



Australian Government

UETDRTS025 Test and maintain energy/revenue metering schemes (complex)

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 Release 2.0.

Application

This unit covers the testing and maintenance of energy/revenue metering schemes in complex situations. Complex metering schemes include summation, subtraction, generation, bulk supply, interconnector and wholesale metering installations. Testing and maintenance include isolation, accuracy testing, inspection, monitoring, adjustment, repair or overhaul and functional checks of complex energy/revenue metering schemes.

It includes the requirements to prove the functionality of the metering scheme in accordance with electrical installation (state/territory and national) standards, metrology procedures and compliance to tariff requirements.

This also includes the identification of faults with metering equipment, energy registration and revenue billing in accordance with established procedures.

The application of the skills and knowledge described in this unit requires 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 licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

UEENEE104A Use engineering applications software on personal computers

UEENEE101A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEENEE102A Fabricate, assemble and dismantle utilities industry components

UEENEE104A Solve problems in d.c. circuits

UEENEE105A Fix and secure electrotechnology equipment

UEENEE107A Use drawings, diagrams, schedules, standards, codes and specifications

UEENEE124A Compile and produce an energy sector detailed report

UEENEE125A Provide engineering solutions for problems in complex multiple path circuits

UEENEE126A Provide solutions to basic engineering computational problems

UEENEE137A Document and apply measures to control OHS risks associated with

electrotechnology work

UEENEEG006A Solve problems in single and three phase low voltage machines

UEENEEG033A Solve problems in single and three phase low voltage electrical apparatus and circuits

UEENEEG063A Arrange circuits, control and protection for general electrical installations

UEENEEG076A Install and replace low voltage current transformer metering

UEENEEG101A Solve problems in electromagnetic devices and related circuits

UEENEEG102A Solve problems in low voltage a.c. circuits

UEENEEG103A Install low voltage wiring and accessories

UEENEEG104A Install appliances, switchgear and associated accessories for low voltage electrical installations

UEENEEG105A Verify compliance and functionality of low voltage general electrical installations

UEENEEG106A Terminate cables, cords and accessories for low voltage circuits

UEENEEG107A Select wiring systems and cables for low voltage general electrical installations

UEENEEG108A Trouble-shoot and repair faults in low voltage electrical apparatus and circuits

UEENEEG109A Develop and connect electrical control circuits

UEENEEG149A Provide engineering solutions to problems in complex polyphase power circuits

UEENEEG171A Install, set up and commission interval metering

UETDREL001 Apply environmental requirements

UETDREL005 Work safely in the vicinity of live electrical apparatus

UETDRIS005 Implement & monitor power system environmental & sustainable energy management policies & procedures

UETDRIS006 Implement and monitor the power system organisational WHS/OHS policies, procedures and programs

UETDRTS002 Commission energy/revenue metering schemes

UETDRTS012 Install and replace complex energy/revenue metering schemes and associated equipment

UETDRTS013 Install and replace high voltage metering and associated equipment

UETDRTS016 Maintain compliance with national electricity market metrology practices and procedures

UETDRTS020 Management of energy registration data errors for revenue billing purposes

UETDRTS022 Perform current injection testing using phantom load

UETDRTS024 Test and maintain energy/revenue metering schemes

UETTDREL15 Respond to power systems technical enquiries and requests

Competency Field

Testing

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for the testing and maintenance of energy/revenue metering schemes (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 testing and maintenance of energy/revenue metering schemes (complex), are reviewed and determined
- 1.2** Purpose of testing and maintenance of energy/revenue metering schemes (complex) is established after data is analysed and expected outcomes of the work are confirmed with appropriate personnel
- 1.3** Organisational established procedures, policies and specifications for the testing and maintenance of energy/revenue metering schemes (complex) are obtained or established with appropriate personnel
- 1.4** Testing and maintenance of energy/revenue metering schemes (complex) procedures are discussed with/directed to appropriate personnel in order to ascertain the project brief
- 1.5** Testing and maintenance parameters are established from organisational established procedures, 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 customers 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 internal/external work permits are obtained to coordinate the performance of work according to requirements and/or established procedures
- 2 Carry out the testing and maintenance of energy/revenue metering schemes (complex)**
 - 2.1** WHS/OHS and sustainable energy principles, functionality and practices to prevent the incidents of accidents and minimise waste are incorporated into the project in accordance with requirements and/or established procedures
 - 2.2** First aid, rescue and other related work procedures are performed according to requirements and/or established procedures
 - 2.3** Lifting, climbing and use of power tools/equipment, techniques and practices are safely exercised according to requirements
 - 2.4** Hazard warnings and safety signs are recognised and hazards and assessed WHS/OHS risks are reported to immediate authorised personnel for directions according to established procedures
 - 2.5** Remedial actions are taken to overcome any shortfalls encountered in the work schedule according to requirements and/or established procedures
 - 2.6** Testing equipment is used in accordance with the work schedule and requirements and/or established procedures
 - 2.7** Routine testing and acceptance testing of the testing and maintenance of energy/revenue metering schemes (complex) are carried out in accordance with the work schedule
 - 2.8** 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

- 2.9** Essential knowledge and associated skills are applied in the safe testing and maintenance of energy/revenue metering schemes (complex) to ensure completion in an agreed timeframe according to requirements
- 2.10** Solutions to non-routine problems are identified and actioned, using essential knowledge and associated skills, according to requirements
- 2.11** Quality of work is monitored against personal performance agreement and/or established organisational and professional standards

3 Complete the testing and maintenance of energy/revenue metering schemes (complex)

- 3.1** Final inspections of the testing and maintenance of energy/revenue metering schemes (complex) using routine tests and acceptance tests are undertaken to ensure they comply with all requirements and include all specifications and documents needed to complete the project
- 3.2** Appropriate internal/external personnel are notified of completion and reports and/or completion documents are finalised/commissioned according to established procedures and timeframes
- 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 routine testing and acceptance testing procedures/activities/results, for the testing and maintenance of energy/revenue metering schemes (complex), documents are issued and records 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 UET Transmission, Distribution and Rail Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UETTDRTS44 Test and maintain energy/revenue metering schemes (complex).

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 UETDRTS025 Test and maintain energy/revenue metering schemes (complex)

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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
- performing, on at least three (3) occasion, the following activity:
 - field injection testing which includes determining site accuracy by applying multiple specific test points to determine and correct meter accuracy to applicable standards
- performing, on at least three (3) occasions, the testing and maintenance of any four (4) of the following:
 - summation
 - subtraction
 - generation
 - bulk supply
 - interconnector
 - wholesale metering installations
- performing, on at least three (3) occasions, the following activities:
 - identification of faults with metering equipment, energy registration and revenue billing
 - ensuring that all connection points are in operational order
 - identifying and correcting y functional errors
- dealing with unplanned events on at least (1) one 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:

- determining from schematics whether additional isolation is required and ensuring any current/voltage injection does not impact on related protection, control and supervisory control and data acquisition (SCADA) schemes
- calculation of site overall offset errors due to applied correction factors to the scheme

- calculation of site overall errors for logical metering schemes based on test results of individual related physical metering points
- identifying any impacts of testing on market settlement/financial data and managing the data substitution requirements
- determining the requirement for temporary metering during testing to ensure market settlement data is not adversely affected
- modifying and adapting test procedures to test non-standard metering schemes
- determining impacts of testing to ensure customer control, process and energy management systems are not adversely effected.

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
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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