



Australian Government

Department of Education, Employment and Workplace Relations

UETDRDS47A Review power system asset management strategies

Release: 1

UETTDRDS47A Review power system asset management strategies

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This Competency Standard Unit covers the management of assets within the transmission, sub transmission and distribution networks. This includes plant optimisation, condition monitoring, maintenance strategies and policies and capital works planning, including recommendations for continual improvement. Cost benefit analysis is fundamental for successful implementation of the aforementioned asset management functions.

Application of the Unit

Application of the Unit 2)

This Competency Standard 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 a licence/registration to practice in the work place 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, electricity/telecommunications/gas/water industry safety and compliance, industrial relations, environmental

License to practice**3)**

protection, anti discrimination and training.
Commonwealth, State/Territory or Local Government
legislation and regulations may exist that limits the age of
operating certain equipment.

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 be have
been completed plus all the competencies in one (1) of the
identified Pathway Unit Group(s):

Common Unit Group

Unit Code	Unit Title
UEENEEE101A	Apply Occupational Health and Safety regulations, codes and practices in the workplace
UEENEEE104A	Solve problems in d.c. Circuits
UEENEEE107A	Use drawings, diagrams, schedules, standards, codes and specifications
UEENEEG101A	Solve problems in electromagnetic devices and related circuits
UEENEEG102A	Solve problems in electromagnetic devices and related circuits
UETTDREL11A	Apply sustainable energy and environmental procedures
UETTDREL16A	Working safely near live electrical apparatus
UETTD RIS62A	Implement and monitor the power

Prerequisite Unit(s)**4)**

system organisational OHS policies, procedures and programs

UETTD RIS63A Implement and monitor the power system environmental and sustainable energy management policies and procedures

Testing Pathway Unit Group

UEENEED104A Use engineering applications software on personal computers

UEENEEE102A Fabricate, assemble and dismantle utilities industry components

UEENEEE124A Compile and produce an energy sector detailed report

UEENEEE125A Provide engineering solutions for problems in complex multiple path circuits problems

UEENEEE126A Provide solutions to basic engineering computational problems

UEENE EG149A Provide engineering solutions to problems in complex polyphase power circuits

UETTD RTS21A Maintain interdependent network protection and control systems

UETTD RTS22A Commission interdependent network protection and control systems

UETTD RTS29A Develop power systems secondary isolation instructional documents

UETTD RTS35A Maintain complex network protection and control systems

Design Pathway Unit Group

UETTD RDS39A Prepare and manage detailed construction plans for electrical power system infrastructure

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 scales. Description of each scale is given in Volume 2, Part 3 “Literacy and Numeracy”

Reading 5 Writing 5 Numeracy 5

Employability Skills Information

Employability Skills 5)

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 and coordinate the review and implementation of asset management systems | <p>1.1 OHS practices/procedures and environmental and sustainable energy procedures, which may influence asset management systems, are reviewed and determined.</p> <p>1.2 Purpose of the project is established and expected outcomes of the work are confirmed with the</p> |
|--|---|

ELEMENT	PERFORMANCE CRITERIA
	appropriate personnel.
	1.3 Organisational established procedures on policies and specifications for the design are obtained or established with the appropriate personnel.
	1.4 Equipment/tools and personal protective equipment are selected and coordinated based on specified requirements and established procedures
	1.5 Work is prioritised and sequenced for the most efficient and effective outcome following consultation with others for completion within acceptable timeframes, to a quality standard and in accordance with established procedures
	1.6 Risk control measures are identified, prioritised and evaluated against the work schedule
	1.7 Relevant work permits are secured to coordinate the performance of work according to requirements and/or established procedures
	1.8 Resources including personnel, equipment, tools and personal protective equipment required for the job are identified, scheduled and coordinated and confirmed in a safe and technical working order
	1.9 Liaison and communication issues with other/authorised personnel, authorities, clients and land-owners are resolved and activities coordinated to carry out work
	1.10 Site is prepared according to the work schedule and to minimise risk and damage to property, commerce, and individuals in accordance with established procedures
2 Carry out and coordinate the review and implementation of asset management systems	2.1 Circuit/systems modelling is used to evaluate alternative proposals as per established procedures.
	2.2 OHS and sustainable energy principles, functionality and practices to reduce the incidence of accidents and minimise waste are incorporated into the project in accordance with

