



Australian Government

Assessment Requirements for UEERE0078 Install battery storage to power conversion equipment

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the 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 two occasions and include:

- interpreting system design and verifying installation compliance with relevant industry standards, manufacturer specifications, building codes and regulations and any noncompliance referred to designer
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- coordinating work with relevant person/s
- determining and applying live testing, measurement and isolation requirements
- installing battery storage systems including:
 - battery storage components
 - PCE
 - balance of system to PCE
 - program components
- testing and commissioning battery storage system
- completing required documentation
- instruct client on safe and correct system operation recommended maintenance and system 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).

- batteries including:
 - meaning of the terms that define aspects of batteries including:
 - battery
 - cell
 - primary and secondary cells

- charge and discharge rate
- depth of discharge (DOD)
- nominal voltage
- amp hour capacity
- state of charge (SOC)
- watt hour capacity
- usable capacity
- cycle life
- major features of commercially available types of batteries suitable for battery storage systems
- factors affecting the life of commercially available types of batteries including the estimation of battery life
- common reasons for failure of commercially available batteries
- charging regimes suitable for commercially available types of batteries
- hazards associated with handling, installing or maintaining commercially available types of batteries and risk control measures
- hazards during fault conditions
- procedures for safe disposal and recycling of commercially available types of batteries
- battery storage systems including:
 - applications for battery storage including:
 - electrical energy supply during grid outages
 - electrical energy supply direct to loads during periods of high tariffs
 - network / aggregator provider requirements
 - purpose of each component in battery storage systems for PV systems
 - communications, monitoring and metering
 - objectives of battery storage
 - purpose of each component in a battery storage system for PV system
 - typical configurations of battery storage systems for PV systems
- types and applications of PCEs
- diagrams and drawings including:
 - electrical systems circuit diagrams of typical battery storage systems
 - all major components
 - protection devices
 - earthing
 - isolation
 - switching
 - metering
 - equipment location plan/s to show the locations of equipment, fittings and cabling
 - single line diagrams of battery storage systems
 - site diagrams to show the locations of equipment, fittings and cabling

- power conversion equipment
- battery storage systems fault finding:
 - fault finding procedures including:
 - fault finding procedures for individual equipment
 - fault finding procedures for interconnected systems
- maintenance requirements including relevant industry standards, regulations and manufacturer requirements
- battery storage systems maintenance procedures including:
 - maintenance requirements for individual equipment
 - maintenance requirements for interconnected systems.
- battery storage systems testing and commissioning procedures including:
 - safe testing of equipment
 - safe testing of system operation
- commissioning of energy storage system.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations, current at the time of assessment.

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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:

- Industry Standards
 - relevant industry standards
 - relevant industry product standards
 - AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)
- Documentation including reporting formats
 - manufacturer technical data site plans
 - system designer documentation relevant to installing the system
 - maintenance checklists and/or testing and commissioning sheet
- Measuring and testing equipment
 - multimeter insulation resistance tester clamp tester (DC and AC)
- Plant

- an existing installed PV array along with the equipment to facilitate the installation of a battery storage system for grid-connected PV systems. This equipment shall comprise:
 - battery storage
 - multi-mode inverter/s
 - devices for interconnecting solar to system either including charge controller or an appropriate inverter and all required balance of system equipment including:
 - cables
 - protection and isolating devices
 - isolators and signage in accordance with relevant industry standards, regulations and industry guidelines
 - appropriate switchboard (or similar) to simulate interconnection of the system with an existing electrical installation
- Safety systems and personal protective equipment (PPE)
 - example of a job safety analysis or safe work method statement form relevant for the practical installation; PPE related to the types of battery storage included in the system
- Software/Systems
 - programming software for the PCE
- Specialist requirements
 - specific manufacturer specifications for the equipment included in the battery storage system for PV systems including:
 - installation manuals and user guides for typical components and those provided for the practical installation
 - special tools as required for installing specific equipment
 - special testing tools or equipment required for testing and commissioning, maintenance and fault finding of specific equipment
- Tools and equipment
 - hand tools and power tools.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>