

Engineering Procedure
Electrical Distribution Unit

PR D 78701

Personnel Certifications - Electrical

Version 2.2

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Procedure

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Document control

Version	Date	Author/ Prin. Eng.	Summary of change
1.0	5 September 2014	David Wood	First release of this Sydney Trains Engineering Publication. Released as an Engineering Procedure and thus is mandatory. This document is based upon the RailCorp document "SMS-11-GD-0244 Personnel Certifications- Electrical Authorisations" version 2.2. The differences between the RailCorp document and this document are identified below.
2.0	11 November 2015	Chris Leung	- Updated approval and authority responsibilities to meet Sydney Trains and TfNSW requirements - Removal of commissioning activities - Removal of Qualified Electrician (LEL02 or LEL03), and moved requirements accordingly into AES19 Authorised Persons Low Voltage - Inclusion of AES22 Authorised Electrical System Operator
2.1	6 October 2017	Brian Lidbetter	Updated approval, authority and training requirements to meet Sydney Trains and TfNSW
2.2	4 July 2018	Brian Lidbetter	Clarification as to qualification requirements to supervise works in Substations

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1 Purpose

The purpose of this document is to define the electrical safety competencies of workers who undertake work on the electrical distribution network and 1500 Volt Rail Traction system; it documents how worker competencies are developed, certified and maintained.

2 Scope

This document applies to all "workers" engaged to perform or who are supervising "electrical work" on NSW Rail Assets.

Work on Low Voltage Installations shall be in accordance with the requirements set by the Department of Fair Trading NSW.

Persons who hold either a Qualified Supervisors License or Qualified Electrical Contractors Licence may work to the AC Low voltage SAD specified for "Authorised Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*.



Note

In accordance with:

- Rail Safety National Law (NSW) (sections 4, 8 and 52) workers performing the work functions associated with the certifications in this document are performing 'rail safety work' and as such are regarded as a 'rail safety worker' and shall be competent to perform such work.
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3 Background

The specific details provided in this Procedure relating to the certification of Electrical Authorisations are to be read in conjunction with, and in addition to *SMS-11-SP-3011 Training and Competence*.

Electrical Authorisations are a subset of the total set of personnel Certifications. Therefore, a reference to being Authorised for an electrical function is a reference to being certified for that function as stipulated under the respective parts of Section 11 "Specific Certifications" of this Procedure.

This Procedure sets out the Electrical Authorisations that persons shall hold in order to carry out particular functions. This Procedure nominates the requirements for initial certification, the requirements for recertification and, where applicable, the maximum allowable intervals for recertification.

Where a specific function is listed under an Authorisation in this Procedure, that function shall only be carried out by an appropriately Authorised Person. Such functions are referred to as "functions for which Authorisation is required".

Electrical Authorisations are independent of a person's grading or classification, and is valid for the duration of the person's employment with their organisation to whom they're certified with. A person may hold several Authorisations at the same time provided the person continues to be re-certified in each.



Note

Not addressed in this Procedure are other Sydney Trains/Transport for NSW (TfNSW) competencies, qualifications or safe working requirements, including but not limited to the:

- [Health Assessment Categories](#) for Rail Safety Workers,
- Rail Industry Worker (RIW) card course for people working within the rail corridor; and
- WorkCover NSW White Card ([General Construction Industry Card](#)) and [High Risk Work Licences](#) requirements.

4 Responsibility

Authorised Persons whose functions include electrical work requiring Authorisation are responsible for:

- a) Undertaking only those tasks for which they have been trained and hold a current valid certification.
- b) Informing their immediate Supervisor, two months prior to a certification lapsing, if they have not been notified of any recertification planned for them in that competency.

Certifying Authorities are responsible for ensuring the written confirmation of all functions competently performed and required by workers as part of the assessment system are correctly validated for each function by an accredited workplace assessor or the workers' Supervisors, prior to certifying or recertifying those workers.

Organisations with Authorised Persons are responsible for:

- a) providing systems to ensure that appropriate training, recording of results and certification is maintained for each worker carrying out functions requiring those certifications, and
- b) ensuring that each worker carrying out functions requiring electrical authorisation holds a valid Certificate of Competency for that function.



Note

The relevant TSS Manager engaging a PCBU shall ensure that Sydney Trains/TfNSW engineering, quality and safety standards are being met by the PCBU and that contract workers are electrically authorised as per this Procedure for the assigned task.


Assessments and Training Materials

Non TfNSW organisations shall annually provide a copy of their competency management and assessment system to the Electrical Distribution Unit for endorsement.


Non TfNSW organisations that have persons authorised with an Electrical Authorisation shall conduct an external third party audit of their competency management and assessment system against *PR D 78701 Personnel Certifications – Electrical* when requested by the Electrical Distribution Unit. The audit report and action plan shall address any recommendations/non-conformances to the Electrical Distribution Unit.

Refer to the Auditing and Assurance Standards Board (AUASB) for more information

5 Definitions

Term	Means
Authorised Engineering Organisation or AEO	<p>Means a legal entity (which may include a Rail Transport Agency as applicable) to whom the Asset Standards Authority (ASA) has issued an ASA Authorisation.</p> <p>Explanatory details regarding 'What is an AEO?' is located at this website: Authorised Engineering Organisation.</p> <p>Sydney Trains is an AEO.</p> <p>(Extracted from The Charter of the Asset Standards Authority.)</p>
Authorised/ Authorisation	<p>Has the permission of the appropriate certifying or recertification authority in writing for the duty concerned as detailed in this Procedure.</p>
Authorised Person	<p>A person who is specifically authorised to perform electrical work on, near and in the vicinity of equipment that forms part of the NSW Rail Assets.</p> <p>(Based upon PR D 78100 Definitions and Conventions for Electrical Safety)</p>
Authorised Person (Mains)	<p>An Authorised Overhead Traction Worker, Authorised Traction Operator, an Authorised Traction Live Line Worker, an Authorised Cable Jointer, or an Authorised Officer (Mains) who is authorised for the relevant duties.</p> <p>(Extracted from PR D 78100 Definitions and Conventions for Electrical Safety.)</p>
Authorised Person (Substations)	<p>An Authorised Attendant, or an Authorised Operator, or an Authorised Officer (Substations), who is authorised for the relevant duties.</p> <p>(Extracted from PR D 78100 Definitions and Conventions for Electrical Safety.)</p>
Certification	<p>The process of assessing competence.</p>
Competency	<p>The consistent application of knowledge and skills to the standard of performance required in the workplace.</p>
Electrical Equipment	<p>Electrical equipment which includes any generator, transformer, switchgear, reactor, capacitor, control gear, conductor, cable, rectifier or other electrical equipment, parts of which may normally be energised at a high voltage, low voltage or 1500 volts dc.</p> <hr/> <p> NOTE Electric rolling stock and electrical equipment within rolling stock are not regarded as electrical equipment</p> <hr/> <p>(Extracted from PR D 78100 Definitions and Conventions for Electrical Safety.)</p>
Electrical Permit	<p>An Electrical Permit to Work, a Substation Access Permit, or a Low Voltage Access Permit or variant as appropriate.</p> <p>NOTE: In some cases, this is abbreviated to Permit where it is clear from the context that it is referring to an Electrical Permit.</p> <p>(Extracted from PR D 78100 Definitions and Conventions for Electrical Safety.)</p>
Electrical System	<p>The:</p> <ul style="list-style-type: none"> • low voltage, high voltage electrical distribution system, and • 1500 volt dc overhead wiring system, and • the associated protection and monitoring systems <p>of NSW Rail Assets.</p> <p>(Based upon PR D 78100 Definitions and Conventions for Electrical Safety.)</p>

