Transgrid

People. Power. Possibilities.

LV/MECH

Safe Work Handbook

Power System Safety Rules

This Handbook covers the Power System Safety Rules requirements for working on, near and around Low Voltage and Mechanical (LV/MECH) apparatus. The handbook aims to help you be a safe worker and gain your authorisation to work on Transgrid's High Voltage (HV) network.

It has been written in plain, easy to understand language and is a working interpretation of the Power System Safety Rules, known to everybody as the PSSR.

The PSSR and this handbook are reviewed and updated periodically. Check our website at https://www.transgrid.com.au/working-at-transgrid/workplace-safety for the latest information.

In this handbook, the words ‘must’ or ‘must not’ are used for rules that you have to follow. The words ‘should’ or ‘should not’ are used when explaining safe and low-risk work practices.

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Revision detail	
1	Typographical error

Contents

Introduction

The LV/MECH Handbook covers the Power System Safety Rules (PSSR) you need to know to work on and near and around Low Voltage and Mechanical (LV/MECH) apparatus. It's essential reading for anyone working on Transgrid's High Voltage (HV) network. It aims to prepare you for the HV network environment and reduce your risk when working in hazardous areas or situations.

This handbook is the main resource to get your Substation authorisation via the Worker Safety Authorisation and Training (WSAT) system. It supports training courses, which you have to pass to get your worker authorisation.

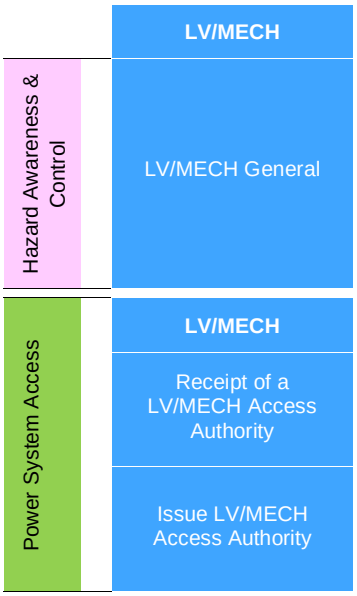
Read this handbook to check the rules, understand your responsibilities and learn safe working behaviour.

There are also similar handbooks for Transmission Lines, Transmission Cables, Substations, Mobile Plant and Field Operations and more available at www.transgrid.com.au/working-at-transgrid/workplace-safety.

In this handbook, the words 'must' or 'must not' are used for rules that you have to follow. The words 'should' or 'should not' are used when explaining safe and low-risk work practices.

Remember, we all have a responsibility to work safely and look out for each other.

Authorisations



The Power System Safety Rules (PSSR) authorisations are permissions to access an area, perform a type of work, apply a specific control, or execute a controlled process.

Getting your PSSR authorisation is a journey and depending where you will be working on our High Voltage Network, you might get one authorisation or many.

A PSSR authorisation gives you access to work but also brings responsibility. It's a commitment between you and Transgrid to work safely and look out for each other.

For LV/MECH, it starts with Hazard Awareness and Control, before stepping up to Power System Access. To help build understanding, authorisations and related training courses are in small modules that match the authorisation table shown here. You must be assessed competent in an authorisation before you can move onto the next level.

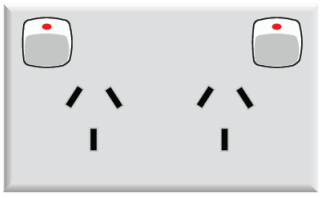
When you get your authorisation, do not abuse, or misuse it. If you do, you may lose your authorisation and access to work at Transgrid.

Apprentices and trainees can also get PSSR authorisation but must not be left to work unsupervised in a hazardous area.

If you are unsure of how to apply the PSSR correctly, STOP and seek assistance from one of our Safety team before doing your work.

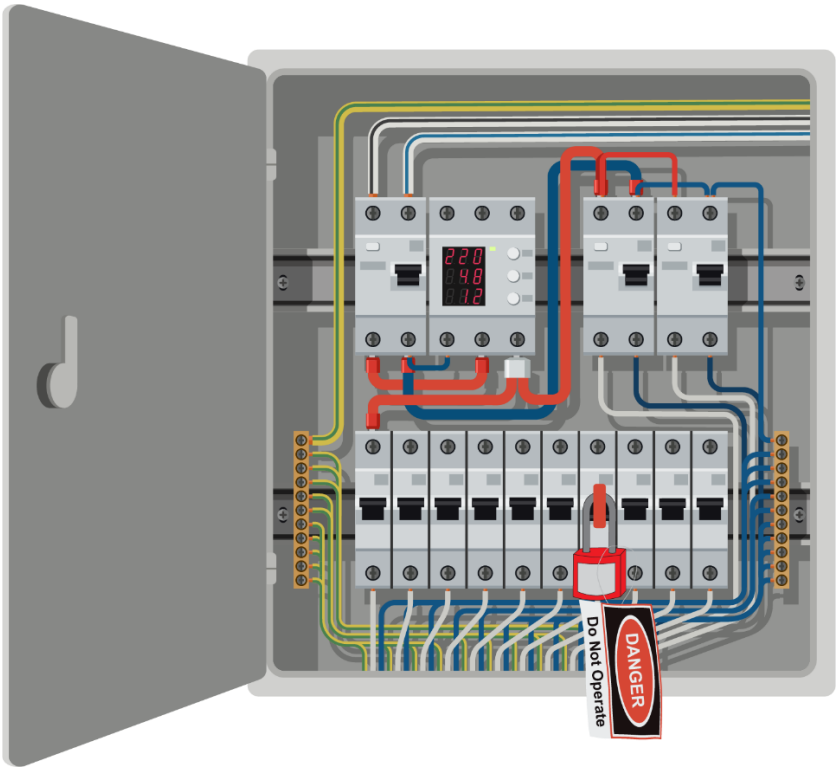
Work on equipment not in the charge of a Controller

Assets within Transgrid's network which are not in the charge of the System Operator do not require additional, PSSR authorisations for work.



This equipment includes auxiliary electrical and mechanical systems which do not directly impact on the functioning of the Power System, for example substation electric gates, building auxiliary services including air conditioning or lighting and security systems.

Any electrical work of this type must be performed or supervised by electrically authorised persons (must hold an Electrical license), work should be completed in accordance with the requirements of the Safe Work Australia Code of Practice 'Managing Electrical Risks in the Workplace' and comply with any standards relevant to the work such as 'AS/NZS 3000 – Wiring rules' or 'AS/NZS 3017 – Electrical Installations Verification'.



Requirement to lock out, tag out and prove de-energised on this type of equipment should be completed per Australian standards. You should use a suitable locking arrangement and must provide your personal details on the applied tag.

Apparatus ‘in the charge of a Controller’

Power system apparatus or ‘apparatus in the charge of a Controller’ refers to any electrical and mechanical systems which have a direct impact on the functioning of the Power System. Work of this type requires additional PSSR authorisations, LV/MECH General or Receipt of an LV/MECH Access Authority to work on equipment of this type.

Examples of ‘apparatus in the charge of a Controller’ are:

- Alarm and Metering circuits including associated equipment.
- Automatic Generation Control (AGC) equipment
- Load shedding equipment of any description
- Automatic Voltage Control equipment
- Auxiliary supplies
- Fire protection equipment associated with HV apparatus.
- Intertrip protection signalling equipment
- LV or mechanical apparatus requiring HV apparatus out of service to provide personal safety requirements for the LV or mechanical work.
- LV or mechanical apparatus, which, if withdrawn from service, would preclude the associated HV apparatus staying in service.
- Protection relays and associated circuitry
- Supervisory control and monitoring equipment of any description (SCADA, etc.)
- Equipment associated with provision of sustained auxiliary supplies.
- HV equipment ancillary apparatus such as cooling fans and pumps, tap changer motors and performance monitoring facilities.
- Condition Monitoring equipment which can send alarms to the operator.

