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Cover ESV is still meeting its regulatory responsibilities with field staff wearing masks and observing physical distancing.

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From the Editor



Energysafe comes to you amid the coronavirus (COVID-19) pandemic restrictions – an unprecedented time for pretty much everyone.

First up, I hope you and your loved ones are all keeping safe. Please keep to the restrictions. It's hard on everyone, particularly small businesses. Hopefully it's not long now until we reach a point where restrictions can be changed.

ESV has kept its eye on delivering against our regulatory requirements – continuing inspections and audits with some workarounds. A lot of work is done over video conferencing and masks have been added to the usual hi-vis vest and hard hat for ESV inspectors and compliance officers.

We have suspended any rises in fees or penalties. They remain at 2019 levels and in some cases, 2018 levels.

In other news, we will be licensing lineworkers from 1st January 2021. All lineworkers need to register with ESV before that date and a licence will be supplied at no cost. If you register after this date, charges may apply. You can register on our website.

We are also inviting people to make submissions on the Regulatory Impact Statement (RIS) and regulations that support the new licensing regime. Consultation is open until September 25 and includes a series of consultation webinars. Check our website for details.

Jonathan Granger
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Adapting our work for a COVID Safe environment

By Jonathan Granger, Head of Communications and Marketing

ESV is still meeting its regulatory responsibilities with field staff wearing masks and observing physical distancing.



Further information on COVID-19 advice visit our website [esv.vic.gov.au](https://www.esv.vic.gov.au)

Note: the following information is based on stage 3 and stage 4 restrictions.

Managing coronavirus (COVID-19) has not been easy on anyone. But as the energy safety regulator, ESV has worked hard to meet its regulatory responsibilities while also supporting industry as much as possible.

Everything we do is subject to current public health measures, and the safety of our workforce and the community is paramount. All our field staff wear face coverings and observe physical distancing while they're in the field. Where possible, compliance work is done remotely but we remain on call for emergencies, and our investigations, inspections and audits continue. The following list shows how we've adapted each of our operational business areas to work in a COVID Safe environment.

Incident response

- » ESV remains on call and attends incidents where required.
- » Compliance and investigations officers continue to operate all hours for all emergencies, including carbon monoxide poisoning caused by open-flued heaters.

Audits of Type B and complex installations

- » All ESV inspections of are now being carried out remotely following successful trials and positive feedback from gasfitters.
- » ESV still conducts site visits for investigations when needed. Standard operating procedures are in place to facilitate site remote inspection for the purpose of administering the gas acceptance scheme.

Electrolysis mitigation

- » Area testing has continued with all meetings with asset owners and contractors being made via email, phone and video call.
- » An electronic version of the mapping system (eMap) has been developed to assist with a visual display of the condition of all assets under test.
- » Drainage Bond inspections are able to continue without restriction. Zones have been established to enable staff to work as close to home as practical.
- » Thyristor Drainage Unit (TDU) inspections have been suspended due to ESV staff working in a confined space and unable to safely comply with Stage 4 restrictions. The traction companies are providing basic data to ESV that gives assurance that TDUs remain operational.
- » Desktop audits of cathodic protection systems (CPS) are being conducted in lieu of field audits. Expired CPS are being actioned with "Notice to Act" letters.

Pipeline inspections

- » Most pipelines are in low-population areas. Generally they are buried under streets and in paddocks in areas where social distancing requirements can be met.
- » ESV will still inspect repairs, maintenance, replacement and project work on pipelines by taking a risk-based approach.

Auditing performance systems against safety case

- » Compliance audits are being conducted by video call or other online applications where possible.
- » Project lifecycle audits have been postponed due to the large amount of required objective evidence.

Type A gas appliance and component safety

- » ESV continues to manage product recalls of gas equipment with the suppliers through video calls.
- » ESV's participation in the development and maintenance of Australian gas appliance and component standards continues through remote contact with the relevant Standards Australia committees.
- » ESV continues to assist JAS-ANZ in the auditing of the certification bodies through remote desktop reviews.

Electrical Installation Safety

- » Each inspection is considered on a case by case basis. Physical distancing and restrictions on meeting sizes are being maintained on all responses.
- » Our technical helpline continues as normal.
- » ESV continues to respond to complaints and attend serious incidents that require investigation.
- » Prioritisation of site attendance is only required for incidents or investigations that are safety critical matters.

Electrical equipment

- » ESV continues to address issues and complaints.
- » All equipment efficiency registration work continues as normal.
- » Store audits for safety and efficiency have stopped.
- » Online audits for safety have been increased.

Electricity Network Infrastructure and REFCLS

- » The bushfire hazard mapping review (high bushfire risk area (HBRA) and low bushfire risk area (LBRA) review) in Powercor's area has been completed despite public health restrictions.
- » The rapid earth fault current limiter (REFCL) program compliance testing continues in a modified format. Public health restrictions have had a small impact on distribution businesses and some high voltage customers (HVCs) with delays on the import of essential equipment for the REFCL program.
- » Distribution business engineers now witness factory acceptance testing of REFCL units and other major plant items by video call.
- » ESV has modified its audit, inspection and observation practices, in consultation with distribution businesses, to continue our oversight. Some less critical works and inspections, particularly in remote areas, have been rescheduled to take place once Melbourne's Stage 4 restrictions are eased.

Vegetation Management

- » Inspections continue, and can be done, without interacting with other people.
- » Distribution business and local councils have been asked to explain how they will maintain vegetation management levels. They do not currently foresee any disruption to their programs.

Creating a safer solar industry through fully funded, specialised training

By David Wardell, Solar Victoria

Solar Victoria is investing \$9 million over the life of the Solar Homes Program, to deliver a subsidised, comprehensive training and workforce development package to support the ongoing development of the Victorian solar industry.

The Solar Homes Program will support the installation of 700,000 solar PV systems, 10,000 solar batteries and 60,000 solar hot water systems across Victoria over its 10-year lifespan.

Safety is a key priority in the delivery of the program. As the program rolls out, increased demand for solar will generate more work for existing workers and bring new workers into the solar sector for the first time.

Solar Victoria has worked with installers, industry associations, unions, regulators and education providers to develop solar-specific training to meet the needs of the industry.

The first accredited training initiative to roll out from the training and workforce development package is 22515VIC Course in Working Safely in the Solar Industry.

There are now 12 training organisations across metropolitan and regional Victoria delivering the solar-specific safety training course 22515VIC Course in Working Safely in the Solar Industry. All workers in the solar industry are strongly encouraged to undertake the flagship unit VU22744 – Work safely in the solar industry.