Term	Means
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<p>Electrical Work</p>	<p>The actual physical work of: constructing, installing, maintaining, repairing, altering, removing, inspecting, testing, replacing or adding to, or removing or restoring supply to, electrical equipment of the electrical system or the supervising of that work.</p> <hr/> <p> NOTE The erection, modification and dismantling of 1500 V OHW support structures is not considered to be electrical work.</p> <hr/> <p>Exemptions to "electrical work" are listed in the Work Health and Safety Regulation section 146. (Based upon PR D 78100 Definitions and Conventions for Electrical Safety.)</p>
<p>Electrical Network Safety Rules or ENSR</p>	<p>Means the document PR D 78000 Electrical Network Safety Rules and supporting documents as referenced in that document.</p>
<p>High Voltage</p>	<p>A nominal voltage exceeding low voltage. 1500 volt dc is treated as a separate case in the Electrical Network Safety Rules. (Based upon PR D 78100 Definitions and Conventions for Electrical Safety.)</p>
<p>ICON Electrical</p>	<p>The Sydney Trains Electrical Operating Centre (EOC) embedded within the Infrastructure Control Centre (ICON).</p>
<p>Low Voltage</p>	<p>A nominal voltage exceeding extra low voltage but not normally exceeding 1000 volts alternating or 1500 volts direct current. 1500 volt dc is treated as a separate case in the Electrical Network Safety Rules. (Based upon PR D 78100 Definitions and Conventions for Electrical Safety.)</p>
<p>NSW Rail Assets</p>	<p>Has the same meaning as defined in The Charter of the Asset Standards Authority of TfNSW.</p>
<p>Overhead Wiring or 1500 Volt Equipment or 1500 Volt Overhead Wiring or OHW</p>	<p>All 1500 volt direct current (dc) overhead wires and associated equipment that normally conducts, isolates or may be energised with a voltage of 1500 volts dc including the secondary circuit of rectifier transformers. For the purpose of Safe Approach Distances, negative equipment which is normally at rail potential (connected to rail) is not considered to be 1500 volt equipment. (Extracted from PR D 78100 Definitions and Conventions for Electrical Safety.)</p>
<p>PCBU</p>	<p>Means a "person conducting a business or undertaking" and has the same meaning as defined in the Work Health and Safety Act.</p>
<p>Professional Head Electrical</p>	<p>Refers to the Professional Head of Electrical Engineering, in Engineering & System Integrity, a business unit within Sydney Trains Engineering & Maintenance Directorate.</p>
<p>TfNSW Employee</p>	<p>Means a "person employed as permanent full time" within Transport, Sydney Trains, NSW Trains or ASA.</p>
<p>Transport Senior Services Manager or above</p>	<p>The TfNSW employee directly associated with the work, and holds a TSS Manager, that has currency of knowledge about the project, people, process, tasks, hazards and work site conditions.</p>
<p>Recertification</p>	<p>The process of re-assessing competence. Recertification may occur at specified intervals, or as deemed necessary, for example, following an incident.</p>

Worker / person	Has the same meaning as defined in the Work Health and Safety Act and as such includes all employees, contractors, subcontractors or an employee of a contractor or subcontractor.
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Note

Further definitions are contained within *PR D 78100 Definitions and Conventions for Electrical Safety*.

6 Certificate of Competency

The Professional Head Electrical or where delegated, an Electrical Authorising Officer, is presented with and considers evidence that a person has been deemed competent to perform certain functions as defined in Section 11 Specific certifications. Once Authorised, certification is issued typically in the form of a TfNSW Rail Safety Worker Card (commonly referred to as the "Gold Card") or a RIW (Rail Industry Workers Card).

Authorised Persons are issued with a Rail Safety Worker Card or Rail Industry Worker Card showing the specific certifications and if applicable a supporting letter detailing specific work functions for which they are certified.

When carrying out functions for which Authorisation is required, persons shall be able to produce their valid Rail Safety Worker Card or Rail Industry Worker Card.

Appendix A Flow Chart; Certification process of persons to obtain an electrical authorisation listed in PR D 78701.

7 Persons undergoing training

Unless otherwise stipulated for a specific certification, a person undergoing training to become an Authorised Person may perform work otherwise restricted to an Authorised Person, subject to the following conditions:

- a) The work is carried out under the direct/constant supervision of another person who is certified to carry out the function concerned.
- b) The Authorised Person supervising the work is responsible for the safety of the person undergoing training and shall implement appropriate controls.
- c) The supervising Authorised Person, when deciding on appropriate controls to be implemented, shall consider the level of competence and experience of the person undergoing training, the nature and complexity of the work to be carried out, and the risks pertaining to the work to be undertaken. Such controls may include, for example, increasing the minimum electrical Safe Approach Distances (for Authorised Persons) that will be applicable for the person undergoing training.

The person undergoing training may fill out but shall not approve, check, issue, or be in charge of, any ENSR documents unless currently certified to do so.

The person undergoing training shall be identified by their AEO Manager or Supervisor as undergoing training to become Authorised. The person shall be undertaking the work in order to achieve the competence required to become an Authorised Person.



Note

Further information and guidance regarding the supervision of persons undergoing training is available in the "Supervising your apprentice or trainee" document, refer [Section 12 References](#).

8 Delegation of authority to certify

The Professional Head Electrical may delegate a person to certify persons as defined in Section 11 Specific Certifications of this document. The requirements of a specific certification stipulate that the Professional Head Electrical may delegate a particular class of person as the "Certifying Authority" for the respective workers. This does not preclude the delegation of this authority to others.

All delegations of authority granted by the Professional Head Electrical to certify persons are reviewed on an annual basis.

The Professional Head Electrical may delegate a person to assess persons with respect to switching operations or safe entry into substation functions.

9 Suspension and withdrawal of authorisation

Following an electrical safety incident, a person's Authorisation may be suspended whilst the matter is investigated.

The following persons may suspend any person:

- the Professional Head Electrical or
- an ICON Electrical System Operator or
- an Electrical Authorising Officer whom is working for Sydney Trains, Electrical Distribution Unit

An Authorised Officer may suspend any person whom is working for the same **AEO** as the person conducting the suspension.

The person suspending the authorisation shall notify ICON Electrical on phone 9379 4911, the Principal Electrical Assessor ESI and the suspended person's line manager of the 'initial' details of the suspension.

Formal written suspension of a person's electrical authorisation will be forwarded to the individual and their manager by the Principal Electrical Assessor EDU and will remain in force until all formal investigations have been completed. If the investigation reveals no breach of ENSR documents, the person's Authorisation may be restored by the officer who suspended it or by an Electrical Authorising Officer. At that time the Certificate of Competency is to be removed and forwarded to TfNSW Organisational Development (OD) with reasons of removal. For recertification, an assessment of the withdrawn Authorisation should be undertaken within 4 weeks by an EDU Electrical Authorising Officer.

Where human factors are identified as a contributing factor to the incident, a behavioural competency assessment coordinated by the Electrical Distribution Unit, shall be undertaken as part of the recertification.

After four weeks, if a person has failed to be re-certified, they shall have a new Certificate of Competency issued, precluding the function that was withdrawn.

A person whose Authorisation in a particular function has been suspended or withdrawn shall not perform that particular function until the certification has been restored, or the

person has been re-certified, regardless of what is shown on the person's Certificate of Competency.

Appendix B Flow Chart; Post Incident Re-Accreditation of persons accredited in accordance with PR D 78701.

10 Recertification

The date from which the next required recertification is calculated, is based upon the original due date and not the date of the assessment.

Where a person is deemed to be not yet competent, the respective Electrical Authorising Officer or TSS Manager or above shall arrange either:

- further assessments to ensure that the person demonstrates continued competency or
- to have that person's Certificate of Competency withdrawn, or replace it with one clearly indicating what competency or competencies are no longer valid

Persons not currently certified shall not be put forward for recertification. Consult with the Electrical Distribution Unit for certification.

Log Books are to be utilized and presented as evidence of maintaining currency of competency for each listed electrical authorisations before an individual is recertified. Further information can be found in PR D 78704.

11 Specific certifications

Table 1 - Personnel Certifications

Clause	Certificate	Ellipse code	Organisation*
Electrical work			
11.1	Accredited Aerial Line (HV & LV) Worker	MEL56	External
11.2	Accredited OHW Assembler	MEL55	External
11.3	Accredited OHW Rigger	MEL54	External
11.4	Accredited OHW Installer	MEL52	External
11.5	Accredited OHW Worker	MEL53	External
11.6	Accredited Electrolysis Interference Tester	AES02	TfNSW
11.7	Accredited Cable Jointer	AES13	TfNSW & External
11.8	Overhead Worker	AES04	TfNSW
11.9	Authorised Overhead Traction Worker	AES15	TfNSW
11.10	Authorised Traction Operator	AES16	TfNSW
11.11	Authorised Officer (Mains)	AES06	TfNSW
11.12	Authorised Attendant	AES05	TfNSW
11.13	Authorised Operator	AES08	TfNSW
11.14	Authorised Officer (Substations)	AES07	TfNSW
11.15	Electrical Authorising Officer	AES14	TfNSW
11.16	Authorised Person (Low Voltage)	AES19	TfNSW
11.17	Electrical System Operator	AES22	TfNSW
Non-electrical work			
11.18	Accredited Electrical Permit Holder	ME161	TfNSW & External
11.19	Accredited for Entry	AES03	TfNSW



Note

Organisation indicates whether the accreditation can be held only by TfNSW employees or external contractors engaged by TfNSW.

