

Clemente Capdevila

Electrical Safety Act 2002 Revision

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**Introductory comments:**

Whilst I believe there is a need to revise the Queensland Electrical Safety Act in many ways as detailed in this document. Unfortunately, I believe that it will do little if any change to the level of electrical danger present in our Queensland State, placing the community in continual electrical harm.

**The reasons why:**

1. The Act already has an obligation under a duty for landlords to ensure electrical safety to the properties they lease. However, in my experience with over 9,400 customers is that tenants are mostly left in electrical danger. With landlords not understanding or knowing that they have an obligation. Furthermore, the ESO has limited resources in the ability to notify duty holders on their duties.
2. Property owners have no duty under the act as per the duty of a landlord. This places a large portion of the Queensland community in potential electrical harm. The real solution for electrical safety for the community is for all property owners to have a duty. This traditionally requires law changes to take effect. A proposal on how this can be achieved on this new Act is provided in this document.
3. The Queensland community has little or no knowledge on electrical safety or injury prevention from electricity. Therefore, not understanding the need for an electrical safety platform.
4. Electricians in general are unaware of landlord obligations when visiting rental properties. It will be the same for any changes in this new Act, for electricians to install and connect, they only require the AS/NZS3000:2018 amd.2 Wiring Rules.
5. Without a platform for upskilling electricians, more resources for public awareness, there will be limited success in the electrical industry assisting in delivering and explaining the requirements set in the revised Queensland Electrical Safety Act.

Dear Mr Dick Williams, I believe that all the above reasons exist. However, solutions can be achieved to change this outcome. I have presented in the following document my proposed solutions.

## Slide Presentation

This presentation was presented on the 6<sup>th</sup> of October 2021, to Bruce Walpole, Michael Gibson, and Peter Matthews.

It is a picture representation of the industry today in relation to the level of electrical hazards to the community. It also has data represented in servicing 9,400 customers in the Brisbane to Ipswich area.

I believe this an important part of this document to show a picture of the current industry reflecting on the need for changes required.

### Slide 1.        **Why does our Electrical Industry keep causing electrical harm to our Queensland Community?**

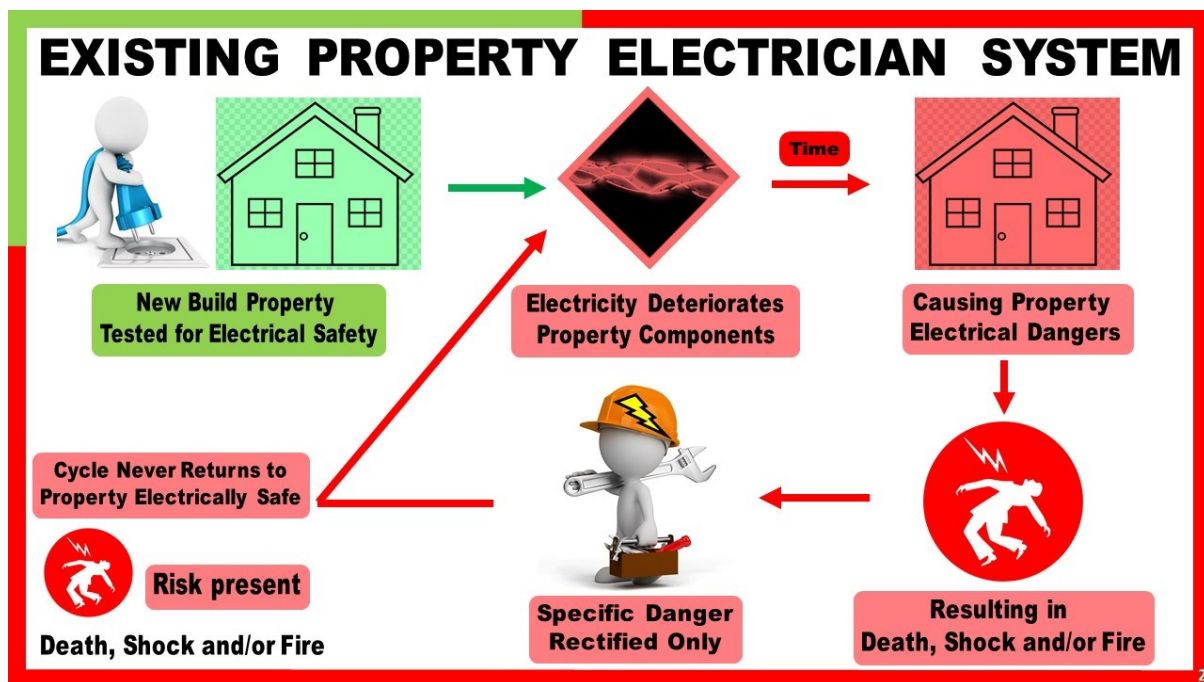
There are many aspects that prevent providing an electrically safe Queensland community that are imbedded deeply into our existing electrical infrastructure.