ELEMENT	PERFORMANCE CRITERIA
	requirements and/or established procedures
	2.3 System design decisions are made on the basis of safety and effective outcomes according to requirements and/or established procedures
	2.4 Mathematical models of the distribution system are used to analyse the effectiveness of the finished project as per requirements and established procedures
	2.5 Technical advice is given to 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
	2.6 Essential knowledge and associated skills are applied to analyse specific data and compare it with compliance specifications to ensure completion of the project within an agreed timeframe according to requirements.
	2.7 Solutions to non-routine problems are identified and actioned using acquired essential knowledge and associated skills according to requirements
	2.8 Quality of work is monitored against personal performance agreement and/or established organisational and professional standards.
3 Complete and coordinate the review and implementation of asset management systems	3.1 Final review of the project are undertaken to ensure they comply with all requirements and include all specifications and documentations needed to complete the project brief.
	3.2 Appropriate personnel are notified of completion and reports and/or completion documents are finalised.
	3.3 Reports and/or completion documents are submitted to relevant personnel/organisations for approval and, where applicable, statutory or regulatory approval

ELEMENT**PERFORMANCE CRITERIA**

- 3.4 Approved copies of documents are issued and records are updated in accordance with established procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) Essential Knowledge and Associated Skills (EKAS): This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of reviewing and implementing asset management strategies.

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

KS01-TDS47A Power system asset management strategies

Evidence shall show an understanding of reviewing power system asset management strategies to an extent indicated by the following aspects:

T1 Principles of safe design encompassing:

- Commonwealth/State/Territory legislation, standards, codes, supply authority regulations and or enterprise requirements associated with safe design principles
- Particular reference to state and territory regulations regarding: working near energised conductors, electrical access, heights, confined space, testing procedures and Licensing rules
- Application of safe design principles - safe design duty related information, safe design process related information and safe design evaluations

T2 Enterprise Specific Data Management Processes encompassing:

- Standards, codes, legislation, supply authority regulations and or enterprise requirements applicable to Data Management
- Requirements for the use of manuals, substation diagrams/plans and drawings
- Types of enterprise specific computer software
- Techniques in storing and retrieving data and reports from the computer
- Techniques in using the Data Management systems in following necessary commands and protocols in accordance with the Enterprise Specific Procedures
- Calculation of results and data measurements using the computer
- Techniques in the preparation of preliminary works creation and closure

T3 Effective management and communication encompassing:

- Commonwealth, State/Territory and local government legislation, Standards, codes, supply authority regulations and or enterprise requirements applicable to assisting in effective management and communication
- Enterprise operational principles encompassing: workplace OHS enterprise plan, environmental enterprise policies and procedures, industrial relations policies and procedures and Anti-discrimination policies and procedures
- Relationship between the management and employees - methods used to collate and distribute/disseminate information, responsibilities of each member of the work team, staff development activities and legislation requirements with regard to OHS training, methods of addressing barriers such as literacy and cultural

REQUIRED SKILLS AND KNOWLEDGE

differences and provisions relating to OHS issue resolution

- Techniques associated with organisational policies and procedures related to human resources - relevant awards and certified agreements, legislation impacting on people management and range of support services and expertise available
- Techniques in managing relationships - identifying problems methods of conflict resolution, methods of consultation, communication, negotiation and mentoring and strategies for positive feedback
- Techniques in leadership in achieving enterprise strategic and operational plans
- Techniques in managing relationships under stress - stress management

T4 Methodology used in writing enterprise specific management reports encompassing:

- Commonwealth, State/Territory and local government legislation, supply authority regulations Standards, codes, and or enterprise requirements applicable to the writing enterprise specific management reports
- Techniques in researching, collating and analysing information for the report - recording, filing, retrieving systems and storing and retrieving data from computer systems
- Relationship of management reports to enterprise policies and procedures - enterprise structure and resources, workplace OHS and risk management enterprise data, financial and operational data, environmental enterprise policies and procedures, industrial relations policies and procedures and Anti-discrimination policies and procedures

T5 Power distribution network documentation encompassing:

- Requirements for the use of manuals, system diagrams/plans and drawings and for plans such as work method statements for the control of OHS risks
- Types and application of power distribution network documentation drawings and documents - wiring and schematic diagrams, drawings and switching symbols, mechanical drawings dealing with the power distribution network, project charts, schedules, graphs, technical manuals and catalogues, instruction/worksheets sheets.
- Interpretation of different diagrams and documentation on LV and HV systems - overhead distribution extensions, underground distribution extensions, distribution substation, street lighting system.

