



**Australian Government**

# **UETTDRTS40 Test and maintain energy/revenue metering schemes**

**Release: 1**

# **UETTDRTS40 Test and maintain energy/revenue metering schemes**

## **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 testing and maintenance of energy/revenue metering schemes. It includes testing, isolation, inspection, monitoring, adjustment, repair, refurbishment and/or overhaul and functional checks of energy/revenue metering schemes.

It includes the requirements to prove the functionality of the metering scheme in accordance with electrical installation (state and national) standards, metrology procedures, compliance to tariff requirements, revenue billing, energy registration and the identification of faults with metering equipment 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 licencing requirements which must be confirmed prior to commencing this unit.

## **Pre-requisite Unit**

Common Unit Group

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

UEENEEE105A Fix and secure electrotechnology equipment

UEENEEE107A Use drawings, diagrams, schedules, standards, codes and specifications

UEENEEE137A 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

UEENEEG171A Install, set up and commission interval metering

UETTDREL11 Apply sustainable energy and environmental procedures

UETTDREL15 Respond to power systems technical enquiries and requests

UETTDREL16 Working safely near live electrical apparatus

UETTDRTS37 Perform current injection testing using phantom load

UETTDRTS38 Install and replace high voltage metering and associated equipment

UETTDRTS39 Maintain compliance with national electricity market metrology practices and procedures

## 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**

### 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, are reviewed and determined

- 1.2 Purpose of testing and maintenance of energy/revenue metering schemes 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 are obtained or established with appropriate personnel
  - 1.4 Testing and maintenance of energy/revenue metering schemes 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**
- 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 installation, testing and maintenance of revenue metering schemes is 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 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**

- 3.1 Final inspections of the testing and maintenance of energy/revenue metering schemes using routine tests and acceptance tests are undertaken to ensure they

**schemes**

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, 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 Companion Volume Implementation Guide.

## Unit Mapping Information

This unit replaces and is equivalent to UETTDRTS40A Test and maintain energy/revenue metering schemes.

## 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>

# Assessment Requirements for UETTDRTS40 Test and maintain energy/revenue metering schemes

## Modification History

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

## 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) occasions, testing/maintaining all of the following:
  - ensuring meter function
  - determining energy flows, voltage, current and phasor relationships
  - inspecting/monitoring equipment
  - gathering of information to ensure the application of standards and specifications have been met
  - specific notification of faults with metering equipment affecting energy registration and revenue billing in accordance with established procedures
  - ensuring that the installation is operating within prescribed limits (enterprise, manufacturer and regulated energy market requirements)
  - making recommendations, adjustments, replacements and repairs
- performing on at least three (3) occasions, all of the following:
  - isolating, at local fuses and links
  - determining actions against standards if additional isolation is required
- demonstrating on at least three (3) occasions, the functionality of the metering scheme in accordance with:
  - electrical installation (state and national) standards
  - metrology procedures
  - compliance to tariff requirements
- dealing with unplanned events on at least one (1) 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:

- operation of energy metering test equipment
- test equipment encompassing:
  - voltmeters, amp meters, Ohm meters, kWh/kVarh standards, tong ammeters, phase rotation meter, power factor meters, power quality meters, phantom load devices, current/voltage injection devices, measurement bridges, insulation resistance tester, phase angle meters, multimeters, standard current transformers/voltage transformers and insulated operating sticks
- other equipment encompassing:
  - personal computer, calculator, stop watches, printers, telecommunication devices and global positioning systems (GPS)
- knowledge of test principles and theories
- techniques in the testing and maintenance procedures of energy metering schemes in accordance with Commonwealth/state/territory legislation, supply authority regulations and enterprise standards
- ensure compliance with ISO 9001:2015 Quality Management Systems
- evaluation of test results to ensure compliance with ISO and Australian Standards
- notification of non-compliance to relevant parties.

## 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
- relevant plant, drawings, manufacturer specifications/manuals and specialised testing equipment
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

## Links

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