## Slide 2. Existing property electrician system

Currently, in Queensland an electrician only needs to perform the works requested by the property owner. Leaving potential dangers behind endangering the community.

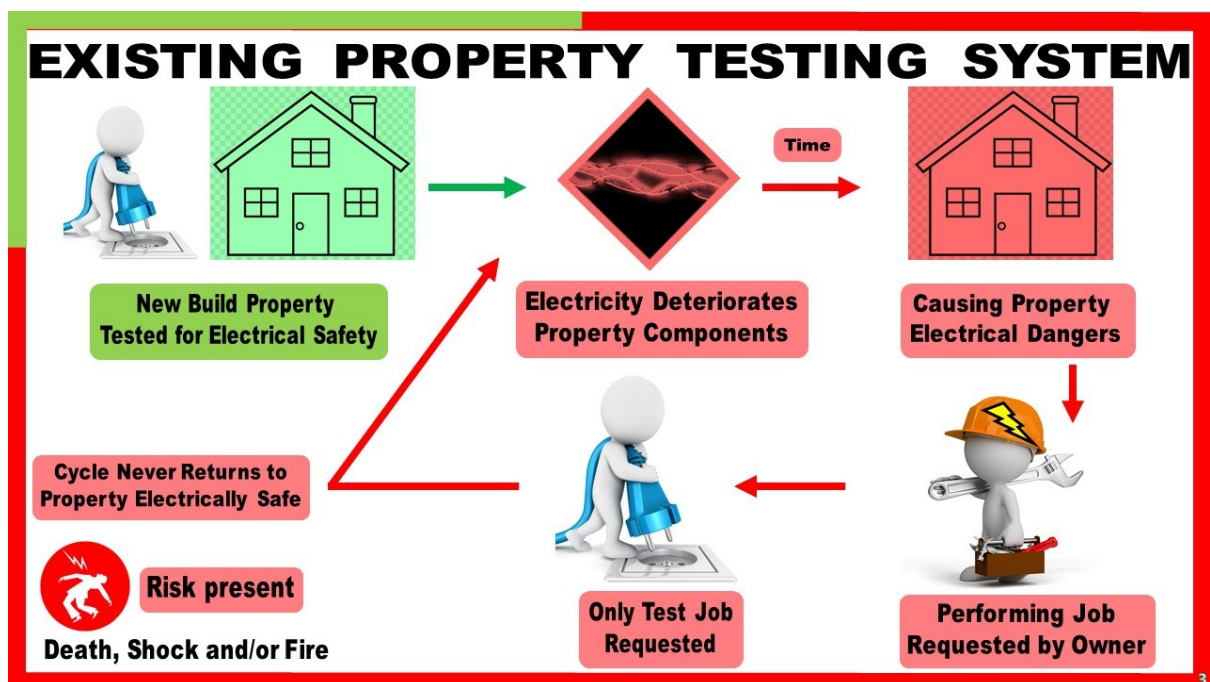
A solution was presented to the ESO on the 6<sup>th</sup> of October 2021.



### Slide 3. Existing property testing system

Currently, in Queensland an electrician only needs to test the works they conducted. Leaving potential dangers behind endangering the community.