Where a specific certificate or competency standard unit (CSU) is quoted in the subsequent tables of this Section for the specific certifications, the certificate or CSU referred to is the current version at the time of publishing this Procedure. If an updated version of the certificate or CSU is adopted in the National Training Package, then the updated certificate or CSU version will apply for initial certification. The updated certificate or CSU version does not apply for recertification.

If an applicant applying for initial certification holds an outdated version of the certificate or CSU then to have that certificate or CSU recognised as equivalent to the current version a "document" issued by an Australian Skills Quality Authority ([ASQA](#)) Registered Training Organisation (RTO) indicating the person has fulfilled the requirement of the competency indicated in this Procedure is required.

11.1 Accredited Aerial Line (HV & LV) Worker (ELLIPSE Resource Code MEL56)

In order to be eligible for certification or recertification as an Accredited Aerial Line (HV & LV) Worker, a person shall meet all the requirements in Table 2.

Table 2 - Requirements for Accredited Aerial (HV & LV) Worker

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Certificate III in Electricity Supply Industry – Rail Traction (National Qualification No. UET30712) and UETTDRDP12A "Maintain overhead energised LV conductors and cables"; or Certificate III in Electricity Supply Industry – Distribution Overhead (National Qualification No. UET30612).	Certificates	None
B	Resuscitation.	Practical competency assessment	1 Year
C	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
D	Releasing a person from a pole or structure.	Practical competency assessment	1 Year
E	Rescuing a person from an elevating work platform.	Practical competency assessment	1 Year
F	Use of a Controlled Descent device.	Practical competency assessment	1 Year
G	Appropriate knowledge of the ENSR. (See Note 1.)	Examination Result	1 Year

H	<p>Assessment of the person's ability to perform the functions of an Accredited Aerial Line (HV & LV) Worker.</p> <p>This Assessment shall be carried out by the person's Supervisor who shall either:</p> <ul style="list-style-type: none"> • Be a Workplace Assessor & hold a Certificate III in <i>Electricity Supply Industry – Distribution Overhead</i> (National Qualification No. UET30612) or Certificate III in <i>Electricity Supply Industry – Rail Traction</i> (National Qualification No. UET30712); <p>or</p> <ul style="list-style-type: none"> • Obtain the services of another Workplace Assessor and Certificate III qualified lineworker as described immediately above. <p>This Assessment shall be carried out in accordance with the organisation's competency management and assessment system that is developed and complies with the ASA Competency Management Standards.</p>	Assessment	1 Year
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Note 1

Successful completion of the "Introduction to Electrical Network Safety Rules (ENSR EJ22)" course run by TfNSW Organisational Development satisfies the initial certification requirements. Whereas successful completion of the written examination (EL50) satisfies the recertification requirement.

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Accredited Aerial Line (HV & LV) Worker certifying and recertifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

An Accredited Aerial Line (HV & LV) Worker is permitted to perform all of the functions listed below, in accordance with the ENSR:

- a) Work without supervision on earthed high voltage aerial lines.
- b) Work without supervision on low voltage aerial lines, excluding work on live LV aerial lines.
- c) Test for continuity/live within a Permit area.
- d) Work to the Safe Approach Distances (SADs) specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment* when in compliance with clause 5.4.3 of the same document, in relation to AC nominal voltages only.
- e) Perform Safety Observer duties in accordance with *PR D 78700 Working around Electrical Equipment* clause 5.4.3 Accredited Persons.

11.2 Accredited OHW Assembler (ELLIPSE Resource Code MEL55)

In order to be eligible for certification or recertification as an Accredited OHW Assembler, a person shall meet all the requirements in Table 3.

Table 3 - Requirements for Accredited PHW Assembler

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Appropriate knowledge of the ENSR. (See Note 1.)	Examination Result	1 Year
B	Use of Controlled Descent Device.	Practical competency assessment	1 Year
C	Resuscitation.	Practical competency assessment	1 Year
D	Establishment of a training plan that has the intent of assuring the person attains a Certificate III in Electricity Supply Industry - Rail Traction (National Qualification No. UET30712) within an agreed timeframe.	Submit training plan to Electrical Manager ESI	1 Year The Electrical Manager ESI, or nominee



Note 1

Successful completion of the "Introduction to Electrical Network Safety Rules (ENSR EJ22)" course run by TfNSW Organisational Development satisfies the initial certification requirements. Whereas successful completion of the written examination (EL50) satisfies the recertification requirement.

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Accredited OHW Assembler certifying and recertifying authority is the Professional Head Electrical or nominee.

An Accredited OHW Assembler is permitted to perform, all of the functions listed below, in accordance with the ENSR:

- a) Work at heights on rail-connected 1500V overhead wiring, under the general intermittent supervision of an Authorised Overhead Traction Worker, Accredited OHW Rigger, Accredited OHW Installer, or Accredited OHW Worker.
- b) Work to the Safe Approach Distances (SADs) specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment* when in compliance with clause 5.4.3 of the same document, in relation to DC nominal voltages only.

The work performed by an Accredited OHW Assembler excludes:

- dropping wires
- performing tasks involving lifting wire weight, pulling against radial load or rigging against conductor or line tension
- running wires and
- installing section insulators

An Accredited OHW Assembler is considered to be in training to become an Accredited OHW Worker.

A job-specific Safe Work Method Statement (SWMS) is required to be prepared and approved in accordance with the ENSR requirements for all activities carried out by the Accredited OHW Assembler that involve the following situations:

- The OHW tension length that is being worked on includes OHW that is outside the electrically safe work area specified on the Electrical Permit to Work under which the work is being performed
- The electrically safe work area specified on the Electrical Permit to Work under which the work is being performed does not include the OHW on the track/s immediately adjacent to the track on which the OHW is being installed
- Whenever special instructions relating to live equipment are included on the Electrical Permit to Work under which the work is being performed

11.3 Accredited OHW Rigger (ELLIPSE Resource Code MEL54)

In order to be eligible for certification or recertification as an Accredited OHW Rigger, a person shall:

- a) be an Accredited OHW Assembler, and
- b) meet all the requirements in Table 4.

Table 4 - Requirements for Accredited OHW Rigger

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Hold a national licence to perform high risk work in the class of Rigging. e.g. hold either of the following high risk work licences issued by Safework NSW. <ul style="list-style-type: none"> • Basic rigging (RB) or • Intermediate rigging (RI, or • Advanced rigging (RA) 	Licence	None (provided Licence is current)
B	Appropriate knowledge of the ENSR. (See Note 1.)	Examination Result	1 Year
C	Use of Controlled Descent Device.	Practical competency assessment	1 Year
D	Resuscitation.	Practical competency assessment	1 Year
E	Establishment and approval of an agreed training plan that has the intent of assuring the person attains a Certificate III in Electricity Supply Industry - Rail Traction (National Qualification No. UET30712) within an agreed timeframe.	Submit training plan to Electrical Manager ESI	1 Year The Electrical Manager ESI, or nominee



Note 1

Successful completion of the "Introduction to Electrical Network Safety Rules (ENSR EJ22)" course run by TfNSW Organisational Development satisfies the initial certification requirements. Whereas successful completion of the written examination (EL50) satisfies the recertification requirement.

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Accredited OHW Rigger certifying and recertifying authority is the Professional Head Electrical or nominee.

An Accredited OHW Rigger is permitted to perform, in accordance with the ENSR, the following functions on the rail-connected 1500V overhead wiring system:

- a) all functions of the Accredited OHW Assembler, without supervision.
- b) dropping wires.
- c) tasks involving lifting wire weight, pulling against radial load or rigging against conductor or line tension; and

- d) work to the Safe Approach Distances (SADs) specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment* when in compliance with clause 5.4.3 of the same document, in relation to DC nominal voltages only.

Functions (b) and (c) are to be performed under the general intermittent supervision of an Accredited Overhead Traction Worker, Accredited OHW Worker or Accredited OHW Installer.

The work performed by an Accredited OHW Rigger excludes the installation of section insulators.

An Accredited OHW Rigger is considered to be in training to become an Accredited OHW Worker.

