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UEERE0036Y Install and maintain wind energy systems to power conversion equipment

Modification History

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

This unit replaces and is not equivalent to:

- UEERE0036 Install small wind energy conversion systems rated up to 10 kW for ELV stand-alone applications, and
- UEERE0038 Install, configure and commission LV wind energy conversion systems rated up to 10 kW

Modifications include:

- Unit title changed
- Unit application updated
- Prerequisites changed
- Significant amendments made to Elements and Performance Criteria
- Range of conditions updated
- Significant amendments to Performance and Knowledge Evidence

Application

This unit involves the skills and knowledge required to install and maintain wind energy systems to power conversion equipment.

It includes preparing to install and maintain wind energy systems, installing wind energy systems, maintaining wind energy systems completing installation and maintenance and reporting 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

UEEEL0039 Design, install and verify compliance and functionality of general electrical installations

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UEERE0016Y Install photovoltaic systems to power conversion equipment

UEERE9991Y Conduct site survey for off-grid photovoltaic/generating set systems

UEERE9992Y Install off-grid power conversion equipment to electrical installation

UEERE9994Y Install battery storage to power conversion equipment

Competency Field

Renewable Energy

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Prepare to work on wind energy 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 Nature, scope and location of the work are determined from documentation or relevant person/s
	1.4 Work is planned in consultation with the customer and others impacted by the work and sequenced appropriately
	1.5 Engagement and scheduling of contractors and other experts required for completion of work are arranged, and roles, responsibilities and levels of authority confirmed
	1.6 Materials, components, tools, equipment and testing devices required are obtained in accordance with workplace procedures and checked for correct operation and safety

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	1.7	Live testing, measurement and isolation requirements determined in accordance with WHS/OHS requirements and workplace procedures
2 Install wind energy systems	**2.1**	Nature of the installation is verified from design documentation and any design concerns identified referred to designer
	2.2	Transport of equipment to the site is confirmed in accordance with workplace procedures
	2.3	Installation/construction work of other parties is confirmed as compliant with industry standards, regulations and manufacturer specifications prior to commencing each stage of the project
	2.4	Circuits/machines/plant are isolated in accordance with WHS/OHS requirements and workplace procedures
	2.5	System components are installed in compliance with industry standards, regulations and job/manufacturer specifications, and with sufficient access to enable terminations, adjustment and maintenance
	2.6	Wiring is terminated at components and associated equipment in accordance with manufacturer specifications and functional and regulatory requirements
	2.7	Quality checks of installed apparatus are conducted in accordance with workplace procedures
	2.8	System installation is completed in accordance with design, industry standards, regulations and manufacturer specification
	2.9	Testing and commissioning of the system is conducted in accordance with design documentation, regulations, relevant industry standards and manufacturer specifications
	2.10	Worksite is cleaned and made safe in accordance with workplace procedures
	2.11	'As-installed' system and associated equipment are documented, manuals produced, and system is handed over to required person/s as per legislation, regulations, industry standards and job requirements

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3 Maintain wind energy systems	**3.1** Scope and nature of the maintenance is verified from relevant documentation and relevant person/s
	3.2 Live testing, measurement and isolation requirements determined and applied in accordance with WHS/OHS requirements and workplace procedures
	3.3 System is dismantled in accordance with manufacturer guides and instructions from relevant person/s
	3.4 Component parts are tagged during dismantling to ensure correct and efficient reassembly and stored to protect against loss or damage
	3.5 System is reassembled in required sequence with all parts placed, secured and connected in accordance with manufacturer guides or industry practice
	3.6 Repairs are completed in accordance with industry standards, regulations and manufacturer specification
	3.7 Testing, commissioning and reinstatement of the system is conducted in accordance with design documentation, regulations, relevant industry standards and manufacturer specifications
	3.8 Worksite is cleaned and made safe in accordance with workplace procedures
	3.9 'As-installed' system and associated equipment are documented, manuals updated, and system is handed over to required person/s as per legislation, regulations, industry standards and job requirements

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.

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Installation and maintenance of wind energy systems must include:	• verification of design and installing an power conversion equipment/electrics for a wind turbine

Unit Mapping Information

This unit replaces and is not equivalent to UEERE0036 Install small wind energy conversion systems rated up to 10 kW for ELV stand-alone applications and UEERE0038 Install, configure and commission LV wind energy conversion systems rated up to 10 kW

Links

UEE - Electrotechnology Training Package Companion Volume Implementation Guide at: [sector webpage link here]

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Assessment Requirements for UEERE0036Y Install and maintain wind energy systems to power conversion equipment

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Modifications include:

- Unit title changed
- Unit application updated
- Prerequisites changed
- Significant amendments made to Elements and Performance Criteria
- Range of conditions updated
- Significant amendments to Performance and Knowledge Evidence

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 occasions and include:

- installing wind energy systems, including:
  - applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
  - verifying design and resolving any issues with designer
  - coordinating work with relevant person/s
  - applying appropriate installation methods for wind energy system
  - testing and verification wind energy system safely
  - connecting and commissioning in accordance with industry standards and regulations
  - completing documentation according to regulatory and industry standards.

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:

- installation of wind energy systems including:

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    - selection of an appropriate tower for the installation of a wind energy system taking into consideration soil type and footings, local council approvals, appropriate codes, relevant Australian standards
    - appropriate methods and safety procedures for raising tower and wind energy system, lightning protection, tower maintenance, safety in the erection and maintenance of the tower and wind energy system, and site management to minimise environmental impacts
    - appropriate electrical transmission voltage and cable size from the wind energy system to the relevant PCE (if applicable)
    - appropriate installation, commissioning, fault diagnosis and rectification using appropriate safety procedures, including wind energy system power output, voltage regulation, and transmission cable voltage drop, manual and automatic furling, and shutdown
    - schematic and wiring diagrams for the wind energy system showing the general circuit layout and protection between the wind energy system and PCE according to relevant Australian standards and lightning protection requirements
    - safety procedures for the installation, commissioning, fault diagnosis of system components
- maintenance of an wind energy system including:
    - appropriate methods and safety procedures for tower maintenance
    - appropriate maintenance methods and safety procedures, including wind energy system power output, voltage regulation, and transmission cable voltage-drop, manual and automatic furling, and shutdown
    - safety procedures for the maintenance of system components
    - maintenance schedule for the system
    - tower maintenance
- relevant industry standards
- relevant manufacturer specifications
- relevant safe work method statements (SWMS)/job safety assessments or risk mitigation processes
- 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.

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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 maintaining wind energy system for stand-alone applications
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

UEE - Electrotechnology Training Package Companion Volume Implementation Guide at: [sector webpage link here]

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