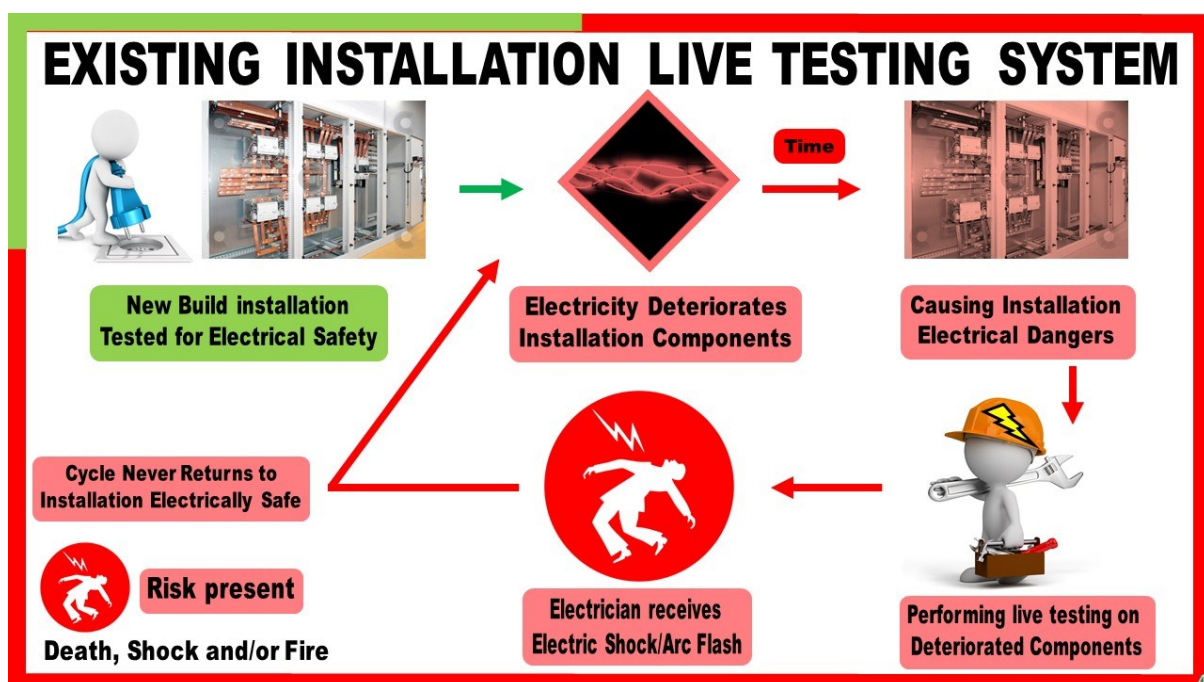
A solution was presented to the ESO on the 6<sup>th</sup> of October 2021.



**Slide 4. Existing installation live testing system**

Arc Flash injuries from switchboard installations are causing harm to our community.

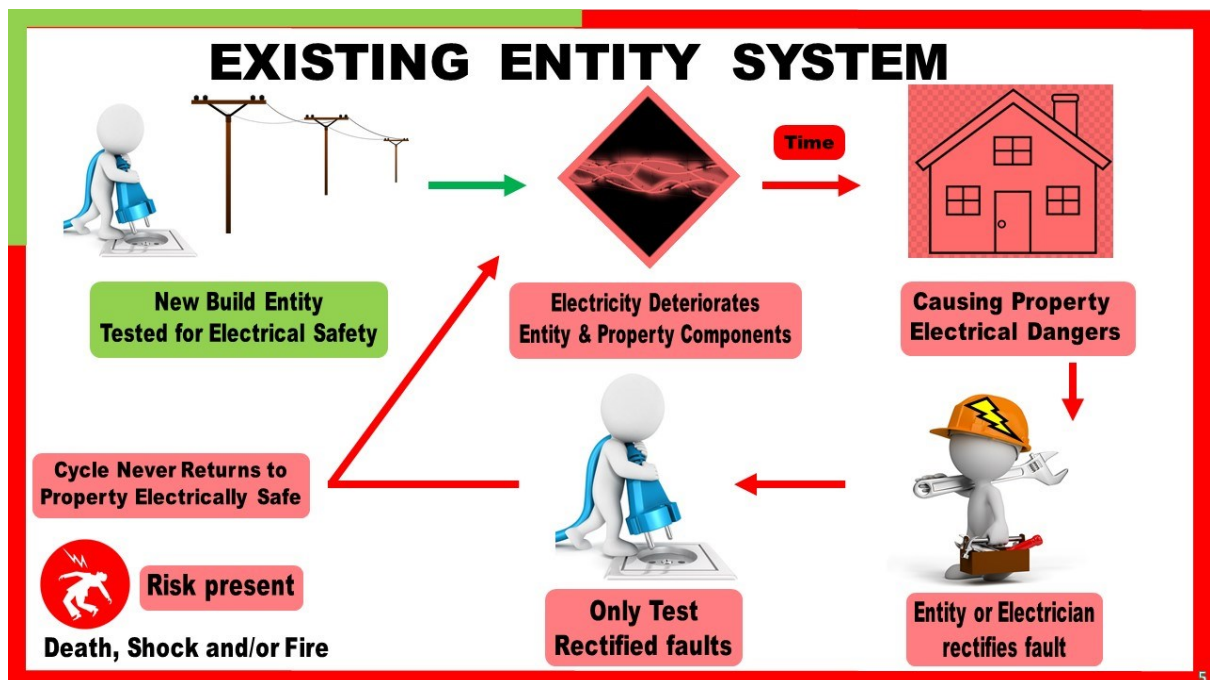
A solution was presented to the ESO on the 6<sup>th</sup> of October 2021.