A job-specific Safe Work Method Statement is required to be prepared and approved in accordance with the ENSR requirements for all activities carried out by the Accredited OHW Rigger that involve the following situations:

- the OHW tension length that is being worked on includes OHW that is outside the electrically safe work area specified on the Electrical Permit to Work under which the work is being performed
- the electrically safe work area specified on the Electrical Permit to Work under which the work is being performed does not include the OHW on the track/s immediately adjacent to the track on which the OHW is being installed
- whenever special instructions relating to live equipment are included on the Electrical Permit to Work under which the work is being performed

11.4 Accredited OHW Installer (ELLIPSE Resource Code MEL52)

In order to be eligible for certification or recertification as an Accredited OHW Installer, a person shall meet all the requirements in Table 5.

Table 5 - Requirements for Accredited OHW Installer

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Successfully completed a: Linesman's Certificate issued by the former Department of Energy and supported by evidence of continuous relevant work experience; or Certificate III in Electricity Supply Industry – Transmission Overhead (National Qualification No. UET30512); or Certificate III in Electricity Supply Industry – Distribution Overhead (National Qualification No. UET30612).	Certificate issued by RTO	None
B	Appropriate knowledge of the ENSR. (See Note 1.)	Examination Result	1 Year
C	Use of Controlled Descent Device.	Practical competency assessment	1 Year
D	Resuscitation.	Practical competency assessment	1 Year
E	Establishment of a training plan that has the intent of assuring the person attains a Certificate III in Electricity Supply Industry - Rail Traction (National Qualification No. UET30712) within an agreed timeframe.	Submit training plan to Electrical Manager ESI	1 Year The Electrical Manager ESI, or nominee



Note 1

Successful completion of the "Introduction to Electrical Network Safety Rules (ENSR EJ22)" course run by TfNSW Organisational Development satisfies the initial certification requirements. Whereas successful completion of the written examination (EL50) satisfies the recertification requirement

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Accredited OHW Installer certifying and recertifying authority is the Professional Head Electrical or nominee.

An Accredited OHW Installer is permitted to perform, in accordance with the ENSR, the following functions on the rail-connected 1500V overhead wiring system:

- a) All the functions of the Accredited OHW Rigger;
- b) Run wires under the general intermittent supervision of an Authorised Overhead Traction Worker or Accredited OHW Worker; and

- c) Work to the Safe Approach Distances (SADs) specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment* when in compliance with clause 5.4.3 of the same document, in relation to DC nominal voltages only.

The work performed by an Accredited OHW Installer excludes the installation of section insulators.

An Accredited OHW Installer is considered to be in training to become an Accredited OHW Worker.

A job-specific Safe Work Method Statement is required to be prepared and approved in accordance with the ENSR requirements for all activities carried out by the Accredited OHW Installer that involve the following situations:

- The OHW tension length that is being worked on includes OHW that is outside the electrically safe work area specified on the Electrical Permit to Work under which the work is being performed
- The electrically safe work area specified on the Electrical Permit to Work under which the work is being performed does not include the OHW on the track/s immediately adjacent to the track on which the OHW is being installed
- Whenever special instructions relating to live equipment are included on the Electrical Permit to Work under which the work is being performed

11.5 Accredited OHW Worker (ELLIPSE Resource Code MEL53)

In order to be eligible for certification or recertification as an Accredited OHW Worker, a person shall meet all the requirements in Table 6.

Table 6 - Requirements for Accredited OHW Worker

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Certificate III in Electricity Supply Industry - Rail Traction (National Qualification No. UET30712) (See Note 1).	Certificate issued by RTO	None
B	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
C	Resuscitation.	Practical competency assessment	1 Year
D	Rescuing a person from a pole or structure.	Practical competency assessment	1 Year
E	Rescuing a person from an elevating work platform.	Practical competency assessment	1 Year
F	Use of Controlled Descent Device.	Practical competency assessment	1 Year
G	Appropriate knowledge of the ENSR. (See Note 2.)	Examination Result	1 Year
H	<p>Assessment of the person's ability to perform the functions of an Accredited OHW Worker.</p> <p>This Assessment shall be carried out by the person's Supervisor who shall either:</p> <ul style="list-style-type: none"> be a Workplace Assessor & hold a Certificate III in <i>Electricity Supply Industry - Rail Traction</i> or Certificate III in <i>Electricity Supply Industry – Distribution Overhead</i> including the gap training, <p>or</p> <ul style="list-style-type: none"> obtain the services of another Workplace Assessor and Certificate III qualified lineworker as described immediately above. <p>This Assessment shall be carried out in accordance with the organisation's competency management and assessment system that is developed and complies with the ASA Competency Management Standards.</p>	Assessment	1 Year



Note 1

People with Certificate III in Electricity Supply Industry – Distribution Overhead (National Qualification No. UET30612) shall undergo the gap-training and assessment on:

- a) UETTD RRT21A Install traction overhead wiring systems; and
- b) UETTD RRT27A Install overhead traction components and equipment.

The required gap training course, based upon the above requirements, is run by TfNSW Organisational Development. Candidates successfully passing the course assessment will be issued with a statement to this effect by TfNSW Organisational Development.



Note 2

Successful completion of the "Introduction to Electrical Network Safety Rules (ENSR EJ22)" course run by TfNSW Organisational Development satisfies the initial certification requirements. Whereas successful completion of the written examination (EL50) satisfies the recertification requirement

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Accredited OHW Worker certifying and recertifying authority is the Professional Head Electrical or nominee.

An Accredited OHW Worker is permitted to perform, in accordance with the ENSR:

- a) Work without supervision on rail connected 1500V Overhead Wiring in accordance with the ENSR and when the work is associated with an approved design.
- b) Test for continuity/live within Permit area.
- c) Perform testing of OHW Structure to Rail Bonding.
- d) Work to the Safe Approach Distances (SADs) specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment* when in compliance with clause 5.4.3 of the same document, in relation to DC nominal voltages only.
- e) Perform Safety Observer duties in accordance with *PR D 78700 Working around Electrical Equipment* clause 5.4.3 Accredited Persons.

A job-specific Safe Work Method Statement is required to be prepared and approved in accordance with the ENSR requirements for all activities carried out by the Accredited OHW Worker that involve the following situations:

- the OHW tension length that is being worked on includes OHW that is outside the electrically safe work area specified on the Electrical Permit to Work under which the work is being performed
- the electrically safe work area specified on the Electrical Permit to Work under which the work is being performed does not include the OHW on the track/s immediately adjacent to the track on which the OHW is being installed
- whenever special instructions relating to live equipment are included on the Electrical Permit to Work under which the work is being performed

11.6 Accredited Electrolysis Interference Tester (ELLIPSE Resource Code AES02)

In order to be eligible for certification or recertification as an Accredited Electrolysis Interference Tester, a person shall meet all the requirements in Table 7.

Table 7 - Requirements for Accredited Electrolysis Interference Tester

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Completed The Australasian Corrosion Association Inc. Electrolysis Testers course.	Certificate issued by the Australasian Corrosion Association Inc	None
B	Assessed in the knowledge requirement of the Guide for Measurement of Interference Caused by Cathodic Protection and Railway Drainage Systems.	Assessment by the Principal Engineer Power Systems ESI	2 Years
C	Appropriate knowledge of the ENSR. (See Note 1.)	Examination Result	1 Year
D	Resuscitation.	Practical competency assessment	1 Year
E	Releasing a person from a live LV electrical apparatus.	Practical competency assessment	1 Year



Note 1

Successful completion of the "Introduction to Electrical Network Safety Rules (ENSR EJ22) course run by TfNSW Organisational Development satisfies the initial certification requirements. Whereas successful completion of the written examination "General Safety" satisfies the recertification.

The person is to be initially certified, and re-certified annually (except Requirement Identifier B with a recertification period of 2 years), on the evidence listed.

The Accredited Electrolysis Interference Tester certifying authority is the Professional Head Electrical (or a person delegated as stated in Section 8).

The Accredited Electrolysis Interference Tester recertification authority is the Professional Head Electrical (delegated to the relevant TSS Manager or above, or a person delegated as stated in Section 8).

An Accredited Electrolysis Interference Tester is permitted to perform, in accordance with the ENSR:

- a) Interference testing and installation associated with dc railway traction drainage systems.
- b) Testing and replacement of OHW structure to rail spark gaps/Ferraz units; excluding installations of spark gaps/Ferraz units and connections to rail.
- c) Work to the SADs specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*, in relation to **DC** nominal voltages only.