Hazard Awareness and Control

LV/Mech General

LV/MECH General

Persons authorised LV/MECH General are allowed to access Low Voltage and Mechanical (LV/MECH) apparatus ‘in the charge of a Controller’. This type of apparatus is normally accessed for the purposes of:

- Visual Inspection

- Design Investigation

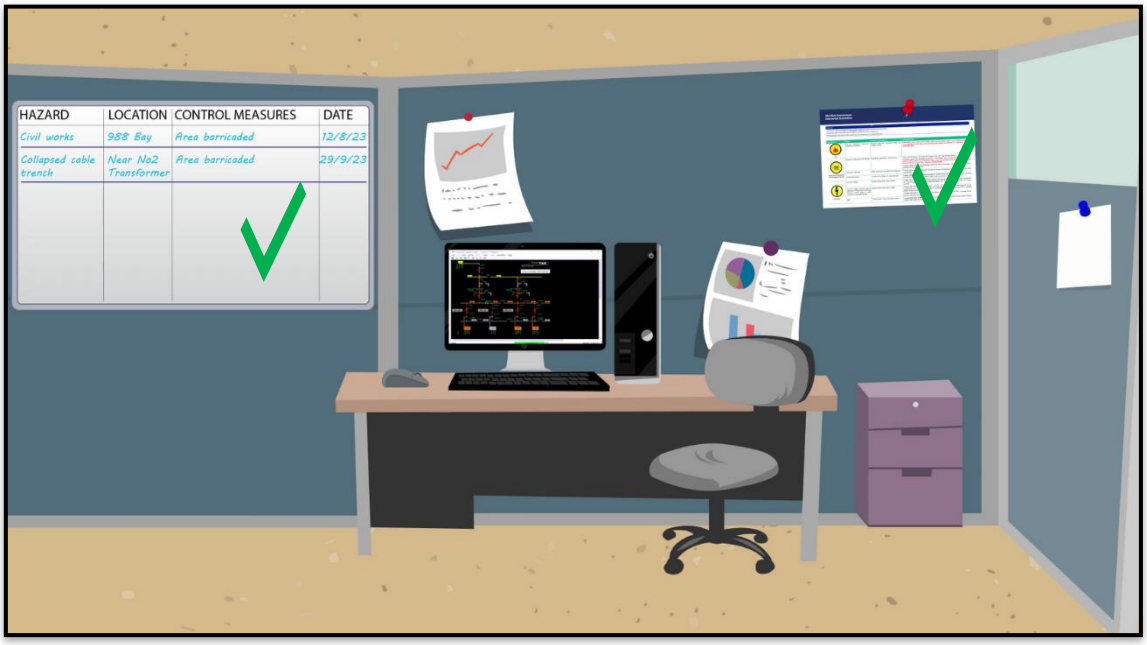
- Performing work on auxiliary services which are not in the charge of a Controller but are located within or adjacent to apparatus which is in the charge of a Controller.

Hazards

Before starting any work, a prestart hazard assessment must take place. At a minimum, the following hazards must be considered, and appropriate safety controls implemented.

Workplace Risk Assessment and Hazard Board

Every substation has a Workplace Risk Assessment (WRA) and Hazard Board which list hazards and controls relevant to the site and current conditions. These are normally located in the auxiliary services building near the Network Operating desk and must be reviewed before commencing work onsite.



Site Risk Assessment
Haymarket Substation

Summary

This site risk assessment details the site specific hazards associated with Haymarket Substation.
It should be used in conjunction with the Hazard Identification Board (Whiteboard).
Risks associated with specific tasks need to also be assessed prior to commencing work.

Risk Category	Hazard	Potential Consequences	Control Measures
Fire	Fire in enclosed underground substation environment	Personal injury from burns/toxic fumes and property damage	**If evacuation alarm sounds and red lights flash, proceed without delay via the STAIRS at either end of the substation (not the lift) to the mustering point outside the substation on Thomas St. Call 555 or (02) 9620 0555.**
Hazardous Substances and Dangerous Goods	Escape of a large amount of SF6 Gas	Engulfment, asphyxiation. Personal injury.	Sign on to SF6 register outside lift on B1 if going to B2 or B3. Sign off when leaving. Monitoring, alarms and evacuation procedures. **If evacuation alarm sounds and yellow lights flash, proceed without delay via the STAIRS at either end of the substation (not the lift) to the mustering point outside the control room. Call 555 or (02) 9620 0555.** Confined Space training and associated procedures (where applicable). Refer SDS sheet for handling guidelines and appropriate PPE.
	Hazardous Chemicals	Risks as set out in the SDS for the substance	**Comply with Hazardous Chemicals Storage & Transport procedure.** Apply controls as set out in the chemical SDS
	Compressed Gases.	Injuries due to release of compressed gas.	**Comply with Hazardous Chemicals Storage & Transport procedure** - Use correct storage & handling procedures. Ensure adequate ventilation. Apply controls as set out in the chemical SDS.
Electricity	Live High Voltage	Electric shock/ burns injury or death	**Comply with Power System Safety Rules**- Maintain safe approach distances (Attachment B), Do not come on or near exposed HV conductors or interfere with cables, GIS, GIL, GITs or GIR except under a HV Access Authority
	Live Low Voltage, including in-service cables and CT secondary circuits (e.g. moving in service cables or open-circuiting CT secondary circuits).	Electric shock/ burns injury or death	**Comply with Power System Safety Rules** - Maintain safe approach distances (Attachment B), Do not contact exposed LV conductors except under a LV Access Authority. Isolate, Tag and verify. PPE – Insulated gloves, barriers & tools etc. **Comply with Rules for building services isolations** - Isolate, Tag and verify. PPE – Insulated gloves, barriers & tools etc. as required
	EMF	Personal injury. Failure of Medical implant.	**Comply with Power System Safety Rules** – HV area access restricted for persons with medical implants unless medical approval obtained.

The Workplace Risk Assessment lists ‘permanent’ hazards for the site.

The Hazard Board list’s temporary conditions to be aware of.

Sensitive network operational equipment such as computer interfaces must not be interfered with.

Exposed live conductors.

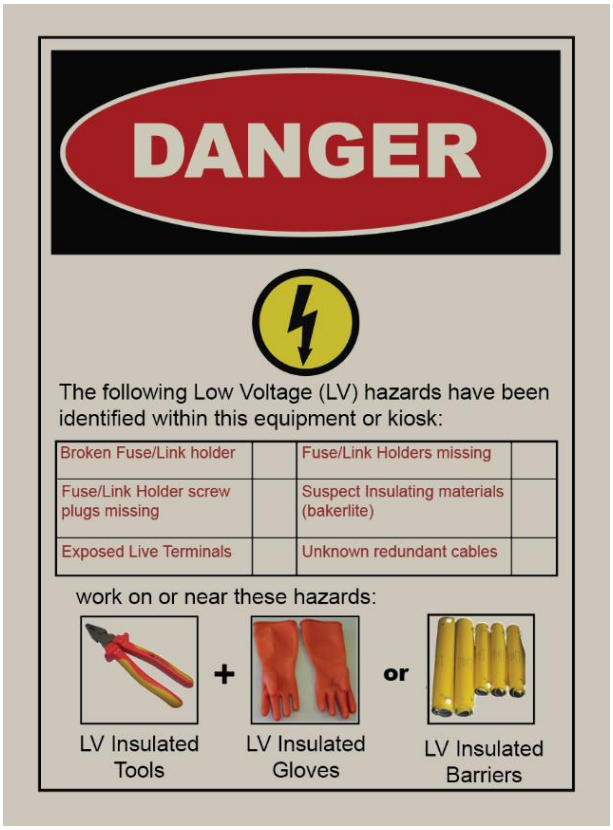
You should treat any exposed conductor as a potentially live Low Voltage source unless proven de-energised per an approved procedure.