**Slide 5. Existing entity testing**

The Queensland Electrical Entity has a deteriorating infrastructure that is causing harm to the community.

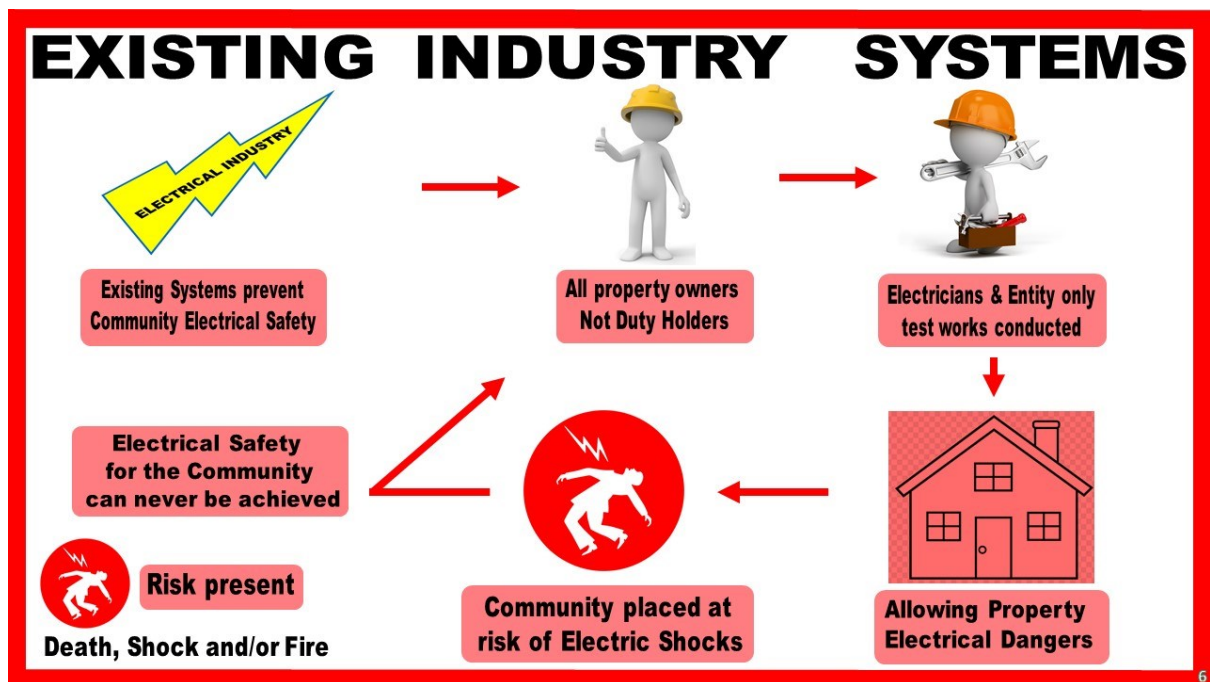
A solution was presented to the ESO on the 6<sup>th</sup> of October 2021.



## Slide 6. Existing Electrical Industry system

The current rules and legislation simply fail in providing electrical safety to the community.

A solution was presented to the ESO on the 6<sup>th</sup> of October 2021.



**Slide 7.            26+ dangers can be present in our Queensland properties causing harm to our community.**

The purpose of this slide is for information only to support this presentation.

