



**Australian Government**

# **UETTDRTS36 Commission complex network protection and control systems**

**Release: 1**

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## **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 covers the commissioning of network protection and control systems in complex situations and includes isolation, inspection, monitoring, testing, adjustment and repair, refurbishment and/or overhaul and functional checks. It includes schemes from discrete and interdependent and also schemes, such as distance, differential, transformer differential, bus zone, bus overcurrent, revenue metering, current transformer accuracy, supervisory control and data acquisition (SCADA), communications, harmonic control, point on wave and high voltage (HV) plant testing.

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

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

## **Pre-requisite Unit**

Common Unit Group

UEENEEED104A Use engineering applications software on personal computers

UEENEEEE101A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEENEEEE102A Fabricate, assemble and dismantle utilities industry components

UEENEEEE104A Solve problems in d.c. circuits

UEENEEEE107A Use drawings, diagrams, schedules, standards, codes and specifications

UEENEEEE124A Compile and produce an energy sector detailed report

UEENEEEE125A Provide engineering solutions for problems in complex multiple path circuits

UEENEEEE126A Provide solutions to basic engineering computational problems

UEENEEEG101A Solve problems in electromagnetic devices and related circuits

UEENEEEG102A Solve problems in low voltage a.c. circuits

UEENEEEG149A Provide engineering solutions to problems in complex polyphase power circuits

UETTDREL11 Apply sustainable energy and environmental procedures

UETTDREL16 Working safely near live electrical apparatus

UETTDRLS62 Implement and monitor the power system organisational WHS/OHS policies, procedures and programs

UETTDRLS63 Implement & monitor power system environmental & sustainable energy management policies & procedures

UETTDRTS21 Maintain interdependent network protection and control systems

UETTDRTS22 Commission interdependent network protection and control systems

UETTDRTS29 Develop power systems secondary isolation instructional documents

UETTDRTS35 Maintain complex network protection and control systems

## Competency Field

Testing

## Unit Sector

Not applicable.

## Elements and Performance Criteria

### ELEMENTS

Elements describe the essential outcomes.

#### **1 Plan for the commissioning of network protection and control systems (complex)**

### PERFORMANCE CRITERIA

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

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) practices/procedures and environmental and sustainable energy procedures, which may influence the commissioning of network protection and control systems (complex), are reviewed and determined
- 1.2** Purpose of the commissioning of network protection and control systems (complex) is established after data is analysed and expected outcomes of the work are confirmed with appropriate personnel
- 1.3** Organisational established procedures on policies and specifications for the commissioning of network protection and control systems (complex) are obtained or established with appropriate personnel
- 1.4** Testing procedures are discussed with/directed to

appropriate personnel in order to ascertain the project brief

- 1.5 Testing parameters are established from organisational established procedures and policies and specifications
- 1.6 Equipment/tools and personal protective equipment (PPE) are selected based on specified performance criteria and established procedures
- 1.7 Work roles and tasks are allocated according to requirements and individual 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 others/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 commissioning of network protection and control systems (complex)**

- 2.1 Circuit/systems modelling is used to evaluate alternative proposals in accordance with established procedures
- 2.2 WHS/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 Commissioning of network protection and control systems (complex) 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 schemes are used to analyse the effectiveness of the finished project in accordance with requirements and established

procedures

- 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 network protection and control systems (complex) 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 in accordance with established procedures
- 3 Complete the commissioning of network protection and control systems (complex)**
  - 3.1** Final inspections of the network protection and control systems (complex) are undertaken to ensure they comply with all requirements and include all specifications and documentations needed to complete the project
  - 3.2** Appropriate personnel are notified of completion and reports and/or completion documents are finalised/commissioned
  - 3.3** Reports and/or completion documents are submitted to relevant personnel/organisations for approval and, where applicable, statutory or regulatory approval
  - 3.4** Approved copies of the commissioning of network protection and control systems (complex) documents are issued and records are updated in accordance with

established 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 UETTDRTS36A Commission complex network protection and control systems.

## **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>