

Access to Electricity and Generation Apparatus

Procedure

CONTROLLED DOCUMENT

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1 Purpose

The Access to Electricity and Generation Apparatus procedure (procedure) sets out the principles and responsibilities for safe access to electricity and generation Apparatus controlled or operated by the Power and Water Corporation (Power and Water).

This procedure is prepared in compliance with the Power and Water Access to Apparatus Management Standard and National Guidelines for Safe Access to Electrical and Mechanical Apparatus ENA DOC 003-2021.

2 Scope

This procedure covers the requirements for persons to access electricity and generation Apparatus for or on behalf of Power and Water when such Apparatus is being:

- a. Commissioned,
- b. Worked on out of service,
- c. Worked on in service, or
- d. De-commissioned.

Note: At some point when Apparatus owned, controlled or operated by Power and Water is being commissioned, the Apparatus may need to be connected to a source, or sources, of energy by the installation of conductors, pipes, drive shafts, belts, etc. Where this occurs the requirements of this procedure shall apply.

This procedure supports the WHS Policy Statement and the Access to Apparatus Management Standard.

2.2 Out of Scope

Live work on high voltage exposed conductors

Live work on high voltage exposed conductors is not included in this procedure but is covered in the Power Services High Voltage Live Work Transmission Manual and the High Voltage Live Work Distribution Manual.

General Occupational Health and Safety Risks

Requirements and controls for general occupational health and safety risks (e.g. use of personal protective equipment, working at heights, etc.) are dealt with in other Power and Water approved procedures and is not specifically addressed in this procedure.

2.3 Suspension or amendment of this procedure

The Chair of the Power Services Access to Apparatus Committee may suspend any item of this procedure in special circumstances where, in their opinion, it is safe and appropriate to do so.

The Chair of the Power Services Access to Apparatus Committee may call an extraordinary meeting to request amendments to the procedure if required.

3 GENERAL REQUIREMENTS FOR ACCESS TO APPARATUS

3.1 Access to Apparatus requirements

3.1.1 Planning

Prior to undertaking any work on apparatus, and in accordance with the Access to Apparatus Framework or an approved safe system of work, the following steps shall apply.

When planning access to apparatus, the process must include identification and confirmation of the apparatus involved, agreement on the nature of the work to be performed and the work method to be

used, consideration of the work environment and possible external hazards and risks and the applicable risk mitigations.

During the planning process and prior to the commencement of work consideration of the work team / crew composition including skills, training / approvals, and authorisations along with establishment of a safe working environment and access control must be considered.

If apparatus is to be returned to service post access, the planning process must factor in a restoration process inclusive of the cancellation of applicable access controls.

3.1.2 Access to Apparatus in the Charge of a Control Authority

- a. An approved schedule of Apparatus in the charge of a Control Authority shall be maintained for each Power and Water location.
- b. Access to High Voltage Electrical Apparatus within the Safe Approach Distance to live conductors set out in clause 8.1.2 of this procedure, except for live work and High Voltage Electrical Apparatus not electrically connected, shall be by Access Authority.
- c. Access to work above live high voltage conductors in circumstances involving risk to persons or damage to the High Voltage Electrical Apparatus is not permitted unless the conductors are:
 - i. within totally enclosed electrical Apparatus,
 - ii. screened with a suitable insulation material, or
 - iii. worked on under live work procedures, see clause 2.1 of this procedure.
- a. Access to Low Voltage Electrical Apparatus or mechanical Apparatus in the charge of a Control Authority for work or test shall be by Access Authority or, with the permission of the Control Authority, under Sundry Apparatus requirements (see section 6 of this procedure).
- b. Access to live Low Voltage Electrical Apparatus or not electrically connected low voltage Apparatus (see section 4 of this procedure) for work or test does not require an Access Authority.
- c. Access to Apparatus to carry out operational checks shall be in accordance with approved procedures.

Note: Operational checks on Apparatus involves checks to be carried out in a manner which minimises the potential of initiating inadvertent plant operations and/or trips while maintaining operational security.

- a. An approved schedule of specified work or test on Apparatus in-service shall be maintained for each Power and Water location. Specified work or test on Apparatus in-service shall be in accordance with approved procedures.

Note: Specified work or test on Apparatus in-service involves specific work or tests to be carried out, such as the replacement or cleaning of oil filters, cleaning of strainers, fault finding, etc.

- b. Access to High Voltage Electrical Apparatus, not electrically connected, to carry out work or test does not require an Access Authority provided the requirements of section 4.11 of this procedure are applied.
- c. Access to Low Voltage Electrical Apparatus, not electrically connected, to carry out work or test does not require an Access Authority provided there is no risk of induced and/or transferred potentials or a risk of coming within the Safe Approach Distance to live conductors of other electrical Apparatus. Refer to section 5.6 of this procedure.
- d. Access to mechanical Apparatus, not mechanically connected, to carry out work or test does not require an Access Authority provided measures are taken to remove or control all hazards from sources of stored energy.

3.1.3 Access for work in the vicinity of Apparatus

Work in the vicinity of Apparatus shall be carried out in accordance with section 8 of this procedure.

3.1.4 Access to Sundry Apparatus

An approved schedule of Sundry Apparatus shall be maintained for each Power and Water location.

Access to Sundry Apparatus shall be in accordance with section 7 of this procedure.

3.1.5 Access to underground cables

Access to excavate in the vicinity of underground cables, shall be in accordance with section 8 of this procedure.

3.2 Request for access to Apparatus

A request for access shall be submitted to the Control Authority in accordance with approved procedures for:

- a. work or test on Apparatus in the charge of a Control Authority, and/or
- b. work in the vicinity of Apparatus.

A request for access shall include:

- a. location and description of the Apparatus to be worked on or tested,
- b. description of the work or test,
- c. proposed time and date of work or test, and
- d. other relevant information required to prepare the Apparatus for access.

3.3 Prepare Apparatus for issue of an Access Authority

3.3.1 Preparation/restoration instruction (PRI)

Except as outlined in clause 4.2.3 of this procedure, the points of isolation, and any other steps taken to make the Apparatus safe for work or test shall be recorded.

3.3.2 Preparation/Restoration Instruction (PRI)

- a. Where the points of isolation and any other steps taken to make the Apparatus safe for work or test are recorded on a PRI, the PRI shall be:
 - i. prepared by a person authorised to prepare a PRI, and
 - ii. checked for correctness by a second Authorised Person to prepare a PRI.
- b. A PRI shall include:
 - i. a unique reference,
 - ii. description of the Apparatus covered by the PRI,
 - iii. scope or the limits of PRI,
 - iv. any warnings and/or instructions applicable to the application of the PRI,
 - v. steps required to prepare the Apparatus for access and/or restoration,
 - vi. any additional steps required to prove the integrity of the isolation, e.g. proving de-energised, draining, venting etc,
 - vii. the type of tag required to be attached to each device, and
 - viii. the provision for the endorsement of the completion of each step.
- c. Where the steps set out in a PRI require alteration, they shall be altered by a person authorised to prepare the steps of a PRI in accordance with approved procedures.
- d. The steps of a PRI shall be conducted by a person authorised to conduct the steps of a PRI. Each step shall be endorsed as having been completed.

3.4 Issue of an Access Authority

An Access Authority shall include:

- a. a unique reference,
- b. location and description of the Apparatus to be worked on or tested,
- c. description of the work or test,
- d. any other relevant warnings, precautions and information,
- e. provision of issue, receipt, transfer, suspension, surrender and cancellation,
- f. points of isolation, and
- g. points of Access Authority earths, where applicable.

3.4.2 Access Authority Issue (Authorised Person)

An Access Authority shall only be issued by a person authorised to issue an Access Authority for the work or test concerned.

3.4.3 Access Authority (Test)

An Access Authority for work on Apparatus and an Access Authority for test shall not be issued concurrently on the same Apparatus.

3.4.4 Access Authority (Multiple Issue on Same Apparatus)

More than one Access Authority for work may be issued concurrently on the same Apparatus provided:

- a. the work under each Access Authority does not affect the safety of the work being carried out under another Access Authority, and
- b. provided the access authorities, and their associated isolations and earthing points, are controlled and coordinated by the Control Authority.

3.4.5 Access Authority (Work Team Coordination Responsibility)

Where more than one Access Authority is on issue for the same Apparatus or where separate work teams are working under one Access Authority, work team coordination shall be the responsibility of the Authorised Person(s) in receipt of the Access Authority(s).

3.4.6 Access Authority (Additional Precautions Requests)

Any person involved in the issue or receipt of an access authority who is not satisfied with the conditions of the access authority, may request additional precautions be taken, either before the access authority is issued or during the currency of the access authority.

3.4.7 Responsibilities of Authorised Persons issuing an Access Authority for Work or Test

The Authorised Person issuing an Access Authority for work or test shall ensure:

- a. the points of isolation and any other steps taken to make the Apparatus safe for work or test, relevant to the description of work or test on the Access Authority to be issued, have been recorded and verified in accordance with approved procedures as having been carried out,
- b. the person receiving the Access Authority is authorised to receive an Access Authority for the work or test concerned,
- c. the location, the description of Apparatus and the description of work or test as set out on the Access Authority provides access to the Apparatus as requested and are to the satisfaction of the Authorised Person receiving the Access Authority,
- d. points of isolation, and any other steps taken to make the Apparatus safe, are confirmed to the satisfaction of the Authorised Person receiving the Access Authority,
- e. the person receiving the Access Authority, and any person who is to sign on the Access Authority who may be present, understands the limits of the work or test and are given all applicable warnings, precautions and information as listed on the Access Authority,
- f. the Access Authority is endorsed as having been issued, and

- g. the relevant details are communicated to the Control Authority.

3.4.8 Access Authority and PRI (Recording)

The Control Authority shall ensure that relevant details of the PRI and the Access Authority are recorded.

3.5 Receipt of an Access Authority

3.5.1 Person Authorised to Receive Access Authority

An Access Authority shall only be received by a person authorised to receive an Access Authority for the work or test concerned.

