



Australian Government

Department of Education, Employment and Workplace Relations

UETTDRSO37A Develop high voltage distribution and subtransmission switching programs

Release: 1

UETTDRSO37A Develop high voltage distribution and subtransmission switching programs

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This Competency Standard Unit covers the preparation and/or checking of activities required to place the HV distribution and sub transmission network in a state in which work can safely be performed whilst minimising customer outages. The format is typically a written sequence of switching items in a pre-defined format. It includes planning outages and taking into account loading of network components. It also includes planning the management of multiple outages on the HV distribution and sub transmission network and the calculation of network loading conditions to ensure the network is operating within designed parameters.

Application of the Unit

Application of the Unit 2)

This Competency Standard Unit is intended to augment formally acquired competencies. It is suitable for employment-based programs under an approved contract of training.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit may require a licence/registration to practice in the work place subject to regulations for undertaking of electrical work.

License to practice

3)

Practice in workplace and during training is also subject to regulations directly related to Occupational Health and Safety, electricity/telecommunications/gas/water industry safety and compliance, industrial relations, environmental protection, anti discrimination and training. Commonwealth, State/Territory or Local Government legislation and regulations may exist that limits the age of operating certain equipment.

Pre-Requisites

Prerequisite Unit(s)

4)

Competencies

4.1)

Granting of competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

Where pre-requisite pathways have been identified. All competencies in the Common Unit Group must be have been completed plus all the competencies in one (1) of the identified Pathway Unit Group(s):

Common Unit Group

Unit Code	Unit Title
UEENEED104A	Use engineering applications software on personal computers
UEENEEE101A	Apply Occupational Health and Safety regulations, codes and practices in the workplace
UEENEEE102A	Fabricate, assemble and dismantle utilities industry components
UEENEEE104A	Solve problems in d.c. Circuits
UEENEEE107A	Use drawings, diagrams, schedules, standards, codes and specifications
UEENEEE124A	Compile and produce an energy sector detailed report
UEENEEE125A	Provide engineering solutions for

Prerequisite Unit(s)

4)

	problems in complex multiple path circuits problems
UEENEEE126A	Provide solutions to basic engineering computational problems
UEENEEG101A	Solve problems in electromagnetic devices and related circuits
UEENEEG102A	Solve problems in electromagnetic devices and related circuits
UEENEEG149A	Provide engineering solutions to problems in complex polyphase power circuits
UETTDREL11A	Apply sustainable energy and environmental procedures
UETTDREL16A	Working safely near live electrical apparatus
UETTDRLS62A	Implement and monitor the power system organisational OHS policies, procedures and programs
UETTDRLS63A	Implement and monitor the power system environmental and sustainable energy management policies and procedures

Literacy and numeracy skills

4.2)

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 “Literacy and Numeracy”

Reading 5 Writing 5 Numeracy 5

Employability Skills Information

Employability Skills 5)

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit	Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.
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Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1 Plan for the preparation of HV Distribution and Sub transmission Switching programs | 1.1 OHS practices/procedures and environmental and sustainable energy procedures, which may influence the preparation of HV Distribution and Sub transmission Switching system programs, are reviewed and determined. |
| | 1.2 Purpose for the preparation of HV Distribution and sub transmission switching programs is established after data is analysed and expected outcomes of the work are confirmed with the appropriate personnel. |
| | 1.3 Organisational established procedures on policies and specifications for the preparation of HV Distribution and sub transmission switching programs are obtained or established with the appropriate personnel. |
| | 1.4 Testing/switching procedures are discussed with/directed to the appropriate personnel in order to ascertain the project brief. |
| | 1.5 Testing/switching parameters are established |

