



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **UETTD RIS34A Install and replace energy meters and associated equipment in remote communities**

Release: 1

## **UETTDRIS34A Install and replace energy meters and associated equipment in remote communities**

### **Modification History**

Not applicable.

### **Unit Descriptor**

#### **Unit Descriptor**

#### **1) Scope:**

##### **1.1) Descriptor**

This Competency Standard Unit covers the installation and replacement of whole current energy meters and associated equipment in remote communities, where replacement may include the identification of faults in accordance with established procedures and return to service. It includes the requirements to ascertain if normal functions of the meters and associated equipment are in accordance with established procedures.

### **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. 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

## License to practice

3)

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.

Common Unit Group

| Unit Code   | Unit Title                                                                              |
|-------------|-----------------------------------------------------------------------------------------|
| UEENEEE101A | Apply Occupational Health and Safety regulations, codes and practices in the workplace  |
| UEENEEE102A | Fabricate, assemble and dismantle utilities industry components                         |
| 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 |
| UEENEEK101A | Maintain safety and tidiness of remote area power supply systems                        |
| UEENEEK102A | Work safely with remote area power supply systems                                       |
| UETTDREL12A | Operate plant and equipment near live                                                   |

**Prerequisite Unit(s) 4)**

electrical conductors and apparatus

**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 3      Writing 3      Numeracy 3

## **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.

## Elements and Performance Criteria

| ELEMENT                                                                                  | PERFORMANCE CRITERIA                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 Prepare for the installation and replacement of energy meters and associated equipment | 1.1 Works schedule(s), including drawings, plans, requirements, established procedures, and material lists, are received, analysed and confirmed, if necessary, by site inspection.                                                                         |
|                                                                                          | 1.2 Relevant requirements and established procedures for the work are communicated to all personnel and identified for all work sites.                                                                                                                      |
|                                                                                          | 1.3 OHS policies and procedures related to requirements and established procedures for the installation and replacement of energy meters and associated equipment are obtained and confirmed for the purposes of the work to be performed and communicated. |
|                                                                                          | 1.4 Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with established procedures.                                                                                         |
|                                                                                          | 1.5 Hazards are identified, OHS risks assessed and control measures are prioritised, implemented and monitored including emergency exits kept clear according to established procedures.                                                                    |
|                                                                                          | 1.6 Resources including personnel, equipment, tools and Resources including personnel, equipment, tools and personnel protective equipment required for the job are obtained and confirmed in working order.                                                |
|                                                                                          | 1.7 Relevant personnel at worksite are confirmed current in First Aid, Rescue and other related work procedures according to requirements.                                                                                                                  |
|                                                                                          | 1.8 Liaison and communication issues with other/authorised personnel, authorities, clients and land owners are resolved to carry out work where necessary.                                                                                                  |
|                                                                                          | 1.9 Site is prepared according to the work schedule and to minimise risk and damage to property, commerce, and individuals in accordance with established procedures.                                                                                       |

| ELEMENT                                                                                | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | <p>1.10 Personnel participating in the work, including plant operators and contractors, are fully briefed and respective responsibilities confirmed where applicable in accordance with established procedures.</p> <p>1.11 Road signs, barriers and warning devices are positioned in accordance with requirements.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2 Carry out the installation and replacement of energy meters and associated equipment | <p>2.1 OHS and sustainable energy principles and practices to reduce the incidents of accidents and minimise waste are monitored and followed in accordance with requirements and/or established procedures.</p> <p>2.2 Lifting, and use of power tools/equipment, techniques and practices are safely followed and, currency according to requirements confirmed.</p> <p>2.3 Essential knowledge and associated skills are applied in the safe installation and replacement of energy meters and associated equipment to ensure completion in an agreed timeframe and, to quality standards with a minimum of waste according to requirements.</p> <p>2.4 Installation and/or replacement of energy meters and associated equipment is carried out, including, as required, wiring, testing, programming and sealing and of meter(s) and associated equipment in accordance with requirements and enterprise requirements.</p> <p>2.5 Hazard warnings and safety signs are recognised and hazards and assessed OHS risks are reported to the immediate authorised persons for directions according to established procedures.</p> <p>2.6 Unplanned events during the installation and replacement of energy meters and associated equipment are undertaken within the scope of established procedures.</p> <p>2.7 Known solutions to a variety of problems are applied using acquired essential knowledge and</p> |