3.5.2 Responsibilities of Authorised Persons Receiving an Access Authority for Work or Test

The Authorised Person receiving an Access Authority (Person in Charge) for work or test shall ensure:

- a. where necessary, they confirm the location of any barriers and signage erected for the purposes of issuing the Access Authority,
- b. no work or test is performed prior to their signing for the receipt of the Access Authority.
- c. they sign the Access Authority to indicate that they understand the limits of the work or test under the Access Authority, the warnings, precautions and information given and their responsibilities under the Access Authority,
- d. where necessary, control measures are identified and applied,
- e. that all persons required to sign on the Access Authority:
 - i. are informed as to the description of Apparatus, description and limits of work or test to be carried out.
 - ii. are given and observe the applicable warnings, precautions and information;
 - iii. sign on before commencing any work or test,
 - iv. **Note:** Where the facility to sign on an Access Authority has been fully utilised, an Access Authority signature sheet may be used.
 - v. safe work practices and, where applicable, work method statements are implemented for the work or test involved,
 - vi. may, give permission for a person who is not authorised to sign on the Access Authority, to sign on provided they or another Authorised Person closely supervise the person whilst they are signed on the Access Authority, and
 - vii. the Access Authority is secure.
- f. ensure persons signed on the access authority are appropriately supervised,
- g. ensure the access authority is available for the duration of issue,
- h. where a barrier is established, ensure:
 - i. approved procedures are used for the control of personnel within, or when leaving or returning to the barrier area,
 - ii. where it is necessary to alter the barrier that it is carried out in accordance with approved procedures,
 - iii. be present at the work area to the extent necessary to exercise their responsibility,
 - iv. ensure that where access authority earths are required to be removed, and where necessary replaced, it is done in accordance with approved procedures, and
 - v. advise the Control Authority of any lost or damaged access authority.

3.5.3 Alterations to an Access Authority conditions

Where the description and/or limits of work or test, warnings or precautions listed on the Access Authority are required to be altered, the Authorised Person in receipt of the Access Authority shall:

- a. endorse the Access Authority as suspended in accordance with clause 3.8.1 of This procedure, or
- b. surrender the Access Authority.

The Authorised Person to issue an Access Authority shall:

- c. check that the required alterations to the conditions of the Access Authority will not affect other access authorities on issue.
- d. approve or disapprove the alterations,
- e. alter the steps of the PRI, where necessary, in accordance with approved procedures,
- f. carry out the altered steps of the PRI, and
- g. where the Access Authority has been suspended:
 - ensure the Access Authority is endorsed with the altered conditions, and
 - give permission for the work or test under the Access Authority to resume in accordance with clause 3.8.3 of this procedure.

3.6 Responsibilities of persons required to sign on an Access Authority

All persons required to sign on the Access Authority shall:

- a. sign on the Access Authority to indicate that they understand the description and limits of the work or test under the Access Authority and the warnings, precautions and information given and their responsibilities under the Access Authority,
- b. follow any safety directions given by the Authorised Person in receipt of the Access Authority, and
- c. before recommencing work or test on any subsequent day or shift, verify with the Authorised Person in receipt of the Access Authority that the conditions of the Access Authority are still valid.

3.7 Transfer of the Receipt of an Access Authority

3.7.1 Access Authority (Receipt Transfer)

The receipt of an Access Authority may be transferred, in accordance with approved procedures, to another person authorised to receive the Access Authority for the work or test concerned.

Note: Where the facility on an Access Authority to record the transfer of the receipt of an Access Authority has been fully utilised, an Access Authority suspension/transfer sheet may be used.

3.7.2 Authorised Person (Access Authority Receipt and Transfer)

The Authorised Person to whom the receipt of the Access Authority has been transferred shall comply with the requirements of clause 3.5.2 of this procedure.

3.7.3 Control Authority Notification of Access Authority Transfer

The Control Authority shall be notified of the transfer of the receipt of the Access Authority by the Authorised Person to whom the Access Authority was transferred.

3.8 Suspension and resumption of work or test under an Access Authority

3.8.1 Responsibilities of Authorised Persons suspending work or test under an Access Authority

When work or test is to be suspended, the Authorised Person in receipt of the Access Authority shall:

- a. ensure all persons sign off the Access Authority to indicate that their permission to work or test is suspended,
- b. endorse the Access Authority to indicate:
 - i. the Apparatus is serviceable/is not serviceable,
 - ii. permission to work or test is suspended, and

Note: Where the facility on an Access Authority to record the suspension of an Access Authority has been fully utilised, an Access Authority suspension/transfer sheet may be used.

- iii. deliver the Access Authority to a designated person/location.

3.8.2 Access Authority Suspension (by other than person in receipt)

Where work or test under an Access Authority is required to be suspended and the Authorised Person in receipt of the Access Authority is not available:

- a. the work or test may be suspended by another person authorised to receive the Access Authority for the work or test concerned, provided
- b. the Authorised Person originally in receipt of the Access Authority is advised, as soon as possible, that the work or test has been suspended.

3.8.3 Resumption of work or test following suspension of an Access Authority

When the resumption of work or test is required following suspension of an Access Authority, the person authorised to receive the Access Authority shall:

- a. obtain the permission of the Control Authority to resume the work or test; and
- b. comply with clause 3.5.2 of this procedure and approved procedures.

3.9 Surrender of an Access Authority

3.9.1 Responsibilities of Authorised Persons surrendering an Access Authority for work or test

- a. When an Access Authority is to be surrendered, the Authorised Person in receipt of the Access Authority shall:
 - i. ensure, where applicable, working earths have been removed,
 - ii. ensure all persons sign off the Access Authority to indicate they have completed their work or test,
 - iii. endorse the Access Authority with any warnings/adjustments required prior to or on return to service,
 - iv. sign the Access Authority to indicate their permission to access the Apparatus is surrendered, and
 - v. advise the Control Authority that the Access Authority has been surrendered and deliver the Access Authority to a designated person/location.
- b. Where an Access Authority is required to be surrendered and the Authorised Person in receipt of the Access Authority is not available:
 - i. the Access Authority may be surrendered by another person authorised to receive an Access Authority for the work or test concerned provided the Authorised Person currently in receipt of the Access Authority is advised, as soon as possible, that the Access Authority has been surrendered.

3.10 Cancellation of an Access Authority

3.10.1 Responsibilities of Authorised Persons cancelling an Access Authority for work or test

Following the surrender of an Access Authority, an Authorised Person cancelling an Access Authority shall:

- a. check that all persons signed on the Access Authority have signed off,
- b. check that the Access Authority has been signed as surrendered,
- c. complete the cancellation section of the Access Authority; and
- d. ensure that the necessary details are communicated to the Control Authority.

3.11 Restoration of Apparatus

The Authorised Person restoring the Apparatus shall restore the Apparatus in accordance with the PRI.

4 HIGH VOLTAGE ELECTRICAL APPARATUS

4.1 Access to High Voltage Electrical Apparatus

4.1.1 Access to switchyards and substations

- a. Personnel access
 - i. Persons shall only enter switchyards and substations if they are authorised for entry at the location concerned; or an instructed person accompanied by a person authorised to enter the location concerned.
 - ii. All persons when entering a switchyard or substation shall inform the Control Authority of the nature and likely duration of their visit and shall advise the Control Authority when they are leaving.
- b. Mobile plant or vehicle access
 - i. When mobile plant or vehicles are being used in a switchyard and are likely to come within the relevant Safe Approach Distance to live conductors, the mobile plant or vehicle shall be fitted with a trailing earth cable connected to the earth grid of the switchyard.
 - ii. The trailing earth shall be capable of carrying the maximum prospective earth fault current and, additionally, a Safety Observer shall be appointed to observe the movement of the mobile plant or vehicle.
 - iii. An AWW shall be issued in these circumstances.

4.1.2 Switchyard and cage gates and doors

- a. Gates or doors giving access to switchyards and cages shall be kept securely closed at all times when not in immediate use.
- b. When a gate or door is used to provide an entrance to a designated high voltage access area, it shall be fastened open when the Access Authority is issued and closed when the work or test under the Access Authority is suspended, or the Access Authority is surrendered.

4.1.3 Access to cages

A person shall only enter a cage if they are:

- a. authorised for entry to cages, or
- b. signed on an Access Authority.

4.1.4 Access to high voltage totally enclosed electrical Apparatus

Doors enclosing live exposed conductors shall be kept closed except when work is being performed inside the enclosure that is not within the relevant Safe Approach Distance to live conductors.

Where the unbolting, unlocking of covers or the opening of shutters of high voltage totally enclosed electrical Apparatus may bring a person, or any object held by or in contact with that person (other than insulated objects designed for contact with live conductors), within the Safe Approach Distance to live conductors then Access Authority requirements shall apply.

4.2 Electrical operating work on High Voltage Electrical Apparatus

4.2.1 Electrical operating work, except in an emergency

Electrical operating work, except in an emergency on High Voltage Electrical Apparatus shall only be carried out by an appropriately Authorised Person and at the direction of the Control Authority. Refer to clause 4.2.2 of this procedure.

Note: The operation of High Voltage Electrical Apparatus not electrically connected shall not be considered electrical operating work.

4.2.2 Electrical operating work, in an emergency

In emergency circumstances involving risk to persons or risk of damage to Apparatus, High Voltage Electrical Apparatus may be operated by an un-Authorised Person provided the un-Authorised Person carries out the operations, in accordance with approved emergency plans, under the direction of the Control Authority.

Electrical operating work on High Voltage Electrical Apparatus shall be conducted under a PRI except in situations involving:

- a. The breakdown of High Voltage Electrical Apparatus,
- b. The operation of a single switch isolating radial fed High Voltage Electrical Apparatus that cannot be energised from any other source, or
- c. The disabling of auto re-close facilities.

4.2.3 Verbal messages relating to the operation of High Voltage Electrical Apparatus

All verbal messages relating to the operation of High Voltage Electrical Apparatus shall be confirmed by recipient of the message by repeating back the message to the sender.

Messages shall be logged using an approved procedure.

4.2.4 High voltage electrical Apparatus - Maintaining in a specific status for another Business Unit or organisation

Where electrical operating work is carried out for the purpose of maintaining High Voltage Electrical Apparatus in a specific status for another Business Unit or organisation, i.e. isolated, the Control Authority of the High Voltage Electrical Apparatus shall:

- a. issue a statement of condition of Apparatus or plant (SCAP) to the other Business Unit or organisation in accordance with approved procedures, and
- b. ensure the status of the High Voltage Electrical Apparatus under a statement of condition of Apparatus or plant is not to be altered until the statement of condition of Apparatus or plant has been cancelled.

4.3 Preparation of High Voltage Electrical Apparatus for access

4.3.1 High Voltage Electrical Apparatus Conductors Shall be Isolated

Before an Access Authority is issued for work or test on the conductors of High Voltage Electrical Apparatus the conductors shall be isolated, proved de-energised and earthed by a person authorised to conduct the steps of a high voltage PRI.

4.3.2 High Voltage Electrical Apparatus Isolation

The isolation, proving de-energised and earthing of single wire earth return (SWER) lines shall be in accordance with clause 4.3.1 of this procedure. Additional measures shall be applied in accordance with approved procedures to control localised voltage rise created by using the general mass of earth as a return conductor.