ELEMENT	PERFORMANCE CRITERIA
	from organisational established procedures on policies and specifications.
	1.6 Equipment/tools and personal protective equipment are selected based on specified Performance Criteria and established procedures.
	1.7 Work roles and tasks are allocated according to requirements and individuals' competencies.
	1.8 Work is prioritised and sequenced for the most efficient/effective outcome, completed within an acceptable timeframe to a quality standard and in accordance with established procedures.
	1.9 Liaison and communication issues with other/authorised personnel, authorities, clients and land owners are resolved and activities coordinated to carry out work.
	1.10 Risk control measures are identified, prioritised and evaluated against the work schedule.
	1.11 Relevant work permits are secured to coordinate the performance of work according to requirements and/or established procedures.
2 Carry out the preparation of HV Distribution and sub transmission switching programs	2.1 Circuit/systems modelling is used to evaluate alternative proposals as per established procedures.
	2.2 OHS and sustainable energy principles, functionality and practices to reduce the incidents of accidents and minimise waste are incorporated into the project in accordance with requirements and/or established procedures.
	2.3 Preparation of HV Distribution and sub transmission switching program decisions are made on the basis of safety and effective outcomes according to requirements and/or established procedures.
	2.4 Mathematical and/or engineering models of the program is used to analyse the effectiveness of the finished project as per requirements and established procedures.

ELEMENT	PERFORMANCE CRITERIA
2.5	Technical advice is given regarding potential hazards, safety risks and control measures so that monitoring and preventative action can be undertaken and/or appropriate authorities consulted, where necessary, in accordance with requirements and established procedures.
2.6	Essential knowledge and associated skills are applied to analyse specific data and compare it with compliance specifications to ensure completion of the project within an agreed timeframe according to requirements.
2.7	Testing of the program is undertaken according to requirements and established procedures.
2.8	Work teams/groups are arranged/coordinated/evaluated to ensure planned goals are met according to established procedures.
2.9	Solutions to non-routine problems are identified and actioned, using acquired essential knowledge and associated skills, according to requirements.
2.10	Quality of work is monitored against personal performance agreement and/or established organisational and professional standards.
2.11	Strategic plans are developed incorporating organisation initiatives as per established procedures.
3 Complete the preparation of HV Distribution and sub transmission switching programs	<p data-bbox="549 1525 1311 1673">3.1 Final review of the switching program is undertaken to ensure they comply with all requirements and include all specifications and documentations needed to complete the project.</p> <p data-bbox="549 1706 1311 1812">3.2 Appropriate personnel are notified of completion and reports and/or completion documents are finalised/commissioned.</p> <p data-bbox="549 1845 1311 1991">3.3 Reports and/or completion documents are submitted to relevant personnel/organisations for approval and, where applicable, statutory or regulatory approval.</p>

ELEMENT

PERFORMANCE CRITERIA

- 3.4 Approved copies of prepared HV Distribution and sub transmission switching program documents are issued and records are updated in accordance with established procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) Essential Knowledge and Associated Skills (EKAS): This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of developing HV distribution and sub transmission switching programs.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01-TSO37A High voltage distribution and subtransmission switching programs

Evidence shall show an understanding of high voltage distribution and subtransmission switching programs to an extent indicated by the following aspects:

T1 Transmission, distribution and rail systems encompassing:

- Relationship between the transmission, distribution and rail/tram system within an overall power system - different organisations responsible for generation, transmission, distribution and rail/tram and, how they correlate and their functions
- Characteristics of a transmission, a distribution and a rail system - principal components, typical voltage levels and methods of transmission and distribution including grid type transmission systems, radial, parallel and ring main feeders
- Relationship between an overhead and underground supply systems within an overall power system - advantages/disadvantages, applications and the basic steps for planning and installing an overhead and underground distribution system
- Single line drawings and layouts - drawings and layouts of transmission and distribution systems including, radial, parallel and ring main feeders and the HV equipment associated with substations.

