



Australian Government

Department of Education, Employment and Workplace Relations

UEENEEK152A Develop strategies to address sustainability issues for electrical installations

Release: 1

UEENEEK152A Develop strategies to address sustainability issues for electrical installations

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers developing strategies to address greenhouse gases and sustainability issues for residential, commercial and industrial electrical installations. It encompasses working safely, apply extensive knowledge of electrical installations and components and their operating parameters, gathering and analysing data, applying problem solving techniques, developing and documenting alternatives solutions.

Application of the Unit

Application of the Unit 2)

This unit is intended to apply to any recognised development program that leads to the acquisition of a formal award at AQF level 4 or higher.

Licensing/Regulatory Information

License to practice

3)

The skills and knowledge described in this unit require a license to practice in the workplace subject to regulations for undertaking of electrical work. Practice in workplace and during training is also subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Note:

1. Compliance with permits may be required in various

License to practice

3)

jurisdictions and typically relates to the operation of plant, machinery and equipment such as elevating work platforms, powder operated fixing tools, power operated tools, vehicles, road signage and traffic control and lifting equipment. Permits may also be required for some work environments such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

2. Compliance may be required in various jurisdictions relating to currency in First Aid, confined space, lifting and risk safety measures.

Pre-Requisites

Prerequisite Unit(s)

4)

Competencies

4.1)

Granting competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

UEENEEG1 05A Verify compliance and functionality of low voltage general electrical installations.

Literacy and numeracy skills

4.2)

Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading 4 Writing 4 Numeracy 4

Employability Skills Information

Employability Skills

5)

The required outcomes described in this unit of competency contain applicable facets of Employability

Employability Skills

5)

Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

1 Prepare to develop strategies to address sustainability issues.	1.1	OHS processes and procedures for a given work area are identified, obtained and understood
	1.2	Established OHS risk control measures and procedures are followed in preparation for the work
	1.3	The extent of the sustainability issues are determined from performance specifications and situation reports and in consultation with relevant persons
	1.4	Activities are planned to meet scheduled timelines in consultation with others involved in the work
	1.5	Effective strategies are determined to ensure solution development and implementation is carried out efficiently
2 Develop strategies to address sustainability issues	2.1	OHS risk control measures and procedures for carrying out the work are followed
	2.2	Knowledge of sustainability is applied to developing strategies to address greenhouse gas and sustainability issues

ELEMENT	PERFORMANCE CRITERIA
	2.3 Parameters, specifications and performance requirements in relation to sustainability issues are set in accordance with established procedures
	2.4 Approaches to resolving sustainability issues are analysed to provide most effective solutions
	2.5 Unplanned events are dealt with safely and effectively consistent with regulatory requirements and enterprise policy
	2.6 Quality of work is monitored against personal performance agreement and/or established organisational or professional standards
3 Document strategies to address sustainability issues.	3.1 Solutions to sustainability issues are tested to determine their effectiveness and modified where necessary
	3.2 Adopted solutions are documented, including instructions for implementation that incorporates risk control measures to be followed
	3.3 Appropriately competent and qualified persons required to implement solutions to sustainability issues are coordinated in accordance with regulatory requirements and enterprise policy (See Note)
	3.4 Justification for strategies used to solve sustainability issues is documented for inclusion in work/project development records in accordance with professional standards

Note:

A licence or permit to practise in the workplace is required for specified work on building and premises

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the essential skills and knowledge and their level, required for this unit.

Evidence must show that knowledge has been acquired of safe working practices and developing strategies to address sustainability issues.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01- EK152A Electrical installation energy sustainability strategies

Evidence shall show an understanding of electrical installation energy sustainability strategies to an extent indicated by the following aspects:

- T1 Energy management, legislation and regulation encompassing:
- Energy Management
 - Climate Change
 - Greenhouse Effect/Greenhouse Gases
 - Standards and codes
 - Legislation and regulations
 - Energy Audits
- T2 Electrical motors, pumps and fans encompassing:
- Motor Construction, Components & Losses
 - Motor efficiency (MEPS - AS/NZS 1359.5)
- T3 Appliances encompassing:
- Energy Star ratings
 - Washing machines
 - Clothes dryers
 - Dishwashers
 - Televisions and computers
 - Standby Management strategies
- T4 Energy efficient lighting encompassing:
- Lighting efficiency
 - Efficient Lighting design
 - Ballasts
 - Lighting controls
- T5 Water Heating encompassing:
- Water heating systems and losses

REQUIRED SKILLS AND KNOWLEDGE

- Electric, gas, oil, heat pump and solar water heater design
 - Control strategies
- T6 Space Heating and cooling encompassing:
- Space heating systems and losses
 - Space cooling systems and losses
 - Heating - Electric, gas, oil, heat pump and solar heater design
 - Cooling – Direct expansion, chilled water and ventilation
 - Control strategies
- T7 Solar energy encompassing:
- System design fundamentals
 - Solar PV design elements
 - Solar PV system performance
 - Analysis of system capital and operating cost performance

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit and must be read in conjunction with the performance criteria and the range statement of the unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment 9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. In some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and

regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety issues inherent in working with electricity, electrical equipment, gas or any other hazardous substance/material present a challenge for those determining competence. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

Critical aspects of evidence required to demonstrate competency in this unit 9.2)

Before the critical aspects of evidence are considered all prerequisites must be met.

Evidence for competence in this unit must be considered holistically. Each element and associated performance criteria must be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines – UEE11'. Evidence must also comprise:

- A representative body of performance criteria demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this must incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the performance criteria and range statement
 - Apply sustainable energy principles and practices as specified in the performance criteria and range statement

- Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
- Demonstrate an appropriate level of skills enabling employment
- Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - Develop strategies to address sustainability issues as described in 8) and including:
 - A Understanding the extent of the electrical installation energy problem/s
 - B Forming effective strategies for solution development and implementation
 - C Obtaining energy system/component parameters, specifications and performance requirements appropriate to each problem
 - D Testing solutions to energy problems
 - E Documenting instruction for implementation of solutions that incorporate risk control measure to be followed
 - F Documenting justification of solutions implemented in accordance with professional standards
 - G Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in a holistic assessment with the above listed items

Note:

Successful completion of relevant vendor training may be used to contribute to evidence on which competency is deemed. In these cases the alignment of outcomes of vendor training with performance criteria and critical aspects of evidence must be clearly identified.

Context of and specific resources for assessment 9.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.

These should be part of the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

Method of assessment 9.4)

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires assessment in a structured environment which is intended primarily for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent assessment and relationship with other units 9.5)

There are no concurrent assessment recommendations for this unit.

The critical aspects of occupational health and safety covered in Unit UEENEEE101A and other discipline specific occupational health and safety unit(s) must be incorporated in relation to this

unit.

Range Statement

RANGE STATEMENT

10) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit must be demonstrated in relation to developing strategies to address sustainability issues for at least two types of electrical installations.

Note.

Typical sustainability issues are those encountered in meeting sustainability performance standards, such as reducing needs for energy use, reducing causes of greenhouse gas emissions, revising a energy system operating parameters and dealing with energy system efficiencies.

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Renewable and Sustainable Energy