



Australian Government

UEPMNT446A Coordinate maintenance on a wind farm

Release: 1

UEPMNT446A Coordinate maintenance on a wind farm

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit deals with the skills and knowledge required to coordinate the effective and efficient scheduled and unscheduled servicing and maintenance of a wind farm.

Application of the Unit

Application of the Unit 2)

This unit is intended to augment formally acquired competencies. It is suitable for employment-based programs under an approved contract of training.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit may require an electrical licence to practise in the workplace.

Practice in this unit is subject to regulations directly related to Occupational Health and Safety and where applicable contracts of training such as apprenticeships and the like.

Pre-Requisites

Prerequisite Unit(s) 4)

Competencies 4.1)

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

Where pre-requisite pathways have been identified. All competencies in the Common Unit Group must have been completed.

Common Unit Group

Unit Code	Unit Title
UEPMNT445A	Diagnose and repair faults in large scale wind turbine generators
UEPMNT448B	Diagnose and repair faults in large scale wind turbine generator control systems
UEPMNT449B	Diagnose and repair faults in large scale wind turbine generator mechanical systems
UEPMNT371A	Maintain large scale wind turbines generators
UEENEEG108A	Trouble-shoot and repair faults in low voltage electrical apparatus and circuits
UEENEEE101A	Apply Occupational Health Safety regulations, codes and practices in the workplace
UEENEEE102A	Fabricate, dismantle, assemble of utilities industry components
UEENEEE104A	Solve problems in d.c. circuits
UEENEEE105A	Fix and secure electrotechnology equipment
UEENEEG107A	Use drawings, diagrams, schedules, standards, cords and specifications

Prerequisite Unit(s) 4)

UEENEEG006A	Solve problems in single and three phase low voltage machines
UEENEEG033A	Solve problems in single and three phase low voltage electrical apparatus and circuits
UEENEEG063A	Arrange circuits, control and protection for general electrical installations
UEENEEG101A	Solve problems in electromagnetic devices and related circuits
UEENEEG102A	Solve problems in low voltage a.c. circuits
UEENEEG106A	Terminate cables, cords and accessories for low voltage circuits
UEPMNT443A	Maintain wind turbine generator control systems
UEENEEE107A	Use drawings, diagrams, schedules, standards, cords and specifications
UEPMNT444A	Maintain wind turbine generator mechanical systems

Literacy and numeracy skills 4.2)

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following levels. A description of what each level entails is provided in Section 2.3.1 Language, Literacy and Numeracy.

Reading 4 Writing 4 Numeracy 4

Employability Skills Information

Employability Skills 5)

This unit contains Employability Skills.

The required outcomes described in this unit of competency contain applicable facets of Employability 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 Plan for scheduled maintenance. | 1.1 Maintenance schedules provided by other key stakeholders and organisational representatives are accessed, read and interpreted.

1.2 Local maintenance work schedules are developed.

1.3 Stock and spare parts required to conduct scheduled maintenance is available. |
| 2 Coordinate scheduled maintenance | 2.1 Roles and tasks are allocated to on-site personnel.

2.2 Maintenance is performed according to the established timeframes.

2.3 Maintenance is performed within the established financial budget.

2.4 Maintenance tasks are completed as per the |

ELEMENT**PERFORMANCE CRITERIA**

	schedule and to the required standards.
	2.5 Employees are developed and provided with on-the-job experience through the allocation of tasks that will provide learning opportunities.
	2.6 Risk control measures are identified, prioritised and evaluated against the maintenance schedule.
	2.7 Relevant work permits are secured to coordinate the performance of maintenance according to requirements and/or established procedures.
3 Respond to WTG breakdown	3.1 An action plan is developed as per requirements and established procedures.
	3.2 Key stakeholders, customers and other appropriate personnel and organisations are advised of the outage.
	3.3 Out-of-hours breakdown roster is current and applied.
	3.4 Initial analysis of breakdown to determine likely remediation actions is undertaken.
	3.5 Resources to find cause of fault or breakdown are allocated.
	3.6 Enterprise escalation procedures are applied.
	3.7 The most appropriate remediation choice for defective components and plant is selected.
	3.8 Technical advice is given regarding potential hazards, safety risks and control measures so that monitoring and preventative action can be undertaken and/or appropriate authorities consulted, where necessary, in accordance with requirements and established procedures.
	3.9 Solutions to non-routine problems are identified and actioned, using acquired essential knowledge and associated skills, according to requirements.