Transgrid sites have a wide variety of Extra Low Voltage (ELV) and Low Voltage (LV) supplies.

- LV: 240V DC batteries; 240V DC control supplies; 240/415V AC circuits.
- ELV: 50 &120V DC batteries; 50V alarm supplies;120V DC control supplies.

Hazards from live sources can arise from:

- Exposed or live adjacent equipment,
- Bare or damaged conductors,
- Inadvertent energisation,
- Battery terminals and connections, and
- Inadequate or missing barriers.



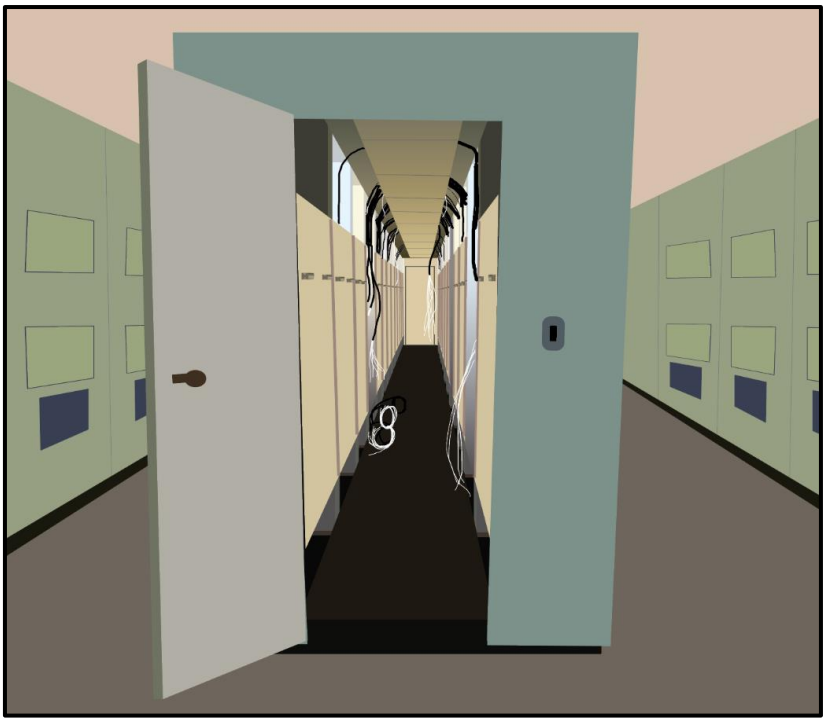
Hazard Notices

If the access door to a cabinet, kiosk or panel has a Danger Low Voltage Hazard notice affixed, it indicates that an exposed LV hazard has been identified beyond.

You must apply additional controls where it has been identified. Not all electrical hazards are identified. Always be aware when opening cabinet, kiosk, or panel doors.

Tunnel Boards

If you are entering a tunnel board, you should be vigilant as there are many exposed LV sources.



Barriers should be installed at any location where live equipment is installed in the panel. You can remove a barrier while you require access to the panel.

If your work involves excessive vibration or bumping of sensitive apparatus, you may cause it to inadvertently operate, affecting the Transgrid Network.

Arc Flash

Arc flash can occur during a Low Voltage fault. If an arc flash occurs, you could be exposed to extreme temperatures, intense light, powerful sound and pressure waves, shrapnel, metal vapours and molten metal.

Where the fault rating of low voltage apparatus have been assessed, it will be documented within the site workplace risk assessment. You should implement the appropriate controls listed in the workplace risk assessment for the type of equipment and type of work you will be completing.

There may be additional controls to implement, even if your activity is a visual inspection only.

Pressure Systems and Stored Energy

There are a range of different pressurised systems within Transgrid's network. Some examples are:

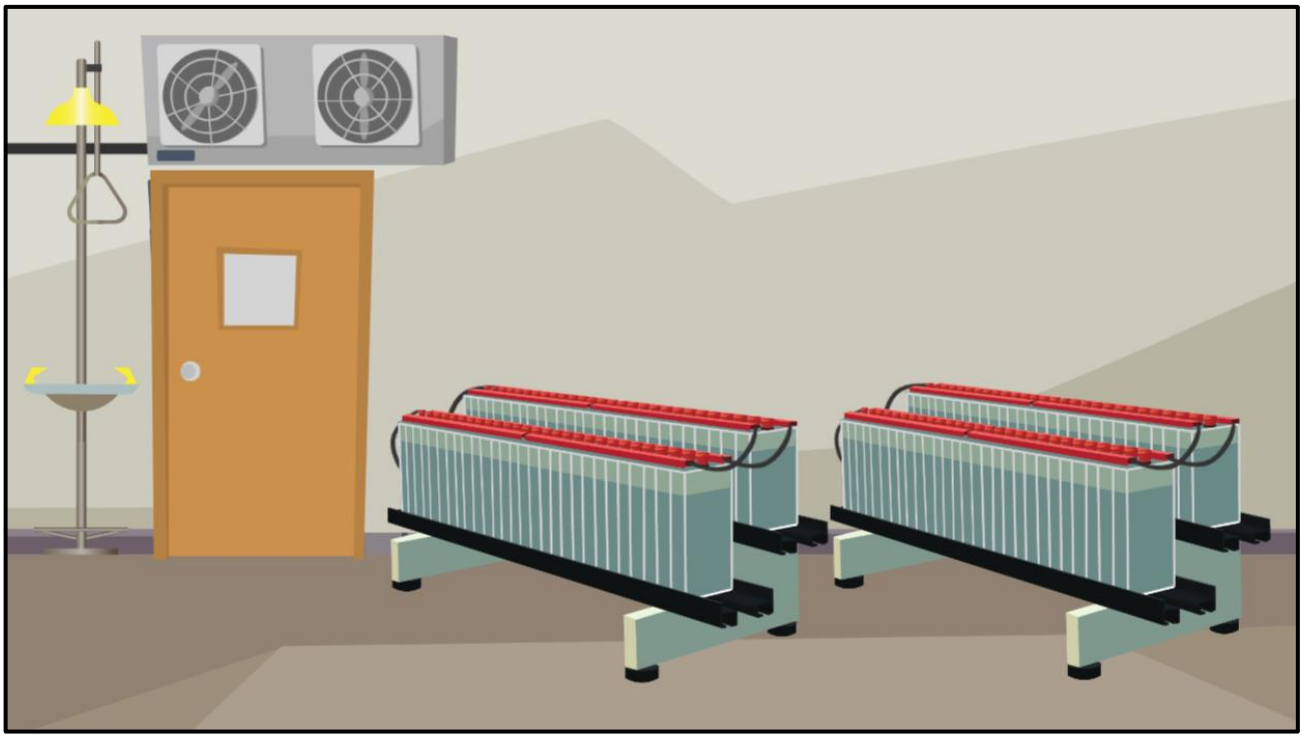
- Pressure storage vessels such as air systems, SF6 circuit breakers and GIS apparatus,
- Mechanical systems such as springs and other mechanisms,
- Gas systems such as accumulators.

