Australian Government

Assessment Requirements for UEERE0055 Conduct site survey for off-grid photovoltaic/generating set systems

Release: 1

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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, 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
- identifying all relevant stakeholders and qualified personnel required to complete site survey
- communicating effectively with clients to discuss:
  - requirements for site assessment and information to be collected
  - roles/responsibilities of people involved in design, installation and maintenance
  - industry standards, building/electrical regulations and codes, and risk minimisation relevant to the installation
  - benefits and options of renewable energy generation systems and energy management
  - expectation of off-grid PV/genset system - operation, performance, location
- undertaking site survey safely and documenting findings including:
  - potential site hazards that may impact installation
  - site access, layout, distances and building structures
  - solar access and shading
  - gathering information about existing electrical installation and any existing energy generation elements
  - current energy usage including maximum power and energy demand
  - current and expected future energy generation needs including maximum power demand
  - working with qualified personnel as required to complete site survey
  - options for suitable renewable generating systems
  - options for suitable renewable storage systems
  - options for placement of system components, any restrictions or issues of concern
  - potential installation problem/s and recommend solutions
- producing final site survey report.

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 including:
  - safe work method statements (SWMS)/job safety assessments or risk mitigation processes
  - legislated requirements
  - procedures for working in remote areas, safety onsite and while travelling
  - roof access and working at heights
  - electrical safety
- communicating effectively with clients to discuss:
  - requirements for site assessment and information to be collected
  - roles/responsibilities of people involved in design, installation and maintenance
  - industry standards, building/electrical regulations and codes, and risk minimisation relevant to the installation
  - benefits and options of renewable energy generation systems and energy management
- basic energy principles
- stakeholders, required personnel and roles and responsibilities of people involved in design, installation and maintenance
- site survey process and information to be gathered, recorded and analysed
- methods for identifying and recording existing electrical infrastructure including existing renewable energy and generation elements
- relevant local, state and commonwealth requirements
- environmental considerations on site and any authorisations/approvals
- techniques to review existing grid connection when customer wants to go independent from grid
- energy assessment and review including:
  - energy services required by the electrical installation
  - power and energy consumption of individual appliances and systems using appropriate meters or other methods such as label review and data logging
  - consideration of the most appropriate energy source for each of these services
  - methods for discussing with client energy use patterns and future growth in energy use
- off-grid PV/genset systems including:
  - different equipment types and their componentry and system configuration
  - factors that impact equipment type selection related to site and usage characteristics
  - considerations when multiple sources are used
- off-grid energy storage systems including:
  - different equipment types and their componentry and system configuration
  - factors that impact equipment type selection related to site and usage characteristics

  - design, installation, and maintenance requirements
- basic operation of integrated off-grid PV/genset systems
- installation consideration and requirements for integrated off-grid PV/genset systems
- smart systems including monitoring and control
- load control and demand management
- methods to identify solar access and shading
- solar resource considerations
- photovoltaic (PV) modules and arrays
- wind resource considerations
- micro-hydro resource considerations
- energy storage systems
- power conversion equipment (PCE) including:
  - types of PCEs
  - the basic function of a PCE
  - PCE operation
  - PCE characteristics
- generating sets including:
  - types of gensets
  - the basic function of a genset
  - genset operation
  - genset characteristics
- electrical diagrams for a RE system including:
  - functional block diagrams for typical off-grid RE system configurations
  - architectural and site diagrams to show the locations of equipment, fittings and cabling.

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

- 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