11.7 Accredited Cable Jointer (ELLIPSE Resource Code: AES13)

In order to be eligible for certification or recertification as an Accredited Cable Jointer, a person shall meet all the requirements in Table 8.

Table 8 - Requirements for Accredited Cable Jointer

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Certificate III in Electricity Supply Industry – Distribution Cable Jointing (National Qualification No. UET30812); or Certificate III in Electrotechnology Electrician (National Qualification No. UEE30811); or Certificate III in Electrical Fitting (National Qualification No. UEE33011). (See Note 1.)	Certificate	None
B	Appropriate knowledge of the ENSR.	Examination Result	1 Year
C	Resuscitation.	Practical competency assessment	1 Year
D	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
E	Accredited in other relevant release and rescue techniques, where required by the person's duties e.g. pole or structure, elevating work platform rescue, controlled descent device.	Practical competency assessment	1 Year
F	Assessed by the person's Supervisor as being able to perform the functions of an Accredited Cable Jointer satisfactorily. This Assessment shall be carried out by the person's Supervisor who shall either: <ul style="list-style-type: none"> • be a Workplace Assessor and hold a Certificate III in Electricity Supply Industry – Distribution Cable Jointing, or <ul style="list-style-type: none"> • obtain the services of another Workplace Assessor and Certificate III qualified Distribution Cable Jointer as described immediately above. This Assessment shall be carried out in accordance with the organisation's competency management and assessment system, that is developed and complies with the ASA Competency Management Standards.	Assessment Form	1 Year

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Accredited Cable Jointer certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

The Accredited Cable Jointer recertification authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer or TSS Manager or above).

An Accredited Cable Jointer is permitted to perform, in accordance with the ENSR, all of the functions listed below:

- a) Work without supervision on high voltage cables (see Note 2, 3 & 4).
- b) Work without supervision on 1500 volt cables (see Note 2, 3, 4 & 5).
- c) Work without supervision on low voltage cables (see Note 2).
- d) Work to the Safe Approach Distances (SADs) specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*, when in compliance with clause 5.4.3 of the same document.



Note 1

Only [TfNSW Asset Standards Authority](#) approved jointing / termination kits shall be used.

Note 2

The person shall also have obtained a certificate issued by the manufacturer of the jointing / termination kit that has been approved for use by [TfNSW Asset Standards Authority](#) for the task concerned. The certification shall attest to the competence of the person concerned to install the kit.

Note 3

The person holding the Distribution Cable Jointing qualification is permitted to work on HV, DC and LV cables.

The person holding the Electrotechnology Electrician or Electrical Fitting qualification is permitted to work on DC and LV cables ONLY.

Note 4

An Accredited Cable Jointer may only work without supervision on jointing and terminating cables where specific documented training has been received for the specific jointing work being carried out.

Note 5

Cable Jointers previously employed by another Electrical Network Operator and who have no working experience on dc cables shall undertake an on the job assessment by another Accredited Cable Jointer prior to working without supervision.

11.8 Overhead Worker (ELLIPSE Resource Code: AES04)

In order to be eligible for certification or recertification as an Overhead Worker, a person shall meet all the requirements in Table 9.

Table 9 - Requirements for Overhead Worker

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Successful completion of: <ul style="list-style-type: none"> TfNSW Organisational Development course EE76 Power Line Safety Practices, or competency standard unit: RIIWHS204D "Work safely at heights". 	Certificate or Results Notice from a RTO as appropriate.	None
B	Appropriate knowledge of the ENSR.	Examination Result	1 Year
C	Resuscitation.	Practical competency assessment	1 Year
D	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
E	Rescuing a person from a pole or structure.	Practical competency assessment	1 Year
F	Rescuing a person from an elevating work platform.	Practical competency assessment	1 Year
G	Use of Controlled Descent Device.	Practical competency assessment	1 Year
H	Qualified or accredited to perform the specified duties at ground level.	Relevant qualification or certificate	-
I	Assessed by the person's Supervisor who shall also be an Overhead Worker or Authorised Officer (Mains / Substations) as being able to perform the specified functions of an Overhead Worker satisfactorily.	Assessment form	1 Year

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Overhead Worker certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

The Overhead Worker recertification authority is the Professional Head Electrical delegated to the Electrical Authorising Officer or TSS Manager or above.

An Overhead Worker is permitted to perform aloft, in accordance with the ENSR, specified functions which the person is otherwise certified / qualified to perform at ground level.

11.9 Authorised Overhead Traction Worker (ELLIPSE Resource Code AES15)

To be eligible for certification or recertification as an Authorised Overhead Traction Worker, a person shall meet all the requirements in Table 10.

Table 10 - Requirements for Authorised Overhead Traction Worker

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Certificate III in Electricity Supply Industry - Rail Traction (National Qualification No. UET30712) and UETTDRDP12A "Maintain overhead energised LV conductors and cables", or Certificate III in Electricity Supply Industry – Distribution Overhead (National Qualification No. UET30612) and gap training (see Note 1).	Certificate	None
B	Appropriate knowledge of the ENSR.	Examination Result	1 Year
C	Resuscitation.	Practical competency assessment	1 Year
D	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
E	Rescuing a person from a pole or structure.	Practical competency assessment	1 Year
F	Rescuing a person from an elevating work platform.	Practical competency assessment	1 Year
G	Use of Controlled Descent Device.	Practical competency assessment	1 Year
H	Assessed by the person's Supervisor who shall also be an Authorised Overhead Traction Worker or an Authorised Officer (Mains) as being able to perform the functions of an Authorised Overhead Traction Worker satisfactorily.	Assessment form	1 Year



Note 1

Gap training includes all of the following competency standard units:

- UETDRRT21A Install traction overhead wiring systems, or equivalent,
- UETDRRT22A Maintain traction overhead wiring systems, or equivalent,
- UETDRRT27A Install overhead traction components and equipment, or equivalent,
- UETDRRT28A Maintain overhead traction equipment and components, or equivalent.

The person is to be initially certified and re-certified annually on the evidence listed.

The Authorised Overhead Traction Worker certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

The Authorised Overhead Traction Worker recertification authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer or TSS Manager or above).

An Authorised Overhead Traction Worker is permitted to perform, in accordance with the ENSR, all of the functions listed below:

- a) Work without supervision on earthed high voltage aerial lines.
- b) Work without supervision on rail-connected 1500 volt overhead wiring.
- c) Work, including live work, without supervision on low voltage aerial lines.
- d) Perform installation and testing of OHW structure to rail bonding, excluding connection to rail.
- e) Perform electrical work using electrically insulated tools and equipment On, Near or in the Vicinity of LIVE 1500V DC equipment.
- f) Work to the Safe Approach Distances (SADs) specified for "Authorised Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*.

11.10 Authorised Traction Operator (ELLIPSE Resource Code: AES16)

In order to be eligible for certification or recertification as an Authorised Traction Operator, a person shall:

- a) be an Authorised Overhead Traction Worker, and
- b) meet all of the requirements in Table 11.

Table 11 - Requirements for Authorised Traction Operator

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Successful completion of TfNSW Organisational Development course code EE88 Rail Traction Switching and EE88 Rail Traction Switching Final Assessment, or UETDRRT30A Perform to a given schedule rail traction switching operations.	Provide relevant documentation	None
B	Undertake behavioural competency assessment	Online Assessment Report	None
C	Appropriate knowledge of the ENSR.	Examination Result	1 Year
D	Resuscitation.	Practical competency assessment	1 Year
E	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
F	Rescuing a person from a pole or structure.	Practical competency assessment	1 Year
G	Rescuing a person from an elevating work platform.	Practical competency assessment	1 Year
H	Use of Controlled Descent Device.	Practical competency assessment	1 Year
I	Assessed by the Professional Head Electrical in the operation of high voltage field switches and 1500 volt switches.	Written notification from Electrical Manager ESI	1 Year
J	Assessed by the person's Supervisor who shall also be an Authorised Traction Operator or an Authorised Officer (Mains) as being able to perform the functions of an Authorised Traction Operator satisfactorily.	Assessment Form	1 Year

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Authorised Traction Operator certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

The Authorised Traction Operator recertification authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer or TSS Manager or above).