26+

POSSIBLE

ELECTRICAL - FIRE – EXPLOSION

DANGERS IN QLD PROPERTIES

1. Circuits unprotected by safety switches

2. Safety switches not working correctly

3. Safety switches tripping high (over 300m/s)

4. Recalled safety switches

5. Recalled solar isolators

6. Recalled cables

7. Expired cables

8. No main switch circuit breaker

9. No main switch labels (when required)

10. No labels on switch board

11. Reverse polarity on power points

12. Missing earths on power points

13. Voltages on metal fittings

14. Cracked, wobbly or loose light switches

15. Cracked, wobbly or loose power points

16. Double insulated cable at arms reach

17. Single insulated cable exposed

18. Metal fittings not earthed

19. Metal structures with voltage

20. Damaged solid conduit

21. Damaged corrugated conduit

22. Exposed corrugated conduit to direct sunlight

23. Switches and power points near water/gas/cooktops

24. Faulty or damaged extension leads or power boards

25. Voltage reading on earth and neutral cable conductors

26. Incorrect - insulation resistance, polarity, fault loop impedance and trip times of any electrical circuit

+. More.....

7

## Slide 8. Brisbane area property dangers

The author of this presentation has collected data and presented it on the presentation.

The purpose of this slide is for information only to support this presentation.

<b>CATCHMENT AREAS PROPERTY DANGER</b>				
Data from Clems Electrical customers - Springfield to The Gap 2007 to 2021				
SPRINGFIELD	SPRINGFIELD, BROOKWATER	850 CUSTOMERS	96% WITH AT LEAST 1 OUT OF 26 DANGERS	NUMBER OF AVERAGE DANGERS PER PROPERTY <b>5 OUT OF 26 DANGERS</b>
INALA	INALA, DURRACK , RICHLANDS DOOLANDELLA, FOREST LAKE ELLENGROVE	2,800 CUSTOMERS	98% WITH AT LEAST 1 OUT OF 26 DANGERS	NUMBER OF AVERAGE DANGERS PER PROPERTY <b>7 OUT OF 26 DANGERS</b>
MT OMMANEY	MT OMMANEY, JINDALEE SINNAMON PARK, OXLEY DARRA	1,600 CUSTOMERS	93% WITH AT LEAST 1 OUT OF 26 DANGERS	NUMBER OF AVERAGE DANGERS PER PROPERTY <b>5 OUT OF 26 DANGERS</b>
KENMORE	KENMORE, KENMORE HEIGHTS CHAPEL HILL, PINJARRA HILL BROOKFIELD , BELLBOWRIE MOGGILL, KARANA DOWNS	3,200 CUSTOMERS	89% WITH AT LEAST 1 OUT OF 26 DANGERS	NUMBER OF AVERAGE DANGERS PER PROPERTY <b>6 OUT OF 26 DANGERS</b>
THE GAP	INDORROOPILLY, TARINGA TOOWONG ASHGROVE, THE GAP	950 CUSTOMERS	92% WITH AT LEAST 1 OUT OF 26 DANGERS	NUMBER OF AVERAGE DANGERS PER PROPERTY <b>6 OUT OF 26 DANGERS</b>
		TOTAL CUSTOMER BASE 9,400 CUSTOMERS	DANGER % AVERGAGE <b>93.5%</b>	NUMBER OF DANGERS AVERAGE PER PROPERTY <b>5.8 OUT OF 26 DANGERS</b>

**Slide 9. Summary of Brisbane and Queensland's electrical danger position**

A grim picture of the level of electrical danger causing harm to our Queensland community.

The purpose of this slide is for information only to support this presentation.

## **SUMMARY OF BRISBANES POSITION**

**93.5%** properties with electrical danger

**5 – 7** dangers per property

## **SUMMARY OF QUEENSLANDS POSITION**

**7 to 17+** people receive shocks daily QLD 2020

The current electrical industry has **no way** to  
Stop Queenslanders from electrical danger

The above slides show the picture of the current Acts, Standards, and the electrical workforce's inability to produce electrical safety for Queensland.

That's why we need a serious change, or the same will continue to occur with the new Act.

End of slide presentation

## **Point 1 – Extending Duties**

Introductory comments-

In relation to Part 2, Division 2 Duties of Care, a property owner needs to join in the duty umbrella to protect the Queensland community. This can be achieved by leaving in place the entry laws for owner occupied properties as is, meaning no authority from the ESO to enter without a warrant.

By placing the property owner in a duty will provide the basis for the new duty holder to understand the requirements necessary for achieving and maintaining electrical safety for themselves and others on their property.

All property owners need to be a duty holder under the new Act.

What will be achieved-

1. The property owner has a duty to keep the property electrically safe.
2. The entire community will have greater chance in achieving electrical safety.

What would stay the same-

1. The ESO would still have no entry powers without a warrant.
2. The ESO has full penalty power if a property owner breaches their duty.