Battery Rooms

Transgrid battery rooms typically have battery systems of 110V or 240V DC. Different types of batteries have specific hazards depending upon their voltage, construction and electrolyte.

Controls for battery room hazards are normally listed in the site Workplace Risk Assessment.

Before working in these areas, ensure controls noted in the Workplace Risk assessment and those on battery room doors are implemented.



The terminals and connections of these batteries may have exposed conductors and terminals. Touching or contact with exposed Low Voltage (LV) and Extra Low Voltage (ELV) electrical conductors can caused electric shock, injury, or death.

Rotating and Moving Parts

Some equipment can operate automatically without warning. Dangers can arise from rotating and moving parts such as:

- Control arms
- Spring charged mechanisms.
- Gears, cogs, shafts, and chains

- Pumps
- Fans

Where you are unsure about how a mechanism operates, keep clear of the mechanism. If your work is on or near operational rotating or moving parts, you will require a LV/MECH Access Authority.

Other Factors

Hazards while working in the vicinity of electricity can be increased by:

- Cramped working conditions and confined spaces.
- Multiple sources of supply
- Damp situations
- Environmental factors, e.g., heat, cold, vibration, noise, and proximity of other work functions
- Working at heights
- Unstable work area
- Material containing asbestos.
- Hazardous substances
- Inappropriate practices and procedures
- Working alone

Safe Work Practices on LV/MECH Apparatus

Safe Approach Distances

As a person authorised LV/MECH General, you must be aware of and maintain Safe Approach Distances (SAD) from ELV and LV sources which are in the charge of a Controller.

Persons authorised LV/MECH General must not come into contact with ELV sources (<50V AC or ,120V DC) and maintain a minimum SAD of 250mm from LV sources (>ELV and <1000V AC or 1500V DC).

SAFE APPROACH DISTANCES

Nominal Voltage (V):	ELV <50V AC or <120V DC	LV >ELV and <1000V AC or <1500V DC
Persons	No contact	0.25 (250mm) ✓
~~Persons +~~	~~Insulated contact~~	~~Insulated contact~~

Distance (m)

Persons + = Persons authorised 4.1, 4.3, 9.1, 9.2

Only persons authorised Receipt of a LV/MECH Access Authority, Operate LV/MECH Apparatus or HV Field Operators may make insulated contact with Live ELV and LV supplies.

Additional PPE Requirements

High Fault Level

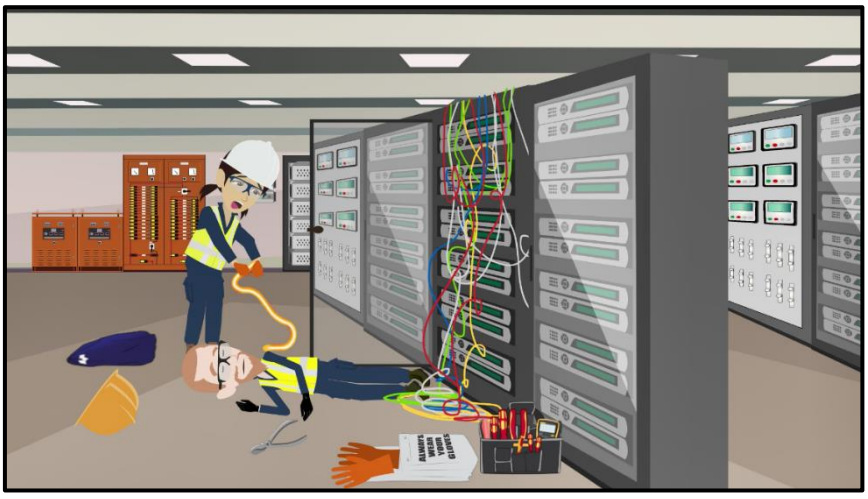
Areas with a specified arc energy fault level, may identify additional protective equipment that must be worn to meet the required Arc energy rating.

In addition to normal substation access PPE requirements, any work on, near or in the vicinity of energised (or potential to be energised) Low Voltage exposed conductors, requires arc rated clothing covering arms, torso, and legs to be worn.

Safety Observer and LV Rescue

If the risk assessment determines a safety observer is required, an LV Release and Rescue Kit must be available in the work area, and an Automated External Defibrillator (AED) must be available on site.

The safety observer must be trained in LV Release and Rescue, CPR and understand the work that is to be performed.



Low Voltage Barriers

Where there is a risk of contact with exposed LV conductors, you should install guards, barriers, and LV insulating covers to prevent inadvertent contact with live conductors. If there remains a residual risk of uninsulated contact (from any part of the body) with live conductors, consider working on an insulated mat and insulating the worker from earth potential.

Barriers for work on or near live ELV or LV conductors must have insulation rating appropriate for the work and their condition inspected prior to commencing an activity.

Ensure the work area is clear of any obstructions and that adequate access and egress is available.

Low Voltage Tools

Tools for work on or near live ELV conductors must have insulation rating for a minimum of 650V.

Insulated tools used for LV work must be rated for 1000V.

All tools and testing equipment must be inspected to ensure it is functioning correctly and in a serviceable condition prior to each use.

Unserviceable tools or equipment must not be used e.g., hand tools with damaged insulation.

Low Voltage Gloves

If you are working on or near Low Voltage, consider wearing low voltage working gloves.

LV working gloves must be rated for 1000V.

You must check the condition of your gloves before use:

1. Hold glove downward and grasp cuff.

2. Twirl glove towards your body to trap air inside

3. Hold glove to your face to feel and listen for escaping air.

Where you are performing work using insulated gloves, you should wear cotton inner gloves and approved outer working gloves that protect the insulated glove from damage.

Inner gloves

Insulated gloves

Outer working gloves

Power System Access

Receipt of a LV/MECH Access Authority

Issue LV/MECH Access Authority

Working on LV/MECH Apparatus

This section applies only to LV/MECH apparatus in the charge of a Controller. Work on Auxiliary services equipment which is not in the charge of a Controller is to be carried out under the requirements outlined in 'Work on equipment not in the charge of a Controller'.

'Persons +' Safe Approach Distance

Persons authorised Receipt of a LV/MECH Access Authority are authorised to perform work using insulated contact methods. This includes using insulated tools or gloves on live ELV and LV sources. Review 'Safe Work Practices on LV/MECH Apparatus' for insulated contact methods.

SAFE APPROACH DISTANCES

Nominal Voltage (V):	ELV <50V AC or <120V DC	LV >ELV and <1000V AC or <1500V DC
Persons	No contact	0.25 (250mm)
Persons +	Insulated contact	Insulated contact ✓

Persons + = Persons authorised 4.1, 4.3, 9.1, 9.2

Distance (m)

Work in the vicinity of LV/MECH apparatus

Work on LV/MECH apparatus in the charge of a Controller that does not require a LV/MECH Access Authority, should be performed and/or supervised by a person authorised Receipt of a LV/MECH Access Authority. This type of work typically includes:

- Where deliberate or inadvertent insulated contact with energised LV and ELV conductors or apparatus is possible or necessary.
- Installation of barriers and screening.
- Disturbing in-service LV and ELV cables.
- Removal of redundant LV/MECH apparatus and cables.
- Work on battery banks where your work does not interrupt supply to power system apparatus.

Low Voltage cables

Cable Installation

When work involves the installation of new cables into existing in-service panels, secondary boxes, distribution boards, marshalling kiosks, etc., where possible, exposed LV conductors should be isolated and proven de-energised by a person authorised Operate LV/MECH Apparatus.

