



Australian Government

UETDRSO017 Develop and validate transmission switching programs

Release: 1

UETDRSO017 Develop and validate transmission switching programs

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 4.0.

Application

This unit includes the skills and knowledge required to develop and validate transmission switching programs, in the electricity supply industry (ESI).

It includes types, characteristics and capabilities of electrical apparatus, sources of possible back-feed, extra high voltage (EHV) isolation and earthing procedures, and operating agreements.

It also includes establishing the purpose of the EHV switching program, procedures for analysing data, and writing a switching program.

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 requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0021 Solve problems in magnetic and electromagnetic devices

Competency Field

System Operations

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 to develop and validate transmission switching programs

- 1.1** Purpose for the transmission switching program is established in accordance with workplace requirements
- 1.2** Data is analysed and expected work outcomes are determined
- 1.3** Hazards are identified, risks assessed, and control measures identified and applied
- 1.4** Work plan is developed, validated and communicated with stakeholders in accordance with workplace requirements
- 1.5** Equipment required for work is determined in accordance with work plan and workplace requirements
- 1.6** Work permits are determined in accordance with workplace requirements
- 1.7** Work is prioritised and sequenced for completion in accordance with work plan and workplace requirements
- 1.8** Operational personnel requirements are determined in accordance with workplace requirements
- 1.9** Liaison and communication issues with stakeholders are resolved

2 Develop and validate transmission switching programs

- 2.1** Available resources are used to determine best outcomes, in accordance with workplace requirements
- 2.2** Transmission switching programs are developed and validated in accordance with workplace requirements
- 2.3** Work plan is checked for compliance against technical advice, legislation, regulations, standards and codes of practice
- 2.4** Health and safety risks are identified and minimised or eliminated by using safety and control measures

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|--|-----|---|
| | 2.5 | Ongoing quality checks of work are undertaken in accordance with work plan and workplace requirements |
| 3 Complete work and documentation | 3.1 | Completed work is checked for compliance against the work plan and workplace requirements |
| | 3.2 | Work records, reports and documentation are completed, and where relevant, appropriate personnel notified 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 not equivalent to UETDRSO004 Develop and evaluate power systems transmission switching programs.

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 UETDRSO017 Develop and validate transmission switching programs

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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 (2) separate occasions and include:

- establishing the purpose of the transmission switching program
- analysing data and determining expected work outcome
- identifying hazards, assessing risks, and identifying, applying and monitoring control measures
- confirming, reviewing, and updating workplan, based on technical advice, site inspection, and data analysis
- determining equipment required for the work
- determining work permits in accordance with workplace requirements
- prioritising and sequencing work
- checking completed work for compliance against the work plan and workplace requirements
- completing relevant work records, reports and documentation
- using available resources to determine best outcomes
- using and interpreting single line diagrams (SLD)
- preparing, writing and validating one (1) switching program for each of the following:
 - extra high voltage (EHV) transformer
 - EHV switchgear
 - EHV lines and feeders
- preparing, writing and validating one (1) switching program, which considers at least two (2) of the following:
 - commissioning of EHV plant
 - planned interruption to EHV customer
 - installation of a mobile generator
 - consideration of paralleling feeders
 - EHV switching impact on low voltage (LV) customers
 - EHV capacitors
 - EHV regulators
- preparing switching programs to isolate, test and earth all the following:
 - EHV transformer

- EHV switchgear
- EHV lines and feeders
- preparing, writing and validating a switching program, to include managing all of the following:
 - load
 - voltage
 - system reliability
 - critical customers.

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:

- purpose of the EHV switching program
- data analysis
- hazard, risk assessment and risk control requirements, including potential hazards
- operational personnel requirements
- application, purpose, and types of permits
- work records, reports and documentation
- writing switching programs
- interconnected EHV electrical networks
- principles of EHV single wire earth return (SWER) system
- principles of harmonics
- principles of resonant networks
- fault levels and settings
- load calculation
- operating agreements
- types, characteristics and capabilities of specialised tools and testing equipment
- types, characteristics and capabilities of electrical apparatus
- EHV switching principles, including:
 - EHV switching operator responsibilities
 - alternative sources of supply
 - restrictions on electrical apparatus
 - EHV isolation procedures
 - EHV earthing procedures.

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 tools, equipment, computerised electrical plant control and monitoring facilities currently used in industry
- applicable documentation, including workplace requirements, relevant industry standards, equipment specifications, regulations, codes of practice, modelling tools, drawings and operation manuals.

Links

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