An Authorised Traction Operator is permitted to perform, in accordance with the ENSR, all of the functions listed below:

- a) Hold a Working High Voltage Instruction (WHVI) for aerial lines and associated cables.
- b) Carry out operating work on High Voltage Aerial Lines, 1500 Volt Overhead Wiring, and Low Voltage switches.
- c) Issue and retrieve Permits and Operating Agreements for work on high voltage aerial lines and associated cables outside substations.
- d) Hold a 1500 volt "Authority".
- e) Issue and retrieve Permits and Operating Agreements for work on 1500 Volt overhead wiring and associated cables outside substations.
- f) Issue a "Notification for the Removal of 1500V Supply in Electric Vehicle Maintenance Centres".
- g) Issue and retrieve Permits for work on low voltage aerial lines and low voltage cables, outside substations, that can be visually traced from a low voltage aerial line.
- h) Perform electrical work using electrically insulated tools and equipment On, Near or in the Vicinity of LIVE 1500V DC equipment.
- i) Work to the SADs specified for "Authorised Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*, in relation to:
 - Low Voltage
 - High Voltage and
 - DC nominal voltages up to and including 1500V when performing isolation procedures or test and rail connect procedures
- j) Perform Safety Observer duties (*PR D 78700 Working around Electrical Equipment* clause 5.3.5 Safety Observer's duties).

11.11 Authorised Officer (Mains) (ELLIPSE Resource Code: AES06)

In order to be eligible for certification or recertification as an Authorised Officer (Mains), a person shall meet all the requirements in Table 12.

Table 12 - Requirements for Authorised Officer (Mains)

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Appropriate knowledge of the ENSR.	Examination Result	1 Year
B	Undertake behavioural competency assessment	Online Assessment Report	None
C	Resuscitation.	Practical competency assessment	1 Year
D	Releasing a person from a live LV electrical apparatus where required by the person's duties (e.g. Issue LV Permits).	Practical competency assessment	1 Year
E	Assessed in other relevant release and rescue techniques, where required by the person's duties. (E.g. Pole top rescue.)	Practical competency assessment	1 Year
F	Assessed in each specified function by an Electrical Authorising Officer. (Functions selected from those listed below).	Verbal examination & practical competency assessment	1 Year
G	Assessed by the Electrical Manager ESI, or delegate, in the operation of high voltage field switches, 1500 volt switches and low voltage switches where these functions are selected.	Written notification from Electrical Manager ESI	1 Year
H	Assessment by the relevant TSS Level 1 Manager or above Line Manager immediately responsible for the person / work activity to verify: <ol style="list-style-type: none"> 1. the business need for nominated function(s) and 2. the person's competence for holding the certification. 	Assessment Form	1 Year
I	Assessed by the Professional Head Electrical to approve an "Advice of Alteration to Electrical System Operating Diagrams", if required.	Written notification by Electrical Manager ESI	1 Year

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Authorised Officer (Mains) certifying and recertifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

An Authorised Officer (Mains) is permitted to perform, in accordance with the ENSR, specified functions from the list below:

- a) Approve a Working High Voltage Instruction (WHVI).
- b) Hold a WHVI.
- c) Hold a "WHVI" for a "Test Electrical Permit to Work" (Electrical engineers or Authorised Officer (Substations) only).
- d) Approve an "Advice of Alteration to Electrical System Operating Diagrams".
- e) Approve a 1500V "Authority".
- f) Hold a 1500V "Authority".
- g) Hold a 1500V "Authority" for a "Test Electrical Permit to Work" (Electrical engineers or Authorised Officer (Substations) only).
- h) Issue a "Notification for the Removal of 1500V Supply in Electric Vehicle Maintenance Centres".
- i) If permitted to undertake any of the specified work functions a) to h), work to the SADs specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*.
- j) Carry out operating work on High Voltage Aerial Lines, 1500 Volt Overhead Wiring, and Low Voltage switches.
- k) Issue and retrieve Permits for work on Low Voltage aerial lines and Low Voltage cables outside substations that can be visually traced from a Low Voltage aerial line.
- l) Issue and retrieve Permits and Operating Agreements for work on 1500 Volt overhead wiring and cables outside substations.
- m) Issue and retrieve Permits and Operating Agreements for work on High Voltage aerial lines and cables outside substations.
- n) Perform electrical work using electrically insulated tools and equipment On, Near or in the Vicinity of LIVE 1500V DC equipment.
- o) If permitted to undertake any of the specified work functions j) to n), work to the SADs specified for "Authorised Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*.

11.12 Authorised Attendant (ELLIPSE Resource Code: AES05)

In order to be eligible for certification or recertification as an Authorised Attendant, a person shall meet all the requirements in Table 13.

Table 13 - Requirements for Authorised Attendant

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Hold a qualification relevant to the work functions to be performed (the Professional Head Electrical will accept or reject such qualification).	Provide relevant documentation	None
B	Appropriate knowledge of the ENSR. (See Note 1.)	Examination Result	1 Year
C	Resuscitation.	Practical competency assessment	1 Year
D	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
E	Assessed in other relevant release and rescue techniques, where required by the person's duties.	Practical competency assessment	1 Year
F	Assessed by the AEO Line Manager immediately responsible for the person / work activity to verify: <ol style="list-style-type: none"> 1. the business need for nominated function(s) and 2. the person's competence for holding the certification. 	Assessment form	1 Year
G	Assessed by the Professional Head Electrical for each selected specified function.	Written notification from Electrical Manager ESI	1 Year

Note 1



Specific examination requirements depend on the particular specified functions for which the person is Authorised.

The Authorised Attendant certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer, or a person delegated as stated in Section 8).

The Authorised Attendant recertification authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer or TSS Manager or above).

An Authorised Attendant is permitted to enter one or more nominated substations or classes of substations and perform, in accordance with the ENSR, specified functions. Such specified functions are to be selected from those functions undertaken by an Authorised Operator.

11.13 Authorised Operator (ELLIPSE Resource Code: AES08)

In order to be eligible for certification or recertification as an Authorised Operator, a person shall:

- a) Hold a Tertiary qualification in an Electrical Discipline as accepted by Electrical Manager ESI, and
- b) meet all the requirements in Table 14.

Table 14 - Requirements of Authorised Operator

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Competency UETTDRIS43A Perform LV field switching operation to a given schedule, or successful completion of TfNSW Organisational Development course codes EL11 Low Voltage Switching and EL37 LV Switching Final Assessment. and UETTDRSB39A Perform power system substation switching operation to a given schedule, or successful completion of TfNSW Organisational Development course codes EL30 Substation Switching and EL36 Substation Switching Final Assessment.	Provide relevant documentation	None
B	Appropriate knowledge of the ENSR.	Examination Result	1 Year
C	Undertake behavioural competency assessment.	Online Assessment Report	None
D	Resuscitation.	Practical competency assessment	1 Year
E	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
F	Assessed in other relevant release and rescue techniques, where required by the person's duties. (e.g. Pole or structure, elevating work platform rescue, controlled descent device)	Practical competency assessment	1 Year
G	Assessed by the person's Supervisor as being capable to perform the functions of an Authorised Operator satisfactorily. The supervisor shall either be, or gain the services of an Authorised Operator/Officer as being able to perform the functions of an Authorised Operator satisfactorily.	Assessment form	1 Year

Requirement Identifier	Requirement Description	Evidence required	Recertification period
H	Assessed by the Professional Head Electrical in the operation of high voltage, 1500 volt and low voltage equipment.	Written notification from Electrical Manager ESI	1 Year

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Authorised Operator certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer, or a person delegated as stated in Section 8).

The Authorised Operator recertification authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer or TSS Manager or above).

An Authorised Operator is permitted to perform, in accordance with the ENSR, the specified functions listed below:

- a) Enter substations.
- b) Carry out operating work on all high voltage, 1500 volt and low voltage equipment (see Note 1).
- c) Carry out "electrical work" on "electrical equipment" (see Note 1).
- d) Supervise work within substations (see Note 2).
- e) Issue and cancel a "Substation Access Permit" (see Note 1).
- f) Issue and cancel a "Test Substation Access Permit" (see Note 1).
- g) If specifically authorised by the Electrical Manager ESI, undertake work on operational protection systems associated with the HV ac network.
- h) Perform electrical work using electrically insulated tools and equipment On, Near or in the Vicinity of LIVE 1500V DC equipment.
- i) Work to the SADs specified for "Authorised Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*. Work to the SADs specified for "Authorised Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*.
- j) Perform Safety Observer duties (PR D 78700 Working around Electrical Equipment clause 5.3.5 Safety Observer's duties).
- k) Perform a termination or joint on a 1500V polymeric cable if the person:
 - is covered by the Sydney Trains "Substation / Low Voltage Electrical" Classification Structure and is at or above Level 3.2 of that Classification Structure, or possesses a Certificate III Electrotechnology Electrician qualification and
- l) has obtained a certificate issued by the manufacturer of the jointing / terminating kit that has been approved for use by TfNSW Asset Standards Authority for the task concerned. The certificate shall attest to the competence of the person to install the kit.



