



Australian Government

UEPOPS515 Coordinate power generation

Release: 1

UEPOPS515 Coordinate power generation

Modification History

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

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/or 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 typically 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.

Note: Workplace practice

The application of the skills and knowledge described in this unit may require a licence or training permit to practice in the workplace where work is carried out on gas and electrical installations. Additional conditions may apply under state and territory legislative and regulatory licensing requirements.

Pre-requisite Unit

There are no prerequisite units.

Competency Field

Operations

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Plan for plant operation

- 1.1** Power generating safety issues are identified, in accordance with workplace procedures and Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) legislation
- 1.2** Work, power generation plant and resource requirements are identified, in accordance with workplace procedures, from relevant information and documentation
- 1.3** Preoperational checks of power generation plant operations are carried out, in accordance with workplace procedures and site requirements

2 Operate generator and excitation system

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

3 Control generation of electrical energy

- 3.1** Power generator output is adjusted, in accordance with workplace procedures, to meet electricity demand whilst observing operating requirements
- 3.2** Reactive power generation and voltage regulation requirements are assessed and the generator and excitation system is controlled to achieve desired output, in accordance with workplace procedures
- 3.3** Generator stabilities and operating limits are assessed and the generator and excitation system is controlled to maintain those limits, in accordance with workplace

- procedures and manufacturers' recommendations
- 3.4** Generator cooling systems and limits are monitored and assessed, and the excitation system is controlled to maintain those limits, in accordance with workplace procedures and manufacturers' recommendations
- 4 Coordinate generation control**
- 4.1** Load sharing between multiple generators is controlled, in accordance with workplace procedures, to maintain optimum efficiency and power generating plant reliability
- 4.2** Output of generators is adjusted to meet electricity demand whilst observing operating requirements, in accordance with workplace procedures
- 4.3** Generator and excitation system and power generating plant key indicators are monitored and adjusted, in accordance with workplace procedures, to maintain limits and detect deviations from normal operating conditions
- 4.4** Corrective actions are taken to rectify generator and excitation system abnormalities, in accordance with manufacturers' recommendations and workplace procedures
- 4.5** Generator and excitation system integrity and continuity of supply are maintained, in accordance with workplace procedures
- 4.6** Consultation with appropriate personnel is undertaken, in accordance with workplace procedures
- 4.7** Generator and excitation system is operated at optimum efficiency, in accordance with workplace procedures
- 5 Monitor system and plant**
- 5.1** Generator and excitation system or power generating plant to be monitored is physically identified, in accordance with workplace procedures
- 5.2** Generator and excitation system or power generating plant is monitored, in accordance with workplace procedures, for normal operation or to detect deviations
- 5.3** Corrective actions are taken, in accordance with workplace procedures
- 5.4** Appropriate personnel are notified, in accordance with workplace procedures, when defects and abnormal

- operating conditions are detected
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| 6 Analyse system and plant faults | 6.1 | Causes of abnormal generator and excitation system operating conditions are identified, in accordance with workplace procedures, by analysing technical and operational information |
| | 6.2 | Corrective actions to rectify faults are determined, in accordance with workplace procedures |
| | 6.3 | Generator and excitation system or power generating plant integrity is maintained, in accordance with workplace procedures, through consultation with appropriate personnel and reference to technical and operational documentation |
| | 6.4 | Appropriate 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 Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS515B 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 UEPOPS515 Coordinate power generation

Modification History

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Performance Evidence

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

- 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 appropriate corrective actions
 - maintaining power generator unit integrity
 - recognising abnormal plant operating conditions
- interpreting manufacturers' specifications and 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, performance criteria and range of conditions and includes knowledge of:

- analysis of system faults typical 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 types
- identification of power generation plant status
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- operation of generator and excitation system
- power generation plant and equipment, its location and operating parameters
- power generation plant process control systems, system components and interactions
- WHS/OHS legislated requirements including:
 - emergency procedures
 - risk control measures
 - safe working practices
- workplace documentation
- workplace policies and procedures

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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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.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

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 currently used in industry
- applicable documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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