

Discussion Paper Summary

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

The 2021 *Review of Queensland's Electrical Safety Act 2002* (the Review) makes 83 recommendations, aimed at improving the electrical safety framework and ensuring it is adaptable and responsive to technological change.

The Discussion Paper, *A response to the Review of Queensland's Electrical Safety Act 2002 – key definitions and emerging technologies*, focuses on issues raised in the Review recommendations relating to emerging electrical safety risks and how they intersect with key concepts in the *Electrical Safety Act 2002* (Qld) (the ES Act), being the definitions of 'electrical equipment', 'electrical installation' and 'electrical work'.

Your involvement

The Discussion Paper process provides you an opportunity to advise Government on how the issues identified impact you, your business, and your community. The Discussion Paper also seeks feedback in the potential impacts posed by options canvassed in response to the issues identified in each topic.

The three topics explored in the Discussion Paper are:

- electrical safety considerations of new and emerging technologies
- changing landscape of electricity and the workforce
- electrical safety and electric vehicles.

Feedback on the Discussion Paper is open until 27 June 2023.

The Government also encourages you to provide feedback on the Final Report's recommendations.

Topics raised in the Final Report for consideration by Government include:

- technological change and key definitions (including clarification of incident definitions)
- electrical safety duties (including enhancement of supply chain duties)
- work health and safety legislation alignment (including the status of codes of practice)
- enhancing competence and compliance (including the introduction of Continuing Professional Development for all licence holders)
- specific regulatory issues (including the requirement of safety switches on all sub-circuits).

Feedback on the Final Report is open until 15 August 2023

To view the Discussion Paper, Final Report and the recommendations visit the [Office of Industrial Relations website](#).



Electrical Safety Office
electricalsafety.qld.gov.au



Topics in the Discussion Paper

Topic 1: Electrical safety considerations of new and emerging technologies

Topic 1 considers the risks presented by emerging technologies related to energy generation, transmission, distribution (including energy storage) and utilisation (equipment changes relevant to the emerging technology or expanded uses of existing technology). This includes the relationship between the 'electrical equipment' definition and extra low voltage equipment, including solar photovoltaic¹ (PV) modules and related renewable energy technology equipment. Three options are canvassed in response to the risks identified in Topic 1.

Options proposed by the Discussion Paper include:

Option 1: Maintaining the status quo	Meaning no change to the definitions of 'electrical equipment' and 'electrical installation' in the ES Act.
Option 2: Proposes a legislative change	Clearly incorporating new energy generation technologies (solar PV panels), energy generation systems (e.g., solar farms), and Battery Energy Storage Systems. Incorporating particular forms of extra low voltage equipment within the definitions where there is a demonstrated risk.
Option 3: Awareness and education campaign	Increasing Government communication and engagement with electrical workers, electrical contractors, persons conducting a business or undertaking (PCBUs), unlicensed workers, and the community, on risks of emerging technologies and approaches to risk management. Government promoting standards and training development. Government providing homeowner guidance as relevant.

¹ Photovoltaic refers to cells converting light into electricity at an atomic level.

To read more about this topic see pages 9 to 28 of the Discussion Paper.

The following recommendations of the Review's Final Report are considered by this topic:

Recommendation 1: It is recommended that modernising the scope of the Act to ensure new and emerging energy generation and storage technologies are incorporated, whether or not they are connected to the grid or stand-alone in nature, by including in the definition of electrical equipment/electrical installation: (a) solar PV modules, designed to be connected to other solar PV modules and when connected be of a combined voltage of greater than extra low voltage; and (b) battery cells, when connected to other cells for the purpose of storing and releasing power of a combined voltage of greater than extra low voltage.
Recommendation 4: To ensure the Act keeps pace with technological change, consider creating a general category of exception to the “extra low voltage” threshold for the definition of “electrical equipment”, to reflect risk to life and property by ELV electrical equipment.
Recommendation 13: Clarify that off-grid systems are captured within the meaning “electrical equipment” and are therefore within the definitions of Serious Electrical Incident and Dangerous Electrical Event (Act, ss 11-12), giving rise to duties to notify the Regulator and otherwise respond to such incidents (Regulations, Part 14).

Topic 2: Changing landscape of electricity and the workforce

Topic 2 considers the changing nature of work in relation to electricity and emerging risks due to technological advancement and how work is conducted. This includes whether existing exclusion under the ‘electrical work’ definition contemplate risks identified in the Review. Four options are canvassed in response to the risks identified in Topic 2.

Options proposed by the Discussion Paper includes:

Option 1: Maintaining the status quo	Meaning no change to the definition of ‘electrical work’ in the ES Act.
Option 2: Proposes a legislative change	Expanding the definition of electrical work by reducing the scope of existing exclusions.
Option 3: Proposes a legislative change	Increasing supervision requirements for certain activities excluded from the ‘electrical work’ definition.
Option 4: Awareness and education campaign	Increasing Government communication and engagement with electrical workers, electrical contractors, persons conducting a business or undertaking (PCBUs), unlicensed workers, and the community, on risks of emerging technologies and approaches to risk management.

To read more about this topic see pages 29 to 60 of the Discussion Paper.