Subsequently, students can freely undertake CPCCWHS1001 – Prepare to work safely in the construction industry (White Card), CPCCCM2010B – Work safely at heights and HLTAID003 – Provide first aid.



Solar Victoria has invested \$9 million in training for solar installers.

There are five training units in the course overall, including:

- » VU22744 – Work safely in the solar industry
- » CPCCWHS1001 – Prepare to work safely in the construction industry (White Card)
- » CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry
- » CPCCCM2010B – Work safely at heights
- » HLTAID003 – Provide first aid

Holding a valid White Card is already a mandatory requirement for working on any solar installation, however as of 1st July 2020, it will also be a mandatory requirement for Solar Homes Program installation workers.

Solar Victoria and the Department of Education and Training will co-fund the course in 2020, to ensure that all solar workers can complete this training free of charge, including solar PV and solar hot water installers, apprentices and trade assistants.

Alongside this investment in training, Solar Victoria is also offering free business mentoring to solar retailers and installers.

This offer consists of free business coaching sessions to industry program participants through the Small Business Mentoring Service (SBMS).

SBMS Mentors help create long-term strategies and provide confidential business coaching on a range of topics such as planning for growth, risk minimisation strategies, managing cashflow, human resources, and marketing to consumers.

Each retailer or installer can sign up for the mentoring package consisting of 2 mentoring sessions (90 minutes each), with an option to undertake a second package of a further 2 sessions.

For more information on training and mentoring please visit www.solar.vic.gov.au

ESV to license lineworkers from 2021

By Jonathan Granger Head of Communications and Marketing

Energy Safe Victoria will introduce a new licensing regime for lineworkers from January 1 2021. This means all currently registered lineworkers will receive a licence – initially at no cost – that will be subject to renewal every 5 years.



Lineworkers will also be subject to a continuing professional development scheme, due to be introduced in 2026.

Lineworkers who are not already registered with ESV need to do so as soon as possible. Online registration is available from September from the ESV website.

Licensing of lineworkers is a priority for the Victorian Government. It ensures lineworkers have met the minimum requirements and understand the complexities of their work.

- » New and unregistered lineworkers need to register with ESV
- » Registered lineworkers need to confirm and update their details

Go to esv.vic.gov.au to register or confirm your details. Lineworkers who register before 1 January will receive their first licence at no cost. Charges may apply for applications or registrations made after this date.

ESV is carrying out a consultation process with industry and other stakeholders to understand any concerns around regulations that have been developed to support the licensing regime.

Definitions of linework and lineworkers in the Electricity Safety Act are very broad and the understanding of what is lineworker's work is varied. The tasks required to be completed by licensed lineworkers have been determined following extensive consultation with industry participants and are now the subject of a public consultation process through the release of the draft Regulations and a Regulatory Impact Statement in September.

Continuing Professional Development

CPD for electrical workers will be introduced in Victoria, commencing with skills maintenance training by 2023 and requiring skills development training by 2028.

Training must be completed within the two year period before making an application for the renewal of a licence.

The skills maintenance component will be introduced first for a five year cycle. Specific courses are currently under development in consultation with industry representatives.

Licence and registration renewal is your responsibility

By Neil Fraser, General Manager Licensing, Training and Standards

As a Licensed Electrical Worker (LEW) or Registered Electrical Contractor (REC) you are able to participate in this exciting and growing industry.

This participation comes with some responsibilities including complying with the requirements of the standards and legislation, and using Certificates of Electrical Safety (COES).

Legislation requires workers to always carry a current licence or registration. It is the responsibility of the LEW or REC to ensure they renew their licence on time and advise ESV of any changes to contact details, or their ability to conduct electrical installation work.

If you do not renew your licence or registration before it expires, you must re-apply. ESV is required to cancel a licence or registration that is not renewed before expiry.

Boosting powerline bushfire safety

ESV awards Swinburne's best third year apprentice

By Jesse Collins, Compliance Officer – Electrical Installation Safety

Jonathon Drew has been named Swinburne TAFE's Best Third Year Electrical Apprentice, an award sponsored by Energy Safe Victoria.

Jonathon, 33, is now in his fourth and final year of his electrical apprenticeship. He is the proud dad of a two-year-old with a baby due in October.

Before becoming an apprentice, Jonathon grew up in Warrandyte, and then moved to Colac, where he was working as a harvest supervisor in forestry in the Otways. He then went to work in the Pilbara as a labourer for an electrical company in Karratha.

"I met my boss, Patick Carolan, in Karratha, where we were working on gas plants," he said.

"When we returned, Pat's work picked up and he offered me an apprenticeship with PC & R Australia.

"I love the trade and it's the best career choice I've made."

Jonathon intends to complete his Licensed Electricians Assessments later this year and once he has completed his apprenticeship he wants to stay with his employer and see where that takes him.

The Victorian Government is continuing to improve community resilience against bushfires through the Powerline Bushfire Safety Program – which is reducing the risk of fires started by high voltage electricity lines across the state by up to 60 per cent.

The Minister for Energy, Environment and Climate Change Lily D'Ambrosio has announced \$7 million for the safety program – ensuring Victorian's will continue to be protected by the latest and best technology.

The \$750 million Powerline Bushfire Safety Program is Australia's largest powerline safety project – protecting communities and promoting resilience.

Last summer alone, 33 potentially catastrophic bushfire starts were avoided.

Also, Victoria's entire 30,000 km single wire earth return network is now protected by Automatic Circuit Reclosers to stop fires from starting – helping deliver a greater than 32 per cent reduction in relative powerline bushfire risk across the state's electricity network.

The funding includes \$2 million being invested in the Powerline Bushfire Safety Program Research and Development Grants Fund to investigate and deliver new powerline safety technologies.

The funding also includes a new \$5 million to replace bare-wire private overhead powerlines in Victoria's highest-risk bushfires areas.

The Private Overhead Electric Line (POEL) Scheme will open on 15 September to eligible residents across bushfire-prone areas.

Applications for the Research and Development Fund Grants are open until Monday 5 October 2020.

For more information and to access the Powerline Bushfire Safety Program Progress Report documenting the program's implementation of recommendations 27 and 32 from the Victorian Bushfires Royal Commission into the 2009 Black Saturday bushfires, visit: energy.vic.gov.au.

New LPG cylinder valve transition

By Jason Treseder, Senior Gas Engineer

The transition of leisure LPG cylinder outlet connections from the current type 21 'POL' design to a new safer connection, known overseas as the quick close coupling (QCC), is progressing rapidly, with the first visible changes expected in early 2021.

