



Australian Government

UEPOPS457 Control electrical energy production

Release: 1

UEPOPS457 Control electrical energy production

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 control the safe operation of energy production to meet demand on an electricity generating unit.

Generating units usually operate independently, with most power generation production facilities consisting of several independent generating units which can be brought online or taken offline as demand fluctuates.

Competency in this unit requires the ability to plan for power generating plant operation, operate generator and excitation system, control generation of electrical energy and the completion of work. Individuals will, in general, work as an operator, 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 Safety issues related to controlling electrical energy production are identified, in accordance with Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations, legislative requirements, industry standards and workplace procedures
- 1.2 Work, electrical energy production plant and resourcing are identified, in accordance with workplace procedures, from relevant information and documentation
- 1.3 Preoperational check on electrical energy production plant is 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, evaluated and achieved, 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 workplace procedures and manufacturers' recommendations

3 Control generation of electrical energy

- 3.1 Generator output is adjusted to meet demand, in accordance with workplace procedures
- 3.2 Reactive power generation and voltage regulation requirements are assessed, in accordance with workplace procedures, and the generator and excitation system is controlled to achieve desired output
- 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 generator and excitation system is controlled to maintain those limits, in accordance with workplace procedures and manufacturers' recommendations
- 4 Complete documentation**
- 4.1** Power generating plant problems, movements and status is reported, in accordance with workplace procedures
- 4.2** 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 UEPOPS457A Control electrical energy production.

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 UEPOPS457 Control electrical energy production

Modification History

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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, performance criteria and range of conditions on at least two separate occasions and includes:

- analysing electrical energy production plant faults using diagnostic and testing techniques
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - emergency procedures
 - risk control measures
 - safe working practices
- completing documentation
- controlling generation of electrical energy production
- directing the operation of interacting systems, electrical energy production plant and equipment
- identifying electrical energy production plant status
- implementing legislation, industry standards, codes of practice and regulations
- interpreting manufacturers' specifications and manuals
- maintaining generator unit integrity
- monitoring electrical energy production unit operations
- operating generator and excitation system
- organising resources
- planning for electrical energy production plant operation
- reviewing electrical energy production plant operation using data analysis techniques and tools
- undertaking corrective actions

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 electrical energy production plant faults

- control of electrical energy generation production
- electrical energy production plant and equipment, its location and operating parameters
- electrical energy production plant operation monitoring
- electrical energy production unit operations
- generator and system stability including system components and interactions
- generator excitation and cooling system types and characteristics
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- operation of generator and excitation systems
- typical arrangements of power generating production plant
- 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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