Cable Removal

Prior to cable removal works, a person authorised Operate LV/MECH Apparatus must ensure cables and their conductors are, by use of an LVMPRI:

(a) Positively identified;

(b) Isolated from all energy sources, and the isolation secured with Do Not Operate tags; and

(c) Proven de-energised (including all cable cores and screen/sheath).

Following this they must ensure that the cables are:

(a) Disconnected at both ends (where possible); and:

(i) Where it is not intended to immediately remove the cable, LV rated insulation is applied to exposed conductors and warning tags or another form of identification applied to both cable ends.

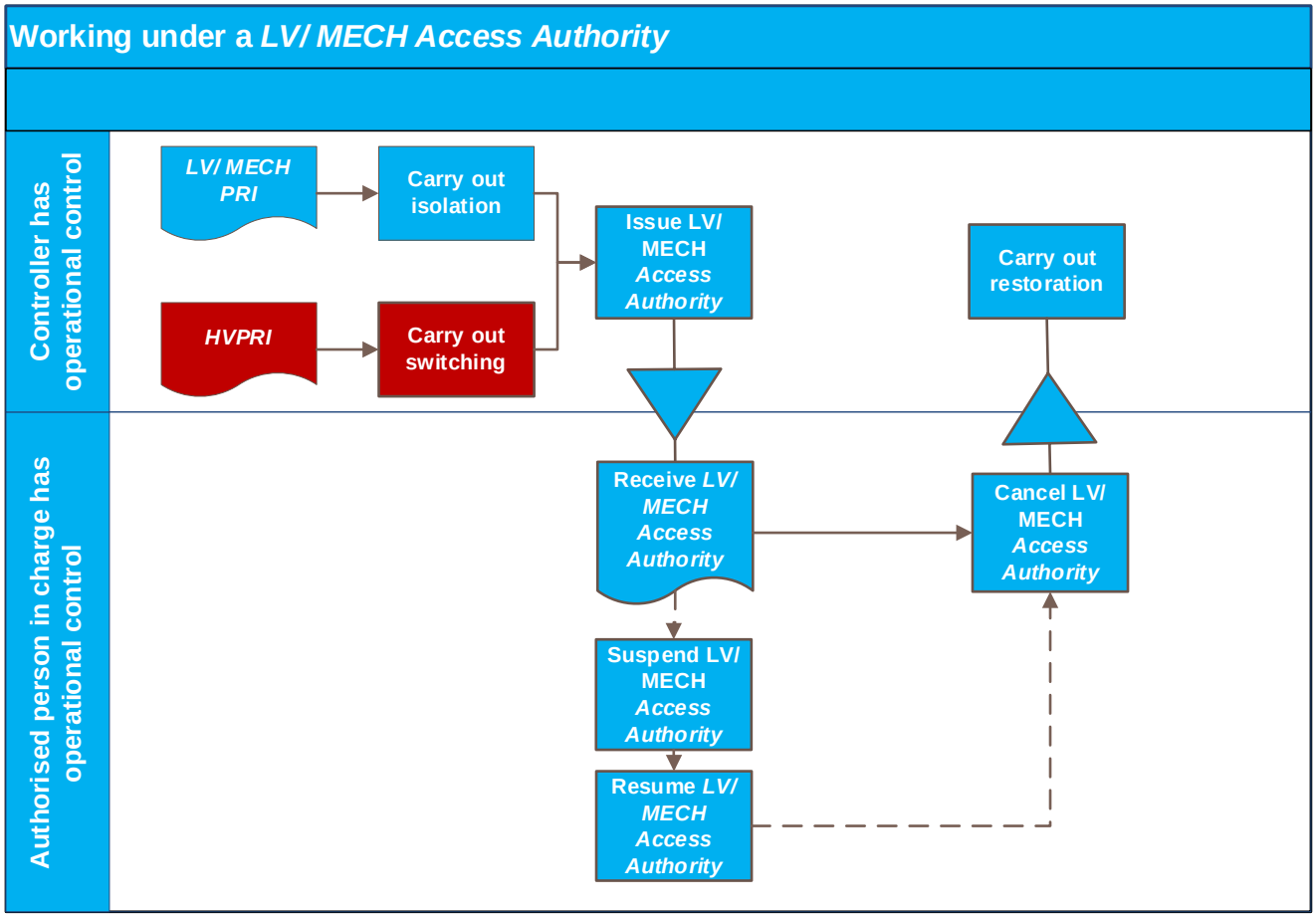
(ii) Where it is planned to remove the cable (within 7 days) the cable is to be marked to show it is ready for removal and the LV Cable removal check sheet is to be updated to record that the cable is ready for removal works.

Working on a LV/MECH Access Authority

A LV/MECH Access Authority is required when work is to be performed on Low Voltage or Mechanical apparatus in the charge of a Controller. It is issued to provide a safe working environment for personnel when working on or near exposed conductors and to control access to apparatus which could affect the power system.

LV/MECH Access Authority Flow Chart

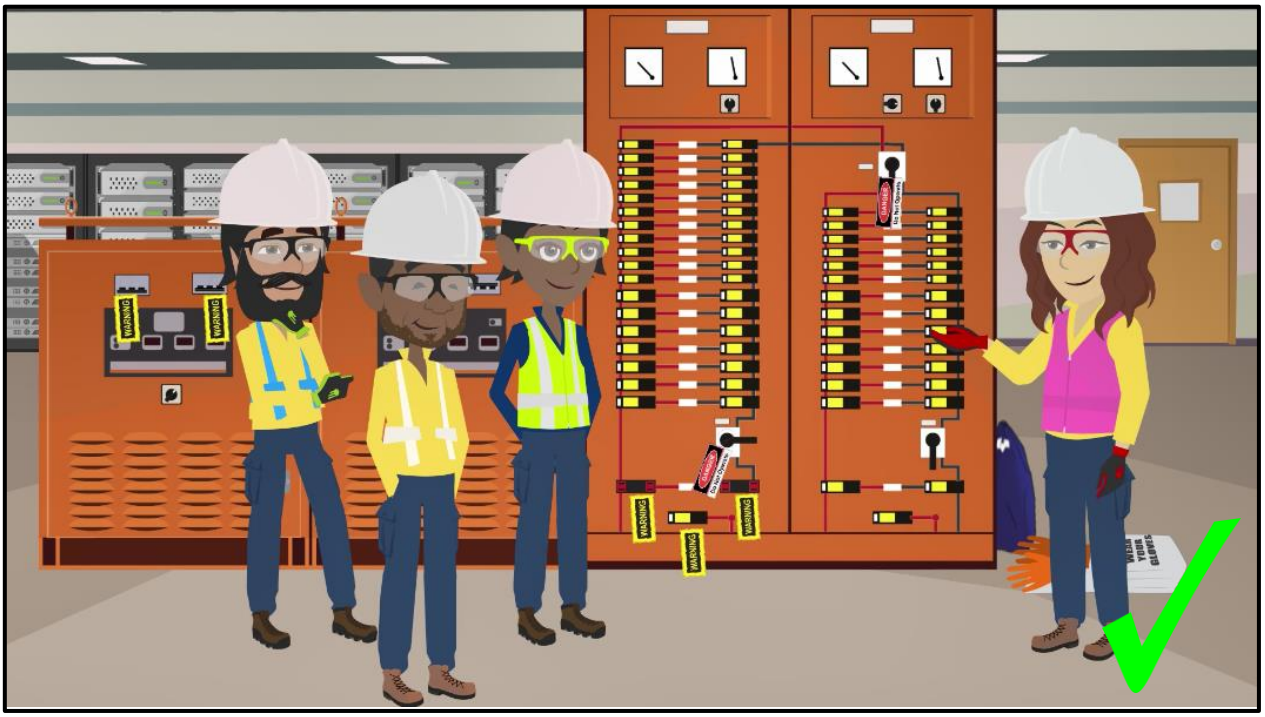
The following diagram illustrates the point at which operational control transfers from the Controller to the Authorised person in charge (i.e., the holder of the LV/MECH Access Authority).



