



Australian Government

Department of Education, Employment and Workplace Relations

UETTDREL15A Respond to power systems technical enquiries and requests

Release: 1

UETTDREL15A Respond to power systems technical enquiries and requests

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This Competency Standard Unit covers responding to enquiries of a technical nature using electricity supply industry (ESI) transmission, distribution and rail/tram network requirements, techniques and processes. It includes the relevant application of knowledge of relevant acts and regulations, codes of practice, guidelines and compliance regimes, and arrangements used to facilitate a response to enquiries or requests. The enquiries may be internal or with customers.

Note: examples include “storm codes” identification of key equipment, recognition of normal and abnormal industry situations, key processes and systems used in the industry such as, maps and the application of general safety and environmental processes and practices used in the industry.

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 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 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):

There are no prerequisite competencies to this unit.

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 3 Writing 3 Numeracy 3

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 Prepare to respond to technical enquiries and requests	1.1 Instructions related to responding to enquiries using industry requirements, techniques and processes of a technical nature to be performed are received and confirmed 1.2 Relevant requirements and established procedures to be followed and, relevant personnel (including internal and/or customer) to be communicated with for the work to be performed are identified 1.3 OHS policies and procedures to be followed for the work to be performed are received and confirmed. 1.4 Suggestions to assist in meeting the safety requirements for responding to technical enquiries and requests are made to others involved in the work. 1.5 Hazards are identified; OHS risks assessed and control measures are prioritised, implemented and monitored including emergency exits kept

ELEMENT**PERFORMANCE CRITERIA**

clear according to established procedures.

- | | |
|------|---|
| 1.6 | Scope of responsibility and process of relevant work permit(s) issue is identified, received and confirmed according to requirements and established procedures |
| 1.7 | Relevant responsibility associated with First Aid, Safety Observers and/or other related work safety procedures at the worksite are identified in accordance with requirements and established procedures to ensure safety measures are followed in the instance of an incident |
| 1.8 | Processes for identifying and reporting client (including internal and customer) issues to appropriate personnel in accordance with industry/acceptable /community standards are identified |
| 1.9 | Workplace and the work schedule is confirmed according to given instructions for a quality outcome and to minimise risk and damage to property, commerce, stock and individuals in accordance and established procedures |
| 1.10 | Electricity infrastructure assets, related voltages and requirements, where applicable, for working safely near live electrical apparatus as non-electrical worker are identified |
| 1.11 | Safe approach distances including any zones thereof that may apply, as defined in industry guidelines, requirements and/or established procedures for the intended work are confirmed |
| 2 | Carry out responses to technical enquiries and requests |
| 2.1 | OHS principles and practices to reduce the incidents of accidents are identified in accordance with given instructions, requirements and/or established procedures |
| 2.2 | Enquiries and/or requests are responded to according to requirements and established procedures, and in a timely manner |
| 2.3 | Working safely and complying with all safety requirements for responding to technical |

ELEMENT	PERFORMANCE CRITERIA
	enquiries and requests are followed in accordance with given instructions and established routines/procedures 2.4 Processes for monitoring and reporting/referring hazards and OHS risks to the immediate authorised personnel for directions according to established procedures are followed 2.5 Non-routine events are referred to the immediate authorised personnel for directions according to established procedures 2.6 Essential knowledge and associated skills are applied in the application of responding to technical enquiries and requests to ensure completion in an agreed timeframe and, to quality standards with a minimum of waste according to requirements 2.7 Unexpected events associated with enquiries and/or requests of a technical nature are responded to using acquired known solutions and skills related to routine procedures to ensure work instructions and established procedures are met.
3 Complete responses to technical enquiries and requests	3.1 Work schedule and anomalies for completion and checking of the work are reported to authorised personnel in accordance with established procedures 3.2 Processes for reporting to authorised personnel accidents and/or incidents are confirmed in accordance with established procedures 3.3 Requirements for returning work permit(s) and/or access authorisation permits, where applicable, are confirmed 3.4 Appropriate personnel are notified of work completion according to established procedures. 3.5 Works completion records, report forms/data sheets are completed accurately in accordance with given instructions and 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 of responding to technical enquiries and requests has been acquired.

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

KS01-TEL15A ESI power systems overview

Evidence shall show an understanding of ESI power systems structures and operations to an extent indicated by the following aspects:

T1 Engineering applications of material properties encompassing:

- Identification and classification of engineering materials including material properties
- Types and applications - properties of tensile strength, effects of temperature on the expansion of metals, ductibility, malleability, work hardening and annealing and the conditions that lead to corrosion and the properties of timbers

T2 Generation power systems encompassing:

- Methods of generating electricity - types of power stations and reasons for their location, layout of thermal and hydroelectric power stations
- Relationship between power control and load requirements - operating speeds for thermal and hydroelectric generating sets, typical generator voltage levels and output ratings
- The purpose and features of typical types of co-generation systems