What needs to change-

1. The community needs information on the changes
2. Electricians need the information to apply and educate the changes to the community.

## **1. Extending duties**

### **1.1 Change required for all property owners to be duty holders to ensure electrical safety to the community.**

The only way for electrical safety to be possible throughout Queensland is for this new duty holder to be added.

### **1.2 38B Property owner duty of care**

- a) All property owners have a duty as a person owning a property with electricity
  - i. not allow electrical dangers to cause harm from their property to themselves
  - ii. not allow electrical dangers to cause harm from their property to others
  - iii. always keep their property electrically safe
  - iv. report all shocks and tingles from their property

1.3 The ESO would still have no entry powers into private residences. This would make the points (1.2 a) (i-iv) easier to incorporate into the Act.

1.4 Removal of section 38 (3)(a) and section 24 (4) (a-b) will be required

#### **Additional important notes**

1.5 The property owner is only in control of the electrical installation. If they rent the property, then section 30, may also apply.

1.6 Special note should be taken in informing landlords to contact the ATO for ruling if they need to comply with section 30 not just 38. (Further mention is in point 4 of this document)

End of point 1.

## Point 2 – Extending Community Awareness

Introductory comments-

### 2. Part 1 Preliminary

Division 2

Section 5 How purpose of the Act is to be achieved

- (f) establish the Electrical Safety Board and its committees to-
- (iii) promote community awareness about electrical safety

The above section is dedicated for creating awareness to the community. However, The ESO has a limited budget for community awareness due to a majority portion of the budget is for delivering compliance measures to protect the community from non-licensed work and non-compliant work.

More money needs to be spent on educating the community on electrical safety and preventive measures.

Although this section is not for the new Act, its another opportunity to present a valuable option.

This was a suggestion presented to the ESO on a meeting on the 6<sup>th</sup> of October 2021 as shown below.

- 2.1 The ESO sends electrical safety information in an A4 presentation to educate the Queensland community on how to prevent and identify electrical dangers in their properties.
- 2.2 A return envelope is provided to be completed anonymously by the property owner or tenant with the following questions.
  - 2. Was the information helpful?
  - 3. Are you a tenant or owner?
    - i. Do you own any rental properties?
    - ii. If yes, how many?
  - 4. Have you or anyone in your property ever received an electric shock?
  - 5. Do you think that following the steps provided in the information is something that you will do?
  - 6. Would you prefer a free electrician to test for your electrical safety?
  - 7. Is there any additional information you would like to add about your electrical safety?
- 2.3 This will achieve:
  - a) Educating the community about electrical safety and harm prevention
  - b) Duty compliance
  - c) Information results to allow future actions
- 2.4 Another requirement would be a new property owner webinar

End of point 2.

### **Point 3 – Modifying Definitions**

Introductory comments-

Sometimes definitions lead to the interpretation of the reader, leaving differences between 2 parties and no direct conclusion or solution to the definition.

An example is provided by a conversation I had with a Tafe teacher. The teacher was an industrial electrician and wanted to put as many cables as he could in a conduit to travel from his house to the shed 11 metres away in distance. The teacher believed that the rules indicated it could be done on a small distance, which considering he had worked on several kilometre distances, 11 meters was a small distance. I said a small distance is 2-10cms otherwise you will have overheating problems due to no heat dispersion capabilities. He then understood but he interpreted initially differently because of no clear definition.

**A need is required for the community to understand terms in the Act which don't lead to confusion or varied interpretations.**

During the landlord and tenant webinars 2020,2021. The Executive Director of the Electrical Safety Office said- to be electrically safe you must:

1. Install safety switches on all circuits
2. Test cables
3. Test appliances
4. Periodically test
5. Report Tingle and shocks (only in 2021 webinar)

This should be added to the definition of electrical safety.

### **3. Definitions in division 4 Interpretation**

Definitions need applicable examples that the reader can understand what exactly they need to do.

Current problem with definitions

1. Open for varied interpretation from reader to reader
2. Leaves confusion or no answers when looking for an action to be taken

What would stay the same-

1. The name of the meanings

What needs to change-

1. An applicable real conclusion that can be applied to important definitions
  - i. As the Act is revised, changes can be made to a definition as additional information varies or adds requirements to a definition.

