



Australian Government

UEERE0057 Coordinate the design of micro-grid renewable energy systems

Release: 1

UEERE0057 Coordinate the design of micro-grid renewable energy 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 coordinate the design of micro-grid renewable energy systems.

It includes safe work practices, site survey processes and procedures, service provider responsibilities, consulting with qualified people to assess client energy demand requirements and assessing micro-grid equipment options to meet client requirements and site conditions. It also covers advice to the client on energy storage standards, codes of practices, government/utilities incentive schemes, and information related to the design and installation of a micro-grid renewable energy generation system.

This unit is appropriate for Licenced Electricians or Electrical Engineers with responsibility for coordinating site survey for, and the design of, micro-grid renewable energy systems.

Licensing, legislative or certification requirements that apply to this unit may differ between jurisdictions and system types. They should be checked prior to commencing this unit.

Pre-requisite Unit

UEERE0054 Conduct site survey for grid-connected renewable energy systems

UEERE0055 Conduct site survey for off-grid PV/genset systems

UEERE0060 Design grid-connected energy storage systems

UEERE0061 Design grid-connected photovoltaic power supply systems

UEERE0063 Design off-grid PV Systems

and

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

or

UEERE0051 Apply electrical principles to renewable energy design

Competency Field

Renewable Energy

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to coordinate design of micro-grid

2 Coordinate site survey for a micro-grid

PERFORMANCE CRITERIA

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

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|------------|--|
| 1.1 | Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures relevant to site assessment are obtained and applied |
| 1.2 | Scope and scale of proposed micro grid is determined from project brief |
| 1.3 | Stakeholders and required experts that need to be consulted and involved are identified and engaged |
| 1.4 | Site survey plan is developed in consultation with required personnel |
| 1.5 | Equipment and documentation needed for the site survey are obtained in accordance with workplace procedures |
| 1.6 | Requirements for site survey, contractual obligations, and roles/responsibilities of people involved are discussed with stakeholder/s |
| 1.7 | Requirements for production and approval of design are identified and documented |
| 2.1 | Details of project brief are verified, and any discrepancies recorded |
| 2.2 | Current stakeholder/s energy usage data is collected and expected future energy generation needs are discussed, and expectations are clarified |

- 2.3 Energy resource data is collected
- 2.4 Information about site access, building structures and layout, and existing electrical infrastructure is gathered and documented
- 2.5 Site hazards that may impact installation are identified and documented
- 2.6 Reports and data from technical experts are obtained and added to site survey data
- 2.7 Distribution/network requirements are determined where required
- 2.8 Site survey data is analysed and report prepared
- 3 Coordinate the design of micro-grid**
 - 3.1 Any relevant industry standards, building/electrical regulations, codes and jurisdictional approval process are identified
 - 3.2 Qualified person/s are consulted and briefed as required on site conditions, and client requirements and expectations
 - 3.3 Options for micro-grid energy generation equipment to meet site requirements and client expectations are identified and noted
 - 3.4 Different options for micro-grid energy storage equipment to meet site requirements and client expectations are identified and noted
 - 3.5 Placement of system components is considered, and any restrictions or issues of concern noted
 - 3.6 Micro-grid system performance standards and compliance methods are applied to the design development
 - 3.7 Safety, functional and budgetary considerations are incorporated in design
 - 3.8 Qualified person/s are consulted to ensure micro-grid system design draft complies with the design brief, industry standards and regulations, job requirements and workplace procedures
 - 3.9 Micro-grid system design is documented in line with industry standards and regulations, job

requirements and workplace procedures

- 3.10** Micro-grid system design is documented and submitted to relevant person/s for approval

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 is a new unit.

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 UEERE0057 Coordinate the design of micro-grid renewable energy systems

Modification History

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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 two occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS), and risk assessment and control procedures
- developing the site survey plan in consultation with the project manager, client, equipment manufacturers, installers and engineers
- identifying, engaging and coordinating technical expertise required for the site survey and design
- communicating effectively with stakeholders
- undertaking site inspection safely and documenting findings
- coordinating qualified person/s as required to:
 - assess client energy demand requirements
 - develop options for suitable generating systems
 - develop options for suitable storage systems
 - determine impact of site conditions on selection of best options
 - determine placement of system components, any restrictions or issues of concern
 - identify potential installation problem/s and recommend solutions
 - determine any required sign-off or approval for design and final installation
 - produce final site survey report
 - produce micro-grid design
- obtaining approval for final design
- completing relevant organisational documentation.

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 the following. Additional advice and definitions for some items is provided in the UEE Training Package Companion Volume Implementation Guide (CVIG).

- relevant WHS/OHS requirements

- relevant manufacturer specifications
- relevant workplace documentation, policies and procedures
- relevant standards, building regulations and codes of practice
- methods to identify and comply with contractual obligations
- customer service responsibilities
- stakeholders involved in the design, installation and maintenance of energy systems and their roles
- methods to identify conditions to drive energy source
- environmental management plan development and implementation
- management of system maintenance processes
- site surveying
- energy assessment and monitoring
- micro-grid energy generating systems
- micro-grid energy storage systems
- basic energy principles
- methods for identifying and recording existing electrical and generation infrastructure
- electricity network requirements and restrictions
- government/utilities incentive schemes
- jurisdictional approvals required before installation
- roles and responsibilities of people involved in design and installation
- load control, demand management and tariffs.

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
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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