Leisure LPG cylinders are defined as smaller cylinders typically in the range from 3kg up to 9kg and are commonly used with portable barbecues and patio heaters.

Larger LPG cylinders including those typically connected to domestic homes will not be affected by the upcoming change.

Requirements associated with the LPG cylinder connection are applied through various Australian Standards, which means introducing a new connection design by changing these standards in a coordinated sequence to ensure the transition minimises the impact on current cylinder owners.

The coordinated process is intended to prevent any conflicts and avoid gaps in safety requirements. Requirements for the new connection are close to being finalised, with associated standards going through the final approval process.

The details of the transitional arrangement are being formalised and will work to ensure the impact of change is controlled and to ensure all stakeholders are aware of the change. While the final arrangements and dates are still subject to change a general transition process has been proposed. Under the proposed transition LPG cylinders with the new valves are expected to enter the market in the first half of 2021.

The new connection is compatible with the connections used on existing appliances.

In the second half of 2021, once sufficient cylinders with the new connection are available, portable LPG appliances like barbecues and patio heaters will start to be supplied with the new connection.

While the old Type 21 appliance connections is cross-compatible and can be used with both the old and the new cylinders, the new appliance connections are only compatible with new cylinder valves.

Eventually all leisure cylinders and associated gas appliances will be operating with the new connection. Leisure LPG cylinders have a 10-year test cycle, it is expected the transition will be complete within that timeframe.

The new LPG cylinder connection has additional safety advantages over the old Type 21 connection that are expected to significantly reduce the number of cylinder connection fires and injuries.

The new cylinder valve incorporates a check valve that will only enable gas to flow when a gas tight connection is made, reducing the risk of high pressure gas escaping if the cylinder valve is opened during transportation or disconnected during use.

The new connection features a large diameter right handed thread that is able to be operated without the use of tools.

Perishable rubber seals are located with the body of the gas valve, which means they can be assessed for damage during the refilling process, and are replaced with the cylinder valve every 10 years as part of the cylinder test process.

The connection also incorporates a thermal shutoff that allows the internal check valve to close and remove gas supply if the connection is exposed to a fire.

Prior to the start of the transition process there will be a process of community engagement and education to raise awareness of the changes and to ensure stakeholders understand the difference.

Further details will be provided once the transition period gets closer.

PV array earthing

By Sandy Atkins, Senior Compliance Officer, Renewable Energy

AS/NZS 5033 requires PV arrays with a PV array maximum voltage greater than ELV, to have all exposed conductive PV module frames and array mounting frames earthed by connecting the conductive parts the installation's earthing system. This includes systems with a.c. modules and microinverters with LV outputs.

There are four reasons for earthing exposed conductive parts of a PV array:

- » PCE fault detection and alarm functionality
- » Protective earthing (to provide a path for fault currents to flow)
- » Equipotential bonding to avoid uneven potentials across an installation.
- » Lightning protection.

In this article, we will exclude lightning protection. If you're installing in a location that requires lightning protection, the lightning protection will assist in covering the other three reasons for earthing.

Since 2014, earth fault detection has been a requirement as part of the system installation. This is typically integrated into the inverter. If the conductive PV module frames and array mounting frames are not earthed, this protection will not work and will not protect against the first fault of earth leakage.

The type of inverter you use – galvanically separated or not – will ultimately effect the potential fault currents that can flow. Some systems can retain large fault current, so it's important to ensure the earthing connection provides low enough impedance for protective devices to operate correctly.

Equipotential bonding is essential in all electrical installations. PV arrays can suffer from what is called 'capacitive coupling'.

This is where a voltage can be induced on to the conductive PV module frames and array mounting frames. This type of coupling is strong enough for people to feel the current flow. Recent cases in Queensland have occurred where home owners received a minor electric shock causing them to fall off the roof whilst cleaning the arrays, due to the array not being adequately earthed.

ESV recently received a report of a home owner receiving shocks from their guttering.

Upon investigation, inspectors learnt the guttering system was recently replaced with Colorbond now entering the ground at the same potential as the general mass of the earth. The PV array on the roof was an older system originally installed with a galvanically isolated inverter.

At the time, the array was not required to be earthed if connected to this type of inverter. The inverter was replaced by a non-isolated inverter which established the capacitive coupling issue, creating a shock hazard between the PV array and the guttering.

A timely reminder that when you replace components, you must ensure this change does not make other parts of the electrical installation non-compliant or unsafe. Furthermore, where components are replaced with a non-equivalent component part, it becomes prescribed electrical installation work and an electrical inspection is required.

In summary

- » PV arrays with a PV array maximum voltage greater than ELV (and in systems which include a.c. modules and microinverters with LV outputs) to have all exposed conductive PV module frames and array mounting frames be earthed.
- » Earthing of exposed conductive parts shall be tested in accordance with AS/NS 3000 section 8 requirements.
- » Ensure any repairs or alterations to an existing system comply with AS/NZS 3000:2018 Cl 1.9.3, and any additional safety requirements as advised by the regulator.

Note: The [Queensland Electrical eSafe bulletin](#) also has a number of incidents where apprentices were not supervised adequately. The [Victorian Electricity Safety \(General\) Regulations 2019](#) has specific requirements relating to apprentice supervision. ESV also has guidance for [supervisors of apprentices](#).

Buying or selling appliances online

By Tyler Mason, Gas Engineer, Type A Gas Appliance & Component Safety

The requirements of the Gas Safety Act surrounding the sale or supply is the offer to sell or supply, uncertified Type A gas appliances applies to online retailers as well.

ESV has always responded to reports of the online sale of uncertified gas appliances; however, we are embarking on a campaign of proactive monitoring. Not only will we respond to reports of uncertified sales, we will now also be conducting our own audits of major online retailers.

Initially, these audits will be random, across major online market places looking at multiple product types. Overtime, we hope to target high risk products and categories where uncertified appliances are commonly found.

For most gas appliances, a licensed gasfitter is required to connect the appliance. As every gasfitter is aware, AS/NZS 5601.1 requires that you only connect certified appliances to a gas supply. This is likely why more uncertified consumer-grade portable or mobile equipment has entered the market.

Frequently asked question

My customer has bought an appliance online – and it has no certification markings. What do I do?

- » Check the appliance data label carefully. There is more than one certification body operating today, so the markings may look a little different to what you are used to.
- » No appliance data label? Search the brand or model number on the Technical Regulators' database at equipment.gtrc.gov.au. The individual certification bodies' also operate their own directories for products that they certify.
- » If you still can't find evidence of certification, do not connect or commission the appliance. Explain the situation to your customer and let them know you will contact the Technical Regulator.
- » Report it to ESV's Gas Technical team on 1800 652 563 or at gastechnicalenquiries@energysafe.vic.gov.au. You can also [report a complaint](#) for investigation. Note: Should you wish to have your complaint handled anonymously, let us know.
- » ESV will contact you for further information such as photographs of the appliance and its markings.

