



Australian Government

UEPOPS075 Operate and monitor a.c. electrical systems

Release: 1

UEPOPS075 Operate and monitor a.c. electrical systems

Modification History

Release 1. This is the first release of this unit of competency in the UEP Electricity Supply Industry - Generation Sector Training Package Release 2.0.

Application

This unit involves the skills and knowledge required to operate and monitor the local and remote operation of alternating current (a.c.) electrical systems, including switchgears, switchboards, distribution systems and transformers.

The main function of electrical systems in power generating facilities is to distribute electrical power to system components and to provide electrical protection for power sources and for the components.

Competency in this unit requires the ability to plan switching operations work; carry out operation of switchgear and switchboards; test switchgears and equipment operation; analyse a.c. electrical system, switchgear and equipment faults; inspect and monitor a.c. electrical system and switchboards and the complete all documentation. Individuals will, in general, work under supervision, in a power generation facility as an operator.

Power generation plant operators are trained and authorised to isolate, prepare plant and issue permits to work.

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

Pre-requisite Unit

There are no prerequisite units

Competency Field

Operations

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Plan and prepare for switching operations

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, environmental requirements and workplace procedures are identified, applied and monitored
- 1.2** Work requirements are identified from relevant personnel and documentation in accordance with workplace procedures
- 1.3** Documentation to determine a.c. electrical system plant status is assessed and evaluated in accordance with workplace procedures
- 1.4** Equipment inspections, preoperational checks and preparations for a.c. electrical system service are carried out in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 1.5** Switchboard and electrical equipment operational prerequisites and switching sequences are established in accordance with manufacturers' recommendations and specifications, and workplace procedures

2 Carry out operation of switchgear and switchboards

- 2.1** Operation of switchgear is carried out in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 2.2** Isolation, removal and reinstatement of switchgear, switchboards and rectification system is carried out, in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 2.3** Paralleling and balancing requirements are assessed to meet a.c. electrical system stability in accordance with workplace procedures
- 2.4** Rectification system is operated, isolated and reinstated in accordance with manufacturers' recommendations and specifications, and workplace procedures

3 Test switchgear and equipment operation

- 3.1** Operational tests are performed in accordance with workplace procedures
- 3.2** Switchgear and equipment are observed for correct operational response in accordance with workplace

		procedures
	3.3	Switchgear equipment is returned to required operational status upon completion of testing in accordance with workplace procedures
4 Analyse a.c. electrical system, switchgear and equipment faults	4.1	Causes of abnormal a.c. electrical system and switchgear operating conditions are identified by analysing technical and operational information in accordance with workplace procedures
	4.2	a.c. electrical system and switchgear plant integrity and personnel safety are maintained in consultation with relevant personnel, technical and operational documentation in accordance with workplace procedures
5 Inspect and monitor a.c. electrical system and switchboards	5.1	a.c. electrical system and switchgear is monitored and inspected for normal operation and to detect deviations in accordance with workplace procedures
	5.2	Relevant personnel are notified when a.c. electrical system defects and abnormal operating conditions are detected in accordance with workplace procedures
6 Complete documentation	6.1	a.c. electrical system equipment problems and status are reported in accordance with workplace procedures
	6.2	Documentation is updated 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 UEP Electricity Supply Industry - Generation Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS405 Operate and monitor a.c. electrical systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

Assessment Requirements for UEPOPS075 Operate and monitor a.c. electrical systems

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least two separate occasions and include:

- analysing equipment, alternating current (a.c.) electrical system and protection faults using data analysis techniques and tools
- applying work health and safety (WHS)/occupational health and safety (OHS) requirements, including:
 - emergency procedures
 - risk control measures
 - safe working practices
- communicating with personnel
- completing documentation using recording procedures
- conducting switching operations
- identifying a.c. electrical system plant status
- implementing regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- interpreting manuals
- monitoring and inspecting equipment, a.c. electrical system and protection operation
- operating switchgear and equipment
- organising resources
- preparing a.c. electrical system plant and equipment for operation
- recognising and responding to abnormal a.c. electrical system plant operating conditions
- testing a.c. electrical system plant operationally using diagnostic and test techniques
- working with permit to work system.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- a.c. electrical system plant and equipment, location and operating parameters
- a.c. electrical system plant status

- arrangements of power production plant
- manuals
- permit to work system
- regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- switchgear - operation, isolation and earthing
- switching practices and procedures
- WHS/OHS requirements, including:
 - emergency procedures
 - risk control measures
 - safe working practices
- workplace documentation
- 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 workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in 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.

Links

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