Responsibilities of persons working under a LV/MECH Access Authority

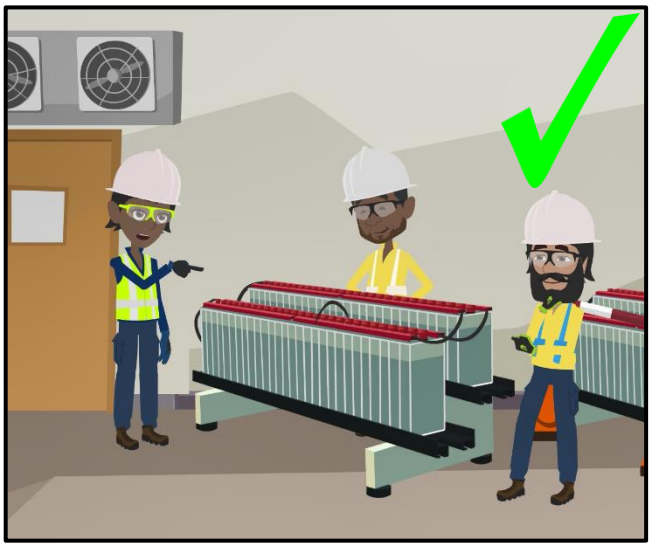
When you are performing work under a LV/MECH Access Authority, you must:

Be authorised Receipt of a LV/MECH Access Authority or work as an instructed person:

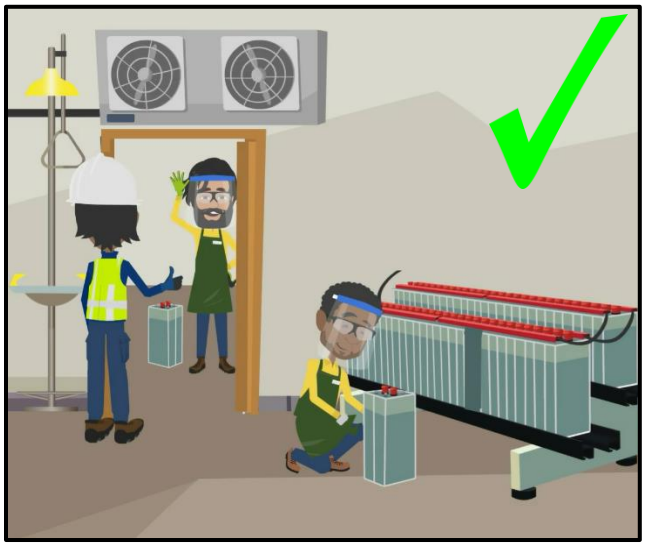


Be shown how the LV/MECH apparatus to be accessed has been made safe for work and given relevant warnings;

Sign onto the LV/MECH Access Authority to indicate that you understand the warnings and demonstrations given and your responsibilities under the LV/MECH Access Authority;



Follow any safety directions given by the authorised person in charge (APIC);



If you temporarily leave the work area, check with the APIC or in their absence another person signed on the LV/MECH Access Authority, that you are in the correct work area before recommencing work;

Sign off the LV/MECH Access Authority at the completion of your work for each day, shift or when leaving site;

Before recommencing work at the start of each day or shift (or when returning after leaving site), verify that the conditions of the LV/MECH Access Authority covering the apparatus are still valid and sign onto the LV/MECH Access Authority.

Receipt of a LV/MECH Access Authority

Responsibilities of the Authorised person in charge (APIC)

Persons authorised Receipt of a LV/MECH Access Authority are approved to perform the duties of the authorised person in charge and can receive / suspend / transfer / resume / cancel LV/MECH Access Authorities.

The APIC must ensure:

(a) The location, description of apparatus, description of work and the access required for work as shown on the LV/MECH Access Authority is identical to those on the relevant sections of the Request for Access (RFA) held by them;

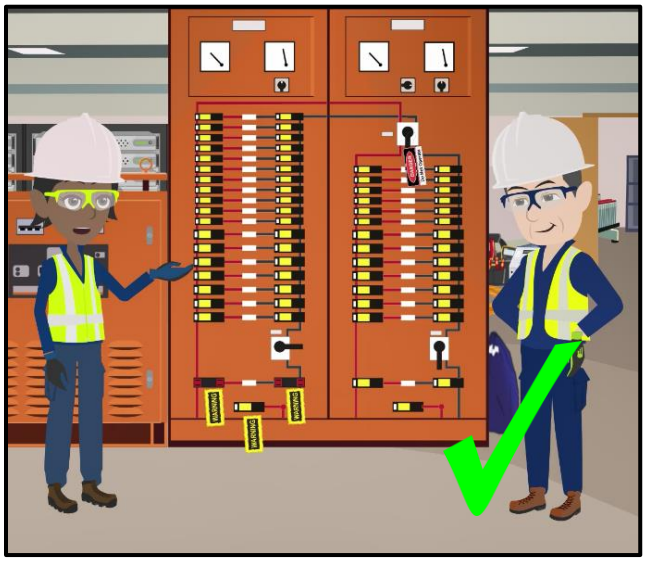
(b) That the apparatus to be worked on is positively identified and is identical to that shown on the LV/MECH Access Authority;

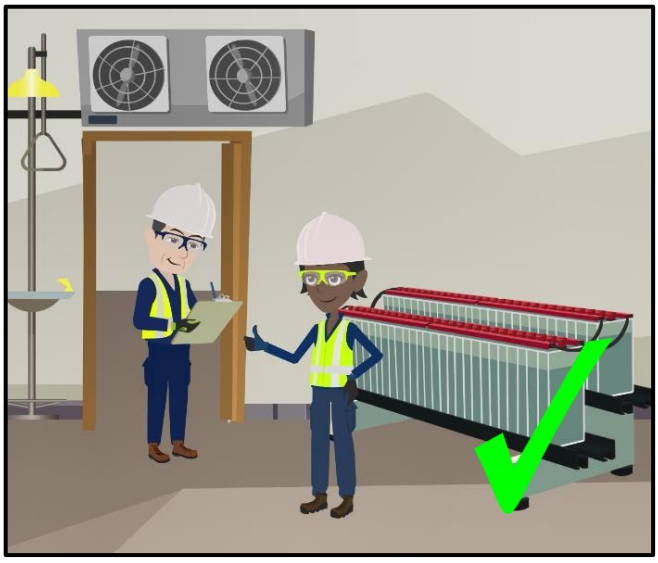
(c) They understand the warnings given by the issuer and their responsibilities under the LV/MECH Access Authority;

(d) All members of the working party have signed onto the LV/MECH Access Authority;

(e) The APIC must rule a line across the signature section, to confirm everyone above the line received the initial warnings and demonstrations by a person authorised Issue LV/MECH Access Authority.

(f) The APIC may permit additional persons to join the work party after the LV/MECH Access Authority has been issued, by giving them relevant warnings and demonstrations before allowing them to sign onto the LV/MECH Access Authority.