Obligations of a Restricted Electrical Licence holder

By David Bibby, Compliance Officer, Licensing & COES

Energy Safe Victoria has a number of current investigations into the type and amount of electrical work being completed by Restricted Electrical Licence (REL) holders.

This includes the failure to complete Certificates of Electrical Safety (COES) for the disconnect/reconnect work performed.

ESV is concerned that REL holders may not understand their obligations under the Electricity Safety Act 1998, Electricity Safety (Registration and Licensing) Regulations 2019 and the Electricity Safety (General) Regulations 2019.

Electrical connection work means connecting or disconnecting electrical equipment to or from a supply of electricity.

A REL holder can only perform electrical disconnect/reconnect work as part of their primary function.

The Electricity Safety (Registration and Licensing) Regulations requires this restriction as the licence is only provided to expedite the completion of a primary trade or profession working:

- » on a piece of equipment, component or appliance to disconnect the electrical supply
- » repair or replacing the piece of equipment, component or appliance with an equivalent component part
- » and then connecting the electrical supply cables to the new or repaired piece of equipment or appliance.

A REL holder must not perform any electrical installation work including, but not limited to, the installation or replacement of electrical installation wiring or accessories.

They must be able to demonstrate a need to undertake disconnect/reconnect work associated with their primary trade and demonstrate an ongoing need to retain this type of licence.

REL holders must purchase COES for their use, and complete and certify a certificate for all disconnect/reconnect work performed. They must also provide their customer – the person or entity that engaged them to perform the work – a copy of the COES.

New eMap for Electrolysis Mitigation area testing

By Rob White, Testing Officer, Electrolysis Mitigation

One of the bigger challenges faced by Electrolysis Mitigation during coronavirus (COVID-19) was to determine how we could continue to conduct area tests.

Without access to the mobile site offices (MSO) and without face-to-face contact, the entire area testing procedure needed to be modified.

Area testing involves working with representatives and field staff from water, gas, oil, electricity and communication authorities, as well as the railways and tramways.

Much of the communication between participants is in person at a MSO. Here the data collected by field staff is analysed by the area test coordinator. The structures and test points being monitored are displayed on a printed paper map (size A2) of the area under test for each industry, with colored pins representing the condition of the structures as assessed by the coordinator at the respective test points.

The ability to visualise the assessments with respect to the interaction of stray current between structures is critical to decision-making regarding electrolysis mitigation measures.

Chart files containing rail and structure data can be distributed via email and video communication platforms enable stakeholders to grasp much of the data, but the maps required a new approach.

Through my partner's work in conservation genetic research, I realised a potential solution. Maps are often required to visualise the location of samples, having assisted them to create them using open source software.

Using a combination of RStudio (a statistical computing and graphics program) and Leaflet (a web mapping application used by many organisations including The Age and John Hopkins University), I was able to write scripts to create an electronic version of the area test maps using the same data that was previously used to create the physical maps. The various structures, substations and electrolysis mitigation system equipment are all added in layers building up to a complete map using GPS coordinates.

Following modification to the excel files we use to record data, the new process was successfully trialled during an area test conducted in May. Enhancements were made throughout the course of the test to provide additional functionality and data to the end user.

The use of the above software and scripts enables any member of our team to produce area test maps with ease and requires no knowledge of the code behind the process.

Some of the key benefits of the eMap are:

- » produces a html file – can be read in any web browser
- » layers can be turned on or off as desired for clarity
- » more timely and accurate information
- » displays history of test point and assessment activity throughout the test
- » removes ambiguity when test points are closely located
- » more frequent information provided to stakeholders straight to their inbox
- » no large printer required
- » stakeholders no longer need to prepare maps, and
- » the html file is a permanent record of the map with assessments.

There is scope to further enhance the eMap by exposing even more of the data collected during the area test as clickable links from within the html files.

Feedback from stakeholders has been encouraging. Pending further testing and development the change from paper maps to eMaps will likely be ongoing.

ESV extends ban on RCBOs

By Goran Sokoleski, Senior Engineer, Market Intelligence & Enforcement

After a two year prohibition, ESV has now extended the existing ban on compact RCBOs for 10 years, which began on 2 July 2020. The ban is in place for certain types of RCBOs with design vulnerability.

“This ban will stop the supply of these RCBOs in Victoria. Supply, including installation of these devices, is now a crime, punishable by a maximum two year jail term.” Director of Energy Safety Marnie Williams said.

“We have worked closely with suppliers to ensure they can supply RCBOs that meet ESV’s specifications.

“While the number of incidents involving a faulty RCBO is very low, it is a risk to community safety and ESV has an obligation to address it.”

Given the low number of incidents but the significant number of affected RCBOs in Victorian homes, ESV came to the conclusion that a recall of these devices was not practical.

Suppliers must undertake additional testing and verification to ensure their products still operate satisfactorily if there is a defect in the installation or if the product has been installed incorrectly.

The prohibition applies to all compact RCBOs even if they are integrated in other electrical equipment such as preassembled switchboards.

The prohibition does not apply to DIN mountable RCBOs that are greater than 110mm in length or DIN mountable RCBOs that have a short circuit breaking capacity of 10kA or greater. The prohibition also does not apply to RCBOs fitted into Portable Residual Current Devices (PRCDs).

RCBOs compliant with the additional testing are listed on the [ESV website](#).

If a RCBO covered by the prohibition is not on the list, it cannot be supplied or installed after 2 July 2020.

Fees not increased this financial year

By Jonathan Granger Head of Communications and Marketing

In line with other Victorian Government departments and agencies, ESV did not increase its fees for FY 2020/21, including licensing and COES fees.

In response to coronavirus (COVID-19), all fees will remain at 2019/20 levels. This includes delaying an increase on non-prescribed COES which is mandated in the Electricity Safety (General) Regulations 2019. While this increase is written into law, ESV has delayed its implementation.

As part of its response to COVID-19 and its impact on the economy, the Government announced there would be no increase to the Fee Units or Penalty Units used to set many fees and fines in Victoria this year.

Also, in 2019, we acknowledged the introduction of short-term impact on the industry by ESVConnect and decided not to increase fees for the 2019/20 financial year. We will not be implementing this increase at this time either, so fees remain at 2018/19 levels.

ESV’s operational services will not be affected, ensuring the continued safety of workers and the community.