The following recommendations of the Review's Final Report are considered by this topic:

Recommendation 5: For solar PV panels falling within the definition of electrical equipment (see Recommendation 1), consider ensuring that the resultant “electrical work” definition is amended as needed to require: a) all connections and testing of PV module cabling as well as earthing and bonding work be performed by competent licensed electrical worker/s; and b) installation of cabling to be carried out by a licensed electrical worker or an unlicensed person assisting a licensed electrical worker and working under their direct supervision; and c) the mounting, fixing, and locating of solar PV modules and arrays to be carried out by competent persons under the direct supervision (Recommendation 16) of a licensed electrical worker (Act s 18(2)(f)).
Recommendation 6: Consider including within the definition for Electrical Work that the electrical aspects of air conditioning / mechanical services work is electrical work and the tasks of fixing, installation of brackets/mounting of equipment and mechanical cable protection is ancillary to the complete installation.
Recommendation 7: Ensure the installation of mechanical protection for cables, including but not limited to conduit (both plastic and metal), cable racks and trays, skirting, troughs etc., and the installation of cabling into these protection components is the work of licensed electrical workers or to be performed under the direct supervision of a licensed electrical worker. Associated with this work is earthing and bonding work, to be defined as electrical work (recommendation 5) and must only be performed by competent licensed electrical worker/s.
Recommendation 17(a)&(c): Consider clarifying miscellaneous requirements related to supervision, by: (a) inserting the word “direct” before “supervision” in section 18(2)(e)(iii); and, (c) requiring direct supervision for a person directly assisting the licensed electrical worker in the laying, cutting or sealing underground cables that are part of the works of an electricity entity before the initial connection of the cables to an electricity source (s 18(2)(j)).

Topic 3: Electrical safety and electric vehicles

Topic 3 looks specifically at the electrical safety risks presented by electric vehicles and considers the existing education and training landscape, current licensing requirements and the shape of an electrical safety framework into the future. While this topic area could be considered under the broader definition of ‘electrical equipment’ (Topic 1) and ‘electrical work’ (Topic 2), its emerging ubiquity, diversity and interest to consumers, industry and various regulators have led to standalone treatment in Topic 3. Three options are canvassed in response to the risks identified in Topic 3.

Options explored in the Discussion Paper, include:

Option 1: maintaining the status quo	Meaning electric vehicles, other than mining vehicles, remain excluded from the ES Act.
Option 2: proposes a legislative change	Introducing a licensing requirement for those working on electric vehicles, exploring both full and restricted licence options.
Option 3: awareness and education campaign	Increasing Government communication and engagement on safety when working on electric vehicles.

To read more about this topic see pages 61 to 75 of the Discussion Paper.

The following recommendations of the Review’s Final Report are considered by this topic:

Recommendation 2: Review the electrical safety risks presented in electric vehicles and consider their inclusion in the scope of regulation by the Act. It is further recommended that the Electrical Safety Office engage with other relevant Queensland and Australian regulators as needed to ensure appropriate scope and to avoid both regulatory gaps and duplication.
Recommendation 8: For electric vehicles (or parts thereof) falling within the definition of “electrical equipment” (see Recommendations 2 and 4), consider requiring: (a) appropriately licensed electrical workers to carry out the electrical work on the electrical components when the vehicle is serviced and or repaired, to ensure the safety of owners/operators and community; and (b) appropriately licensed electrical workers carry out the electrical work on the electrical components of the vehicle when an electric vehicle requires on-road break-down work to ensure safety of owners/operators, the community and first responders.
Recommendation 74(c): Consider clarifying and enhancing standards that apply to electrical installations (Regulations, Part 6), including by considering: (c) ensuring there is a legislative basis in the Act for regulations concerning work involving water equipment (s 72), and, if it is to be maintained, work involving electric motors (s 73).

Topics in the Final Report

In addition to the topics explored in the Discussion Paper, the Final Report raises several other topics, these include:

Technological change and key definitions

Chapter 6 of the Final Report covers the topic of ensuring effective definitions and future proofing. This includes the ES Act's core definition that establish the scope of what and who is subject to electrical safety duties, requirements, regulations, etc. These are the core matters considered in the Discussion Paper.

Separately, core definitions also include “incident definitions”, or the kinds of events that necessitate communication with the regulator. Finally, other definitions and the ES Act's general powers and purposes are considered in this chapter.

Electrical safety duties

Chapter 7 of the Final Report covers the topic of ensuring effective electrical safety duties. Duties are placed on various people to ensure electrical safety for the purpose of preventing harm. The clarity and sufficiency of these duties, and the frameworks that surround them, are considered in this chapter.

Work health and safety legislation alignment

Chapter 8 of the Final Report covers the alignment of the ES Act with Queensland's work health and safety (WHS) legislation, with a particular focus on the status of codes of practice, and the role of health and safety representatives and officers.

Enhancing competence and compliance

Chapter 9 of the Final Report is the first of two chapters dedicated to the broad term of reference on enhancing electrical safety. This first chapter focuses on electrical workers, particularly ensuring their competence through licensing, testing and continuing professional development, and compliance with laws and regulations about electrical work. Significant licencing reform recommendations are discussed in this chapter.

Specific regulatory issues

Chapter 10 of the Final Report continues with the theme of enhancing electrical safety, with a focus on specific regulatory issues. These are various but significant areas for regulatory reform, including safety switch requirements, working near energised equipment, working in roof spaces, electrical safety property inspections and certificates, consulting with electricity entities when building near public infrastructure, record keeping at the point of sale of specific electrical equipment, as well as other regulatory issues raised during the Review's consultation process. This chapter concludes the substantive portion of the Review's Final Report.



Unless otherwise noted, this document is available under a Creative Commons Attribution 4.0 International Licence (<https://creativecommons.org/licenses/by-nc-nd/4.0/>). You are free to copy and redistribute the work, so long as you attribute The State of Queensland. The material presented in this publication is distributed by the Queensland Government for information only and is subject to change without notice. The Queensland Government disclaims all responsibility and liability (including liability in negligence) for all expenses, losses, damages and costs incurred as a result of the information being inaccurate or incomplete in any way and for any reason.