T2 Different types and function of distribution components encompassing:

- Commonwealth/State/Territory and local government legislation, Standards, codes, Commonwealth, State/Territory and local government legislation, supply authority regulations and or enterprise requirements applicable to the use and application of distribution components
- Requirements for the use of overhead line construction manuals, system diagrams/plans and drawings
- Types, function and characteristics of distribution components
- Safety policies and procedures precautions related to the handling and installing distribution components

T3 Co-ordinating access authority procedures encompassing:

- Specific enterprise processes, policies and procedures to be followed
- Processes of consultation, negotiation and co-ordination - clear and concise instructions and information, methods for the encouragement of feedback and contributions of information and ideas, responsibilities of members of the team.
- Techniques in analysing, planning, co-ordination and organising work for a safe outcome and according to statutory requirements and regulations
- Techniques in the effective utilisation of available resources

REQUIRED SKILLS AND KNOWLEDGE

- Techniques in the development of an access authority/permit and/or access authority/permit issuing procedures
- Techniques in facilitating and co-ordinating the delivery and issuing of access authorities
- Techniques in gathering, collating and confirming data on different worksites - electrical network diagrams for the specific work site, earth access authorities, safe working area, work to be carried out in confined space or in hazardous environment, specific outsourcing procedures, specific hazard identification, risk classification and management procedures, regulatory requirements such as Occupational Health and Safety and electrical safety
- Techniques in the receiving and co-ordinating the cancellation of access authorities in readiness for restoration
- Methods of conducting audits on correct access authority procedures
- Process of issuing of other access authorities for work permits - working in confined space, if required, co-ordination of access authorities, engaging and briefing contractors on electrical and other work
- Issue and receipt of operating agreements.

T4 Principles of Statutory and safety considerations encompassing:

- Commonwealth/State/Territory legislation, standards, codes, supply authority regulations and or enterprise requirements associated with working on High Voltage
- Particular reference to State and Territory regulations regarding - working near energised conductors, electrical access, heights, confined space, testing procedures, licensing rules.

T5 High voltage switching principles encompassing:

- Standards, codes, legislation, supply authority regulations and or enterprise requirements applicable to switching of high voltage to a given schedule
- Requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of electrical apparatus, use, characteristics and capabilities of specialised tools and testing equipment, network interconnectors source of possible backfeed
- Role of the HV switching operator
- Operational forms, access authorities and permits associated with HV switching - types of operational forms, access authorities and permits, purpose and procedure for operational forms, access authorities and permits.
- Use and operation of equipment associated with HV overhead and substation equipment - test instruments, sticks, interrupters, arc strangles.
- Types and categories of HV switchgear
- Application, function and operating capabilities of switchgear
- Restrictions pertaining to HV switching equipment
- Procedures for the isolation of HV transmission main and working earths
- Earthing HV electrical apparatus practices and procedures for access - purposes of

REQUIRED SKILLS AND KNOWLEDGE

“Operational” and additional work part “on-site” earths, factors determining the location and effectiveness of “Operational” earthing, acceptable industry procedures, personal protective equipment, high voltage switching techniques.

- Operate switching apparatus - identifying hazards, assessing and controlling risks associated with HV switchgear operation, systematic and defensive techniques, mobile radio procedures, double isolation procedures.

T6 High voltage fault switching principles encompassing:

- Primary causes, effects and types of HV electrical faults
- HV protection devices - main components, types, categories, applications, functions
- Basic principle of operation of HV system protection devices
- Protection co-ordination and protection “zoning”
- HV feeder auto-reclosing suppression encompassing – function, application
- Circuit condition requirements and switching considerations when paralleling and separating HV feeders.

T7 High voltage SWER system encompassing:

- Application and function of SWER system components
- Circuit arrangement
- Principle of operation
- Hazards and procedures associated with faulty SWER earth systems
- Procedure to isolate, energise and commission SWER substations

T8 HV system switching principles including switching authorisation procedures to an extent indicated by the following aspects:

- Legislation, Standards, codes, legislation, supply authority regulations and or enterprise requirements applicable to system switching
- Requirements for the use of manuals, system diagrams/plans and drawings
- Types and characteristics of HV systems and equipment to be switched
- Procedures for obtaining correct HV switching authorisation - identification of OHS hazards, assessing and controlling risks, Safety procedures and precautions, safe approach distances
- responsibilities and protocols, identifying switching resources, procedures for obtaining electrical access permits authorities, Requirements for team switching, procedures for coordination of operations.
- Techniques in HV system switching - pre-switching checks, switching operational procedures, isolation procedures and proving dead de-energised, earthing procedures, switching operational procedures, emergency fault procedures, energisation procedures

T9 HV overhead and substation switching principles encompassing:

- Legislation, Standards, codes, legislation, supply authority regulations and or enterprise requirements applicable to HV overhead and substation switching
- Requirements for the use of manuals, system diagrams/plans and drawings - types,

REQUIRED SKILLS AND KNOWLEDGE

characteristics and capabilities of HV electrical equipment to be switched, use, characteristics and capabilities of specialised tools and testing equipment.