(g) Work is restricted to the description of work on the LV/MECH Access Authority;

(h) The LV/MECH Access Authority is kept within proximity to work area;

(i) The LV/MECH Access Authority is kept safe until it is suspended or cancelled;

(j) Additional control measures are identified and applied, so work can be carried out safely under the LV/MECH Access Authority;

(k) That all persons required to work on the Access Authority are:

(i) Either authorised Receipt of a LV/MECH Access Authority or are given warnings and/or demonstrations appropriate to the work being carried out and adequately supervised to enable them to work as instructed persons;

(ii) Informed as to the apparatus to be worked on, its identification details and the description of work to be carried out and the extent of access to the apparatus;

(iii) Given warnings and/or demonstrations appropriate to the work being carried out;

(iv) Conversant with the warnings/demonstrations given and their responsibilities under the LV/MECH Access Authority; and

(v) Signed off the LV/MECH Access Authority at the completion of their work for each day/shift or when leaving site.

(l) That in the event of the APIC needing to temporarily leave the work area (< 15 minutes), instructions are given to all persons in the working area to ensure that the relevant provisions of the PSSR are observed during their absence;

Transformer Automatic Voltage Regulation (AVR)

Where a LV/MECH Access Authority is issued for maintenance of a transformer AVR scheme with the transformer remaining in service, the APIC must also be a person authorised Operate HV Apparatus – Advanced to maintain the busbar voltage by manual control, as and when directed by the Controller.

Transfer of a LV/MECH Access Authority

Where there is a need to change the authorised person in charge:

(a) The APIC must ensure that the new recipient has received the Access Authority warnings and/or demonstrations from a person authorised Issue LV/MECH Access Authority;

(b) The LV/MECH Access Authority must be signed off by the person currently in receipt of the LV/MECH Access Authority;

(c) The new recipient of the LV/MECH Access Authority must be a person authorised Receipt of a LV/MECH Access Authority and sign onto the LV/MECH Access Authority; and

(d) The Controller must be notified of the new APIC.

Alterations to conditions of work under a LV/MECH Access Authority

Where the description of apparatus and/or the description of work shown on a LV/MECH Access Authority is required to be altered:

(a) The LV/MECH Access Authority requiring the alteration(s) must be cancelled.

Suspension of a LV/MECH Access Authority

Suspension of a LV/MECH Access Authority is required when work is to cease for a period and may remain suspended for a period not exceeding seven days except at the discretion of the Controller.

When a LV/MECH Access Authority is to be suspended, the APIC must ensure that:

(a) All persons working under the LV/MECH Access Authority have signed off, to indicate that permission to work is suspended;

(b) The LV/MECH Access Authority is endorsed to indicate that the apparatus is serviceable / is not serviceable;

> **Serviceable**
>
> When an Access Authority is suspended, serviceable indicates that the apparatus could be returned to service if required by Network Operations.
>
> When cancelling an Access Authority, serviceable indicates whether your portion of the work has been completed successfully. Where this is a single portion of a structured series of outages cancelling serviceable does not necessarily mean that the apparatus would be suitable for return to immediate service.

(c) The Controller is notified of the suspension of the work and whether the apparatus is/is not serviceable so far as this work is concerned; and

(d) The LV/MECH Access Authority, together with attachments, is delivered to the substation control point.

Resumption of Work Following Suspension of a LV/MECH Access Authority

When resuming work following suspension of a LV/MECH Access Authority:

(a) If the intended APIC is the person who held the LV/MECH Access Authority immediately prior to suspension, then the APIC must:

  (i) Obtain permission from the Controller;

  (ii) Sign on the LV/MECH Access Authority as the APIC;

  (iii) Allow all persons signed onto the LV/MECH Access Authority prior to its suspension to sign back on;

  (iv) Ensure any persons not signed on to the LV/MECH Access Authority prior to its suspension receive appropriate warnings and demonstrations; and

(b) If the intended APIC is not the person who previously held the LV/MECH Access Authority, then the intended APIC must comply with ‘Transfer of a LV/MECH Access Authority’.

Cancellation of a LV/MECH Access Authority

On completion of work, the APIC must:

(a) Prior to cancellation, carry out necessary checks to confirm:

(i) All additional control measures have been restored and tools are removed;

(ii) All persons signed on the LV/MECH Access Authority have signed off;

(iii) Whether any warnings or adjustments are required prior to or on return to service; and

(iv) Confirm whether apparatus is serviceable or not.

(b) Cancel the LV/MECH Access Authority by:

(i) Completing the cancellation section of the LV/MECH Access Authority;

(ii) Ensuring that the necessary details are communicated to the Controller;

(iii) Recording the time and date of cancellation of the LV/MECH Access Authority; and

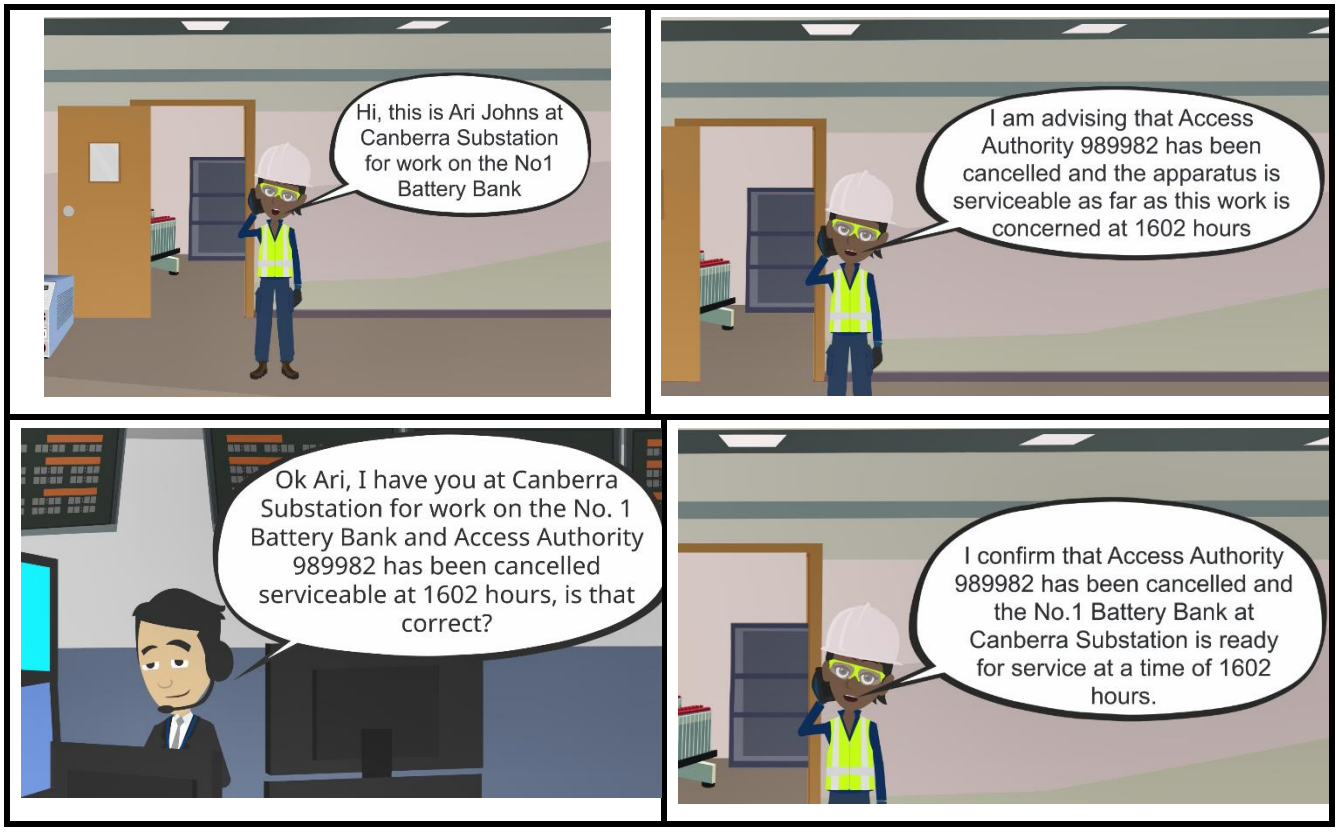
(iv) Delivering the cancelled LV/MECH Access Authority to the to the relevant control point or directly to the person responsible for the restoration of apparatus.