| ELEMENT                                                                               | PERFORMANCE CRITERIA                                                                                                                                                       |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                       | associated skills.                                                                                                                                                         |
|                                                                                       | 2.8 Ongoing checks of quality of the work are undertaken in accordance with instructions and established procedures.                                                       |
| 3 Complete the installation and replacement of energy meters and associated equipment | 3.1 Work undertaken is checked/tested against works schedule for conformance with requirements and anomalies reported in accordance with established procedures.           |
|                                                                                       | 3.2 Accidents and/or injuries are reported in accordance with requirements/established procedures, where applicable.                                                       |
|                                                                                       | 3.3 Work site is rehabilitated, cleaned up and made safe in accordance with established procedures.                                                                        |
|                                                                                       | 3.4 Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures.   |
|                                                                                       | 3.5 Works completion records, reports, as installed /modified drawing and/or documentation and information are finalised and processed and appropriate personnel notified. |

## 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 installing and replacing energy meters and associated equipment.

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

KS01-TIS34A Remote area energy metering

Evidence shall show an understanding of the installation and replacement of whole current energy meters and associated equipment in remote communities to an extent indicated by the following aspects:

T1 Standards, codes, legislation, supply authority regulations and or enterprise requirements pertaining to the installation and replacement of energy meters and associated equipment.

T2 Construction, operation and selection of whole current energy meters (Single, polyphase, pre-payment, demand, induction, electronic)

T3 Construction, operation and selection of associated equipment. (Service Protection Device (HRC, Circuit Breaker), Meter boards, Main Switch, Meter enclosure, service links)

T4 Metering Arrangements (Direct metering, Distributed master metering, Multiple master metering, Plug-in metering, MEN system, typical cable routes through buildings)

T5 Cable types and applications (cable construction, sizes and ratings, requirements for protection and supporting cables)

T6 Installation tools and equipment required

T7 Installation and removal of energy meters (Stripping cable correctly, need for sound terminations, wiring meter position correctly, fitting SPD, fitting meter boards, fitting meters)

T8 Testing procedures (continuity testing, insulation testing, polarity testing, phase sequence testing, neutral integrity testing and meter functionality testing)

T9 Completing energy meter documentation

T10 Customer education on energy meters

T11 Techniques for the maintenance of energy metering (Fault finding, fault rectification, meter reading, tariff changes)

## Evidence Guide

### EVIDENCE GUIDE

**9)** This provides essential advice for assessment of the unit of competency and must be read in conjunction with the Performance Criteria and the range statement of the unit of competency 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 as 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:

| <b>Range of<br/>tools/equipment/materials/procedures/workplaces/other<br/>variables</b> |                                                                    |                  |
|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------|
| <b>Group No</b>                                                                         | <b>The minimum<br/>number of items on<br/>which skill is to be</b> | <b>Item List</b> |
|                                                                                         |                                                                    |                  |

|   | <b>demonstrated</b>            |                                                                                                                                                                                               |
|---|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | Any one of the following:      | Induction disk energy meter<br>Electronic energy meters<br>Maximum demand meters<br>Electronic summators                                                                                      |
| B | At least one of the following: | Service fuses<br>Service links<br>Meter boards<br>Meter panels                                                                                                                                |
| C | At least one of the following: | Time switches<br>Frequency injection relays<br>Controlled output meters<br>Contactors                                                                                                         |
| D | 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 installation and replacement of energy meters and associated equipment.

In addition to the resources listed above, in Context of and specific

resources for assessment, evidence should show demonstrated competency working below ground, in limited spaces, with different structural/construction types and method and in a variety of environments.

**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 Industry to which this Competency Standard Unit applies. 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)**

There are no concurrent assessment recommendations for this unit.

## Range Statement

### RANGE STATEMENT

**10)** This relates to the unit of competency 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 installation and replacement of whole current energy meters and associated equipment, where replacement may include the identification of faults and the return to service.

Installation may include single and polyphase meters and associated equipment.

Replacement may include the removal and return to service of “like for like” energy meters and associated equipment in a variety of environments and contexts.

Associated equipment includes load control devices such as time switches and audio frequency injection relays, plug in meter bases, service fuses and links, contactors and meter boards and panels where the installation uses direct-wired (non-current transformer) metering.

Meters include induction disc energy meters, electronic energy meters, maximum demand meters, electronic summators, time switches and relays, provided that they are basic direct-wired instruments. Current transformer metering is not included.

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)**

Industry Specific Cross-Discipline Units