- Role and responsibilities of the HV switching operator
- Operational forms, access authorities and permits hazard/risk assessments associated with HV switching - types of operational forms, access authorities and permits hazard/risk assessments, purpose and procedure for operational forms, access authorities and hazard/risk assessments.
- Use and operation of equipment associated with HV overhead and substation equipment - test instruments, sticks, interrupters, arc strangles.
- HV switchgear – types, categories, application, operating capabilities.
- Operation of HV overhead switching or indicating devices - fuses; disconnect fuses; load switching; live line indicators; capacitors; reclosers; sectionalisers, underslung links, airbreaks; switches, disconnects; live line clamps; phasing sticks; phasing tester
- Operation of protection systems and substation equipment - fault levels and settings; types and applications; protection systems and substation equipment fault levels and settings; types and applications.
- Restrictions pertaining to HV switching equipment
- Procedures for the isolation of HV mains and working earths - earthing HV electrical apparatus practices and procedures for access authority issuing; HV switching techniques.
- Operate switching apparatus - identifying hazards, assessing and controlling risks associated with HV switchgear operation, systematic and defensive techniques, mobile radio procedures, double isolation procedures.

T10 Preparation of a HV switching instruction schedule encompassing:

- Legislation, Standards, codes, legislation, supply authority regulations and or enterprise requirements applicable to switching instruction schedules
- Requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of HV electrical equipment to be switched, points of isolation and earthing locations (safety and working earths), responsibilities of the switching operator.
- Techniques in writing switching instructions - sequence of switching operations, isolation procedures, earthing procedures, switching completion notification procedures.

T11 Enterprise specific — policy and procedure instructions encompassing:

- Responsibilities and duty of care of employer and employee relationship
- Methods of obtaining the up-to-date information on enterprise policy and procedures
- Rules and regulations
- Induction into workplace - location of work area and storage area, timetable, uniform, personal well-being, housekeeping rules, emergency procedures, evacuation procedures

REQUIRED SKILLS AND KNOWLEDGE

- Techniques when deal with others - working in teams, customer relation, complaint and issues procedures.
- Overview of enterprise professional development - fire fighting procedures, fatigue management, training and competency development - understanding and promotion

T12 Enterprises specific — OHS instructions encompassing:

- Standards, codes, legislation, supply authority regulations and specific enterprise regulations pertaining to the OHS policies and procedures
- Methods of obtaining the up-to-date information on enterprise OHS policy and procedures
- Specific enterprise personal protection equipment - type and application, where and when to be used, method of replacement, responsibility of maintenance including cleaning inspection and testing, emergency response, rescue, evacuation and First Aid procedures
- Personal well-being – hygiene, fatigue/stress management, drugs/alcohol
- OHS training - induction training, specific hazard training, specific task or equipment training, emergency and evacuation training, training as part of broader programs such as equipment operation
- OHS records including audits, inspection reports, workplace health and environmental monitoring records, training and instruction records, manufacturers and suppliers information such as MSDSs, registers, maintenance reports, workers compensation and rehabilitation records and First Aid/medical records

T13 Substation switching practices encompassing:

- Standards, codes, legislation, supply authority regulations and or enterprise requirements applicable to substation switching
- Requirements for the use of manuals, substation diagrams/plans and drawings
- Types, characteristics and capabilities of HV substation equipment to be switched
- Procedures for obtaining correct HV switching authorization - identification of hazards and controlling risks, safety procedures and precautions, responsibilities and protocols, identifying switching resources,
- Techniques in HV substation switching - isolation procedures and proving dead, earthing procedures, pre-switching checks, switching operational procedures, emergency fault procedures, commissioning procedures
- Use, care and operation of equipment associated with HV substation equipment - test instruments, sticks,
- HV switchgear – types, categories, application, operating capabilities
- Basic Operation of protection systems
- Restrictions pertaining to HV substation switching equipment
- Restrictions pertaining to Enterprise Specific procedures.