### 3.1 Creating a real definition for

- a. Electrical safety (broad definition)
  - i. To not allow harm to yourself or others from electricity on your property
- b. Electrical Safety- what does it mean in real applicable terms?
  - i. Install safety switches on all circuits
    - a. ensure they are working correctly
  - ii. Test all appliances, extension lead(s) and power board(s)
  - iii. Check for electrical hazards
  - iv. Conduct 3 monthly electrical inspections (page 22)
    - a. Tenant can have this responsibility
    - b. Check for electrical dangers
    - c. Test safety switches
  - v. Conduct periodic Testing (pages 21)
    - a. 1,3- or 5-year intervals
- c. Reasonably practicable
  - i. To remove the existing electrical danger
  - ii. To maintain a scheduled testing program to prevent electrical dangers

Reasonably practicable - what does it mean in real applicable terms?

  - iii. to comply with point 2 section (b)(i-v)
- d. Whether the cost is grossly disproportional to the risk
  - i. can be based on percentage ratio to property value
  - ii. a rewire at \$30,000 is 7.5% of a \$400,000 property

### 3.2 Comparing a common expense used define a balance in proportional cost may include:

The cost of maintaining a motor vehicle in percentage ratios to the cost of maintaining a property

<b>Average cost of vehicle \$30,000</b>
Expense of major works replacing motor average \$7,000 is 23.3% of the cost of the vehicle
Expense of major service average \$400 is 1.3% of the cost of the vehicle
Expense of minor service average \$150 is 0.5% of the cost of the vehicle

<b>Average cost of property \$400,000</b>
Expense of major works replacing all cables and fixtures \$30,000 is 7.5% of the cost of the property
Expense of major works average \$2,000 is 0.5% of the cost of the property
Expense of minor works (periodic testing) average \$180 is 0.05% of the cost of the property

### **3.3 A Landlords duty as conducting or undertaking**

The need to ensure electrical safety is emphasised strongly when a death occurs from a duty holder's negligence in providing electrical safety.

A section 30 duty holder may face criminal manslaughter charges with a 20-year prison sentence.

The ATO has the authority to determine whether a duty holder, is or not, conducting or undertaking.

The community needs to be aware of their obligation as a duty holder, whether they are conducting a business or undertaking by contacting the ATO.

End of point 3.

#### **Point 4 – New Specific Sections**

Introductory comments-

New sections need to be added to simplify information for landlord, property owner, and community duties.

Electricians, landlords, property owners, and the community traditionally would have difficulty understanding and interpreting how to apply the information provided in the Queensland Electrical Safety Act.

This new Act should be smarter and easier than ever before, allowing the ordinary reader to gather the specific information they require. A separate section for specific duty holders containing all sections of the Act that apply.

This will allow an easy format for electricians to learn about duty holder's responsibilities and providing specific related information to the landlord, property owner and the community.

This section should also include definitions for terms used in each category.

Examples include- Switchboard, safety switch, circuit breaker, main switch, consumer mains, circuit, mains connection box, pillar, electrical deterioration, electrical installation, 3 monthly testing and periodic testing.

Specific sections should include-

Landlord (page 20)

Property owner (page 20)

Community (page 20)

#### **4.1 Landlord**

The following proposal will bridge the information required for an electrician and landlord, to check the Act in an easy presented format, specific to the duty information for a landlord.

##### 4.2 Definitions

##### 4.3 Section 30, 38

##### 4.4 Penalties

##### 4.5 What to do to keep your property electrically safe

- i. Install safety switches on all circuits
- ii. Test all appliances, cables, extension lead(s) and power board(s)
- iii. Check for electrical hazards
- iv. Conduct 3 monthly electrical checks
- v. Conduct periodic Testing in 1,3- or 5-year intervals
- vi. Report all tingles and shocks

#### **4.6 Property owner**

The following proposal will bridge the information required for an electrician and property owner, to check the Act in an easy presented format, specific to the duty information for a property owner.

##### 4.7 Definitions

##### 4.8 Section 30, 38B

##### 4.9 Penalties

##### 4.10 What to do to keep your property electrically safe

- i. Install safety switches on all circuits
- ii. Test all appliances, cables, extension lead(s) and power board(s)
- iii. Check for electrical hazards
- iv. Conduct 3 monthly electrical checks
- v. Conduct periodic Testing in 1,3- or 5-year intervals
- vi. Report all tingles and shocks

#### **4.3 Community**

The following proposal will bridge the information required for an electrician and the community, to check the Act in an easy presented format, specific to the duty information for the community.

