



Australian Government

PPMEPG201 Monitor and control power generation systems

Release: 1

PPMEPG201 Monitor and control power generation systems

Modification History

Release	Comments
Release 1	This version released with PPM Pulp and Paper Manufacturing Training Package Version 3.0.

Application

This unit of competency describes the skills and knowledge required to monitor and control power generation systems that are steam generated and produce power output of less than 500kW or use gas fired turbines that produce power greater than 500kW, and record and report operating data.

The unit applies to production support operators who assist in power generation operations, undertaking routine work in monitoring, identifying and solving predictable problems that occur with integrated equipment and continuous operations.

No licensing, legislative or certification requirements apply to this unit at the time of publication. This unit should not be used where the turbine equipment falls under the category for which a high risk work licence is required. Users are advised to check with the relevant regulatory authority for appropriate unit and licensing requirements.

Pre-requisite Unit

Nil

Unit Sector

Electrical Power Generation (EPG)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to monitor power generation operations	1.1 Check production requirements at start of shift and plan work activities according to workplace health and safety and standard operating procedures 1.2 Identify health and safety hazards and report safety concerns

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.3 Select and fit personal protective equipment according to safety requirements 1.4 Confirm power generation processes are within operational specifications by observation and inspection 1.5 Maintain process supplies to meet production requirements 1.6 Record turbine operational performance according to workplace requirements 1.7 Communicate operational status to relevant personnel
2. Undertake routine monitoring and control of power generation operations	2.1 Confirm operational status by inspection and routine observation 2.2 Monitor and maintain continuing process supplies to meet production requirements 2.3 Measure turbine pressures, temperatures and flows according to operating procedures and manufacturer specifications 2.4 Adjust turbine and generation controls to maintain operation within specifications 2.5 Monitor and maintain power output demand and distribution system to meet production requirements
3. Record power generation performance and handover operations	3.1 Record power generation processes and pressures, temperatures and flows data according to workplace requirements 3.2 Record and report maintenance requirements 3.3 Brief incoming operators on status of power generations operations and equipment according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Interpret information in workplace procedures and maintenance schedules
Writing	Complete accurate basic records in the required format

Skill	Description
Oral communication	• Provide information about boiler operations using clear language and industry terminology
Numeracy	• Interpret power generation data and basic numerical settings on instruments and gauges involving pressures, flows and temperatures • Record basic numerical data for power generation performance

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
PPMEPG201 Monitor and control power generation systems	PPMEPG210 Monitor and control power generation system	Minor unit title change Changes to elements, performance criteria, foundation skills, performance evidence and knowledge evidence Assessment conditions updated	Not equivalent

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=12998f8d-d0ac-40bc-a69e-72a600d4fd93>

Assessment Requirements for PPMEPG201 Monitor and control power generation systems

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has undertaken routine monitoring and control of a power generation system for at least two operational intervals, including for each interval:

- completed checks and measures throughout the process and responded appropriately to variations from specifications
- completed accurate records for system operation and equipment faults
- communicated clear information on power generation operation status for handover.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- workplace health and safety requirements and procedures for power generation operations
- permits and licensing requirements for facility hazards and high risk plant and equipment relevant to power generation operations
- workplace environmental sustainability requirements and practices for power generation operations, including workplace biotechnological applications and processes
- characteristics and dangers of heat and energy generated by power generation systems
- purpose, features and operation of power generation and distribution systems, operating parameters and allowable variations, including:
 - electrical isolation procedures
 - principles of operation of transformers and circuit protection systems
 - AC/DC generation principles
 - electrical output control and regulation principles
 - power factor characteristics and effects
 - effect of steam quality on turbine operation

- operation and application of electronic and other control systems to control power generation operations
- data used to monitor power generation system performance, including:
 - heat levels
 - pressure levels
 - energy generation levels
 - heat build-up
 - system overload information
 - test outcomes for fuel
 - past performance records
- standard operating procedures specific to power generation operations
- procedures for communicating, recording and reporting for boiler operations, processes and faults.

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a manufacturing facility or an environment that accurately reflects performance in a workplace
- resources, equipment and materials:
 - power generation system that is either steam generated and produces power output of less than 500kW or uses gas fired turbine that produces power greater than 500kW
 - high and low voltage transformers
 - steam or gas turbine driven alternators
 - switchboards
 - water systems and auxiliary plant
 - circuit breaker
 - AC/DC generation and distribution systems
 - analogue and digital instrumentation
 - chemicals and other process supplies
 - electronic control systems, including digital control system, touch screens or robotics required to control power generation operations
 - personal protective equipment required for operating a power generation system
 - proforma or recording system for recording data and information on power generation operations
- specifications:
 - workplace and standard operating procedures relating to power generation operations, including health and safety, risks and hazards identification, plant isolation, quality, housekeeping and environmental requirements
- relationships:

- relevant personnel for the purposes of communicating information.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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