If it is found that a person has failed to sign off the LV/MECH Access Authority, the equipment must not be returned to service until an assurance is obtained that the person concerned is clear of the apparatus. This must be noted on the LV/MECH Access Authority.

Communicating with the Controller

Network Operations contacts:	
Direct Line Substation control point	Controller Northern Areas (02) 40145700
Emergency (from site phones) 555 or (02) 96200555	Controller Southern Areas (02) 88180621

Start all messages with your name, location, apparatus and intended purpose of call.



Message to Transfer Access Authority

On (apparatus identification) I would like to Transfer Access Authority (number) to new APIC (name) at (time) They have received AA warnings from (issuer's name).

Message to Suspend Access Authority

For work on (apparatus identification) I am advising that Access Authority (number) has been suspended. The Apparatus is (Serviceable/Not Serviceable) as far as this work is concerned.

Message to Resume Work

On (apparatus identification) I would like to resume work on Access Authority (number)

Message to Cancel Access Authority

For work on (Apparatus identification) I am advising that Access Authority (number) has been cancelled and the apparatus is serviceable as far as this work is concerned.

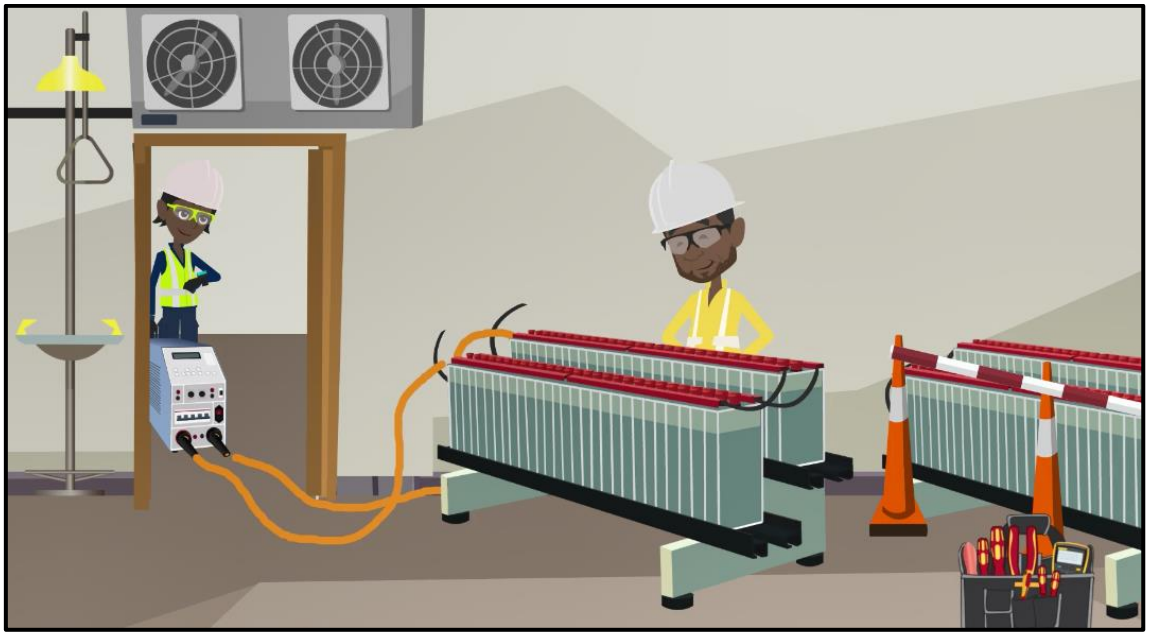
Receipt of a LV/MECH Testing Access Authority

A LV/MECH Testing Access Authority must be issued where the work includes:

- Modifications of some or all safety isolations are required for the work on the LV/MECH apparatus in the charge of a Controller.
- The use of a test source, which can produce currents hazardous to the human body, on the conductors of electrical apparatus; or
- The application of Extra Low Voltages or voltages produced by an insulation testing device operating at 1,000 volts or below, connected to electrical apparatus with a capacitance greater than 4,000 pF.

Responsibilities of the authorised person in charge of a LV/MECH Testing Access Authority

In addition to the requirements of receiving a LV/MECH Access Authority the authorised person in charge must:



(a) Instruct those persons working under the LV/MECH Testing Access Authority regarding work that may proceed safely during the testing and provide any additional warnings that may be applicable;

(b) Ensure that the apparatus is left in a safe condition; and

(c) That workers are warned whenever the hazards associated with working on the apparatus change due to the application of test voltages or the restoration or removal of electrical or mechanical energy isolations.

Transfer of a LV/MECH Testing Access Authority

In addition to the requirements of Transferring a LV/MECH Access Authority the new authorised person in charge must:

(a) Verify the status of the test devices and all other equipment associated with the testing; and

(b) Understand the warnings, instructions and applicable demonstrations regarding the devices and equipment that may be operated in conjunction with the test.

Issue of LV/MECH Access Authority

The issue of a LV/MECH or LV/MECH Testing Access Authority must be carried out by a person authorised Issue LV/MECH Access Authority.

Responsibilities of the authorised person issuing a LV/MECH Access Authority

The authorised person issuing a LV/MECH Access Authority must ensure that:

(a) The person receiving the LV/MECH Access Authority is a person authorised Receipt of a LV/MECH Access Authority;

(b) More than one LV/MECH Access Authority may be issued using the same PRI, provided that the PRI covers all the descriptions of apparatus and descriptions of work listed on each RFA.

(c) The steps of the PRI relevant to the description of work on the LV/MECH Access Authority to be issued, have been recorded as having been carried out;

(d) The unique Access Authority number received from the Controller is recorded on each LV/MECH Access Authority;

(e) The LV/MECH Access Authority is not issued if it is not safe for the work to proceed;

(f) The location, the description of apparatus, the description of work and the nominated access required for work set out on the LV/MECH Access Authority are identical to those stated in the relevant sections of the RFA held by the APIC;

(g) All required applicable warnings are entered on the LV/MECH Access Authority, and are communicated to the authorised person in charge and any members of the working party present;

(h) The LV/MECH apparatus which is safe to work on is demonstrated and the precautions taken to make the LV/MECH apparatus safe to work on are demonstrated, including points of isolation and Do Not Operate Tags.

(i) The LV/MECH Access Authority is endorsed as having been issued;

(j) The details of the issued LV/MECH Access Authority are communicated to the Controller.

Additional requirements when issuing a LV/MECH Testing Access Authority

In addition to the requirements of issuing a LV/MECH Access Authority, the authorised person must ensure that:

(a) A testing Access Authority is not issued where the test as requested may affect the safety of personnel working under another Access Authority;

(b) Warning Tags are affixed to all control points that can operate the apparatus during the test, in accordance with the PRI; and

(c) Warnings, instructions, and applicable demonstrations are given to the person in charge of the test.

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as trustee for NSW Electricity Networks Operations Trust (ABN 70 250 995 390).
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