T3 Transmission, distribution and rail power systems encompassing:

- Relationship between the transmission, distribution and rail/tram system within an overall power system - different organisations responsible for generation, transmission, distribution and rail/tram and, how they correlate and their functions
- Characteristics of a transmission, a distribution and a rail system - principal components, typical voltage levels and methods of transmission and distribution including grid type transmission systems, radial, parallel and ring main feeders
- Relationship between an overhead and underground supply systems within an overall power system - advantages/disadvantages, applications and the basic steps for planning and installing an overhead and underground distribution system
- Single line drawings and layouts - drawings and layouts of transmission and distribution systems including, radial, parallel and ring main feeders and the HV equipment associated with substations

T4 Fundamentals for working safely near live electrical apparatus encompassing:

- Standards, guidelines/codes of practice, State/Territory/local government legislation, supply authority regulations and or enterprise requirements including

REQUIRED SKILLS AND KNOWLEDGE

relevant certification and licensing, applicable to working safely up to the defined “safe working zone” near energised electrical apparatus (inc. electrical powerlines) for non-electrical worker

- Definitions of terminologies - ‘safe working zone’ ‘risk assessment’, ‘safe approach distances zones’, ‘safe working distances’.’ work permits’, access authorisation permits’, ‘Technical standards’ ‘isolation procedures’ and compliance requirements’
- OHS policies and procedures for working safely - emergency response and First Aid procedures such as CPR, roles and responsibilities of employers, employees and other parties under OHS legislation, personal protective equipment, identifying hazards, assessing and controlling OHS risks, first aid procedures, duties of a safety observer, working at heights/confined spaces, permit to work systems and isolation procedures, safe application of different types of tools and equipment
- Operation of mobile plant and machinery (e.g. EWP) near live electrical apparatus
- Electricity supply infrastructure assets and voltages
- Techniques and precautions in undertaking different work functions and working safely up to the defined “safe working zone” near energised electrical apparatus (inc. electrical powerlines) for non-electrical worker (work functions that may be performed include, vegetation control, scaffolding, rigging, painting, and/or any other activity that requires working safely near live electrical apparatus by a non-electrical worker)

T5 Enterprise specific — policy and procedure instructions encompassing:

- Responsibilities and duty of care of employer and employee relationship
- Methods of obtaining the up-to-date information on enterprise policy and procedures
- Rules and regulations
- Induction into workplace - location of work area and storage area, timetable, uniform, personal well-being, housekeeping rules, emergency procedures, evacuation procedures
- Techniques when deal with others - working in teams, customer relation, complaint and issues procedures.
- Overview of enterprise professional development - fire fighting procedures, fatigue management, training and competency development - understanding and promotion

T6 Enterprises specific — OHS instructions encompassing:

- Standards, codes, legislation, supply authority regulations and specific enterprise regulations pertaining to the OHS policies and procedures
- Methods of obtaining the up-to-date information on enterprise OHS policy and procedures
- Specific enterprise personal protection equipment - type and application, where and when to be used, method of replacement, responsibility of maintenance including cleaning inspection and testing, emergency response, rescue, evacuation

REQUIRED SKILLS AND KNOWLEDGE

and First Aid procedures

- Personal well-being – hygiene, fatigue/stress management, drugs/alcohol
- OHS training - induction training, specific hazard training, specific task or equipment training, emergency and evacuation training, training as part of broader programs such as equipment operation
- OHS records including audits, inspection reports, workplace health and environmental monitoring records, training and instruction records, manufacturers and suppliers information such as MSDSs, registers, maintenance reports, workers compensation and rehabilitation records and First Aid/medical records

T7 Enterprises specific — technical drawing and documents encompassing:

- Types and application of enterprise specific drawings and documents - electrical and electronic drawings, mechanical drawings, project charts, schedules, graphs, technical manuals and catalogues
- Instruction/worksheets sheets - types and application of enterprise specific symbols and diagrams
- Title box - description of parts and version control

KS02-TEL15A Energy sector technical enquiries and requests

Evidence shall show an understanding of energy sector technical enquiries and requests to an extent indicated by the following aspects:

T1 Basic network operating principles and parameters encompassing:

- Sources of electricity
- Basic principles of electricity, the three phase power system, electric shock and resuscitation, power system
- Aerial and underground voltage systems
- Low Voltage network systems
- High Voltage network systems
- Equipment used in a network system
- MEN system
- Hazards and risks in a network system - risk to life, property or commerce, fallen wires/equipment, fires,
- Voltage gradients - step potential, touch potential — (transferred earth potentials)

T2 Applicable legislation, regulations, standards, industry codes, industry guidelines, and policies encompassing:

- relevant sections of legislation used
- relevant sections of international or Australian standards used
- relevant sections of Industry codes used
- relevant sections of Industry guidelines used
- relevant sections of policies used
- relevant sections of advisory information used