4.3.3 High Voltage Electrical Apparatus Authorised Person

A person shall be authorised to conduct the steps of a PRI for High Voltage Electrical Apparatus and shall comply with section 3.3 of this procedure.

4.3.4 Isolation of high voltage conductors

Conductors shall be isolated from each point of supply. Points of isolation shall include:

- a. low voltage sources, which can cause the conductors to become live at high voltage; and
- b. neutral connections of generators and transformers from common portions of any neutral system.

The effectiveness of the points of isolation shall be demonstrated by either:

- c. a visible break, or
- d. where it is not possible to provide a visible break due to the design of the isolating device, the application of an approved testing or earthing procedure.

The points of isolation shall be locked (where the facility exists) and Do Not Operate tags affixed. The access authorisation number shall be noted on the lock and/or tag.

If during the course of the work a point of isolation is required to be moved, any affected Access Authority shall be suspended or surrendered prior to the movement of the point of isolation.

4.3.5 Proving de-energised high voltage conductors

Conductors shall be proved de-energised at the proposed point of application of an Access Authority earth with approved test equipment used in accordance with approved procedures.

Where the conductors of high voltage totally enclosed electrical Apparatus cannot be proved de-energised, an approved earthing procedure shall be used in accordance with clause 4.3.6(f) of this procedure.

- a. Earthing of high voltage conductors
- b. Access authority earths shall be applied, in accordance with approved procedures.
- c. Access authority earths shall be applied between each source of supply and the high voltage conductors to be worked on.
- d. Access authority earths shall be applied as close as practicable to the point of work.
- e. Access authority earths shall be applied each side of high voltage overhead lines where they cross other live high voltage overhead lines.
- f. Conductors may be earthed by means of a closed circuit breaker or similar device, provided that the device is rendered inoperative in the closed position.
- g. Where the conductors of high voltage totally enclosed electrical Apparatus cannot be proved de-energised prior to earthing, an approved earthing procedure shall be used that ensures:
 - i. X the conductors are initially earthed by integrated earthing and short-circuiting equipment with adequate fault making capacity (subsequent earths applied to the Apparatus need not have fault-making capacity); or
 - ii. where there is only one source of supply, the isolation of the high voltage supply occurs prior to the application of the earth using integrated “break before make” switchgear (that need not have fault-making capacity).
- h. For work on a capacitor bank, Access Authority earths shall be applied to the high voltage conductors and the star point of the capacitor bank or adjacent to the neutral earthing current transformers in such a way as to ensure that all capacitor elements are discharged.
- i. Do Not Operate tags shall be affixed to Access Authority earths applied for work on conductors. Testing tags shall be affixed to Access Authority earths that may be removed and replaced for the purposes of electrical testing.
- j. Where, during work under an Access Authority on electrical Apparatus, the electrical Apparatus, or part thereof, becomes not electrically connected then Access Authority earths attached to the not electrically connected electrical Apparatus may be removed and/or replaced in accordance with approved procedures.

4.3.6 Establishment of designated high voltage access area

- a. Where a designated high voltage access area is required to be erected as a requirement for the issue of an Access Authority it shall be erected in accordance with approved procedures.
- b. The designated high voltage access area shall be established by a person authorised to issue an Access Authority for work or test on high voltage Apparatus.
- c. All designated high voltage access areas shall:

- i. be established, in accordance with approved procedures, after High Voltage Electrical Apparatus is isolated, proved de-energised and earthed; and
- ii. have notices "Live high voltage conductors above or beyond" erected at points where it is possible for a person to move along a structure above ground level into the vicinity of conductors which are live.

4.4 Issue of an Access Authority for work on High Voltage Electrical Apparatus

A person shall be authorised to issue an Access Authority for work on High Voltage Electrical Apparatus.

Any designated high voltage access areas, barriers and signage required for the purposes of issuing the Access Authority shall be erected by a person authorised to issue an Access Authority for work or test on high voltage Apparatus prior to the issue of the Access Authority.

4.4.1 Responsibilities of Authorised Persons issuing an Access Authority for work on High Voltage Electrical Apparatus

- a. An Authorised Person issuing an Access Authority for work on High Voltage Electrical Apparatus shall comply with the requirements of section 3.4 of this procedure and shall ensure the Authorised Person receiving the Access Authority, and any person who is to sign on the Access Authority who may be present:
 - i. has identified to them those conductors which are to be worked on and the steps taken to make the conductors safe, including local points of isolation and Access Authority earths,
 - ii. has demonstrated to their satisfaction any unearthed or remotely earthed conductors that are safe to work on or in the vicinity of,
 - iii. are warned that if any person temporarily leaves the designated high voltage access area or defined work area, they shall check with the Authorised Person in receipt of the Access Authority that they are in the correct area before recommencing work;
 - iv. are warned to limit their work to the designated high voltage access area or defined work area; and
 - v. sign on to the Access Authority.

4.5 Receipt of an Access Authority for work on High Voltage Electrical Apparatus

A person shall be authorised to receive an Access Authority for work on High Voltage Electrical Apparatus.

A person shall be authorised to sign on an Access Authority for work on High Voltage Electrical Apparatus.

4.5.1 Responsibilities of Authorised Persons receiving an Access Authority for work on High Voltage Electrical Apparatus

- a. The Authorised Person in receipt of an Access Authority for work on High Voltage Electrical Apparatus shall comply with section 3.5 of This procedure and, in addition, where a designated high voltage access area is erected:
 - i. display the Access Authority at the entrance to the designated high voltage access area,
 - ii. ensure that any person entering the designated high voltage access area has signed on the Access Authority,
 - iii. ensure persons entering or leaving a designated high voltage access area use the established entrance,
 - iv. if it is necessary to make a temporary additional entrance to a designated high voltage access area to permit the passage of plant or materials, take precautions to ensure that the safety of persons working under the Access Authority is maintained and close off the temporary additional entrance as soon as the necessary movement has been completed,

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- v. if it is necessary to make a temporary additional entrance to a designated high voltage access area to permit the passage of plant or materials, take precautions to ensure that the safety of persons working under the Access Authority is maintained and close off the temporary additional entrance as soon as the necessary movement has been completed,
 - vi. may give permission for a person, who is not authorised to sign on the Access Authority, to sign on provided they closely supervise the person whilst they are signed on the Access Authority,
 - vii. if there is a need for them to temporarily leave the designated high voltage access area, give instructions to all persons in the designated high voltage access area that the relevant provisions of This procedure are to be observed during the absence, and
 - viii. ensure if there be a need for them to leave the designated high voltage access area on other than a temporary basis that the work shall cease until their return or the receipt of the Access Authority may be transferred in accordance with section 3.7 of this procedure.
- a. The Authorised Person in receipt of an Access Authority for work on High Voltage Electrical Apparatus shall ensure:
 - i. working earths and bridging leads are applied, where necessary, during the course of the work, and
 - ii. Where, during work under an Access Authority on electrical Apparatus the electrical Apparatus or part thereof, becomes not electrically connected that any attached Access Authority earths are removed or replaced in accordance with approved procedures.

4.6 Sign on an Access Authority for work on High Voltage Electrical Apparatus

Authorised persons signing on an Access Authority for High Voltage Electrical Apparatus shall:

- a. comply with section 3.6 of this procedure,
- b. not leave the work area without notifying the Authorised Person in receipt of the Access Authority, and
- c. before recommencing work or test after having been absent from the work area for any reason verify with the Authorised Person in receipt of the Access Authority that the conditions of the Access Authority are still valid.
- d. Supervise unauthorised workers as directed by the Receiver.

4.7 Transfer of Receipt of Access Authority -Work on High Voltage Electrical Apparatus

The transfer of the receipt of an Access Authority for High Voltage Electrical Apparatus shall be in accordance with section 3.7 of this procedure.

4.8 Suspension of work on High Voltage Electrical Apparatus under an Access Authority

4.8.1 Responsibilities of Authorised Persons suspending work on High Voltage Electrical Apparatus under an Access Authority

The Authorised Person suspending the work shall:

- a. comply with clause 3.8.1 of this procedure,
- b. notify the Control Authority of the suspension of the work under the Access Authority, its likely duration, the location of the Access Authority and whether the High Voltage Electrical Apparatus is/is not serviceable so far as this work is concerned, and
- c. where applicable, close off the entrance to the designated high voltage access area.

4.8.2 Resumption of work following a suspension of work under an Access Authority

Work may be resumed under the Access Authority after a suspension with the permission of the Control Authority in accordance with clause 3.8.3 of this procedure.

- a. If the person intending to sign the Access Authority as the Authorised Person in receipt of the Access Authority:
 - i. is the Authorised Person who was in receipt of the Access Authority immediately prior to the suspension, persons previously signed on the Access Authority may sign on again and work may recommence, or
 - ii. is not the Authorised Person who was in receipt of the Access Authority immediately prior to the suspension of the Access Authority, then the Access Authority shall be reissued in accordance with section 4.4 of this procedure.

4.9 Surrender of an Access Authority for work on High Voltage Electrical Apparatus

4.9.1 Responsibilities of Authorised Persons required to surrender an Access Authority for High Voltage Electrical Apparatus

The Authorised Person in receipt of the Access Authority shall:

- a. prior to surrendering the Access Authority remove all bridging leads and working earths applied during the work, and
- b. surrender the Access Authority in accordance with section 3.9 of this procedure.

4.10 Cancellation of an Access Authority for work on High Voltage Electrical Apparatus

The Access Authority shall be cancelled in accordance with section 3.10 of this procedure and the Apparatus restored in accordance with section 3.11 of this procedure.

4.11 Work or test on electrical Apparatus not electrically connected

- a. An Access Authority is not required for work on High Voltage Electrical Apparatus not electrically connected provided:
 - i. there are no risks from induced voltages and/or transferred potentials,
 - ii. there is no risk of coming within the Safe Approach Distance to live conductors of other High Voltage Electrical Apparatus,
 - iii. the Apparatus (including exposed connections) is identified as not electrically connected in accordance with approved procedures,
 - iv. exposed terminal connections of any high voltage cable or overhead line not electrically connected that are within a substation or generating station are identified in accordance with approved procedures,
 - v. each high voltage cable not electrically connected is identified and all other precautions as required by This procedure are followed,
 - vi. each high voltage overhead line not electrically connected is identified and all other precautions as required by This procedure are followed,
 - vii. where access to a double circuit high voltage overhead line not electrically connected is required, access is permitted without an Access Authority provided both circuits are not electrically connected,
 - viii. when High Voltage Electrical Apparatus is so designed that it may be withdrawn from live conductors of high voltage totally enclosed electrical Apparatus, the withdrawn High Voltage Electrical Apparatus may be deemed not electrically connected, provided that a rigid barrier effectively prevents access to the live conductors and also prevents the High Voltage Electrical Apparatus from being reconnected to the live conductors, and
 - ix. when work on High Voltage Electrical Apparatus not electrically connected involves hazards from low voltage or mechanical sources then the requirements of sections 5 and 6 of this procedure shall apply.
- b. Electrical testing:
 - i. Refer to clause 4.14.11 of this procedure for electrical testing on the conductors of High Voltage Electrical Apparatus not electrically connected.

