



Australian Government

UEPOPS030 Coordinate power generation

Release: 1

UEPOPS030 Coordinate power generation

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 coordinate the operation and control of multiple power generators sharing load under the control of one operator.

Operators are responsible for starting and stopping power generators. Depending on need, this includes synchronising and adjusting voltage output, troubleshooting, fixing problems and responding to emergencies.

Competency in this unit requires the ability to plan for power generating plant operations, operate power generator and excitation system, control generation of electrical energy, coordinate generation control, monitor system and power generating plant and the completion of all documentation. Individuals will, in general, work as an operator with responsibility for coordinating power generation, in a power generation facility.

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 outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Plan for plant operation

- 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 and resource requirements are identified from relevant personnel and documentation in accordance with workplace procedures
- 1.3** Preoperational checks of power generation plant operations are carried out in accordance with workplace procedures

2 Operate generator and excitation system

- 2.1** Generator and excitation system are operated in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 2.2** Synchronising requirements are assessed and evaluated to ensure generator and excitation system stability in accordance with workplace procedures
- 2.3** Generator and excitation system are monitored and observed to detect deviations from normal operating conditions in accordance with workplace procedures
- 2.4** Corrective actions are taken to rectify generator and excitation system abnormalities in accordance with manufacturers' recommendations and specifications, and workplace procedures

3 Control generation of electrical energy

- 3.1** Power generator output is adjusted to meet electricity demand in accordance with operating requirements and workplace procedures

- 3.2** Reactive power generation and voltage regulation requirements are assessed, and excitation system is controlled to achieve output in accordance with workplace procedures
 - 3.3** Generator stabilities and operating limits are assessed, and excitation system is controlled to maintain limits in accordance with manufacturers' recommendations and specifications, and workplace procedures
 - 3.4** Generator cooling systems and limits are monitored and assessed, and excitation system is controlled to maintain limits in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 4 Coordinate generation control**
 - 4.1** Load sharing between multiple generators is controlled to maintain efficiency and power generating plant reliability in accordance with workplace procedures
 - 4.2** Output of generators is adjusted to meet electricity demand in accordance with manufacturers' recommendations and specifications, and workplace procedures
 - 4.3** Generator, excitation system and power generating plant key indicators are monitored and adjusted to maintain limits and detect deviations from normal operating conditions in accordance with manufacturers' recommendations and specifications, and workplace procedures
 - 4.4** Generator and excitation system integrity and continuity of supply are maintained in accordance with manufacturers' recommendations and specifications, and workplace procedures
 - 4.5** Consultation with relevant personnel is undertaken in accordance with workplace procedures

- 4.6** Generator and excitation system are operated efficiently in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 5 Monitor system and plant**
- 5.1** Generator and excitation system or power generating plant to be monitored are physically identified in accordance with workplace procedures
- 5.2** Generator and excitation system or power generating plant are monitored for normal operation and to detect deviations in accordance with workplace procedures
- 5.3** Relevant personnel are notified when defects and abnormal operating conditions are detected in accordance with workplace procedures
- 6 Analyse system and plant faults**
- 6.1** Causes of abnormal generator and excitation system operating conditions are identified by analysing technical and operational information in accordance with workplace procedures
- 6.2** Generator and excitation system or power generating plant integrity are maintained in consultation with relevant personnel and reference to technical and operational documentation in accordance with workplace procedures
- 6.3** Relevant personnel, including specialists, are arranged for investigation of identified operational abnormalities in accordance with workplace procedures
- 7 Complete documentation**
- 7.1** Power generation plant problems, movements and status are reported in accordance with workplace procedures
- 7.2** 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 UEPOPS515 Coordinate power generation.

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 UEPOPS030 Coordinate power generation

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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 generator and excitation system and power generation plant 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
- controlling and coordinating power generation of electrical energy
- coordinating power generation control
- coordinating operation of equipment to maintain power generation plant integrity and continuity of supply, including:
 - clarifying power generation plant status
 - determining relevant corrective actions
 - maintaining power generator unit integrity
 - recognising abnormal plant operating conditions
- implementing regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- interpreting manuals
- interpreting remote indication of power generation plant status and condition
- monitoring generator and excitation system and power generation plant
- operating generator and excitation system
- planning for one operator isolated power generation plant operations.

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:

- analysis of system faults arrangements of power production plant
- coordination of power generation, including one operator isolated power generation plant operations
- generator excitation and cooling systems, types and characteristics
- identification of power generation plant status
- manuals
- operation of generator and excitation system
- regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- power generation plant and equipment, location and operating parameters
- power generation plant process control systems, system components and interactions
- 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.

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