T14 Transient overvoltages encompassing:

- Causes and effects of transient overvoltages - switching transients and lightning

REQUIRED SKILLS AND KNOWLEDGE

transients, effects on plant items

- Control techniques and systems - diverters, shield wires and CB arc control
- Insulation systems - insulation coordination and insulation grading.

T15 Procedure to undertake a visual inspection of a scheme encompassing:

- Standards, codes, Commonwealth/State/Territory legislation, supply authority regulations and or enterprise requirements associated with visual inspection procedures of a scheme
- Requirements for the use of manuals, system diagrams/plans and drawings
- Identify obvious deficiencies in operating to the standard functionality
- Techniques in determining device malfunction
- Techniques in determining wiring defects

T16 Commissioning procedures associated with relevant equipment encompassing:

- Standards, codes, Commonwealth/State/Territory legislation, supply authority regulations and or enterprise requirements associated with the commissioning procedures
- Requirements for the use of commissioning manuals, system diagrams/plans and drawings
- Techniques in commissioning procedures – planning, policy, testing techniques, close out requirements.

T17 Effects of harmonics encompassing:

- Characteristics and effects of harmonics on protection device functions/malfunction
- Effects of harmonics on – transformers, generators, motors, quality of supply.

T18 Different types and function of distribution underground components encompassing:

- Commonwealth, State/Territory and local government legislation, supply authority regulations Standards, codes, and or enterprise requirements applicable to the use and application of distribution underground components
- Requirements for the use of underground line construction manuals, system diagrams/plans and drawings
- Types, function and characteristics of distribution underground components
- Safety policies, procedures and precautions related to the handling and installing distribution underground components

T19 HV system load calculation principles encompassing:

- Structure of HV systems
- Ratings of HV system components
- Relationship to HV customers
- Methods of determining load on HV systems
- Records of load on HV systems

REQUIRED SKILLS AND KNOWLEDGE

- Effect of added load on HV feeders - variation of current, voltage, power, reactive power and power factor
- Load flows in parallel or loop operation
- Enterprise specific network coordination tools

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the competency standard unit and must be read in conjunction with the Performance Criteria and the Range Statement of the competency standard unit and the Training Package Assessment Guidelines. The Evidence Guide forms an integral part of this Competency Standard Unit and shall be used in conjunction with all component parts of this unit and, performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment 9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry's preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accord with Industry and, Regulatory policy in this regard.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment. Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered

will contribute to its ‘richness’. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practiced. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

**Critical aspects
of evidence
required to
demonstrate
competency in
this unit**

9.2)

Before the critical aspects of evidence are considered all prerequisites shall be met. Evidence for competence in this unit shall be considered holistically. Each Element and associated Performance Criteria shall be demonstrated on at least two occasions in accordance with the “Assessment Guidelines – UET12”. Evidence shall also comprise:

- A representative body of Performance Criteria demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the Performance Criteria and range; and
 - Apply sustainable energy principles and practices as specified in the Performance Criteria and range; and
 - Demonstrate an understanding of the essential knowledge and associated skills described in this unit to such an extent that the learner’s performance outcome is reported in accordance with the preferred approach; namely a percentile graded result, where required by the regulated environment; and
 - Demonstrate an appropriate level of employability skills; and
- Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures; and
- Demonstrated performance across a representative range of contexts from the prescribed items below:

Range of tools/equipment/materials/procedures/workplaces/other variables		
Group No	The minimum number of items on which skill is to be demonstrated	Item List
A	Demonstrate at least three (3) switching programs that between them encompass the following:	<p>A transformer with a HV winding and fixed tap</p> <p>A transformer with a HV winding and on-load tap changer</p> <p>HV busbars</p> <p>HV isolators</p> <p>HV switchgear (applicable to enterprise equipment)</p> <p>Phasing and phase rotation</p> <p>Commissioning an item of HV plant</p> <p>A planned interruption to a HV customer/s</p> <p>Installation of a mobile generators (if applicable to enterprise equipment)</p> <p>Placing distribution feeders in parallel where special considerations are required to cope with capacitors, phase shifts between different bulk supply systems, sensitive earth fault protection, single phase switching.</p>
B	Prepare switching instructions to isolate, test and earth all of the following	<p>All enterprise transformer types</p> <p>All enterprise busbar types</p> <p>All enterprise feeder types</p>

		All enterprise circuit breakers, isolators or switches
C	Prepare, write and check switching sheets to do all of the following:	Manage load Manage voltage Minimise losses Maximise network reliability
D	Do all of the following:	Check all above types of switching instructions Coordinate all above types of switching instructions Calculation of plant loading
E	At least one occasion	Dealing with an unplanned event by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items.

Context of and specific resources for assessment 9.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual the preparation of HV Distribution and Sub transmission Switching programs.

Note:

Access will be needed to: relevant protection, control, metering, and alarm equipment, network drawings, computerised electrical plant control and monitoring facilities, operational event data,

enterprise operational policies, procedures and work practices and enterprise crisis management procedures.

In addition to the resources listed above, in Context of and specific resources for assessment, evidence should show demonstrated competency working in realistic environment and a variety of conditions.

**Method of
assessment**

9.4)

This Competency Standard Unit shall be assessed by methods given in Volume 1, Part 3 “Assessment Guidelines”.

Note:

Competent performance with inherent safe working practices is expected in the Transmission, Distribution and Rail Traction Industry. This requires that the specified essential knowledge and associated skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and associated skills described in this unit.

**Concurrent
assessment and
relationship with
other units**

9.5)

For optimisation of training and assessment effort, competence in this unit may be assessed concurrently with units:

UETTDRSO3 Develop low voltage distribution switching
6A programs

UETTDRSO3 Develop and evaluate power systems transmission
8A switching programs

Range Statement

RANGE STATEMENT

10) This relates to the competency standard unit as a whole providing the range of contexts and conditions to which the Performance Criteria apply. It allows for different work environments and situations that will affect performance.

This Competency Standard Unit shall be demonstrated in relation to the preparation and/or checking of activities required to place the HV distribution and sub transmission network (may also be applied to include rail/tram networks) in a state in which work can safely be performed whilst minimising customer outages and shall be demonstrated using the following:

HV distribution feeders/distribution network –radial or loop; HV sub transmission feeders/network –radial or loop; transformers with HV windings and fixed tap; transformers with HV windings and on-load tap changers; HV busbars – indoor and/or outdoor as applicable to enterprise; HV isolators; HV switchgear (applicable to enterprise equipment); switching instructions (applicable to enterprise equipment); computers (applicable to enterprise equipment); network diagrams (applicable to enterprise equipment); access authorities; regulatory requirements

The following constants and variables included in the Element/Performance Criteria in this unit are fully described in the Definitions Section 1 of this volume and form an integral part of the Range Statement of this unit:

- Appropriate and relevant persons (see Personnel)
- Appropriate authorities
- Appropriate work platform
- Assessing risk
- Assessment
- Authorisation
- Confined space
- Diagnostic, testing and restoration
- Documenting detail work events, record keeping and or storage of information
- Drawings and specifications
- Emergency
- Environmental and sustainable energy procedures
- Environmental legislation
- Environmental management documentation
- Established procedures
- Fall prevention
- Hazards
- Identifying hazards
- Inspect
- Legislation

RANGE STATEMENT

- MSDS
- Notification
- OHS practices
- OHS issues
- Permits and/or permits to work
- Personnel
- Quality assurance systems
- Requirements
- Testing procedures
- Work clearance systems

Unit Sector(s)

Not applicable.

Competency Field

Competency Field	11)
	System Operation Units