General OHS requirements apply, which leads the industry to develop robust, safe work practices. So far, with over 300,000 HEVs on Australian roads and over 100,000 BEVs & PHEVs, there has not been a single incident of electrocution in a workshop related to vehicle maintenance that we are aware of; this tends to indicate that the existing regulatory arrangements are adequate.

The 'exposure to risk' highlighted in the cost/benefit analysis is exposure to a risk that has been around for decades and is already adequately managed.

**Option 2:**

The proposal would require all individuals undertaking work on electric vehicles to obtain an electrical worker's licence, including a four-year apprenticeship and training program, in addition to being qualified mechanics. This is a significant overreach, considering that it has been demonstrated over decades worldwide, and specifically in Queensland, that it is unnecessary.

If imposed, it would have substantial consequences. One crucial aspect missing from the 'costs' section of the table is that global vehicle OEMs may choose to cease supplying EVs to Queensland and instead focus on other markets. The global supply of EVs is limited, and Queensland represents less than one-quarter of one percent of global demand. Were Queensland to impose excessively burdensome and costly regulatory requirements for maintenance, OEMs will likely make the rational business decision to direct EVs to other states within Australia and other countries, supplying QLD with petrol and diesel-fueled vehicles instead.

If considered, this approach should be limited to a similar qualification associated with plumbers, known as a restricted electrical licence. This approach is not exclusively limited to plumbers; Queensland already has a restricted electrical licence arrangement for mechanical fitters connecting and disconnecting electric motors. Typically, the training course for a restricted electrical licence is completed within 40 hours.

This concept, along with other similar courses, such as AUTETH101, has already existed for a long time as an RTO-delivered training course.

The EVC is of the view that regulating mechanics as electrical workers is unnecessary. This said, if a robust and evidence-based review finds otherwise, the restricted electrical licence approach is an established model that would be far less disruptive than requiring a full electrical licence.

### **Option 3:**

Public awareness and education are always good ideas but should not be conflated with appropriate regulations. Regulation should be applied where required (for example, in the context of workplace safety), while education and awareness initiatives should also be pursued. Option 3 can be done in parallel with either Option 1 or Option 2.

## **EVC comments with respect to consultation:**

Section 3.3.5:

*"To some degree, voltage is almost irrelevant in assessing the nature of the danger for batteries." – attributed to Ergon.*

This above-quoted passage is a highly misleading statement. A person can grasp the terminals of a 12V car battery with bare hands and suffer no harm. A person touching the terminals of a 400V or 800V battery is highly likely to suffer serious harm or death. Voltage is extremely relevant - arguably the most relevant risk.

Arc flash potential under short circuit conditions is discussed further in the quote. This is an entirely different risk to electrocution. Dropping a spanner across the terminals of a 12V car battery is dangerous, which is why mechanics take care not to do that.

*"The ETU advocated for the involvement of electrical fitter mechanics in the manufacturing of electric vehicles in Queensland. NECA recommended restricting work on electric vehicles and charging stations to be limited to electrical workers."*

ETU and NECA represent the interests of licenced electrical workers. Unsurprisingly, they favour regulatory change that aligns with increased requirements for electrical licencing. We would note that there is no argument from the EVC with respect to work undertaken on charging stations being done by electricians. The installation and maintenance of that equipment are typically correctly considered electrical work.

*"NECA also noted that specialist training and licensing requirements should be introduced to cater to the specialist nature of electric vehicles and the risks involved. Training and licensing requirements for those who work on relevant equipment in relation to electric vehicles was also raised by Energy Queensland for consideration."*

The EVC acknowledges the necessity of specialised training and recognises that such training is already established. If there is a need for additional licencing, please refer to the preceding discussion for further details.

## **Comments with respect to Question 1:**

### **1. How are you, your organisation, the workforce, or the community affected by the problems identified and to what extent?**

The impact of strict licensing requirements inappropriate for maintenance on electric trucks in Queensland has raised concerns within the industry. There have been discussions indicating that a leading vehicle manufacturer is evaluating the possibility of not supplying electric vehicles (EVs) to Queensland specifically due to this type of regulation.

Queensland could potentially face limited access to a wide range of electric vehicles, compared to other regions within Australia, were this regulation to be introduced without adequate consideration of the abovementioned matters. Such a consequence would hinder the state's progress in adopting and transitioning to electric vehicle technology, potentially delaying the benefits of cleaner and more sustainable transportation options.

It is essential to consider the implications of these licensing requirements and strike a balance between ensuring safety standards and encouraging the growth of the electric vehicle market. Collaborative efforts between industry stakeholders and regulatory bodies

are necessary to ensure the existence of a regulatory framework that addresses safety concerns without imposing excessive burdens that may deter manufacturers from supplying electric vehicles to Queensland.