ESV is sensitive to the impact that COVID-19 has had on Victorians. Certain services carried out by electrical workers and gasfitters are permitted under restrictions, both domestically and commercially.

For more information on the latest advice from Victorian Government, visit our [website](#).

Testing electrical installation work

By Neil Fraser, General Manager, Licensing, Training and Standards

The Electricity Safety (General) Regulations 2019 were published on 6 December 2019.

These new regulations contain updated mandatory requirements for testing completed electrical installation work and detail your obligations for testing specific types of electrical installation work.

The licensed electrical worker (LEW) has always been responsible for testing all completed electrical installation work prior to certifying the work on a certificate of compliance, which forms part of the Certificate of Electrical Safety (COES).

ESV is aware that some workers may be unclear on the testing requirements prior to having prescribed electrical installation work inspected.

All LEWs declare testing has been completed when they review and sign below the statement at the bottom of a certificate of compliance:

I, the Licensed Electrical Worker, who carried out the electrical installation work described above, certify that the electrical work has passed all the required tests and complies in all respects with the Electricity Safety Act 1998 and the Electricity Safety (General) Regulations. (or similar)

Regulation 240 General testing requirements for low voltage electrical installation work

Requires the electrical installation work to be tested to verify that the installation work complies after the work is completed and before certification or inspection of the prescribed work.

LEWs must also be aware that the testing requirements in the Electricity Safety (General) Regulations 2019 for underground consumer's mains override the requirements of AS/NZS 3000: Electrical Installations – Wiring Rules.

Regulation 241 Testing of underground consumer's mains

1. If underground consumer's mains are installed for the first time, the insulation resistance of the consumer's mains must be tested to verify compliance with regulation 228(1).
2. If electrical installation work is carried out on existing underground consumer's mains, the consumer's mains must be tested to verify compliance with regulation 228(2).

Regulation 228 Insulation resistance of underground consumer's mains

1. Insulation resistance values of new underground consumer's mains must not be less than the relevant minimum insulation resistance specified in Table 228 (below).
2. Existing underground consumer's mains must not be less than one megohm.

Table 228—Minimum insulation resistance of underground consumer's mains

| | Route length of underground consumer's mains | Minimum insulation resistance |
|----------|--|-------------------------------|
| A | ≤ 50 m | 50 megohms |
| B | > 50 m and ≤ 75 m | 45 megohms |
| C | > 75 m and ≤ 100 m | 40 megohms |
| D | > 100 m and ≤ 125 m | 35 megohms |
| E | > 125 m and ≤ 150 m | 30 megohms |
| F | > 150 m and ≤ 175 m | 25 megohms |
| G | > 175 m and ≤ 200 m | 20 megohms |
| H | > 200 m and ≤ 225 m | 15 megohms |
| I | > 225 m and ≤ 250 m | 10 megohms |
| J | > 250 m | 5 megohms |

The following regulations detail specific installation testing requirements:

Regulation 242 Testing of electrical installation work in patient areas

Electrical installation work completed in a patient area must be tested in accordance with AS/NZS 3000 to verify that the installation work complies with AS/NZS 3003: Electrical installations – Patient areas.

Regulation 243 Testing of photovoltaic arrays

Electrical installation work completed on a photovoltaic array must be tested in accordance with AS/NZS 5033: Installation and safety requirements for photovoltaic (PV) arrays.

Regulation 244 Testing of battery systems

Electrical installation work completed on a battery system must be tested in accordance with AS/NZS 3000 to verify that the installation work complies with AS/NZS 5139: Electrical installations – Safety of battery systems for use with power conversion equipment.

Regulation 245 Testing of grid-connected inverter energy systems

Electrical installation work completed on a grid-connected inverter energy system, must be tested to verify that the inverter energy system takes longer than 60 seconds to connect to the distribution network after the installation's main switch is closed and that the inverter energy system disconnects from the distribution network in less than two seconds after the installation's main switch is opened.

Regulation 246 Testing of high voltage electrical installation work

Electrical installation work completed on a high voltage electrical installation, must be tested in accordance with these Regulations and AS 2067: Substations and high voltage installations exceeding 1 kV a.c. to verify that the installation work complies with the design.

Regulation 247 Persons authorised to carry out testing

The licensed electrical installation worker carrying out electrical installation work must ensure that the testing is carried out by a licensed electrician, or a person who is licensed to carry out the electrical installation work, or in the case of the testing of high voltage electrical installation work, a competent person.

Regulation 248 Results of testing of high-voltage electrical installation work

A person who carries out the testing of high-voltage electrical installation work must record the results of the testing in writing and give a copy of those results to the owner of the premises where the testing was carried out and retain a copy of the results for a period of three years from the date the testing was carried out.

Remember, Regulation 249 requires that all prescribed electrical installation work must be inspected, tested and certified by a licensed electrical inspector within the timeframes specified by the Electricity Safety Act and these regulations.

As a LEW, it is your responsibility to ensure all work is compliant, tested and prescribed work is inspected.

You can obtain a free copy of the Electricity Safety (General) Regulations 2019 at esv.vic.gov.au

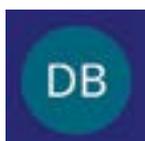
Using ESVConnect

By Neil Fraser, General Manager, Licensing, Training and Standards

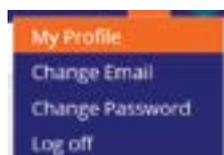
How to update your user account and electrical licence contact details

Note: Can only be accessed once a licensed user has upgraded their online services account.

1. **Access** the ESVConnect login page: connect.energysafe.vic.gov.au
2. **Log in** using your email address and password.



3. **Click on** the coloured icon with your initials located on the top right side of your screen.



4. From the drop down box, **select** 'My Profile'.



5. **Click on** the **Edit icon**.



6. Update your contact details accordingly and **click Submit**.

How to update contact details for a Registered Electrical Contractors (REC)

Note: Can only be accessed once a licensed user has upgraded their online services account. Only a current REC Business Supervisor can update the business contact information.

1. Access the ESVConnect login page: connect.energysafe.vic.gov.au



2. Log in using your email address and password.

3. Under 'My Registrations', **select** the relevant REC number.



4. **Click on** the **Edit icon** on the left side of the screen.



5. Update your contact details accordingly and **click Submit**.

How to upgrade to ESVConnect if you are an existing licence or registration holder

Note: REC and IC operators new to ESVConnect must create an account to access the REC or IC they work for.

1. Access the ESVConnect login page: connect.energysafe.vic.gov.au



2. **Click on** the **Register for ESVConnect** button.

