



Australian Government

UEERE0031 Design stand-alone renewable energy (RE) systems

Release: 1

UEERE0031 Design stand-alone renewable energy (RE) systems

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 design stand-alone renewable energy (RE) systems and its installation.

It includes determining and developing stand-alone RE systems design, following design briefs, documenting design calculations and criteria, and obtaining design approval for stand-alone RE system.

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

Pre-requisite Unit

UEERE0046 Solve problems in stand-alone renewable energy (RE) systems

Competency Field

Renewable Energy

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Determine stand-alone RE system

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 workplace procedures for a given work area are identified, obtained and applied
- 1.2** Scope of the stand-alone RE system and electrical installation is determined from design brief

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| | 1.3 | Safety and regulatory requirements to which the electrical installation must comply are identified, obtained and applied |
| | 1.4 | Design development work is planned to meet scheduled timelines in consultation with relevant person/s involved in the stand-alone RE system installation or associated work |
| 2 | Develop stand-alone RE system design | |
| | 2.1 | Stand-alone RE system performance requirements and compliance methods are applied to the design |
| | 2.2 | Alternative stand-alone RE system designs are considered in accordance with the design brief |
| | 2.3 | Safety, functionality and budgetary considerations are incorporated in the stand-alone RE design |
| | 2.4 | Stand-alone RE system design is drafted and checked for compliance with the design brief and regulatory requirements |
| | 2.5 | Stand-alone RE system design is documented for submission to relevant person/s for acceptance and approval |
| | 2.6 | Unplanned situations are dealt with safely and effectively in accordance with workplace procedures |
| 3 | Obtain design approval for stand-alone RE system | |
| | 3.1 | Stand-alone RE system design is presented for approval and any issues clarified with client representative and/or relevant person/s |
| | 3.2 | Requests for alterations to the design are negotiated with relevant person/s within the constraints of workplace policies |
| | 3.3 | Final design is documented and approval obtained from relevant person/s |
| | 3.4 | Quality of work is monitored in accordance with relevant performance agreement and/or workplace procedures or industry standards |

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.

Designing stand-alone RE systems must include at least the following:

- two different stand-alone RE systems

Unit Mapping Information

This unit replaces and is equivalent to UEENEEK139A Design stand-alone renewable energy (RE) systems.

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 UEERE0031 Design stand-alone renewable energy (RE) systems

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- developing outlines of alternative designs
- developing the design within the safety and functional requirements and budget limitations
- documenting and presenting design effectively
- successfully negotiating design alteration requests
- obtaining approval for final design
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including:
 - implementing workplace procedures and practices
 - using risk control measures
- applying sustainable energy principles and practices
- developing stand-alone renewable energy (RE) systems design.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- stand-alone RE system design, including:
 - load analysis and projected use
 - availability of sustainable/RE sources
 - incorporating diesel generating plant
 - component selection factors encompassing:
 - intended environment
 - distance between system and users
 - maintenance and serviceability requirements
 - rating and diversity

- installation requirement
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- 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 simulated suitable 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 simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to designing stand-alone RE systems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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