Note 1

The Worker may be authorised for this work function to "limited" specific work locations, items of equipment and/or voltage levels



Note 2

Hold a Certificate IV in Electricity Supply Industry – Power System Substations (National Qualification No UET40512 or has successfully completed the TfNSW Organisational Development course Substation Technician class 2.

Accompany and take responsibility for unauthorised persons admitted into substations. Oversee work and give directions as necessary to ensure that the work is carried out safely and in accordance with the ENSR, e.g. *PR D 78101 General Requirements for Electrical Work* section 7 and 12.

Ensure that work does not compromise the integrity of the electrical system, and that equipment that is not fit for service is not placed in service or returned to service. Does not preclude an Authorised Operator from also undertaking work that the person is qualified to do.

11.14 Authorised Officer (Substations) (ELLIPSE Resource Code: AES07)

In order to be eligible for certification or recertification as an Authorised Officer (Substations), a person shall meet all the requirements in Table 15.

Table 15 - Requirements for Authorised Officer (Substations)

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	<p>Be an Authorised Operator, and</p> <p>hold the qualification: Certificate IV in Electricity Supply Industry – Power Systems Substations (National Qualification No. UET40512),</p> <p>or</p> <p>Hold a Tertiary Qualification in Electrical Engineering</p> <p>and</p> <p>Hold a qualification relevant to the work functions to be performed (the Professional Head Electrical will accept or reject such qualification),</p> <p>and</p> <p>Hold the following units of competency from a RTO:</p> <ul style="list-style-type: none"> • as per Authorised Operator, Requirement Identifier "A", and • UETTDRSB23A Install and maintain substation DC systems, and • UETTDRSB22A Carry out power systems substation inspection, and • UETTDRSB26A Install high current DC equipment and switchgear, and • UETTDRSB27A Maintain high current DC equipment and switchgear, and • UETTDRSB21A Diagnose and rectify faults in substation environment. 	Certificate or Results Notice from a RTO as appropriate and or verification of membership to Engineers Australia.	None
B	Undertake behavioural competency assessment.	Online Assessment Report	None
C	Appropriate knowledge of the ENSR.	Examination Result	1 Year
D	Resuscitation.	Practical competency assessment	1 Year
E	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year

F	Assessed in other relevant release and rescue techniques, where required by the person's duties. (e.g. Pole top rescue)	Practical competency assessment	1 Year
G	Assessment by the relevant TSS Level 1 Manager or above Line Manager immediately responsible for the person / work activity to verify: 1. the business need for nominated function(s) and 2. the person's competence for holding the certification.	Assessment Form	1 Year
H	Assessed by the Professional Head Electrical in the operation of high voltage, 1500 volt and low voltage equipment.	Written notification from Electrical Manager ESI	1 Year
I	Assessed by the Professional Head Electrical as being able to perform the functions of an Authorised Officer (Substations) satisfactorily.	Written notification from Electrical Manager ESI	1 Year
J	Assessed by the Professional Head Electrical to approve an "Advice of Alteration to Electrical System Operating Diagrams", if required.	Written notification by Electrical Manager ESI	1 Year

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Authorised Officer (Substations) certifying and recertifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

An Authorised Officer (Substations) is permitted to perform specific functions listed below, in accordance with the ENSR:

- a) Perform specified functions listed for an Authorised Operator (Refer to Section 11.13).
- b) Check, Instruct, Issue, Hold and Cancel an "Extraordinary Substation Access Permit".
- c) If specifically authorised by the Electrical Manager ESI.
 - i. Test and verify correct operation of protection systems associated with the HV ac network,
 - ii. An Authorised Officer (Substations) may also be authorised to approve an "Advice of Alteration to Electrical System Operating Diagrams".

11.15 Electrical Authorising Officer (ELLIPSE Resource Code: AES14)

An Electrical Authorising Officer is nominated by the relevant line manager to authorise mains and or substation staff within a defined area of responsibility. That person shall meet all the requirements in Table 16.

Table 16 - Requirements for Electrical Authorising Officer

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Have extensive experience as an: <ul style="list-style-type: none"> • Authorised Officer (Mains), or • Authorised Officer (Substations), and be certified by the Professional Head Electrical as being capable of performing specified functions of an: Authorised Officer (Mains), or Authorised Officer (Substations).	Work history	None
B	Undertake behavioural competency assessment.	Online Assessment Report	None
C	Prepare and present for discussion with the Electrical Manager ESI, practical scenarios for the area concerned, for each function listed for an Authorised Officer (Mains and / or Substations), which, if satisfactory, is approved to be used to examine prospective Authorised Officers (Mains and / or Substations).	Written and verbal assessment	3 Years (See Note 1)



Note 1

A candidate for becoming an Electrical Authorising Officer shall satisfy the criteria of the Requirement Description. The Professional Head Electrical may waive such criteria and substitute a verbal or another form of assessment for recertification of an existing certified Electrical Authorising Officer.

The person is to be initially certified, and re-certified every 3 years, on the evidence listed.

The Electrical Authorising Officer certifying and recertification authority is the Electrical Manager ESI.

An Electrical Authorising Officer is authorised to examine and certify persons as Authorised Officers (Mains and / or Substations), and other Certifications for Electrical personnel as required.

11.16 **Authorised Person (Low Voltage) (ELLIPSE Resource Code: AES19)**

In order to be eligible for certification or recertification as an Authorised Person (Low Voltage), a person shall:

Hold the following issued by the NSW Fair Trading:

- a) Qualified Supervisor Certificate (Electrical Work) or a Contractor Licence (Electrical - Q) and,
- b) meet all the requirements in Table 17.

Table 17 - Requirements for Authorised Person (Low Voltage)

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	UETTDRIS43A Perform LV field switching operation to a given schedule, or successful completion of TfNSW Organisational Development course codes EL11 Low Voltage Switching and EL37 LV Switching Final Assessment.	Provide relevant documentation	None
B	Appropriate knowledge of the ENSR.	Examination Result	1 Year
C	Resuscitation.	Practical competency assessment	1 Year
D	Releasing a person from live LV electrical apparatus.	Practical competency assessment	1 Year
E	Assessed by the person's Supervisor who shall also be: an Authorised Person (Low Voltage), or an Authorised Operator who is also a Qualified Electrician as being able to perform the functions of an Authorised Person (Low Voltage) satisfactorily. Assessed by the person's Supervisor as being capable to perform the functions of an Authorised Operator satisfactory. The supervisor shall be, or gain the services of an Authorised Operator/Officer.as being able to perform the functions of an Authorised Operator satisfactorily.	Assessment Form	1 Year

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Authorised Person (Low Voltage) certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

The Authorised Person (Low Voltage) recertification authority is the Professional Head Electrical Engineering ES I (delegated to the Electrical Authorising Officer, or TSS Manager or above).

An Authorised Person (Low Voltage) is permitted to perform, in accordance with the ENSR, the functions listed below:

- a) Carry out electrical work on Low Voltage Installations, including live electrical work, in accordance with *SMS-06-SW-0276 Work on Low Voltage Installations*.
- b) Operate Low Voltage switches on the Low Voltage Distribution Network or Low Voltage Installations.
- c) Issue and retrieve Low Voltage Access Permits.
- d) Supervise or carry out electrical work on the Low Voltage Distribution Network or Low Voltage Installations.
- e) Perform a termination or joint on a 1500V polymeric cable if the person:
 - is an Overhead Worker if required to work aloft and
 - is covered by the Sydney Trains "Substation / Low Voltage Electrical" Classification Structure and is at or above Level 3.2 of that Classification Structure and
 - has obtained a certificate issued by the manufacturer of the jointing / terminating kit that has been approved for use by TfNSW Asset Standards Authority for the task concerned. The certificate shall attest to the competence of the person to install the kit
- f) Work to the **AC Low Voltage** SAD specified for "Authorised Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*.