4.12 Work on or near high voltage overhead lines

- a. Sections 4.2 to 4.10 of this procedure shall apply for work on high voltage conductors of overhead lines within a switchyard or generating station.
- b. Section 3.11 of this procedure shall apply for work on high voltage overhead lines not electrically connected.
- c. Approved procedures shall apply for work on an earth wire and its connections.
- d. Approved procedures shall be used to guard against induced voltages and/or transferred earth potentials.
- e. For electrical testing of high voltage overhead lines the requirements of section 3.14 of this procedure shall apply in addition to the requirements for an Access Authority for work on high voltage overhead lines.
- f. To issue an Access Authority for work on high voltage overhead lines a person shall be authorised to issue an Access Authority for work on high voltage Apparatus.
- g. To receive an Access Authority for work on high voltage overhead lines a person shall be authorised to receive an Access Authority for work on high voltage Apparatus.
- h. To sign on an Access Authority for work on high voltage overhead lines a person shall be authorised to sign on an Access Authority for work on high voltage Apparatus.

4.12.2 Work on high voltage conductors of a high voltage overhead line

Requirements for work on high voltage conductors of a high voltage overhead line shall be as follows:

- a. The high voltage overhead line, at the work location, shall be identified in accordance with approved procedures, proved de-energised, short circuited and earthed by the application of Access Authority earths.
- b. Access authority earths shall be applied as follows:
 - i. close to, and where practicable, within sight of, the work area. The work on the conductors shall not interfere with the effectiveness of the Access Authority earth; and
 - ii. where the work involves the connection, cutting or disconnection of any aerial conductor then prior to the work commencing:
 - Access Authority earths shall be connected to a common earthed point and then applied, one to each side of the point of work, or
 - bridging leads shall be applied across the point of work, after first applying a set of Access Authority earths to the conductor.
- c. On multi circuit high voltage overhead line structures coloured flags shall be applied in accordance with approved procedures to identify the conductors that are to be regarded as live.

4.12.3 Responsibilities of Authorised Persons issuing an Access Authority for work on high voltage overhead lines

The Authorised Person issuing the Access Authority shall:

- a. comply with the requirements of section 3.4 of this procedure,
- b. receive advice from the Control Authority that the high voltage overhead line has been isolated and Access Authority earths applied at all points from which it can be energised,
- c. receive clearance from the Control Authority to:
 - prove the overhead line de-energised,
 - apply Access Authority earths at specified locations,
 - issue the Access Authority,

- d. ensure that the conductors of the high voltage overhead lines are proved de-energised, short circuited and earthed by the application of Access Authority earths at specified locations,
- e. notify the Control Authority of the unique reference of the Access Authority to be issued, the name of the person who is to be the Authorised Person in receipt of the Access Authority and the expected time of issue,
- f. assemble all persons who are to sign on the Access Authority and:
 - identify the conductors which are safe to be worked on,
 - demonstrate the points of isolation and location of Access Authority earths,
 - warn of any other conductors, in the vicinity of the work, which shall be regarded as live,
 - warn of any hazardous low voltage or mechanical Apparatus;
- g. endorse the Access Authority as issued and advise the Control Authority of the issue; and
- h. observe the requirements of section 3.10 of this procedure when cancelling the Access Authority.

4.12.4 Responsibilities of Authorised Persons in receipt of an Access Authority for work on high voltage overhead lines

The Authorised Person in receipt of an Access Authority shall:

- a. comply with clause 3.5.2 of this procedure,
- b. give permission for a person, who is not authorised to sign on the Access Authority, to sign on provided they closely supervise the person whilst they are signed on the Access Authority,
- c. if there is a need for them to temporarily leave the work area, give instructions to all persons in the work area that the relevant provisions of this procedure are to be observed during the absence,
- d. if there be a need for them to leave the work area on other than a temporary basis the work shall cease until their return or the receipt of the Access Authority may be transferred in accordance with section 3.7 of this procedure,
- e. ensure working earths and bridging leads are applied, where necessary, during the course of the work, and
- f. where the receipt of the Access Authority is to be transferred, work suspended, work resumed or the Access Authority surrendered the requirements of sections (and subsequent clauses) 4.7, 4.8 and 4.9 respectively, of this procedure are observed.

4.12.5 Responsibilities of Authorised Persons signing on an Access Authority for work on high voltage overhead lines

Authorised persons signing on an Access Authority for work on high voltage overhead lines shall comply with section 3.6 and section 4.6 of this procedure.

4.12.6 Electrical testing

For electrical testing on the conductors of high voltage overhead lines refer to section 4.14 of this procedure.

4.13 Work on or near high voltage cables

- a. When work is to be performed on high voltage cables, other than that listed in clause 3.13.1 of this procedure, a request for access shall be submitted.
- b. To issue an Access Authority for work on high voltage cables a person shall be authorised to issue an Access Authority for work on high voltage Apparatus.

- c. To receive an Access Authority for work on high voltage cables a person shall be authorised to receive an Access Authority for work on high voltage Apparatus.
- d. To sign on an Access Authority for work on high voltage cables a person shall be authorised to sign on an Access Authority for work on high voltage Apparatus.
- e. All work on cables, other than that listed in clause 4.13.1 of this procedure shall be carried out as follows:
 - i. the cable shall be isolated and earthed as set out in clauses 4.3.4, and 4.3.6 of this procedure,
 - ii. an Access Authority for work on the cable shall be issued,
 - iii. before any work is commenced on the cable it shall be identified at the work area, using approved procedures, and
 - iv. the cable shall be spiked using spiking equipment remote, and detached, from its operator.

Work may be carried out on a cable or its attachments without an Access Authority where:

- f. The cable is not electrically connected, (see section 3.11 of this procedure),
- g. Minor work or repairs involving the serving of a cable that avoids direct contact with the metallic cable sheath or armouring is permitted at any point on the cable, or
- h. Cable tracing and/or location involves the use of a current detection device external to the cable.

4.13.2 Responsibilities of Authorised Persons issuing an Access Authority for work on high voltage cables

The Authorised Person issuing the Access Authority shall:

- a. comply with the requirements of section 3.4 and clause 4.4.1 of this procedure,
- b. receive advice from the Control Authority that the cable has been isolated and Access Authority earths applied at all points from which the cable can be energised,
- c. set up the designated high voltage access area and issue the Access Authority,
- d. ensure that all persons, who are present and required to sign on the Access Authority before commencing work, have been shown the cables on which they are to work and that they have been warned of the presence of any live cables in the immediate vicinity,
- e. inform the Control Authority of:
 - the unique reference of the Access Authority to be issued, and
 - the issue and cancellation of the Access Authority.

4.13.3 Responsibilities of Authorised Persons in receipt of an Access Authority for work on a high voltage cable

The Authorised Person in receipt of an Access Authority for work shall:

- a. comply with the requirements of sections 3.5 and 4.5 of this procedure,
- b. before any work is commenced on the cable it is to be identified at the work area, using approved procedures,
- c. the Access Authority is retained at the work area for the currency of the work, and
- d. where the receipt of the Access Authority is to be transferred, work suspended, work resumed or the Access Authority surrendered the requirements of subsections (and subsequent clauses) 4.7, 4.8 and 4.9 respectively of this procedure are observed.

4.13.4 Responsibilities of Authorised Persons signing on an Access Authority for work on a high voltage cable

Authorised persons signing on an Access Authority for work on a high voltage cables shall comply with the requirements of sections 2.6 and 3.6 of this procedure.

4.14 Electrical testing

4.14.1 An Access Authority for electrical testing shall be issued where the test involves

- a. the removal and/or replacement of Access Authority earths applied in accordance with clause 4.3.6 of this procedure,
- b. the use of a test source on the conductors of High Voltage Electrical Apparatus, which is capable of producing currents hazardous to the human body; (refer AS/NZS 60479 Effects of Current on human beings and livestock for further information),

An Access Authority for electrical testing is not required when testing High Voltage Electrical Apparatus not electrically connected which meets the requirements of section 3.11 of this procedure.

Only one Access Authority for electrical testing shall be issued on the same electrical Apparatus or parts thereof at any one time.

A person shall be authorised to issue an Access Authority for test on High Voltage Electrical Apparatus.

A person shall be authorised to receive an Access Authority for test on High Voltage Electrical Apparatus.

A person shall be authorised to sign on an Access Authority for test on High Voltage Electrical Apparatus.

4.14.2 Responsibilities of Authorised Persons issuing an Access Authority for electrical testing

The Authorised Person issuing an Access Authority for electrical testing shall:

- a. comply with section 3.4 and clause 4.4.1 of this procedure,
- b. ensure that all work under current access authorities on the conductors required to be electrically tested are suspended or surrendered,
- c. ensure no other Access Authority for electrical testing is issued on the same electrical Apparatus or parts thereof, and
- d. enter on the Access Authority for electrical testing the location of Access Authority earths that may be removed and/or replaced during the testing.

4.14.3 Responsibilities of Authorised Persons in receipt of an Access Authority for electrical testing

The Authorised Person in receipt of an Access Authority for electrical testing shall:

- i. comply with section 3.5 and clause 4.5.1 of this procedure,
- ii. be the person in charge of the electrical testing, and
- iii. ensure the adequacy of points of isolation for the application of the proposed test voltages have been provided by a section of earthed conductor between each point of isolation and the place of application of the test voltage, except where:
 - the test voltage is less than 3000 volts,
 - the test voltage is less than ten per cent (10%) of the nominal voltage of the equipment under test; or
- iv. the points of isolation are provided by a racked out circuit breaker of totally enclosed electrical Apparatus,
- v. direct the control of the switching of the test source energising the conductors covered by the Access Authority except where the test source is at a remote location,
- vi. ensure adequate communications are maintained with all persons involved in the testing, refer to section 8.8 of This procedure,
- vii. be responsible for the removal and replacement of Access Authority earths as permitted by the Access Authority for electrical testing; if authorised to operate the equipment,
- viii. for the purposes of conducting the electrical testing:

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- be permitted to disconnect and reconnect the conductors of the electrical Apparatus under test provided the conductors and the electrical Apparatus are earthed during the disconnection and reconnection,
 - carry out minor adjustments or modifications to electrical Apparatus under test,
- ix. warn any person in the vicinity of the conductors under test that voltage is to be applied and in return receive an assurance that such person will remain clear of such conductors during the test,
 - x. warn any person signed on the Access Authority that they shall not approach the conductors under test until advised that the test source has been isolated and Access Authority earths applied,
 - xi. where induced or test voltages could be present, ensure that control measures, such as a defined work area, are used which prevent persons coming within the Safe Approach Distance to live conductors of any testing equipment or connection leads,
 - xii. ensure that for the duration of electrical testing, the entrance to any designated high voltage access area erected as a requirement for the issue of the Access Authority for electrical testing is closed and an approved notice warning persons of the hazards is erected at this closed entrance, and
 - xiii. if any exposed conductors to which test voltages are to be applied are out of sight of the person operating the test source, ensure that approved notices are placed to warn against approach to the exposed conductors at such points and either:
 - a person is posted to warn other persons not to approach the exposed conductors during the test, or
 - fences or equivalent barriers are erected or shutters closed to prevent any person gaining inadvertent access to the exposed conductors; and
 - xiv. if at the test source location, be accompanied at all times during the electrical testing by a person with sufficient knowledge of the test being conducted and the test devices, to confirm that the high voltage conductors being tested are safe to be approached, whenever this becomes necessary; and
 - xv. ensure that, at the conclusion of the testing any Apparatus under test which may have become electrically charged during the course of the test is fully discharged and left in a safe condition.