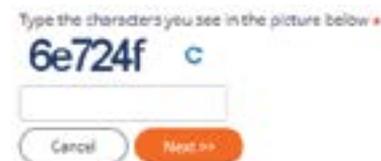
3. **Select** the appropriate path to register:
 - » Licence Electrical Worker (LEW) – all existing licence holders must select this path
 - » Registered Electrical Contractor (REC) – only for REC Business Supervisors who do not hold an electrical worker licence
 - » Licensed Electrical Inspector (LEI) – only for LEIs who do not hold an electrical worker licence.



4. Enter your full licence/registration number including the prefix and **click Next**.

5. Enter your User ID and password previously provided for Online Services.

- » If you do not know your User ID details, please contact the Licensing team via phone 1800 815 721 or email licensing@energysafe.vic.gov.au.



6. Complete the **CAPTCHA** test and **click Next**.

7. **Enter** your valid current email address.
 - » Your email address will be your unique Login ID once your account is registered. Please ensure it is spelt correctly and that you have access to it.

ESVConnect

ESVConnect has turned one!

8. Verify your first name, last name and date of birth provided on the screen.

9. Create a new password that adheres to ESV's security guidelines. Confirm the new password.

Upgrade

10. Agree to the Conditions of Use and Privacy Notice and **click Upgrade**.

- » At this point, a verification code will be sent to your nominated email address and you will be redirected to the ESVConnect login page.

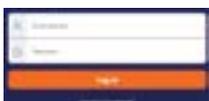


11. Enter your email address and newly created password. **Click Login**.

Verify my account

12. Enter the verification code. **Click Verify my account**.

- » If you did not receive the email containing the verification code, click 'Resend code' and the code will be resent.
- » An active profile is created and a welcome email will be sent to the nominated ESVConnect email Login ID. You will be redirected to the ESVConnect login page.



13. **Enter** your email address password. **Click Log in**.

Submit

14. **Update** your residential and postal addresses, and mobile phone number. **Click Submit**.

15. You will arrive at your profile screen. Here you can view your licences, registrations and associations.

16. **Click on** 'Welcome to ESVConnect video' or 'Take a tour' for further information.

To date, 40% of Licensed Electrical Workers (LEWs) and 72% of Registered Electrical Contractors (RECs) have upgraded to ESVConnect. Over 70% of prescribed and 65% of non-prescribed COES are now completed with ease via the online platform.

ESVConnect offers more functionality than ever with its latest update introducing public registers, accessible to industry and the general public. The register provides a search function allowing users to look up and find current RECs, their expiry date and REC number. You can search, filter or sort by REC number, business name, address and expiry date.

You can also:

- » verify an electrical worker's status, searching them by name or licence number
- » search for and sort Licensed Electrical Inspectors (LEI) by licence number, name, suburb, phone number and class. This makes it easy to find a LEI in your area
- » Inspection Companies are also listed and searchable.

When searching for Cathodic Protection Systems, you can do so by address or a registration number, which is then sorted by:

- » Structure protected,
- » Output current,
- » Status.

System type is coming soon.

Certificates of Electrical Safety (COES) can be searched by COES number or Installation address. The results show COES type, the Responsible person or REC and Certification date, and can be filtered or sorted by these results.

For industry, features of ESVConnect include:

- » Changing your User account email address (ESVConnect user log in email address)
- » Licence renewal reminders via email – 12, 8 and 2 weeks prior to renewal and confirmation of expiry
- » Status of all existing licences and registrations currently in ESVConnect.
- » Bulk request Cathodic protection system function is now available in ESVConnect for change of operator for single or multiple CP systems
- » Create your own passwords and if you forget your username or password, you can recover the password via your registered email account.

If you have not upgraded to ESVConnect, upgrade now to take advantage of this system.

Your electrical questions answered

By Simon O'Leary, Compliance Officer, Electrical Installation Safety

| Question | Answer | Standard/Clause |
|---|---|--|
| I am about to install an induction cooktop. Does an induction cooktop still require a switch above the bench on the splashback? | <p>Yes. All cooking appliances with an open electric cooking surface e.g. a cooktop, deep fryer, barbecue griddle or similar, must be provided with a switch that is mounted near the appliance in a visible and readily accessible position. The switch must be capable of turning off the appliance.</p> <p>The switch should be mounted within 2m of the cooking appliance. It must not be mounted on the cooking appliance itself or located on any wall, cupboard or other surfaces within 150 mm of the edge of an open cooking surface (gas or electric).</p> | <p>AS/NZS 3000</p> <p>4.7.1</p> <p>4.7.3</p> <p>Figure 4.17</p> |
| To get DC wiring to a PV solar array on the roof of a block of flats/units, can I run the cable through another person's unit – if the cable is in HD conduit and is correctly labelled? | <p>No. Where alternative supply, such as a PV solar system, supplies or is intended to supply more than one individual occupier's portion in a multiple occupancy subdivision or building, any wiring providing alternative supply must be placed on common property or in a common area.</p> <p>No. If the alternative supply, such as a PV solar system, supplies or is intended to supply one individual occupier's flat/unit in a multiple occupancy subdivision or building, such as a block of flats, the wiring for the alternative supply can only be within the individual occupier's portion (flat/unit) that the alternative supply system supplies, or on common property or in a common area.</p> <p>In all cases, the DC cable must be installed in HD conduit and be correctly labelled.</p> | <p>Electricity Safety (General) Regulations 2019</p> <p>Regulation 215 (2)</p> <p>Regulation 215 (3)</p> <p>AS/NZS 5033</p> <p>4.3.6.3.2</p> <p>PV d.c. cables with in buildings</p> <p>5.3</p> <p>Wiring identification</p> |
| What type of electrical work can an apprentice electrician do, and what level of supervision must be provided? | <p>It is now a requirement under the Electricity Safety (General) Regulations 2019 that any person who employs an apprentice must ensure the apprentice is provided with effective supervision in accordance with ESV's published Apprentice Supervision Requirements. This requirement extends to any licensed electrician or licensed electrical switchgear worker who has been tasked with supervising an apprentice who is carrying out electrical installation work.</p> | <p>Electricity Safety (General) Regulations 2019</p> <p>Regulation 507</p> |
| How long have I got to have prescribed electrical installation work inspected by a licensed electrical inspector (LEI)? | <p>You have eight business days after the work is completed to have that work inspected by a licensed electrical inspector (LEI).</p> <p>Prescribed electrical installation work must be inspected by an LEI before the electrical installation, or that portion of the electrical installation is connected to the electricity supply.</p> <p>In that, if an electrician replaces a main switchboard at a house, power cannot go back onto the new main switchboard, until the work has been inspected by the LEI.</p> | <p>Electricity Safety (General) Regulations 2019</p> <p>Regulation 250</p> <p>Electricity Safety Act 1998</p> <p>Section 45(1)</p> |
| When filling out a Certificate of Electrical Safety (COES), for say, a new house build, am I required to list the number of, and locations of the smoke alarms and that they are interconnected. | <p>Yes, the description of work must be accurate. Certificates of Electrical Safety (COES) are used by Building Surveyors to satisfy the requirements for issuing a Certificate of Occupancy. This includes knowing the exact number and location of smoke alarms installed, and confirmation they have been interconnected correctly.</p> | <p>Electricity Safety (General) Regulations 2019</p> <p>Regulation 252</p> |

