



Australian Government

UETDRSB001 Perform substation switching operations to a given schedule

Release: 1

UETDRSB001 Perform substation switching operations to a given schedule

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 2.0.

Application

This unit involves the skills and knowledge required to perform substation switching operations to a given schedule in the electricity supply industry (ESI).

It includes switching operations in zone, traction or terminal substations in accordance with workplace requirements.

It also includes using specialised tools, personal protective equipment (PPE) and testing equipment.

Note: Entry requirement into the unit is for users that have successfully completed:

- *a UET Certificate III, IV, Diploma or Advanced Diploma qualification or the equivalent issued in an Australian state or territory*
- *or*
- *an Electrician or Electrical Fitter qualification or the equivalent issued in an Australian state or territory*
- *or*
- *in the final stages of completing an apprenticeship in the above qualifications.*

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

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

Pre-requisite Unit

Not applicable, refer to unit application.

Competency Field

Substation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Prepare for substation switching

- 1.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are referred to and confirmed
- 1.2** Switching schedules are obtained and confirmed in accordance with workplace requirements
- 1.3** Plant, tools, equipment and PPE required for work are determined, obtained and confirmed in working order
- 1.4** Hazards are identified, risks are assessed and control measures identified and applied
- 1.5** Work is prioritised and sequenced for completion in accordance with work plan and workplace requirements
- 1.6** Work permit/approval is organised in accordance with workplace requirements
- 1.7** Worksite is prepared to in accordance with the work plan and workplace requirements

2 Carry out substation switching

- 2.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are applied and monitored
- 2.2** Lifting, working at heights and the use of plant, tools and equipment are carried out in accordance with workplace requirements
- 2.3** Hazard control measures are monitored in accordance with workplace requirements
- 2.4** Communication with switching control officer is established and maintained during switching operations in accordance with workplace requirements
- 2.5** Approval is obtained to commence substation switching

in accordance with workplace requirements

- 2.6** Substation switching is performed to isolate and/or transfer supply in accordance with switching schedule and workplace requirements
- 2.7** Work permit is written and issued in accordance with the switching schedule and workplace requirements
- 2.8** Work permit is cancelled or relinquished in accordance with workplace requirements
- 2.9** Approval is obtained to commence restoration of supply in accordance with workplace requirements
- 2.10** Substation switching is performed to restore supply in accordance with the switching schedule and workplace requirements
- 2.11** Switching controller is notified restoration has been completed in accordance with workplace requirements
- 2.12** Incidents or unplanned events are responded to in accordance with workplace requirements

3 Complete work and documentation

- 3.1** Incidents or unplanned events are reported in accordance with workplace requirements
- 3.2** Worksite is rehabilitated, cleaned and made safe in accordance with workplace requirements
- 3.3** Plant, tools and equipment are cleaned, checked and returned to storage in accordance with workplace requirements
- 3.4** Work records, reports and documentation are completed in accordance with workplace requirements

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 UET Transmission, Distribution and Rail Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UETTDRSB39 Perform power system substation switching operation to a given schedule.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETDRSB001 Perform substation switching operations to a given schedule

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 2.0.

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 legislation, regulations, standards, codes of practice and organisational workplace requirements, including:
 - work health and safety (WHS)/occupational health and safety (OHS)
- identifying hazards, assessing risks, identifying, applying and monitoring control measures
- obtaining, inspecting and using relevant personal protective equipment (PPE)
- establishing and maintaining communications with the following:
 - switching controller
 - permit holders
- obtaining approval to perform substation switching to a given schedule
- performing substation switching operations to a given schedule completing all of the following:
 - isolation
 - restoration
- using at least three (3) of the following specialist tools and equipment:
 - voltage detectors*
 - operating sticks
 - portable earths
 - phasing equipment
 - operating handles
 - (*must do)
- operating at least four (4) of the following electrical apparatus:
 - links
 - earth switches
 - air-break switches
 - circuit breakers
 - fuses
- operating the substation electrical equipment remotely via a panel/display

- dealing with an unplanned event on at least one (1) occasion
- organising, issuing, cancelling or relinquishing relevant work permits/approvals in accordance with workplace requirements
- completing relevant work records, reports and documentation.

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:

- relevant legislation, regulations, standards, codes of practice and organisational workplace requirements, including:
 - WHS/OHS
- hazard, risk assessment and risk control requirements, including potential hazards
- types and application of PPE
- safe use of plant, tools and equipment
- application, purpose and types of work permits/approvals
- events constituting an unplanned event or incident
- procedures for responding to an unplanned event or incident
- substations, including:
 - types
 - layouts
 - bus bar configurations
 - types of electrical apparatus
 - types, function and operating characteristics of various switchgear
 - earthing systems
 - voltage regulation
- protection systems, including:
 - types, function and operating characteristics
 - protection equipment
 - interconnectors and possible sources of back-feed
- substation power supplies, including:
 - low voltage supply
 - batteries and battery charges
- substation switching principles, including:
 - manuals, system diagrams/plans and drawings
 - responsibilities of the switching operator
 - isolation, restoration, paralleling and transferring
 - earthing requirements and procedures
 - requirements and procedures of the operation of switchgear
 - safety requirements and procedures

- use and operation of specialised equipment and tools
- emergency/fault switching
- substation automation system, including:
 - supervisory control and data acquisition (SCADA) system security interlocks and access restrictions
 - function of the main components of a local/remote control system
 - operation procedure for switching from a local control station
 - functions of SCADA (or any other relevant data acquisition and control) systems and its main components
 - operation of a field devices using SCADA systems via a RAT, dial up annunciated system and local control station.

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:

- relevant and appropriate materials, tools, facilities, equipment and PPE currently used in industry performing substation switching operations to a given schedule
- applicable documentation, including workplace requirements, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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