



Australian Government

UEERE0048 Verify compliance and functionality of an extra-low voltage renewable energy installation

Release: 1

UEERE0048 Verify compliance and functionality of an extra-low voltage renewable energy installation

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 verify compliance and functionality of an extra-low voltage (ELV) renewable energy (RE) installation.

It includes preparing to inspect and test a RE installation, visually inspecting and conducting safety testing on the installation, and reporting inspection and test findings.

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

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEECD0025 Lay wiring/cabling and terminate accessories for extra-low voltage (ELV) circuit

UEECD0045 Solve problems in multiple path extra low voltage (ELV) a.c. circuits

UEECD0016 Document and apply measures to control WHS risks associated with electrotechnology work

UEEEL0019 Solve problems in direct current (d.c.) machines

UEEEL0021 Solve problems in electromagnetic devices

UEERE0025 Carry out basic repairs to renewable energy apparatus

UEERE0034 Diagnose and rectify faults in renewable energy control systems

UEERE0046 Solve problems in stand-alone renewable energy systems

UEERE0035 Install ELV stand-alone photovoltaic power systems

and

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

Competency Field

Renewable Energy

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to inspect and test a RE installation

2 Visually inspect and conduct safety testing on the RE installation

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) processes and procedures for relevant work area are identified and applied in accordance with workplace procedures |
| 1.2 | WHS/OHS hazards are identified, risks assessed, reported to relevant person/s and workplace procedures for risk control measures applied in preparation for work |
| 1.3 | Relevant documentation and/or industry standards are reviewed and interpreted |
| 1.4 | Relevant person/s is consulted to ensure the work is coordinated effectively with others |
| 1.5 | Tools, equipment and testing devices required to verify compliance are obtained in accordance with workplace procedures and checked for correct operation and safety |
| 1.6 | Preparatory work is checked to ensure no unnecessary damage has occurred and complies with requirements |
| 2.1 | Need to test or measure live electrical work is determined in accordance with WHS/OHS requirements and conducted in accordance with workplace procedures |
| 2.2 | Circuits/machines/plant are isolated in accordance with WHS/OHS requirements and workplace procedures |

- 2.3 Suitability of wiring is checked for the environment/s in which they are installed and protected from damage or overheating
 - 2.4 Cable conductor sizes that meet current-carrying capacity requirements and voltage-drop are acquired
 - 2.5 Protection methods and devices are validated as meeting coordination requirements for overload and short circuit protection
 - 2.6 Switchgear and control gear are validated as correctly rated and appropriate for functional requirements
 - 2.7 Evidence that electrical equipment complies with safety requirements is cited
 - 2.8 Correct location of earthing system and size of conductors is checked
 - 2.9 Markings on switchboards are checked for accuracy, clarity and compliance with requirements
 - 2.10 Visual inspection is conducted to ensure that system complies with requirements
 - 2.11 Testing is conducted to verify that circuit connections are correct, voltage drop is within limits, circuit protection operates as intended, polarities are correct, and charging rates are compliant with specifications
- 3 Report inspection and test findings**
- 3.1 Worksite is cleaned and made safe in accordance with workplace procedures
 - 3.2 Non-compliance defects are identified and reported in accordance with workplace procedures
 - 3.3 Recommendations for rectifying defects are made in accordance with workplace procedures
 - 3.4 Documentation is completed in accordance with workplace procedures

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.

Verifying compliance and functionality of an ELV RE installation must include at least the following:

- two electrical installations comprising:
 - a photovoltaic (PV) array of at least 450 watts
 - a battery bank
 - an inverter
 - a battery charger (or inverter/charger)
 - a generating set

Unit Mapping Information

This unit replaces and is equivalent to UEENEEK149A Verify compliance and functionality of a extra low voltage renewable energy installation.

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 UEERE0048 Verify compliance and functionality of an extra-low voltage renewable energy installation

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 one occasion and include:

- selecting correct tools and testing equipment
- identifying visual non-compliance defects
- using effective methods for conducting tests
- identifying non-compliance from test results
- identifying causes of non-compliance
- completing mandatory reporting
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures and practices, including the use of risk control measures
- applying sustainable energy principles and practices
- checking isolation of circuits/machines/systems
- coordinating work with relevant person/s
- determining live electrical testing/measurement requirements
- verifying compliance and functionality of extra-low voltage (ELV) renewable energy (RE) installations.

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:

- RE installations and ELV installation requirements encompassing:
 - requirements for installation of wiring and equipment
 - compliant methods for providing protection
 - requirements for installation planning and selection of equipment
 - testing and verification requirements
 - documentation encompassing:

- results of tests conducted that comply with requirements and ensure the ELV RE installation is safe, including any formal documents of the results of testing required by authorities
- documents of periodic inspection and testing of ELV RE wiring and equipment, including any tagging, in accordance with requirements
- energy efficient building design
- relevant RE manufacturer specifications
- relevant safe work method statements (SWMS)/job safety assessments or risk mitigation processes
- relevant WHS/OHS legislated requirements
- 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 suitable 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.

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