| Question | Answer | Standard/Clause |
|--|--|---|
| <p>How long have I got to provide the customer with a certificate of electrical safety after electrical installation work is completed?</p> | <p>For non-prescribed electrical installation work The person who is responsible for the electrical work has one month to give the completed certificate of electrical safety to the person for whom the work was carried out.</p> <p>For prescribed electrical installation work The licensed electrical inspector (LEI) has four business days after carrying out the inspection, to give the prescribed certificate of electrical safety to the person who is responsible for carrying out the electrical work.</p> <p>From the day the prescribed certificate of electrical safety is received from the LEI, the person responsible for carrying out the electrical work has four business days to provide the prescribed certificate of electrical safety to the person for whom the work was carried out.</p> <p>Taking into account the eight business days for the inspection to be carried out, a maximum total of 16 business days after the work is completed.</p> | <p>Electricity Safety Act 1998</p> <p>Section 45A(6)(c)</p> <p>Section 45(3)(c)</p> <p>Section 45A(6)(a)</p> |
| <p>I have a client who has two factories (on separate titles) that are side by side. Each factory has its own supply coming in from the street.</p> <p>Can I install a large machine in factory one that is supplied from the main switchboard in factory two?</p> | <p>Yes. However, you must strictly comply with the requirements of regulation 218 of the Electricity Safety (General) Regulations 2019 – Properties with multiple points of supply.</p> <ol style="list-style-type: none"> 1. Zones must be established within the property. 2. Each zone established within a property must, wherever possible, follow easily recognisable property features. 3. Zones must not intermingle with or cross over other established zones. 4. Each incoming supply must only supply electricity within one zone. 5. A zone diagram must be placed in each main switchboard within the property. 6. The zone diagrams must contain the following information: <ul style="list-style-type: none"> » a diagram showing the location and boundaries of each zone; » the location of each zone's point of supply and consumer's mains; » the location of each zone's main switchboard; » the location of any submains or switchboards located within any zone. 7. Each main switchboard at the property must be clearly and permanently marked with the following words – <i>"Warning—not all wiring installed in these premises is controlled from this main switchboard"</i> 8. Each switchboard that is not a main switchboard must be clearly and permanently marked with a label that clearly identifies the main switchboard it is connected to. | <p>Electricity Safety (General) Regulations 2019</p> <p>Regulation 218</p> |
| <p>Where can I find servicing and metering information?</p> | <p>The Victorian Electricity Distributors' Service and Installation Rules (The SIRs) are available for free download at victoriansir.org.au.</p> <p>Note, The SIRs are amended from time to time, so it is essential to have an up-to-date copy.</p> | |

Identified non-compliance breaches

By Paul Harris, Head of Gas Operations

| Rating | Cause | Clause description |
|-----------------|--|--|
| 1 | AS/NZS 5601.1 2013 Clause 5.3.8 | LOCATION OF CONSUMER PIPING – Piping in a concealed location other than underground or embedded in concrete 16 Non-compliances |
| Breaches | <ul style="list-style-type: none"> » Consumer piping in a concealed location is not installed in accordance with the requirements. detailed in AS/NZS 5601.1.2013 Table 5.2 and ventilation requirements set out in AS/NZS 5601.1 Clause 5.3.12. » Mechanical joints, isolation valves and/or gas solenoid shut off valves have been installed in a concealed location, and should have adequate ventilation. » Non-permanent joints (gas valve with screwed joints) located behind a heater, is un-ventilated and inaccessible when construction/plaster work is fitted in place. » Tenancy shop valves are located in cavity wall boxes, are not sealed to prevent potential gas escapes migrating via the cavity wall into the surrounding building structure. » Isolation valve installed in a ceiling space is not boxed in with the solenoid valve. » Tenancy/Kitchen isolation valve with mechanical joints installed inside a cupboard had no vents and a large opening to the roof space was not sealed up. | |
| 2 | AS/NZS 5601.1 2013 Clause 5.2.9 | DESIGN OF CONSUMER PIPING – Occupancy isolation 11 Non-compliances |
| Breaches | <ul style="list-style-type: none"> » Commercial kitchen does not have gas valve sign installed. » Permanent sign for occupancy isolation valve not provided in commercial kitchen shipping container. » Permanent sign on apartment access panel for isolation valve not provided for each apartment on all floor levels. | |
| 3 | AS/NZS 5601.1 2013 Clause 6.6.5 | GAS APPLIANCE CONNECTION – Fitting of an appliance gas pressure regulator 7 Non-compliances |
| Breaches | <ul style="list-style-type: none"> » Regulator behind equipment with hard pipe connection. » Unable to access regulator for servicing, repair, adjustment or replacement and regulator installed remote from appliance. » Excessive gas pressure supplying gas turrets. | |
| 4 | AS/NZS 5601.1 2013 Clause 6.10.2.3 | ADDITIONAL REQUIREMENTS FOR INSTALLATION OF SPECIFIC GAS APPLIANCES – Commercial catering equipment – Clearances around commercial catering equipment 7 Non-compliances |
| Breaches | <ul style="list-style-type: none"> » Power point and power leads located behind pasta cooker flue-way are subjected to excessive heat from appliance. » Solid stainless steel spacer panels installed between rear of all cooking equipment and the combustible walls under canopies will prevent excessive heat from safely dissipating from the rear of appliance flue-ways. » Clearance requirement and/or appliance not installed as per manufacturer's instruction. » Appliance installed hard up against wall. | |
| 5 | AS/NZS 5601.1 2013 Clause 5.2.6 | DESIGN OF CONSUMER PIPING – Flexibility of piping 5 Non-compliances |
| Breaches | <ul style="list-style-type: none"> » No allowance given for expansion provided for main consumer piping. | |



For clarification on a specific clause within an Australian Standard, contact the ESV Gas Safety Technical Information Line on 1800 652 563.