4.14.4 Responsibilities of Authorised Persons surrendering an Access Authority for electrical testing

The Authorised Person in receipt of the Access Authority shall:

- a. prior to surrendering the Access Authority remove all test leads and test equipment applied during the work, and
- b. surrender the Access Authority in accordance with section 3.9 of this procedure.

4.14.5 Cancellation of an Access Authority for High Voltage Electrical Apparatus.

The Access Authority shall be cancelled and restored in accordance with sections 3.10 and 3.11 of this procedure.

4.14.6 Responsibilities of persons carrying out electrical testing on High Voltage Electrical Apparatus not electrically connected not requiring an Access Authority for electrical testing

The person carrying out electrical testing on High Voltage Electrical Apparatus not electrically connected shall:

- i. be the person in charge of the electrical testing,
- ii. direct the control of the switching of the test source energising the conductors,
- iii. ensure adequate communications are maintained with all persons involved in the testing, refer to section 8.8 of this procedure,

- iv. warn any person in the vicinity of the conductors under test that voltage is to be applied and in return receive an assurance that such person will remain clear of such conductors during the test,
- v. warn any person that they shall not approach the conductors under test until advised that the test source has been isolated and the conductors under test have been earthed,
- vi. ensure that all persons working on the same Apparatus during the currency of the testing cease work for the duration of the electrical testing and shall not recommence work until advised by the person in charge of the electrical testing,
- vii. ensure precautions are taken to prevent any person receiving an electric shock from the test source or equipment or induced voltages,
- viii. where induced or test voltages could be present, ensure that control measures, such as a defined work area with approved notices warning persons of the hazards, are used which prevent persons coming within the Safe Approach Distance to live conductors of any testing equipment or connection leads,
- ix. if any exposed conductors to which test voltages are to be applied, are out of sight of the person switching the test source ensure that approved notices are placed to warn against inadvertent approach to the exposed conductors at such points and either:
 - a person is posted to warn other persons not to approach the exposed conductors during the test, or
 - fences or equivalent barriers are erected or shutters closed to prevent any person gaining inadvertent access to the exposed conductors,
- x. where control measures, such as safety interlocks, etc, cannot ensure the high voltage conductors being tested are safe to approach or touch, they shall be accompanied at all times during the electrical testing by a person with sufficient knowledge of the testing and the test devices, to confirm with the person in charge that the high voltage conductors are safe to approach or touch, and
- xi. ensure that, at the conclusion of the test, any Apparatus which may have become electrically charged during the course of the test is fully discharged and left in a safe condition.

4.14.7 Electrical testing on High Voltage Electrical Apparatus involving a test source not capable of producing currents hazardous to the human body.

When the proposed test involves a test source which is not capable of producing currents hazardous to the human body and Access Authority earths are unaffected, testing may be carried out without an Access Authority for electrical testing, provided the person in charge of the test:

- i. warns any persons who would be likely to make inadvertent contact with the conductors during the conduct of the test, that voltage is to be applied and, in return, obtain an assurance that such persons will remain clear of such conductors during the test, and
- ii. ensure at the conclusion of the test any Apparatus under test which may have become electrically charged during the course of the test is fully discharged and left in a safe condition.

4.15 Barriers and Signs

4.15.1 General Requirements for Barriers and Signs

The minimum requirements of ENA DOC-003-2021 should be adhered to at all times when deciding on the requirement and appropriateness of barriers and signage.

- a. Signs should comply with AS 1319 Safety Signs for the Occupational Environment where applicable.

- b. There are generally two methods utilised for the erection of a barrier in the Electricity Supply Industry. The two methods are referred to as:
 - a. barrier in, and
 - b. barrier out,
- c. Where a barrier is to be erected, the barrier method used should achieve the best safety outcomes taking into account relevant hazards and associated risks.
- d. Risk assessments shall be performed, where practicable, following inspection of the location of the work and persons authorised to erect barriers should have instruction, training and information provided on risk management.

4.15.2 ERECTION OF BARRIERS AND SIGNS

- a. When erecting a barrier, the following principles shall apply:
- b. Barriers shall be erected in accordance with the control authority's approved procedures,
- c. Barriers shall be erected to guard against mistaken or inadvertent approach to, and contact with, nearby apparatus that could constitute a safety hazard to personnel,
- d. The barrier(s) shall be so arranged that the equipment to be worked on is accessible without interfering with or crossing over, or under, the barrier,
- e. Established barriers shall only be moved or re-arranged in accordance with approved procedures,
- f. Where it is possible to approach near conductors that shall be regarded as live, or rotating parts, signs shall be erected to indicate their presence, and
- g. Additional signs shall be erected, as necessary, to identify any particular hazard or hazardous condition that is present.
- h. In addition to the above principles, the following principle should apply:
 - i. Where a barrier is to be erected the rope, tape, or alternative used for the barrier should be coloured yellow.

5 LOW VOLTAGE AND EXTRA LOW VOLTAGE *ELECTRICAL APPARATUS*

5.1 Electrical operating work on Low Voltage Electrical Apparatus

A person shall be authorised to prepare and conduct the steps of a PRI for low voltage Apparatus.

The operation of low voltage Apparatus not electrically connected shall not be considered electrical operating work.

In emergency circumstances involving risk to persons or risk of damage to Apparatus, low voltage Apparatus may be operated provided the person carrying out the operations does so in accordance with approved emergency plans.

5.2 Work on de-energised Low Voltage Conductors

5.2.1 Responsibilities of persons carrying out work on de-energised Low Voltage Conductors

- a. where working under an Access Authority comply with the requirements of sections 3.5, 3.6, 3.7, 3.8, and 3.9 of this procedure,
- b. where working on Sundry Apparatus comply with section 7.2 of this procedure,
- c. ensure the conductors to be worked on are identified,
- d. ensure that conductors are isolated from all sources of supply,
- e. prove the conductors de-energised with an approved testing device, and
- f. where hazardous induced or capacitive voltages are likely to be present:
 - use live work procedures, or
 - earth and short circuit the conductors in an approved manner, and
- g. maintain Safe Approach Distance to live conductors or take suitable precautions by screening or other means to avoid inadvertent contact with other live conductors, and
- h. before energising Low Voltage Conductors after work take precautions to ensure all persons are clear of the conductors and the conductors are safe to energise.

5.3 Test on Low Voltage Electrical Apparatus

5.3.1 Responsibilities of persons conducting a test on Low Voltage Electrical Apparatus

The person conducting a test on Low Voltage Electrical Apparatus shall:

- a. where testing is under an Access Authority comply with the requirements of sections 3.5, 3.6, 3.7, 3.8, and 3.9 of this procedure,
- b. where testing is on Sundry Apparatus comply with section 7.2 of this procedure,
- c. be the person in charge of the test,
- d. ensure the conductors to be tested are identified,
- e. ensure the Apparatus is in a safe condition for testing,
- f. ensure all persons under their control involved in the testing are informed of all details relating to the testing, including the description of the Apparatus, description of test, any precautions, warnings and relevant information,
- g. ensure other personnel who may be affected by the test are informed of the test, are given any applicable instructions and warned to keep clear whilst testing is in progress, and
- h. ensure at the completion of the test, all persons are clear of the Apparatus and the Apparatus is left in a safe condition.

5.4 Work on live Low Voltage Conductors

An Access Authority is not required to work on live Low Voltage Conductors.

5.4.1 Responsibilities of persons carrying out work on live Low Voltage Conductors

Before commencing work on live Low Voltage Conductors the person carrying out the work shall:

- a. identify the live conductors to be worked on, and

- b. take suitable precautions by screening or other means to avoid inadvertent contact with other live conductors or earth.

5.5 Work on Low Voltage Cables

Work on or in the vicinity of low voltage cables shall be in accordance with approved procedures.

Work shall not commence unless the cable has been identified/located in accordance with approved procedures.

5.6 Work or test on Low Voltage Electrical Apparatus not electrically connected

Work or test on Low Voltage Electrical Apparatus not electrically connected may be carried out without an Access Authority provided control measures are taken to:

- a. remove or control induced and/or transferred potentials that may be present, and
- b. prevent persons coming within the Safe Approach Distance to live conductors of other electrical Apparatus.

5.7 Work on extra Low Voltage Electrical Apparatus

Work on live extra Low Voltage Conductors may be undertaken provided control measures are taken to prevent persons coming within the Safe Approach Distance to live conductors of other electrical Apparatus.

Work on live extra Low Voltage Conductors for the purposes of fault finding or operational checks shall be carried out by competent persons using approved testing equipment.

Extra Low Voltage Conductors need not be earthed.

6 MECHANICAL APPARATUS

6.1 Mechanical operating work

- a. A person shall be authorised to prepare and conduct the steps of a PRI for mechanical Apparatus.
- b. The operation of mechanical Apparatus not mechanically connected shall not be considered mechanical operating work.
- c. In emergency circumstances involving risk to persons or risk of damage to Apparatus, mechanical Apparatus may be operated provided the person carrying out the operations does so in accordance with approved procedures and emergency plans.