T6 Layout principles for overhead distribution encompassing:

- Commonwealth, State/Territory and local government legislation, Standards, codes, supply authority regulations and or enterprise requirements applicable to overhead distribution layout
- Requirements for the use of overhead line construction manuals, system diagrams/plans and drawings and for plans such as work method statements for the control of OHS risks
- Methods in determining material, equipment and tool lists - components types and quantity required, spacing of components such as equipment, poles, cross-arms,

REQUIRED SKILLS AND KNOWLEDGE

costings of items and components.

- Purchasing and contractual arrangements to include a requirement to eliminate OHS hazards, minimise risks and provide residual OHS risk information
- Determination of conductor size, type and route length –
 - Resources needed for the stringing and maintenance of conductors
 - Types of low LV and HV overhead electrical conductor connections
 - Minimum clearances between overhead conductors and low LV and/HV structures
 - Estimation of the duration of overhead distribution extension project

Evidence Guide

EVIDENCE GUIDE

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

The Evidence Guide forms an integral part of this Competency Standard Unit and shall be used in conjunction with all component 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's 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 accord with Industry and, Regulatory policy in this regard.

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. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment.

Activities associated with normal every day 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 practiced. 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 shall be met.

Evidence for competence in this unit is based, shall be considered holistically. Each element and associated Performance Criteria shall be demonstrated on at least two occasions in accordance with the "Assessment Guidelines – UET12UET12". Evidence shall 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 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 essential knowledge and associated skills 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:

Range of tools/equipment/materials/procedures/workplaces/other variables		
Group No	The minimum number of items on which skill is to be demonstrated	Item List
A	Correct interpretation of three (3) existing maintenance strategies or policies that relate to electrical network components of the following types:	Lines Substation primary plant Substation secondary equipment Public lighting
B	Preparation of three (3) maintenance strategies or policies that relate to electrical network components of the following types:	Lines Substation primary plant Substation secondary equipment Public lighting
C	At least one occasion	Dealing with an unplanned event by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in the holistic assessment with the

		above listed items.
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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 review of asset management strategies

In addition to the resources listed above, in Context of and specific resources for assessment, evidence should show demonstrated competency working realistic environment and a variety of conditions.

Method of assessment **9.4)**

This Competency Standard 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 Competency Standard Unit applies. This requires that the specified essential knowledge and associated skills are assessed 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 associated skills described in this unit.

Concurrent assessment and relationship with other units **9.5)**

There are no recommended concurrent assessments with this unit, however in some cases efficiencies may be gained in terms of learning and assessment effort being concurrently managed.

Range Statement

RANGE STATEMENT

10) This relates to the unit of competency 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 Competency Standard Unit shall be demonstrated in relation to the review of asset management strategies and include specific enterprise tools, equipment, information data systems and other resources typical of a workplace.

The following constants and variables included in the element/Performance Criteria in this unit are fully described in the Definitions Section 1 of this volume and form an integral part of the Range Statement of this unit:

- Appropriate and relevant persons (see Personnel)
- Appropriate authorities
- Appropriate and relevant persons (see Personnel)
- Appropriate authorities
- Appropriate work platform.
- Assessing risk
- Assessment
- Authorisation
- Confined space
- Diagnostic, testing and restoration.
- Documenting detail work events, record keeping and or storage of information.
- Drawings and specifications
- Emergency
- Environmental and sustainable energy procedures
- Environmental legislation.
- Environmental management documentation.
- Established procedures.
- Fall prevention
- Hazards
- Identifying hazards
- Inspect
- Legislation
- MSDS
- Notification.
- OHS practices
- OHS issues
- Permits and / or permits to work

RANGE STATEMENT

- Personnel.
- Quality assurance systems.
- Requirements.
- Safe design principles
- Testing procedures
- Work clearance systems

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**
Design.