| Rating | Cause | Clause description |
|-----------------|--|---|
| 6 | AS/NZS 5601.1 2013 Clause 5.8.3 | SUPPORT OF CONSUMER PIPING – Diameter of rod hangers 5 Non-compliances |
| Breaches | » Rod hanger size of 10 mm were used for 65 mm, 100 mm and/or 125 mm copper pipe, does not comply with Table 5.6. | |
| 7 | AS/NZS 5601.1 2013 Clause 5.9.5 | USE OF HOSE ASSEMBLIES – Hose assembly – Operating conditions 5 Non-compliances |
| Breaches | » Flexible connections are exposed to temperatures exceeding maximum temperature, does not comply with the manufacturer's instruction for flexible temperature limitations. » Hoses installed are subjected to straining, kinking, twisting and distortion. | |
| 8 | AS/NZS 5601.1 2013 Clause 6.10.2.2 | PROPRIETARY SYSTEMS – Identification of proprietary piping systems 5 Non-compliances |
| Breaches | » Griddle plate not installed to the required minimum clearance of the grease filter. » Manufacturer's called appliance a griddle, with no clearance to grease filter specified in manufacturer's instructions. | |
| 9 | AS/NZS 5601.1 2013 Clause 5.2.10 | DESIGN OF CONSUMER PIPING – Building isolation 4 Non-compliances |
| Breaches | » Gas valve sign was not installed. | |
| 10 | AS/NZS 5601.1 2013 Clause 5.3.12 | LOCATION OF CONSUMER PIPING – Ventilation of concealed piping 4 Non-compliances |
| Breaches | » No ventilation provided for concealed pipework in service cupboards. » Tenancy valve box access hatches are not ventilated to release potential gas escapes to a safe location. | |
| 11 | AS/NZS 5601.1 2013 Clause 6.4.4.3 | AIR SUPPLY TO GAS APPLIANCES – Air requirements for gas appliances – Natural ventilation 4 Non-compliances |
| Breaches | » Total MJ/h for all appliances installed is in excess of the maximum 3MJ/h per M3 of room volume and requires ventilation to be provided. | |
| 12 | AS/NZS 5601.1 2013 Clause 6.6.3 | GAS APPLIANCE CONNECTION – Means of isolation 4 Non-compliances |
| Breaches | » Isolation valve not accessible. » Solenoid valve installed in boxed in ceiling space does not have isolation valve. » Isolation valve not installed on inlet pipework of solenoid valves. » Cooking appliance isolation valves is not accessible for servicing. | |

ESV prosecutions and infringements

As at August 2020

ESV has taken no legal proceedings against the following individuals and companies.

Infringement notice summary 2019/2020

| | Jul 20 | Aug 20 | Sep 20 | Oct 20 | Nov 20 | Dec 20 | Jan 21 | Feb 21 | Mar 21 | Apr 21 | May 21 | Jun 21 | Total |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|
| Total | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |

Infringement notices 2020/2021

Types of infringement notices issued.

| Month | REC/LEW/Other | Offence | Penalty |
|---------------|------------------------|--|---------|
| Jul 20 | LEI | LEI fails to notify defects | \$322 |
| | LEI | Fail to complete certificate | \$806 |
| | REC | Fails to give certificate within time | \$165 |
| | REC | Non complying installation work | \$4,131 |
| | LEI | Fails to complete certificate | \$826 |
| | Unlicensed electrician | Unlicensed electrical installation work | \$826 |
| | LEW | Non complying installation work | \$826 |
| | REC | Non complying installation work | \$4,131 |
| | REC | Fails to give electronic notice in time | \$330 |
| | REC | Employ unlicensed person | \$826 |
| | Unlicensed electrician | Unlicensed electrical installation work | \$826 |
| | REC | Fail to ensure supervision of apprentice | \$826 |
| | REC | Employ unlicensed person | \$4,131 |
| | Unlicensed electrician | Unlicensed electrical installation work | \$826 |
| | Unlicensed electrician | Unlicensed electrical installation work | \$826 |
| | REC | Fail to complete certificate within time | \$161 |
| | REC | Fail to complete certificate within time | \$161 |
| | Unlicensed electrician | Unlicensed electrical installation work | \$161 |
| | Unlicensed electrician | Unlicensed electrical installation work | \$826 |
| | REC | Fail to complete certificate within time | \$826 |
| | REC | Fail to complete certificate within time | \$161 |
| | LEW | Unregistered person carries out work | \$161 |



For clarification on a specific clause within an Australian Standard, contact the ESV Gas Safety Technical Information Line on 1800 652 563.

| Month | REC/LEW/Other | Offence | Penalty |
|-------|------------------------|--|---------|
| | LEW | Unregistered person carries out work | \$826 |
| | LEW | Unregistered person carries out work | \$826 |
| | LEW | Unregistered person carries out work | \$826 |
| | LEW | Unregistered person carries out work | \$826 |
| | LEW | Unregistered person carries out work | \$826 |
| | LEW | Unregistered person carries out work | \$826 |
| | LEW | Unregistered person holds out | \$806 |
| | Gas fitter/plumber | Gas fitting work did not comply | \$661 |
| | LEW | Failed to give certificate within time | \$165 |
| | LEW | Failed to give certificate within time | \$165 |
| | REC | Fail to complete certificate within time | \$165 |
| | REC | Fails to give certificate within time | \$165 |
| | REC | Non complying installation work | \$4,131 |
| | REC | Fail to have connected work inspected | \$3,304 |
| | LEW | Fail to complete certificate within time | \$165 |
| | REC | Non-complying installation work | \$826 |
| | LEI | Fails to complete certificate | \$826 |
| | REC | Non-complying installation work | \$826 |
| | LEI | Fails to complete certificate | \$826 |
| | REC | Non-complying installation work | \$4,131 |
| | LEW | Fail to complete certificate within time | \$165 |
| | LEW | Fail to have work inspected by inspector | \$661 |
| | REC | Non-complying installation work | \$4,131 |
| | LEW | Failed to have connected work inspected | \$661 |
| | LEI | Fail to complete certificate | \$793 |
| | LEW | Fail to give description of work | \$165 |
| | REC | Fail to have work inspected | \$661 |
| | Unlicensed electrician | Unregistered person offers to do work | \$826 |
| | Unlicensed electrician | Unlicensed electrical installation work | \$826 |



Life's fragile.
Don't blow it.
Never work live.

Even when you're under pressure, there's no excuse to cut corners.
Nothing is too urgent or important. Always isolate and test before you touch.
Don't risk electrocution or serious injury — you may not get a second chance.