6.2 Work or test on mechanical Apparatus

- a. Where work or test on mechanical Apparatus is required to be carried out under an Access Authority it shall be done in accordance with section 3 and section 6.3 of this procedure.
- b. Where work or test on mechanical Apparatus is required to be carried out on Sundry Apparatus it shall be done in accordance with section 7 of this procedure.
- c. Where work or test on mechanical Apparatus not mechanically connected is required it shall be done in accordance with section 5.4 of this procedure.
- d. Persons working on mechanical Apparatus shall maintain Safe Approach Distance to live conductors of electrical Apparatus in accordance with clause 8.1.2 of this procedure.
- e. Following work or test, mechanical Apparatus shall not be energised or re-energised unless:
 - i. it is deemed to be in a serviceable condition,
 - ii. all relevant access authorities are cancelled and all persons are clear,
 - iii. it is in a state suitable for energisation,
 - iv. all mechanical restraints, equipment, plant, tools and materials are removed as appropriate,
 - v. appropriate checks and tests are carried out to ensure apparatus is safe for service, and
 - vi. approval is given from the control authority to energise or re-energise.

6.3 Test on mechanical Apparatus

Where the testing of mechanical apparatus poses a risk to the health and safety of any person an access authority for testing shall be issued.

6.3.1 Responsibilities of persons conducting a test on mechanical Apparatus

The person conducting a test on mechanical Apparatus shall:

- a. where testing is under an Access Authority comply with the requirements of sections 3.5, 3.6, 3.7, 3.8, and 3.9 of this procedure,
- b. where testing is on Sundry Apparatus comply with sections 7.3 and 7.4 of this procedure,
- c. be the person in charge of the test, ensure the Apparatus is in a safe condition for testing,
- d. ensure all persons under their control involved in the testing are informed of all details relating to the testing, including the description of the Apparatus, description of test, any precautions, warnings and relevant information,
- e. ensure other personnel who may be affected by the test are informed of the test, are given any applicable instructions and warned to kept clear whilst testing is in progress, and
- f. ensure at the completion of the test all persons are clear of the Apparatus and the Apparatus is left in a safe condition.

6.4 Work or test on mechanical Apparatus not mechanically connected

Work or test on mechanical Apparatus not mechanically connected may be carried out without an Access Authority provided:

- (a) Control measures are taken to remove or control all hazards from sources of stored energy prior to the commencement of work or test and for maintaining the Safe Approach Distance to live conductors of electrical Apparatus.

7 SUNDRY APPARATUS

7.1 Access to Sundry Apparatus

Persons shall be authorised to conduct work or test on Sundry Apparatus.

7.2 Work on Sundry Apparatus

7.2.1 Responsibilities of Authorised Persons conducting work on Sundry Apparatus

The Authorised Person conducting work on Sundry Apparatus shall ensure:

- a. the Apparatus to be worked on is isolated and locked, where the facility exists, and personal Do Not Operate tags are affixed to all isolating devices. The personal Do Not Operate tags shall display the Authorised Person's name, the date of affixation and a brief description of the work to be carried out,
- b. where power and/or control fuses or plug-in circuit breakers are installed, the fuse carriers or circuit breakers shall be removed and, where the facility exists, personal Do Not Operate tags affixed,
- c. persons who are required to work under their control are notified that the isolation has been completed, and are informed of all details relating to the isolation, including the description of the Apparatus, limits of isolation, description of work, any warnings, precautions and information, and
- d. the Apparatus is restored in accordance with section 7.4 of this procedure.

7.3 Test on Sundry Apparatus

7.3.1 Responsibilities of Authorised Persons Conducting Testing on Sundry Apparatus

The Authorised Person preparing Sundry Apparatus for test shall:

- a. be the person in charge of the test,
- b. ensure the Apparatus is prepared and in a safe condition for testing and, where necessary, tags are attached to equipment and devices to safely control the test,
- c. ensure all persons under their control involved in the testing are informed of all details relating to the testing, including the description of the Apparatus, description of test, any precautions, warnings and relevant information,
- d. ensure other personnel who may be affected by the test are informed of the test, are given any applicable instructions and warned to keep clear whilst testing is in progress, and
- e. the Apparatus is restored in accordance with section 7.4 of this procedure.

7.4 Restoration of Sundry Apparatus

7.4.1 Responsibilities of Authorised Persons restoring Sundry Apparatus after work or test

The Authorised Person restoring Sundry Apparatus after work or test shall ensure:

- a. all persons involved in the work or test have been withdrawn and warned to remain clear,
- b. all equipment, materials, tools and, if applicable, earthing equipment has been removed,
- c. all locks and tags are removed, and
- d. the Apparatus is in a safe condition for return to service.

Where the Authorised Person who prepared the Sundry Apparatus for access is unavailable, the Sundry Apparatus may be restored provided:

- a. the person restoring the Sundry Apparatus is authorised to conduct work or test on Sundry Apparatus,

- b. the Sundry Apparatus is in a serviceable condition, and the Authorised Person restoring the Sundry Apparatus advises the Authorised Person who originally established the isolation, as soon as possible, that the isolation has been restored.

8 WORK IN THE VICINITY OF APPARATUS

8.1 General Requirements

8.1.1 Authority to Work in the Vicinity of Apparatus

An authority to work in the vicinity of Apparatus shall be used where:

- a. a person or where mobile plant or equipment is required to be moved, and
- b. there is a risk of either directly or through any conducting medium, of unintentionally coming within the Safe Approach Distances.

8.1.2 Safe Approach Distance to Live Conductors

- a. Non instructed persons include members of the general public, Workers and visitors to Power and Water premises who do not have sufficient knowledge, training or experience to be able to identify high voltage and Low Voltage Conductors.
- b. Where a member of the general public seeks advice on Safe Approach Distance to live conductors they shall be advised of the appropriate Safe Approach Distance to live conductors for the voltages concerned.
- c. Where a non-instructed person is an employee or visitor they shall be advised, where necessary, on maintaining relevant Safe Approach Distance to live conductors.

Note 1: Table 8-1 provides the Safe Approach Distance to live conductors that non-instructed persons, instructed persons and Authorised Persons shall maintain, for the voltage concerned.

Note 2: Table 8-2 provides the Safe Approach Distance to live conductors that mobile plant operated by non-instructed persons, instructed persons and Authorised Persons without a Safety Observer and instructed persons and Authorised Persons with a Safety Observer, shall maintain.

Note 3: The Safe Approach Distance to live conductors shown in Tables 8-1 and 8-2 are from exposed, covered and insulated conductors and do not apply to earthed metallic screened cables or totally enclosed electrical Apparatus.

Table 8-1: Safe Approach Distance to live conductors for people

Nominal phase to phase voltage (alternating current)	Safe Approach Distance to live conductors (mm)		
	Non instructed persons	Instructed persons	Authorised persons
Above 50 volts but not exceeding 1kV	3000	300	Insulated contact only
Above 1kV & up to & including 33kV	3000	1200	600
Above 33kV & up to & including 66kV	4000	2000	1000
Above 66kV & up to & including 132kV	5000	3600	1800

Table 8-2: Safe Approach Distance to live conductors for mobile plant

Nominal phase to phase voltage (alternating current)	Safe Approach Distance to live conductors (mm)			
	Mobile plant operated by non-instructed persons	Mobile plant operated by instructed persons or Authorised Persons without a Safety Observer	Mobile plant operated by instructed persons or Authorised Persons with a Safety Observer	
			Un-insulated portions of mobile plant	Insulated portions of mobile plant
Above 50 volts but not exceeding 1kV	3000	1000	600	Contact allowed
Above 1kV & up to & including 33kV	3000	1500	1200	700
Above 33kV & up to & including 66kV	4000	3000	2000	1000
Above 66kV & up to & including 132kV	5000	3600	3000	1800

8.1.3 Authority to Work – Approved Procedures

An authority to work in the vicinity of Apparatus shall be requested in accordance with Power and Water Asset Specific approved procedures, and the Power and Water Access to Apparatus Management Standard.

Approval to vary the requirements can be requested by:

- a. completing a formally documented hazard identification and risk assessment, and
- b. ensuring the safety outcomes remain equal to or better than the Access to Apparatus Management Standard.

8.1.4 Authority to Work – Risk Assessment

A risk assessment (JSEA required by work crews) shall be conducted by Power and Water in accordance with approved procedures prior to the issue of an authority to work in the vicinity of Apparatus.

Where the risk assessment identifies the need, a Safety Observer shall be assigned for the duration of the work.

8.1.5 Authority to Work – Mobile Plant in Vicinity of Apparatus

Mobile plant operating under an authority to work in the vicinity of Apparatus that is capable of coming within the Safe Approach Distance to live conductors shall be earthed in accordance with approved procedures.

Where mobile plant is to be operated in the vicinity of Apparatus and the risk assessment identifies a requirement for a Safety Observer then they shall be assigned prior to any work being undertaken.

8.1.6 Authority to Work – Excavations

- a. Where excavation is to be conducted within 3 metres of underground high voltage or low voltage cables, a risk assessment shall be conducted by Power and Water to ascertain the need for the issue of an authority to work in the vicinity of Apparatus.
- b. Where excavation work is to be conducted in the vicinity of underground high voltage or low voltage cables, the cables shall be identified in accordance with approved procedures prior to the issue of an authority to work in the vicinity of Apparatus.
- c. Excavation in the vicinity of water, sewerage and gas underground services shall be conducted in accordance with approved procedures.
- d. **Note:** Work in the vicinity of an underground gas pipeline shall only be undertaken with the consent of the asset owner.
- e. Mobile plant shall not excavate within 250mm of underground water and sewerage services. Excavation within 250mm of underground water and sewerage services shall only be undertaken using hand tools.

8.2 Issue of an authority to work in the vicinity of Apparatus

An authority to work in the vicinity of Apparatus shall include the following:

- a. a unique reference,
- b. location and description of the Apparatus,
- c. description of the work,
- d. date and time of issue, receipt and cancellation,
- e. its period of validity,
- f. limitations on the use of plant and equipment,
- g. Safe Approach Distance to live conductors, and
- h. relevant warnings, precautions and information.

8.2.2 A person shall be authorised to issue an authority to work in the vicinity of Apparatus

An authority to work in the vicinity of Apparatus can be received by any person other than the person issuing the authority.

8.2.3 Responsibilities of Authorised Persons issuing an authority to work in the vicinity of Apparatus

- a. An Authorised Person issuing an authority to work in the vicinity of Apparatus shall:
 - i. instruct the person to receive the authority to work in the vicinity of Apparatus:
 - on their responsibilities under the authority to work in the vicinity of Apparatus,
 - where the risk assessment identifies the need, a Safety Observer is assigned for the duration of the work,
 - the requirement of any barriers and signs, and their location,
 - the need to advise Power and Water of any unforeseen changes to the description of work,
 - the description of work,
 - any limitations on approach to the Apparatus,
 - ensure any relevant documentation is attached to the authority to work in the vicinity of Apparatus,
 - all relevant warnings, precautions and information.
- b. Endorse the authority to work in the vicinity of Apparatus as issued, and

- c. Notify the Control Authority of the issue of the authority to work in the vicinity of Apparatus at the time of issue and the contact details of the person in receipt of the authority to work in the vicinity of Apparatus.