##### 4.2 Definitions

##### 4.3 Section 40

##### 4.4 Penalties

##### 4.5 Report electric shocks and tingles

End of point 4.

## Point 5 – Periodic Testing

Introductory comments-

A way to ensure electrical safety to the community, is for electricians to perform periodic testing of the entire property as per a scheduled program.

Considering factors include:

1. Has the property undertaken testing before? (By an upskilled electrician)
2. When was the property last tested?
3. When does the property require testing again?

A system that can be used to monitor and control a testing platform is as follows:

On a ESO contractors portal

- a) A data base is collected of all current licenced upskilled electricians
  - i. Confirmation that the user is an upskilled electrician
- b) A search result displaying the address entered by the upskilled electrician
- c) The search results display indicates
  - i. Not tested – 1<sup>st</sup> test required
  - ii. Tested on day/month/year
  - iii. Next test due day/month/year

If “not tested” is indicated by searching the address

- i. The upskilled electrician performs the 1<sup>st</sup> test
- ii. Records on the ESO portal
  - a. The 1<sup>st</sup> test date
  - b. The next test date (1,3,5-year intervals)

1,3,5-year intervals for periodic testing are determined when the upskilled electrician performs the 1<sup>st</sup> test.

The upskilled electrician will determine the interval time spacing based on the table below. Electrical cable ages are the main indicator of potential electrical dangers.

Cable age	Interval frequency
1 – 30 years	5-year intervals
31 – 50 years	3-year intervals
50+ years	1-year intervals

The oldest cable in the installation dictates the interval frequency.

### **5.1 Periodic Testing**

Periodic testing consists of 1 first test by an electrician, the electrician then determines the frequency for the periodic testing schedule

### **5.2 1<sup>st</sup> test**

5.3 This test is a complete test that checks the entire property

- i. Testing of safety switches by pressing test buttons at switch board
- ii. Testing of cables
- iii. Testing of appliances
- iv. Test for voltages on taps
- v. Testing of all power points tripping safety switch
- vi. Visual internal and external inspection for electrical hazards

### **5.4 1,3,5-year test**

5.5 This test is a complete test that checks the entire property

- i. Testing of safety switches by pressing test buttons at switch board
- ii. Testing of cables
- iii. Testing of appliances
- iv. Test for voltages on taps
- v. Testing of all power points tripping safety switch
- vi. Visual internal and external inspection for electrical hazards

### **5.6 3-month testing**

5.7 This test is performed by the property owner or tenant

- i. Testing of safety switches by pressing test buttons at switch board
- ii. Visual internal and external inspection for electrical hazards

End of point 5.

## **Point 6 – Additional Electrical Licence Requirements**

Introductory comments-

To achieve the delivery of the new Act there are 2 main methods

1. The electrician visiting the duty holder
2. The Regulator delivering information

Electricians and electrical contractors will be a vital part in the success of delivering throughout the Queensland community the new Act.

Expecting an electrician or electrical contractor to read the new Act, take from it the information required to deliver to a duty holder an understanding, is not realistic.

The proposal on point 4 (pages 19-20), provides a package that neatly presents the information to a duty holder. This information can be obligated to an electrician or electrical contractor to have access to and present to duty holders.

### **6.1 A proposed format is as follows-**

Using the existing platform for renewing electrical licences

6.2.1 Information is sent to all electricians and electrical contractors

6.2.2 A questionnaire containing Act content, in addition to the existing format is presented

- i. At the time of a licence application for new electrical licence
- ii. At the time of a licence application for new electrical contractors licence
- iii. At the time of a licence renewal for an electrical licence
- iv. At the time of a licence renewal for an electrical contractor, if-
  - a) Not already completed on stages (i-iii)

and,

- v. an electrical contractor only needs to complete the questionnaire once on an existing contractor licence renewal application.

6.4 Questions may include-

1. Which page numbers in the Act would you find a landlord duties specific section?
2. Which page numbers in the Act would you find a property owners duties specific section?
3. Which page numbers in the Act would you find the community duties specific section?
4. Which page numbers in the Act would you find periodic testing?
5. Which page numbers in the Act would you find the definition for electrical safety?

End of point 6.

## **Closing Statement**

Electrical Safety is possible if we have the will to get it done.

Clemente (Clem) Capdevila

End of my proposal for the changes I believe are required for the electrical safety of the  
Queensland community.