



Australian Government

**Assessment Requirements for UEERE0077
Install battery storage equipment power
conversion equipment to grid**

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.

This unit replaces and is not equivalent to UEERE4001 Install, maintain and fault find battery storage systems for grid-connected photovoltaic systems. 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 requirements and CVIG content developed
- Assessment conditions updated.

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
- determining and applying live testing, measurement and isolation requirements
- installing battery storage systems including:
 - power conversion equipment (PCE) to grid and essential loads
 - balance of system to grid
 - programming components
- testing and commissioning the 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).

- grid-connected storage systems installations:
 - installation requirements including:
 - installing power conversion equipment (PCE) suitable for connecting to battery storage in accordance with system design documentation, relevant industry standards, regulations and manufacturer requirements
 - installing all balance of system equipment in accordance with system design documentation, relevant industry standards, regulations and manufacturer requirements
- types and applications of PCEs
- diagrams and drawings including:
 - electrical systems circuit diagrams of typical grid-connected energy storage systems including:
 - AC loads being supplied during periods when grid is unavailable
 - 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 energy storage systems for grid-connected PV systems including modifications to switchboard to cater for specified loads
 - site diagrams to show the locations of equipment, fittings and cabling
- energy management strategies
- PCEs including:
 - differences between multimode and grid connect
 - output rating of a multimode PCE in relation to:
 - required maximum demand
 - capacity for battery charging
 - program parameters for a multimode inverter, for the correct operation of the system
 - blackout protection
- grid-connected storage systems fault finding:
 - fault finding procedures for individual equipment
 - fault finding procedures for interconnected systems
- maintenance requirements including relevant industry standards, regulations and manufacturer requirements
- grid-connected energy storage systems maintenance procedures including:
 - maintenance requirements for individual equipment
 - maintenance requirements for interconnected systems.

- grid-connected 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
- 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 inverter/s and charge controller/s
- Specialist requirements
 - specific manufacturer specifications for the equipment included in the battery storage system for grid-connected 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>