8.3 Receipt of an authority to work in the vicinity of Apparatus

8.3.1 Responsibilities of persons receiving an authority to work in the vicinity of Apparatus

- a. A person receiving an authority to work in the vicinity of Apparatus shall:
 - i. sign the authority to work in the vicinity of Apparatus as recognition that they have the authority to carry out work as requested and that they understand:
 - the location and description of Apparatus in the vicinity,
 - the description of work,
 - limitations on the use of plant and equipment, including earthing,
 - any Safe Approach Distance to live conductors required to be maintained,
 - all relevant warnings, precautions and information,
 - ii. be the person in charge of the work,
 - iii. where the risk assessment identifies the need, assign a Safety Observer for the duration of the work and specifically instruct them on their duties,
 - iv. ensure the authority to work in the vicinity of Apparatus and any documented information or instructions provided to carrying out the work is safeguarded and readily available for inspection at the work area for the duration of the work,
 - v. permit other persons to sign on provided they give instructions at the work area to such persons,
 - vi. establish any barriers and signs as requested,
 - vii. where it is necessary for the Safety Observer to leave the work area, cease all work until they return or another Safety Observer is assigned, and
 - viii. ensure, where they are absent from the work area, that all work ceases and that all persons sign off the authority to work in the vicinity of Apparatus.

8.4 Transfer of receipt of an authority to work in the vicinity of Apparatus

The receipt of an authority to work in the vicinity of Apparatus may be transferred, in accordance with approved procedures, to a person who:

- a. has previously attended an instruction at the work area by a person authorised to issue an authority to work in the vicinity of Apparatus, or
- b. is instructed by a person authorised to issue an authority to work in the vicinity of Apparatus.
- c. The person to whom the receipt of the authority to work in the vicinity of Apparatus was transferred shall notify the person authorised to issue an authority to work in the vicinity of Apparatus of the transfer.

8.5 Surrender of an authority to work in the vicinity of Apparatus

- a. Prior to endorsing the authority to work in the vicinity of Apparatus as surrendered the person in receipt of the authority to work in the vicinity of Apparatus shall ensure all persons signed on have signed off and are aware that their permission to work in the vicinity is surrendered.
- b. The person who has surrendered the authority to work in the vicinity of Apparatus shall notify Power and Water that the authority to work in the vicinity of Apparatus has been surrendered.

8.6 Cancellation of an authority to work in the vicinity of Apparatus

Responsibilities of Authorised Persons cancelling an authority to work in the vicinity of Apparatus:

- (a) The person cancelling an authority to work in the vicinity of Apparatus shall:
 - i. be authorised to cancel an authority for work in the vicinity of Apparatus,
 - ii. ensure all persons signed on to the authority to work in the vicinity of Apparatus have signed off and are aware that work in the vicinity of the Apparatus is no longer permitted, and
 - iii. endorse the authority to work in the vicinity of Apparatus as being cancelled and notify the Control Authority of the cancellation.

8.7 Assignment of a Safety Observer

Responsibilities of a Safety Observer. A Safety Observer shall:

- a. sign the authority to work in the vicinity of Apparatus as the Safety Observer,
- b. observe and monitor the safety of persons in potentially hazards situations and provide warnings and, where necessary, advise of the need for the work to cease, and
- c. where it is necessary for them to leave the work area, they inform the person in receipt of the authority to work in the vicinity of Apparatus and not leave the work area until the work has ceased or another Safety Observer is assigned.

8.8 Communications

All communications relating to the operation of, or access to apparatus shall be clear and definite.

All written applications and directions for the purpose of isolation and restoration shall be legible.

Verbal instructions and statements issued over phones or radios shall be confirmed by repeating back to avoid misunderstanding.

9 Definitions

Where terms or words are not included in the definitions section, refer to Power and Water’s intranet glossary.

Term	Definition
Access to Apparatus Procedures (AAP)	The documented asset specific steps designed to ensure compliance to the Access to Apparatus Management Standard and where necessary supported by other Business unit work instructions, guidelines or regulatory requirements to ensure the safety and protection of workers, the public, equipment and infrastructure.
Access authority	Means any form of approved authorisation, which allows access to, work on, in proximity to, or testing of Apparatus.
Access authority earth	Means approved earthing and short-circuiting equipment applied to conductors as a requirement for the issue of an Access Authority.
Access authority signature sheet	Means a document that supplements the facility on an Access Authority to record the names of person carrying out Work or Test under an Access Authority.
Access authority suspension/transfer sheet	Means a document that supplements the facility on an Access Authority to record the suspension or transfer of the receipt of an Access Authority.
Apparatus	Those items documented in a business unit Apparatus Schedule that requires a formal process of access approval and control.
Apparatus in-service	Means Apparatus that is energised and is, or is available to be, operational for the purposes for which it was designed.
Approved	Means having appropriate organisation endorsement in writing for a specific function.
Authorised person	Means a person with technical knowledge or sufficient experience who has been approved in writing or has the delegated authority to act on behalf of the Power and water business unit, to perform the duty concerned.
Access to Work in Vicinity (AWV)	Means an access approval to perform work within a defined Safe Approach Distance and under agreed conditions to Apparatus.
Asset Owner	Refer to definition of “Prevailing Influence”
Breakdown	Means to fail or cease to function, operate or perform as designed
Bridging lead	Means an approved conductor which is used to maintain a current path when a conductor is to be broken or disconnected
Cable	Means an insulated conductor or two or more such conductors laid together, whether with or without fillings, reinforcements or protective coverings.
Cage	Means a fully fenced or walled area, room or compartment, with a secured means of access, identified by a notice, containing high voltage exposed conductors which do not maintain standard safety clearances.
Commissioned	Means the apparatus has been physically connected to any form of energy source and has been cleared for service in

Access to Electricity and Generation Apparatus Procedure

Term	Definition
	writing to the responsible business unit.
Competent	<p>The combination of training, skills, experience and knowledge that a person has and their ability to apply them to perform a task safely.</p> <p>Note: Competent person means for electrical work on energised electrical equipment or energised electrical installations (other than testing referred to in WHS (NUL) Regulations 150 and 165) – a person who holds an electrical contractor's licence or electrical worker's licence under the Electrical Workers and Contractors Act.</p>
Conductor	Means a wire, cable or form of metal designed for carrying electric current
Contractor	Means any person and/or organisation entering into an agreement (whether oral or written) to provide goods or services to Power and Water.
Control Authority	Means an approved organisation, PWC business unit or employee that is responsible for control of the Apparatus concerned.
Decommissioned Apparatus	Means the condition of the apparatus is it has been physically disconnected from all forms of energy sources and declared to be so in writing to the operating authority responsible for the apparatus.
De-energised	Means not connected to any source of supply but not necessarily isolated.
Defined work area	Means a rope, tape, barricade or alternative erected to identify a specific area requiring authorised entry.
Designated high voltage access area	Means an area, which includes high voltage conductors, which is defined by a barrier or similar structure as a requirement for the issue of an Access Authority.
Direct Supervision	Means physically present and available to immediately communicate, intervene, or respond to the incorrect or unsafe performance of an activity.
Do Not Operate tag	Means an approved tag attached to a device as an instruction against the operation of the device.
Earthed	Means directly connected to the general mass of earth to ensure and maintain the effective dissipation of electrical energy.
Electrical Apparatus	Means any electrical equipment, including electrical motors, transformers, switchgear, overhead lines and underground cables, the conductors of which are live or can be made live.
Electrical operating work	Means the operation of switching devices, links, fuses or other connections intended for ready removal or replacement, proving conductors de-energised, the application or removal of earthing and short circuiting equipment and the application or removal of locks, where the facility exists, and/or tags.
Emergency	The actual or imminent occurrence of an event which in any way endangers or threatens to endanger the safety or health of any person or which destroys or damages, or threatens to destroy or damage, any property or endangers or threatens to

Access to Electricity and Generation Apparatus Procedure

Term	Definition
	endanger the environment or an element of the environment.
Energised	Means connected to a source of energy.
Energy source	Includes supply or presence of electrical, hydraulic, pneumatic, gravitational, electromagnetic sources.
Exposed conductor	Means a conductor, approach to which is not prevented by a barrier of rigid material or by insulation which is adequate under a relevant Australian Standard specification for the voltage concerned.
Extra low voltage (ELV)	Means nominal voltage not exceeding 50 volts alternating current or 120 volts direct current.
General Supervision	Means that the supervising person is aware of and has approved an activity to be performed but is not required to be physically present as the activity is carried out.
Generating station	Means a building or enclosure where electrical energy is able to be generated at high voltage, or generated at low voltage and subsequently transformed to high voltage.
High voltage (HV)	Means a nominal voltage exceeding 1000 volts alternating current or exceeding 1500 volts direct current.
Instructed person	Means a person, with appropriate training or experience to enable them to identify high voltage and Low Voltage Conductors and to be aware of the hazards electricity may present.
Insulated	Means separated from adjoining conducting material by a non-conducting substance which provides resistance to the passage of current, or to disruptive discharges through or over the surface of the substance at the operating voltage, and to mitigate the risk of electric shock or injurious leakage of current.
In the vicinity	Means either a situation where: (a) A person is in close proximity to and there is a risk of either directly, or through any conducting medium, of unintentionally coming within relevant Safe Approach Distance to live conductors; or (b) There is a likelihood of unintentional contact with Apparatus or services that could cause personal injury or damage.
Isolation	Means one or several devices have been operated to separate apparatus from unwanted sources of energy and/or means of activation and the devices rendered incapable of being unintentionally re-activated.
Live	Means energised or subject to hazardous induced or capacitive voltages.
Live work	Means all work performed on components of electrical Apparatus not isolated.
Low voltage (LV)	Means nominal voltage exceeding 50 volts alternating current or 120 volts direct current but not exceeding 1000 volts alternating current or 1500 volts direct current.
Mechanical Apparatus	Means any equipment that has the ability to rotate, or is pneumatic or hydraulic in nature or contains stored energy through mechanisms, liquid, nuclear, thermal, or gas contained