REQUIRED SKILLS AND KNOWLEDGE

- T3 Incident event procedures
- T4 Incidents constituting an event
- T5 Incidence response procedures
- T6 General Hazard and risk assessment principles and procedures
- T7 Principles for conducting work-site Hazard Assessment checks,
- T8 Basic safety principles and hazard control measures
- T9 Key industry terms and performance indicators and measures used - SAIDI — System Average Interruption Duration Index, SAIFI - System Average Interruption Frequency Index, MAIFI — Momentary Average Interruption Frequency Index, CAIDI — Customer Average Interruption Duration Index; Network owners and operators
- T10 Critical industry codes used - include storm code emergencies
- T11 Key equipment used in the industry - industry-specific equipment, switchgear, transformers, aerial conductors, insulators, poles, mobile plant, mobile equipment
- T12 Normal and abnormal industry situations, key processes and systems used in the industry - anomalies report, critical system/network failures/anomalies and key processes and systems used in the industry e.g. maps, drawings, as well as safety and environment processes and practices, communications systems; fires; automatic switching; emergencies; security breaches
- T13 Techniques and processes for responding to a technical enquiry or request in accordance with established procedures in a timely manner - ethical performance; assessing applications, enquiries, or requests; using technology and media including catalogues to assist assessments; client quality service; reflecting on the completed enquiry or request
- T14 Enquiries may be internal or with customers encompassing:
- customer protocols
 - legal requirements and obligations for property access
- T15 Relevant heritage and environmental requirements

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the competency standard unit and must be read in conjunction with the Performance Criteria and the range statement of the competency standard unit 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 shall be considered holistically. Each element and associated Performance Criteria shall be demonstrated on at least two occasions in accordance with the “Assessment Guidelines – UET12”. 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	Item List

	demonstrated	
A	All of the following:	- Confirmation of the “safe working zone” for Safe work and access near live Electrical and Mechanical Apparatus - Application of knowledge of relevant acts and regulations, codes of practice, guidelines and compliance regimes, and arrangements used - Identification of established (Enterprise) procedures and processes
B	All of the following:	- Confirmation of the principles of electricity, the three phase power system, electric shock and resuscitation, power system - Recognition of aerial voltage systems - Identification of Low Voltage Networks - Identification of High Voltage Networks
C	All of the following:	- Procedures in the event of an incident - Events constituting an incident - Procedures for responding to incidents - Hazard and risk assessment general principles and procedures - Principles for

		conducting work-site Hazard Assessment checks, basic safety principles and hazard control measures
D	All of the following:	- Purpose and use of work permits and/or authorisation permits - Sustainable energy principles and practices - Possible affects of weather conditions on working near electrical apparatus as a non-electrical worker
E	All of the following:	- Knowledge of critical codes in the industry – e.g. storm code emergencies - Identification of key equipment used in the industry - Recognition of normal and abnormal industry situations
F	All of the following:	- Provision of a response to a technical enquiry or request in accordance with established procedures and timely manner
G	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.

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 safely undertake actual work near live electrical apparatus

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)

For optimisation of training and assessment effort, competence in this unit is not recommended to be assessed concurrently with any other 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.

This competency standard unit shall be demonstrated in relation to safe working so defined by relevant State or Territory regulatory agencies/bodies, local government legislation, Industry bi-partite body – Guidelines/Codes of Practices or other related requirements for responding to technical enquires and requests.

Work functions may include the application of knowledge of electricity supply industry (ESI) transmission, distribution or rail/tram network requirements, techniques and processes and the application of knowledge of relevant acts and regulations, codes of practice, guidelines and compliance regimes, and arrangements used to facilitate a response to enquiries or requests. Examples include knowledge of critical codes in the industry – e.g. storm code emergencies, identification of key equipment, recognition of normal and abnormal industry situations, key processes and systems used in the industry such as, maps, catalogues, and the application of general safety and environmental processes and practices used in the industry.

Knowledge and identification of key equipment used in industry. Questioning (customer information gathering techniques) including observance of equipment, identification of anomalies from the norm and reporting of information. Recognition of normal and abnormal industry situations may include equipment, performance indicators, anomalies report, knowledge of critical system/network failures/anomalies and knowledge of key processes and systems used in the industry e.g. maps, drawings etc., and safety and environment processes and practices used in the industry.

Note:

Examples performance indicators are - SAIDI - System Average Interruption Duration Index, SAIFI - System Average Interruption Frequency Index, MAIFI - Momentary Average Interruption Frequency Index, CAIDI - Customer Average Interruption Duration Index

Enquiries may be internal or with customers.

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
- Appropriate authorities
- Assessing risk
- Authorisation
- Drawings and specifications
- Emergency
- Established procedures.

RANGE STATEMENT

- Hazards
- Identifying hazards
- Legislation
- Internal and external customers
- Notification.
- OHS practices
- OHS issues
- Permits and/or permits to work
- Work clearance systems.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Entry Level – Cross Discipline Units