



Australian Government

UEERE0039 Install, set up and maintain ELV micro-hydro systems rated up to 6.4 kW

Release: 1

UEERE0039 Install, set up and maintain ELV 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, adjust, set up and maintain extra-low voltage (ELV) micro-hydro systems rated up to 6.4 kilowatt (kW).

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

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

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.

1 Prepare to install ELV micro-hydro systems

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) 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 is 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 are obtained from relevant person/s and applied
- 1.7** Materials required are 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 compliance with requirements

2 Install ELV 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 industry 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

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| | 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 UEENEEK137A Install, set up and maintain ELV 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 UEERE0039 Install, set up and maintain ELV 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
- conducting quality checks
- 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 stand-alone extra-low voltage (ELV) micro-hydro systems.

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 ELV installation and maintenance processes, including:
 - micro-hydro systems ELV 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 and 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 Australian Standards 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 suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in suitable 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 ELV 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>