ELEMENT	PERFORMANCE CRITERIA
4 Produce production and maintenance reports	4.1 WTG records for the purpose of producing maintenance reports are accessed.
	4.2 Reports are produced as per enterprise standards using applicable software and formats.
	4.3 Reports are distributed to applicable stakeholders, customers and other appropriate personnel.
5 Make recommendations for dealing with WTG breakdowns	5.1 Lessons learnt from outages are documented.
	5.2 Discussions are held with team members to facilitate learning and communication regarding managing and dealing with similar WTG breakdowns.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

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

KS01-PM44 Coordinate maintenance on a wind farm
6A

Evidence shall show that knowledge has been acquired of coordinating wind farm maintenance to the extent indicated by the following aspects:

- T1. Report writing skills
 - Enterprise standards and styles
- T2. Enterprise escalation procedures
- T3. Local applicable licensing rules and regulations
 - Live work restrictions
 - Working at heights restrictions
 - Single person working
 - Industrial agreements
 - Fatigue management rules
- T4. Team leadership skills fundamentals
 - Communication in a team environment
 - Developing personnel through task allocation
 - Organising work schedules
- T5. Equipment spares and consumables
 - Local enterprise procedures for inventory management

Evidence Guide

EVIDENCE GUIDE

9) The Evidence Guide forms an integral part of this Unit and shall be used in conjunction with all components 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. It is recognised that, 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 nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. 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, Section 3.1 of this Training Package.

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

Evidence for competence in this unit shall be considered holistically. Each element and associated Performance Criteria shall be demonstrated:

- On at least two (2) occasions. In accordance with the "Assessment Guidelines" for the UEP12 Training Package.

Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall 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; and
 - Apply sustainable energy principles and practices as specified in the Performance Criteria and range; and
 - Demonstrate an understanding of the required skills and knowledge as described in this unit to such an extent that the learner's performance outcome is reported in accordance with the preferred approach; namely a percentile graded result, where required by the regulated environment; and
 - Demonstrate an appropriate level of employability skills; and
 - Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures; and

Demonstrated performance across a representative range of contexts from the prescribed items below:

- | | |
|------------------------|---|
| A All of the following | <ul style="list-style-type: none"> • Develop a local scheduled maintenance plan. |
| B All of the following | <ul style="list-style-type: none"> • Coordinate a scheduled maintenance program. • Develop a risk control register for a scheduled maintenance program. |

- Provide direction to on-site personnel, contractors, enterprise staff external to site, and any other persons involved in the maintenance activity.
- C All of the following
 - Produce a maintenance report based upon the enterprise's requirements and standards.
- D All of the following
 - Deal with an unplanned event by drawing on essential knowledge and skills to provide appropriate solutions.

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 used in 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.

The resources used for assessment should reflect current industry practices in relation to:

Coordinate maintenance on a wind farm

Method of assessment

9.4)

This unit shall be assessed by methods given in the Assessment Guidelines, Section 1.3 of this Training Package.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this competency standard unit

applies. This requires assessment in a structured environment which is primarily intended 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.

Range Statement

RANGE STATEMENT

10) This relates to the competency standard 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.

Coordination of maintenance tasks on wind turbine generators may include:

Maintenance can be either scheduled or unscheduled

Documentation and reports can be either paper-based, soft-copy or in other electronic formats

Maintenance personnel includes on-site staff, enterprise staff located off-site, manufacturers' representatives, and other technical experts

Local applicable licensing rules and regulations can include:

- Live work restrictions
- Working at heights restrictions
- Single person working
- Industrial agreements
- Fatigue management rules

Scheduled and unscheduled maintenance may include (and is not limited to): visual inspections, accessing data logs and fault diagnosis data, replacement of components and plant including generators, replacement of electrical protection equipment, checking for loose wiring, checking the tension of bolts, replacing sensors, replacing seals and o-rings, lubrication, testing of equipment for correct operation, inspection of slip rings and lubrication of equipment.

Wind turbine range is from 10kW and greater

Work site environment may be affected by nearby plant or processes and climatic conditions e.g. wind speed, chemical, heat, dust, noise, height and oil.

Location of wind turbine generators may be in urban, suburban, regional or rural locales and environments.

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 the Glossaries, Section 2.1 of this Training Package.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field 11)

Maintenance