### **Comments with respect to Question 2:**

**2. Do you agree with the assessment of the problem identified, and are there additional risks presented by electric vehicles that have not been identified? If yes, what are they, and can you provide examples of these issues?**

The EVC recognises the importance of safety measures in electric vehicle maintenance while emphasising that certain risks have been exaggerated. The absence of reported incidents of electrocution related to vehicle maintenance indicates the effectiveness of existing workplace health and safety regulations. Imposing a requirement for licenced electrical workers for all EV maintenance would be excessive, considering the potential negative impact on EV availability in Queensland and manufacturers' possible redirection of supply to other states.

If licensing is considered, it should be comparable to the Restricted Electrical Work Licence for plumbers installing electric hot water services. This could involve specific training modules, of a minimum necessary duration consistent with safe outcomes, rather than a full apprenticeship. Public awareness and education are valuable but should be distinct from appropriate regulation.

The EVC challenges misleading statements regarding voltage relevance and acknowledges the necessity of specialist training without automatically requiring additional licensing.

### **Comments with respect to Question 3:**

**3. What practical impact, including the costs and benefits, would the options proposed in the Discussion paper have on you, your organisation, the workforce, or the community? Please provide examples where possible.**

The proposed requirement for licensing electrical workers in electric vehicle (EV) maintenance would present significant challenges for mechanics. Such regulation could impede their ability to work on EVs and hinder their professional growth and opportunities, potentially leading to a decline in their involvement in the growing EV industry. This could have a negative impact on their career prospects within the field of electric vehicle technology.

Furthermore, this regulation would directly affect the availability of electric vehicles (EVs) in Queensland by imposing stringent licensing requirements specifically for EV work; it may discourage vehicle manufacturers from supplying EVs to the region. This limited availability of EVs would restrict consumer choice and hinder the overall adoption of EVs in Queensland, potentially causing the state to lag behind in embracing electric vehicle technology.

## Comments with respect to Question 4:

### **4. What is your preferred option, and why would it be best for you, your organisation, and your stakeholders?**

**See table 20**

One possible approach would be to consider combining Option 1 and Option 3. This approach would involve retaining the existing exemption for cars and motorcycles while incorporating the ongoing inclusion of the amnesty applied to trucks and buses into this exemption. Doing so would address the need for specialised licensing requirements while maintaining a practical approach for these vehicle categories.

Alternatively, and subject to a robust, evidence-based review, another viable option could be a combination of Option 2 and Option 3, but with the specific limitation that a restricted electrical licence would be the upper limit of licencing requirement. In this case, the licensing requirement would be a restricted electrical licence, based on content similar to the existing AUTETH101 course. This approach would align with the EVC's submission to the NEVS<sup>3</sup> (National Electric Vehicle Strategy).

## Comments with respect to Question 5:

### **5. If a licensing framework was introduced:**

**a. Should any specific type of vehicle be excluded for the requirement (e.g., motorcycles, cars, buses, trucks)? If so, what are they and why?**

**b. Is a restricted licence (specified training) or full licence (full apprenticeship) suitable? If so, why?**

**c. Should the licence type be determined based on the type of vehicle? If so, what would you suggest and why?**

**d. What types of work or occupations should be excluded from a licensing requirement? Or alternatively, what types of work or occupations should have specific licensing requirements (e.g., on-road works, general maintenance and check-ups, and/or removal and disposal)?**

**e. Are there any elements under the Act which should not apply? Which sections and why?**

**f. Are there situations in which a disconnect and connect restricted licence for performing work on non-propulsion components of a vehicle would be appropriate?**

If a licensing framework were to be introduced for electric vehicle (EV) maintenance, the following considerations could be made:

a. Assessment should be made whether any specific type of vehicle should be excluded from the licensing requirement, such as motorcycles, cars, buses, or trucks. However, since all these vehicles typically operate within the battery voltage range of 100V to 1000V, it would be advisable to treat them equally from a regulatory standpoint; This ensures consistency in safety regulations and work standards across all vehicle types.

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<sup>3</sup> <https://electricvehiclecouncil.com.au/national-electric-vehicle-strategy-electric-vehicle-councils-submission/>



b. When considering the type of licence, a restricted licence with specified training would, in the view of the EVC be an un-necessary step, but would be far more appropriate than a full licence requiring a full apprenticeship. It is evident that upskilling a mechanic to work on EVs safely does not necessarily require a four-year apprenticeship, as demonstrated by the absence of such a requirement in international jurisdictions. Another approach could be to mandate existing approved training programs delivered by Registered Training Organizations (RTOs), such as AUTETH101, under the suitable legislation or regulation. This would ensure that mechanics receive specialised training without imposing unnecessary time constraints or burdensome apprenticeship requirements.

In summary, if a licensing framework for EV maintenance is introduced, treating all vehicle types equally within the regulatory framework is recommended.

### **Comments with respect to:**

#### **Question 6:**

**Do you have suggestions for other options to address the problems identified? Please provide examples (including costs where appropriate) of your suggested options, including how it would ensure the workforce are electrically safe and conduct electrically safe work for community safety.**

No response.