Access to Electricity and Generation Apparatus Procedure

Term	Definition
	within the equipment.
Mechanical operating work	Means the operation of devices that control sources of energy, such as, mechanical, pneumatic, hydraulic or fuel energy and the application or removal of locks, where the facility exists, and/or tags.
Mobile plant	Means a crane, elevating platform, tip-truck or similar plant, any equipment fitted with a jib or boom and any device capable of raising or lowering a load.
Non instructed person	A person, (including a contractor) who is not contractually related to a Power and Water entity.
Not electrically connected	Means electrical Apparatus disconnected from all sources of supply by the removal or absence of conductors, appropriate to the voltage and insulating medium and, not able to be energised by electrical operating work.
Not mechanically connected	Means mechanical Apparatus disconnected from all sources of energy or the removal of stored energies and not able to be energised by mechanical operating work.
Not Yet Commissioned / New Apparatus	Means the condition of the apparatus that has not physically connected to any form of energy sources and has not been cleared for service in writing to the responsible business unit.
Operational checks	Means checks on Apparatus in-service to confirm operational reliability or performance.
Do Not Operate tag	Means an approved tag attached to a device by the person conducting the work as an instruction against the operation of the device.
Personal Protective Equipment (PPE)	Means protective uniform, eye protection, gloves, boots and other clothing and wearable equipment used as a means of hazard mitigation.
Person in charge	Means the person who has the responsibility of ensuring the safe conduct of work under their control.
Preparation/restoration instruction (PRI)	Means a documented instruction setting out the steps required to prepare the Apparatus for access and to restore the Apparatus after access has been relinquished.
Procedure	Means the documentation of a systematic series of actions (or activities) directed to achieve a desired result.
Project Manager	Means the person with the overall responsibility for the planning, execution, monitoring, control and closure of a project.
Prevailing Influence	The party (Asset Owner) which retains the practicable operational control over any site, asset or equipment type or apparatus. I.e. Power Services have prevailing control over substations, poles and conductors, and Gas Supply has prevailing influence over gas pipelines and gas skids. Water Services have prevailing influence over water treatment plants and water systems.
Safe Work Method Statement (SWMS)	A document that is prepared by a competent person in consultation with workers (in most instances off site) prior to the work being undertaken. The SWMS is a document stating the safe work method applied to the site and works. Once

Access to Electricity and Generation Apparatus Procedure

Term	Definition
	prepared, it is included in a 'job pack' and forms part of the instructions for performing the work and should be reviewed by the work team leader prior to the work being undertaken.
Safe Approach Distance – General - (Applicable for all in service apparatus)	The SADs are based on an exclusion zone principle. Refer to section 7.1.2, Tables 7-1 and 7-2. This principle defines an area around apparatus into which no part of a person, mobile plant or object may encroach unless authorised for the specific function being performed and other safety controls and precautions are in place.
Safety Observer	Means a competent person assigned the solitary duty of observing and/or monitoring the safety of persons in potentially hazardous situations and providing warnings, where necessary.
Screened cable	Means that the insulation covering the conductor cores is covered by a conducting or semi-conducting material that is connected to a neutral or earth.
Shall	Means a mandatory requirement
Statement of condition of Apparatus or plant (SCAP)	Means a document that provides advice on the status of Apparatus or plant in the charge of the Control Authority.
Substation	Means a switchyard, terminal station or place at which high voltage supply is converted or transformed.
Sundry Apparatus	Means apparatus not in charge of a controller for which an Access Authority for work or test is not required.
Supply	Means provide electrical energy.
Should	Means an advisory or discretionary recommended requirement.
Specified work or test	Means approved work or test on Apparatus in-service, for which an Access Authority is not required.
Standard safety clearances	Means the clearances used in the design of high voltage installations to provide safe conditions from high voltage exposed conductors for a person walking at ground level, or a person on any fixed ladder or platform.
Surrender	Means documented notification advising that an Access Authority is relinquished.
Suspended	Means documented notification advising that permission to work or test under an Access Authority is temporarily relinquished.
Switchyard	An area identified by an approved sign(s) and surrounded by fences or walls that prevent unauthorised access inside which high voltage exposed conductors maintain standard safety clearances.
Testing tag	Means an approved tag attached to a device indicating that the status of the device may be altered during testing.
Totally enclosed electrical Apparatus	Means electrical Apparatus within which the conductors can only be exposed by unbolting or unlocking covers or opening shutters designed to prevent unintentional access.
Working earth	Means approved earthing and short-circuiting equipment, additional to Access Authority earths, applied to conductors following the issue of an Access Authority.

Term	Definition
Worker	Means a person employed by Power and Water, a contractor or subcontractor, and a person employed by a contractor or subcontractor, who carries out work for Power and Water.

10 Roles and Responsibilities

Role or title	Requirement
Executive Leadership Team	<p>Are responsible for ensuring:</p> <ul style="list-style-type: none"> ▪ Systems are in place to manage, monitor and review the application of this procedure and associated documents ▪ Training and competency assessment of workers is conducted to enable them to effectively perform their duties and responsibilities associated with this procedure, ▪ The initiation of investigations and reviews of incidents involving this procedure, and <p>Audit recommendations are acted upon within agreed timeframes.</p>
HSE Team	The HSE Team, in conjunction with the Access to Apparatus Committee, will be responsible for the administration of this procedure.
Power Services Access to Apparatus Committee	<p>The Access to Apparatus Committee is responsible for:</p> <ul style="list-style-type: none"> ▪ Reviewing the application of this procedure to ensure compliance with statutory requirements and Business Unit needs, ▪ Ensuring the principles in this procedure are consistent with Industry Codes, Guides and best practice, and <p>Reviewing and responding to enquiries or requests from workers on Access to Apparatus matters.</p>
Line Managers	<p>Line Managers are responsible for ensuring:</p> <ul style="list-style-type: none"> ▪ The application of this procedure and associated procedures and that resources are provided to meet statutory and organisational requirements, ▪ Workers, and other persons as appropriate, have the necessary training and competence to perform their duties and responsibilities associated with this procedure, ▪ The reporting of incidents associated with this procedure and, where necessary, the investigation of those incidents, and <p>Sufficient time and resources are allocated to perform audits of the application of this procedure and that audit recommendations are acted upon within agreed timeframes.</p>
Field Supervisors/Team Leaders	Are responsible for ensuring all persons under their control who are required to be Authorised Persons under this procedure are trained and assessed as competent, appropriate to their duties and responsibilities, prior to them undertaking any work

Role or title	Requirement
	under this procedure and ensure all workers maintain their competence to carry out their duties and responsibilities in relation to this procedure.
Project Managers	Shall ensure that all workers under their control who are required to be authorised under this procedure are trained and assessed as competent, appropriate to their duties and responsibilities, prior to them undertaking any work under this procedure.
Workers	Power and Water employees and persons of other organisations shall comply with this procedure relevant to their duties and responsibilities.

11 Change management and continuous improvement

11.1 Consultation, approval and communication

The Responsible and Accountable managers listed below must endorse and approve this document.

Role or title	Requirement
Executive General Manager People, Culture and Safety	Accountable to approve this document
Senior Manager HSE	Responsible to endorse this document
Power Services Access to Apparatus Committee	Consult across Power and Water – endorse this document
HSE Business Partner Power Services	Consult for changes and support implementation
All workers	Communicate – inform of any changes

11.2 Review

The requirements of this document are mandatory and shall be reviewed and updated periodically for its ongoing effectiveness. A review of this document must occur, at a minimum, every three years or in the event of any significant change in:

- our vision, values, long-term goals.
- risk appetite, policy statement.
- business model or related systems or processes.

11.3 Internal references and related documents

Document title	Record number
Access to Apparatus Management Standard	CONTROL0219
Work Health and Safety (WHS) Management Standard	CONTROL0379
Work, Health & Safety (WHS) Risk Management Procedure	CONTROL0068
Authorisation Procedure	CONTROL0070
Event Management Procedure	CONTROL0070
Confined Space Entry Procedure	CONTROL0006
Hot Work Procedure	CONTROL0039

Document title	Record number
High Voltage Live Work Transmission Manual	D2017/208015
High Voltage Live Work Distribution Manual	BDOC2016/29
Access to Apparatus Procedures Management	CONTROL0505
Access to High Voltage Procedure	CONTROL0581
Apparatus Involving Another Business Unit or External Organisation Procedure	CONTROL0597
Power Services - AAR Access Authorities Procedure	CONTROL0580
Power Services - AAR Access to Low Voltage Apparatus Procedure	CONTROL0582
Networks Connection Disconnection of Apparatus	QDOC2012/42
Power Services - AAR Request for Access procedure	CONTROL0588
Power Portable Earthing and Bonding of Electrical Apparatus Procedure	CONTROL0604
Schedule of Apparatus in Charge of a Controller	D2015/443163
Schedule of Specified Work or Test	D2015/443167
Schedule of Sundry Apparatus	D2015/443169
Work in the Vicinity of Apparatus Procedure	D2021/429880
Power Services - AAR Work or Test Under Sundry Apparatus Procedure	CONTROL0589
Power Services Remote Generation – Schedule of Sundry Apparatus	D2022/162245

11.4 External references, legislative and regulatory obligations

- Australian Standard 1319: Safety signs for the occupational environment,
- Australian Standard 1674: Safety in welding and allied processes,
- Australian Standard 2067: Standard safety clearances,
- Australian Standard 2550.1: Cranes, hoist and winch – Safe use – General requirements,
- Australian Standard 2865: Confined spaces,
- Australian Standard 60497.3: Effects of current passing through the human body and livestock,
- Australian Standard 4836: Safe working on low voltage electrical installations,
- Australian Standard 31000: Risk management,
- Electricity Reform Act 2000: Commencement: 19/11/2021,
- Electricity Reform (Safety and Technical) Regulations 2000: Commencement: 20/11/2020,
- ENA DOC 003, 2021: National Guidelines for Safe Access to Electrical and Mechanical Apparatus,
- NT Worksafe - Work Health and Safety Act, 2011: WORK HEALTH AND SAFETY (NATIONAL UNIFORM LEGISLATION) ACT 2011,
- NT Worksafe - Work Health and Safety Regulations, 2011: WORK HEALTH AND SAFETY (NATIONAL UNIFORM LEGISLATION) REGULATIONS 2011.

11.5 Records management

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11.6 Improvement suggestions



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11.7 Document history

Date of issue	Version	Prepared by	Description of changes
11/05/2022	0.1	D. Lee	New procedure to meet the requirements the Access to Apparatus Management Standard and also to replace the current Access to Apparatus Rules Manual.
12/05/2022	0.2	D. Lee	Power Services AA Committee endorsed
10/06/2022	0.3	Document Control	Reviewed and updated document. Provided feedback to document author
21/06/2022	0.4	D. Lee	Updated document follow document control review
21/06/2022	1.0	Document Control	Prepared document for endorsement and approval Published approved controlled document
14/09/2022	1.1	D Lee Document Control	Section 3.4.5 updated
21/02/2023	1.2	Document Control	Updated to current template

12 Appendices

Not applicable.