



Australian Government

**UEERE0037 Install, configure and
commission LV micro-hydro systems rated
up to 6.4 kW**

Release: 1

UEERE0037 Install, configure and commission LV micro-hydro systems rated up to 6.4 kW

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to install, configure and commission low voltage (LV) micro-hydro systems rated up to 6.4 kilowatt (kW).

It includes preparing to install LV micro-hydro systems, installing LV micro-hydro systems, and completing and reporting installation activities.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c).

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, is required.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Pre-requisite Unit

UEEEL0012 Install low voltage wiring, appliances, switchgear and associated accessories

UEERE0045 Solve basic problems in micro-hydro systems

Competency Field

Renewable Energy

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Prepare to install LV micro-hydro systems

- 1.1** WHS/OHS processes and procedures for relevant work area are identified and applied in accordance with workplace procedures
- 1.2** WHS/OHS hazards are identified, risks assessed, reported to relevant person/s and workplace procedures for risk control measures applied in preparation for work
- 1.3** System installation is planned in consultation with others impacted by the work and sequenced appropriately
- 1.4** Nature and location of the work are determined from documentation or relevant person/s to determine the scope of work
- 1.5** Location of system components is planned within the constraints of the building structure and regulations
- 1.6** Instructions for coordinating work with others is obtained from relevant person/s and applied
- 1.7** Material required is obtained in accordance with workplace procedures and checked against job requirements
- 1.8** Tools, equipment and testing devices required are obtained in accordance with workplace procedures and checked for correct operation and safety
- 1.9** Preparatory work is checked to ensure no damage has occurred and complies with requirements

2 Install LV micro-hydro systems

- 2.1** Need to test or measure live electrical work is determined in accordance with WHS/OHS requirements and conducted in accordance with workplace procedures
- 2.2** Circuits/machines/plant are isolated in accordance with WHS/OHS requirements and workplace procedures
- 2.3** System components are installed in compliance with technical standards, job specifications and requirements, and with sufficient access to enable terminations,

adjustment and maintenance

- | | |
|--|--|
| 2.4 | Wiring is terminated at system components in accordance with manufacturer specifications and functional and regulatory requirements |
| 2.5 | Unplanned situations are discussed with relevant person/s and responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment |
| 2.6 | Checks of installed apparatus quality are conducted in accordance with workplace procedures |
| 2.7 | Apparatus installation is conducted minimising waste of materials, damage to apparatus, circuits, the surrounding environment and services using sustainable energy principles |
| 3 Complete and report installation activities | |
| 3.1 | Worksite is cleaned and made safe in accordance with workplace procedures |
| 3.2 | Final checks are conducted to confirm installed apparatus conforms to requirements |
| 3.3 | ‘As-installed’ apparatus and associated equipment are documented and relevant person/s notified in accordance with workplace 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 UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEENEEK136A Install, configure and commission LV micro-hydro systems rated up to 6.4 kW.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEERE0037 Install, configure and commission LV micro-hydro systems rated up to 6.4 kW

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology 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 one occasion and include:

- reading and interpreting drawings related to and apparatus locations and circuit connections
- placing and securing system components accurately
- maintaining fire integrity
- connecting system components to comply with requirements
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures and practices, including the use of risk control measures
- applying sustainable energy principles and practices
- checking isolation of circuits/machines/systems
- coordinating work with relevant person/s
- determining live electrical testing/measurement requirements
- identifying and accessing materials, tools, equipment and testing devices
- installing and setting up low voltage (LV) micro-hydro systems, including:
 - conducting quality checks.

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:

- micro-hydro systems LV installation and maintenance processes, including:
 - micro-hydro systems LV installation processes encompassing:
 - selection of an appropriate micro-hydro system taking into account the topology of the site, local council approvals, environmental considerations, site access and transport of equipment, water and power transmission distances and daily and seasonal load profiles
 - appropriate methods, using appropriate safety procedures, for dam or weir construction, watercourse construction and/or penstock installation, and turbine installation

- appropriate installation, testing, commissioning, fault diagnosis and rectification procedures using appropriate safety procedures
- schematic and wiring diagrams for the micro-hydro system showing the general circuit layout and protection between the micro-hydro system, batteries, inverter and loads according to AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules), AS/NZS 4509 Stand-alone power systems, and AS 4086.2 Secondary batteries for use with stand-alone power systems – Installation and maintenance requirements
- safety procedures for the installation, commissioning, fault diagnosis of system components
- micro-hydro systems maintenance processes encompassing:
 - appropriate maintenance methods using appropriate safety procedures
 - maintenance schedule for the system
 - safety procedures for the maintenance of system components
- relevant manufacturer specifications
- relevant safe work method statements (SWMS)/job safety assessments or risk mitigation processes
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and 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 workplace operational situations that replicate 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, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to installing and setting up LV micro-hydro systems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>