Note 1

All electrical work shall be subjected to commissioning inspections and tests in accordance with:

- AS/NZS 3000 Electrical Installations (known as the Wiring Rules)
 - the [Service and Installation Rules of New South Wales](#)
 - relevant standards
 - *T HR EL 17001 ST Electrical Distribution System Installation Connection and Inspection* and/or
 - *ESB E001 Low Voltage Electrical Standards*
-

11.17 Electrical System Operator (ELLIPSE Resource Code: AES22)

In order to be eligible for certification or recertification as an Electrical System Operator, a person shall:

- a) Have been an Authorised Operator, and
- b) meet all the requirements in Table 18.

Table 18 - Requirements for Electrical System Operator

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Hold an electrical qualification relevant to the work functions to be performed (the Professional Head Electrical will accept or reject such qualification).	Provide relevant documentation	None
B	Undertake behavioural competency assessment.	Online Assessment Report	None
C	Complete Sydney Trains Electrical System Operator training course.	Provide relevant documentation	None
D	Appropriate knowledge of the ENSR.	Examination Result	1 Year
E	Assessed by the AEO Line Manager immediately responsible for the person / work activity to verify: <ol style="list-style-type: none"> 1. the business need for nominated function(s) and 2. the person's competence for holding the certification. 	Assessment Form	1 Year
F	Assessed by Professional Head Electrical (or delegated authority) to approve an "Advice of Alteration to Electrical System Operating Diagrams", if required.	Written notification from Electrical Manager ESI	1 Year

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Electrical System Operator certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer).

The Electrical System Operator recertification authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer, or TSS Manager or above).

An Electrical System Operator is permitted to perform, in accordance with the ENSR, specified functions listed below:

- a) Write/Issue and Check a Working High Voltage Instruction (WHVI).
- b) Write/Issue and Check a 1500V "Authority".
- c) Remote operations of RailCorp's Electrical Network.
- d) Hold a "verbal" operating agreement between participating Distribution Network Service Provider (DNSP) Electrical Network control centres.
- e) Regulate RailCorp's Electrical Network supply.

- f) Parallel other DNSPs Electrical Networks through the RailCorp Electrical Network.
- g) Suspend Electrical Authorisations following an electrical safety incident.
- h) Enter Substations/Sectioning Huts.
- i) Approve an "Advice of Alteration to Electrical System Operating Diagrams".

11.18 Accredited Electrical Permit Holder (ELLIPSE Resource Code: ME161)

In order to be eligible for certification or recertification as an Accredited Electrical Permit Holder, a person shall meet all the requirements in Table 19.

Table 19 - Requirements for Accredited Electrical Permit Holder

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Successfully completed and maintained the Rail Safety Worker certification.	Examination Result	None
B	Successfully completed the Electrical Permit Holder Course.	Examination Result	None
C	Successfully completed the Electrical Permit Holder Course recertification exam.	Examination Result	2 Years

The person is to be initially certified, and re-certified biannually, on the evidence listed.

The Accredited Electrical Permit Holder certifying authority is the Professional Head Electrical (delegated to TfNSW Organisational Development).

The Accredited Electrical Permit Holder recertification authority is the Professional Head Electrical (delegated to TfNSW Organisational Development).

A certificate issued by TfNSW Organisational Development for both the initial Accredited Electrical Permit Holding (AEPH) course and the bi-annual refresher AEPH course is regarded as sufficient evidence for the initial certification and recertification respectively.

A person who is authorised to issue an Electrical Permit is deemed to be an Accredited Electrical Permit Holder. No additional certification is required.

An Accredited Electrical Permit Holder is authorised to:

- a) Hold an Electrical Permit to Work.
- b) Hold a Substation Access Permit issued for work on 1500V negative equipment outside a substation.
- c) Work to the SADs specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*.

11.19 Accredited for Entry (ELLIPSE Resource Code: AES03)

In order to be eligible for certification or recertification as Accredited for Entry, a person shall meet all the requirements in Table 20.

Table 20 - Requirements for Accredited for Entry

Requirement Identifier	Requirement Description	Evidence required	Recertification period
A	Assessed by the AEO Line Manager immediately responsible for the person / work activity to verify: <ul style="list-style-type: none"> the business need for nominated function(s) and the person's competence for holding the Accredited for Entry certification. 	Written notification from the AEO Line Manager immediately responsible for the person / work activity (TSS Manager or above)	1 Year
B	For initial certification, the candidate shall complete PR D 78701 FM 04 Item 3 Training.	Completion of PR D 78701 FM 04 Item 3 Training	None
C	Appropriate knowledge of the ENSR. (See Note 1.)	Examination Result	1 Year
D	Assessed by the Electrical Manager ESI, or delegate, as being able to safely enter a substation in order to carry out those functions selected from those listed below.	Written notification from the Electrical Manager ESI	5 Year

Note 1



Successful completion of the "Introduction to Electrical Network Safety Rules (ENSR EJ22) course run by TfNSW Organisational Development satisfies the initial certification requirements. Whereas successful completion of the written examination "General Electrical Safety" written examination satisfies the recertification requirement.

The person is to be initially certified, and re-certified annually, on the evidence listed.

The Accredited for Entry certifying authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer, or a person delegated as stated in Section 8).

The Accredited for Entry recertification authority is the Professional Head Electrical (delegated to the Electrical Authorising Officer or TSS Manager or above).

An Accredited for Entry certificate holder is permitted to enter substations to perform the following specified functions without the use of tools:

- a) Deliver/replace operating diagrams or substation consumables, including restocking of first aid kits.
- b) Conduct visual inspections and review associated documentation for items such as first aid kits, ladders, operating diagrams etc.
- c) Use substation facilities i.e. phone, toilet, shower, hand basin.
- d) Check next inspection date for earth sets, operating sticks and test equipment not currently in use.
- e) Access fire extinguishers for periodical checks.
- f) Access fire control panels for routine periodical checks (See Note 2).
- g) Work to the SADs specified for "Accredited Persons" in Table 1 of *PR D 78700 Working around Electrical Equipment*.



Note 2

If the periodical checks require access beyond the confines of the fire control panel, direct/constant supervision shall be provided by an Authorised Person (Substations).



Note 3

An Accredited for Entry certificate holder cannot:

- supervise other persons in a substation or
 - accompany other persons in a substation unless the other person either holds an Accredited for Entry certification or is an Authorised Person (Substations)
-

12 References

Legislation

Work Health and Safety Act 2011 (NSW)

Rail Safety National Law (NSW)

Electricity Supply Act 1995

Australian Standards & Industry Guidelines

AS/NZS 3000 Electrical Installations (known as the Wiring Rules)

[Service and Installation Rules of New South Wales](#)

ENA DOC 001 - 2008 National Electricity Safety Code

Industry Websites

Australian Skills Quality Authority ([ASQA](#))

[E-Oz Energy Skills Australia Electricity Transmission, Distribution and Rail Training Package](#)

[E-Oz Energy Skills Australia Electrotechnology Training Package](#)

[Engineers Australia](#)

[NSW Fair Trading](#)

WorkCover NSW White Card ([General Construction Industry Card](#)) and [High Risk Work Licences](#)

[National Register on Vocational Education and Training \(VET\)](#)

ASA Standards

ESB E001 Low Voltage Electrical Standards

TS 10506 AEO Guide to Verification and Validation

T HR EL 17001 ST Electrical Distribution System Installation Connection and Inspection

TS 20001 System Safety Standard for New or Altered Assets

Electrical Network Safety Rules

PR D 78000 Electrical Network Safety Rules

PR D 78100 Definitions and Conventions for Electrical Safety

PR D 78101 General Requirements for Electrical Work

PR D 78201 Removal and Restoration of High Voltage Supply

PR D 78202 Working High Voltage Instruction

PR D 78301 Removal and Restoration of 1500 Volt Supply

PR D 78302 1500 Volt Authority

PR D 78500 Electrical Permits

PR D 78501 Electrical Permit to Work

PR D 78401 Isolation and Energisation of Low Voltage Equipment

PR D 78402 Work on Low Voltage Distribution System

PR D 78403 Work on Live Low Voltage Equipment

PR D 78301 FM 01 Notification for the Removal of 1500V Supply in EVMCs

PR D 78700 Working around Electrical Equipment

Sydney Trains Safety Management System

SMS-11-SP-3011 Training and Competence

[Health Assessment Categories for Rail Safety Workers](#)

Rail Industry Worker Card