



Australian Government

UETTD RIS54 Install and maintain poles, structures and overhead conductors and cables

Release: 1

UETTDRI54 Install and maintain poles, structures and overhead conductors and cables

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package.

Application

This unit involves the skills and knowledge required to install and maintain overhead conductors and cables used on poles and structures (excluding towers) in the electricity supply industry (ESI).

It includes stringing, tensioning and terminating of conductors/cables, cleaning de-energised insulators, securing conductors to insulators or supports and undertaking electrical connections.

It also includes maintenance work associated with diagnosing faults, conducting visual inspections, confirming phasing, completing workplace tests, isolating systems and circuits, issuing/accepting electrical access permits and updating system data/maintenance records.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace.

Other conditions may apply under state and territory legislative and regulatory licensing requirement which must be confirmed prior to commencing this unit.

Pre-requisite Unit

Common Unit Group

UEENEEE101A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEENEEE102A Fabricate, assemble and dismantle utilities industry components

UEENEEE105A Fix and secure electrotechnology equipment

UEENEEE107A Use drawings, diagrams, schedules, standards, codes and specifications

UETTDREL11 Apply sustainable energy and environmental procedures

UETTDREL16 Working safely near live electrical apparatus

Competency Field

Industry Specific Cross Discipline

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for installation and maintenance of overhead conductors and cables used on poles and/or structures

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Work schedules, construction plans, drawings, workplace procedures and material lists are received and confirmed
- 1.2** Job requirements and workplace procedures are identified and communicated with relevant personnel
- 1.3** Work health and safety (WHS)/occupational health and safety (OHS), environmental and workplace procedures for the installation and maintenance of overhead conductors and cables used on poles and/or structures are obtained and confirmed for the purposes of the work to be performed
- 1.4** Work is prioritised and sequenced for completion within acceptable timeframes following consultation with relevant personnel and in accordance with workplace procedures
- 1.5** Hazards are identified, WHS/OHS risks assessed and control measures identified in accordance with workplace procedures
- 1.6** Relevant work permits are obtained, understood and signed in accordance with workplace procedures
- 1.7** Plant, equipment, tools and personal protective equipment (PPE) required for work are identified, obtained and confirmed in working order
- 1.8** Worksite is prepared to minimise risk, damage to property, commerce and individuals in accordance with workplace procedures
- 1.9** Traffic management plan is confirmed as being applied

- in accordance with workplace procedures
- 2 Carry out installation and maintenance of overhead conductors and cables used on poles and/or structures**
- 2.1** WHS/OHS, sustainable energy and environmental principles and practices are monitored and followed to reduce incidents in accordance with workplace procedures
- 2.2** Requirements for lifting and/or climbing and/or working at heights and the use of power tools/equipment are followed in accordance with workplace procedures
- 2.3** Electrical systems and circuits are checked and isolated in accordance with job requirements, work permits and workplace procedures
- 2.4** Installation and maintenance of overhead conductors and cables used on poles and/or structures are completed in agreed timeframes, to quality standards and with a minimum of waste in accordance with workplace procedures
- 2.5** Overhead conductor/cables are strung, tensioned and terminated in accordance with workplace procedures
- 2.6** Insulators are cleaned and conductors, anti-vibration devices and spaces/spreaders are secured in accordance with workplace procedures
- 2.7** Electrical connections are made in accordance with job requirements and workplace procedures
- 2.8** Maintenance, including repair and/or replacement of overhead conductors and cables used on poles and/or structures, is carried out in accordance with work schedule, job requirements and workplace procedures
- 2.9** Unplanned events are responded to in accordance with workplace procedures
- 2.10** Quality checks of work are undertaken in accordance with workplace procedures
- 3 Complete installation and maintenance of overhead conductors and cables used on poles and/or structures**
- 3.1** Completed work is checked against work schedule, construction plans and drawings for compliance and anomalies are reported in accordance with workplace procedures

- 3.2 WHS/OHS and environmental incidents are reported in accordance with workplace procedures, as required
- 3.3 Worksite is rehabilitated, cleaned up and made safe in accordance with workplace procedures
- 3.4 Tools, equipment and surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with workplace procedures
- 3.5 Relevant work permits are signed off and overhead conductors and cables used on poles and/or structures are returned to service in accordance with workplace procedures
- 3.6 Conductors/cables are tested and commissioned in accordance with job requirements and workplace procedures
- 3.7 Work records, reports and/or documentation are completed in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UETTDRI54A Install and maintain poles, structures and overhead conductors and cables.

Links

UET Training Package Companion Volume Implementation Guide is found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETTDRIS54 Install and maintain poles, structures and overhead conductors and cables

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including the use of risk control measures
- applying sustainable energy principles and practices
- installing and maintaining poles, structures and overhead conductors and cables using at least two (2) of the following:
 - copper
 - aluminium
 - steel
 - low voltage (LV) aerial bundled cable (ABC)
 - aluminium/steel reinforced
 - high voltage (HV) ABC
 - HV insulated unscreened conductor (IUC)
 - pilot
- using at least two (2) of the following height access methods:
 - elevated work platform (EWP)
 - portable platform
 - ladder
- using at least three (3) of the following types of stringing equipment:
 - tension equipment*
 - cable drum stands
 - cable trailers
 - ropes
 - rollers
 - sheaves
 - stockings
 - stringing equipment
 - swivels

- winches
- (* must do one)
- using at least two (2) of the following types of testing and recording equipment:
 - voltage indicators *
 - phasing sticks
 - fault indicators
 - field intensity meter
 - operating rods
 - (*must do)
- using at least one (1) of the following types of stringing methods:
 - lay-out (stringing method)
 - pull through (stringing method)
 - pilot rope (stringing method)
- using at least one (1) of the following tensioning methods:
 - dynamometer
 - site board
 - beat (wave sagging)
 - abney level
 - theodolite
- dealing with unplanned events on at least one (1) occasion.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to installing conductors and associated equipment
- safe work practices, including:
 - requirements to enable safe working on conductive poles
 - procedures to attach on site earthing devices to de-energised LV and HV circuits
- requirements for the use of overhead line construction manuals, system diagrams/plans and drawings, including:
 - material lists
 - conductor size, type and route length
- constructions types and structures for distribution and sub-transmission lines
- types, sizes and characterises of overhead conductors
- resources for the stringing and maintenance of conductors, including:
 - types of LV and HV overhead electrical conductor connections
 - causes and effects of poor electrical connections
 - reasons for and methods used to maintain standard phase sequencing

- removing, repairing and replacing damaged conductors
- minimum clearances between overhead conductors and LV and HV structures
- techniques for conductor installation, including:
 - types and application of tools, equipment and hardware
 - methods of stringing, tensioning and termination of LV and HV conductors.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated conditions involving realistic and authentic activities that replicate operational workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry for installing and maintaining poles, structures and overhead conductors and cables
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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