



Australian Government

Department of Education, Employment and Workplace Relations

UEPOPS422A Schedule Generation

Release: 1

UEPOPS422A Schedule Generation

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

1)

This unit deals with the skills and knowledge required to undertake the scheduling of a generation plant to economically meet forecast demand.

Application of the Unit

Application of the Unit

3)

This unit is intended to augment formally acquired competencies. It is suitable for employment-based programs under an approved contract of training.

License to practise

3.1)

The skills and knowledge described in this unit do not require a licence to practise in the workplace. However, practice in this unit is subject to regulations directly related to Occupational Health and Safety and where applicable contracts of training such as apprenticeships and the like.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite Unit(s) 2)

Competencies 2.1)

There are no prerequisite units.

Employability Skills Information

Refer to the Evidence Guide

Elements and Performance Criteria Pre-Content

5) Elements describe the essential outcomes of a unit of competency

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

1 Forecast load profile	1.1	Comprehensive information on all variables which have the potential to affect demand is obtained and employed to enable a realistic forecast
	1.2	Information integrity is confirmed and recorded, and deficiencies are detected and rectified
	1.3	Forecast prediction is based on the interpretation and analysis of relevant information
	1.4	Forecast outcomes are produced in a time frame that enables system security and economic operation criteria to be maintained
	1.5	Forecast prediction is continuously assessed against real time trends and adjustments made where applicable

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| 1 | Forecast load profile | 1.1 | Comprehensive information on all variables which have the potential to affect demand is obtained and employed to enable a realistic forecast |
| | | 1.6 | Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training |
| 2 | Identify unit availability and capability | 2.1 | Unit status information is sought with sufficient regularity to maintain the integrity of scheduling plans |
| | | 2.2 | Information integrity is confirmed and deficiencies are detected and rectified |
| | | 2.3 | Information is processed and recorded in a time frame that enables effective scheduling |
| | | 2.4 | Comprehensive information on all factors which have the potential to affect the unit status is obtained |
| | | 2.5 | Effective relationships are cultivated and maintained with remote/independent power generators |
| 3 | Prepare generation unit schedules | 3.1 | Base load generation is scheduled in accordance with contractual obligations and enterprise procedures |
| | | 3.2 | Peak load generation is scheduled to meet system demand and maintain adequate spinning reserve capability |
| | | 3.3 | Units are operated in economic merit within the framework of the enterprise fuel strategies |
| | | 3.4 | Megawatts and megavar spinning reserve criteria are met at all times in accordance with local instructions |
| | | 3.5 | System security criteria are met at all times in accordance with enterprise procedures |
| | | 3.6 | Quality of supply standards are met at all times in accordance with statutory requirements |

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| 1 | Forecast load profile | 1.1 | Comprehensive information on all variables which have the potential to affect demand is obtained and employed to enable a realistic forecast |
| | | 3.7 | Plant maintenance commitments are incorporated in setting priorities for committing units |
| | | 3.8 | Schedule is produced with sufficient lead time to allow effective plant movements to occur |
| | | 3.9 | Power station plant problems are accurately assessed in terms of impact on unit commitment and scheduling requirements |
| | | 3.10 | Plant testing commitments are incorporated in setting priorities for committing units |
| 4 | Implement generation unit schedules | 4.1 | Circumstances resulting in unexpected changes to demand are identified and managed in accordance with system requirements |
| | | 4.2 | Transmission system losses are identified and minimised in accordance with system procedures |
| | | 4.3 | Transmission and generation system status changes are identified and accommodate in accordance with system procedures |
| | | 4.4 | Fuel supply status changes are identified and accommodated in accordance with system procedures |
| | | 4.5 | Generation outputs are monitored in accordance with system procedures |
| | | 4.6 | Power station plant problems are assessed in terms of impact on unit commitment and scheduling requirements in accordance with system procedures |
| | | 4.7 | System fault levels and transmission plant load levels are identified and not exceeded in accordance with system procedures |
| | | 4.8 | Scheduling of units is timed to optimise system efficiency in accordance with system procedures |

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| 1 | Forecast load profile | 1.1 | Comprehensive information on all variables which have the potential to affect demand is obtained and employed to enable a realistic forecast |
| | | 4.9 | Scheduling information is recorded and communicated to all stakeholders in accordance with system procedures |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

6) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired scheduling generation.

The extent of the Essential Knowledge and Associated Skills required follows:

Evidence shall show that knowledge has been acquired for safe working practices of:

- Relevant OHS regulations
- Relevant statutory legislation
- Relevant enterprise/site safety procedures
- Enterprise/site emergency procedures and techniques
- Plant status
- Plant operating parameters
- Enterprise recording procedures
- Systems operating instructions
- Relationships that weather, social and industrial variables have on system demand
- Economic operating criteria including fuel strategies
- Communication principles
- Computers and software

Specific skills needed to achieve the Performance Criteria:

- Apply relevant Occupational Health and Safety regulations
- Apply relevant statutory legislation

REQUIRED SKILLS AND KNOWLEDGE

- Apply relevant enterprise/site safety procedures
 - Apply enterprise/site emergency procedures and techniques
 - Apply enterprise recording procedures
 - Schedule plant within design parameters to meet demand
 - Identify plant status
 - Communicate effectively
 - Apply data analysis techniques and tools
 - Plan and prioritise work
 - Coordinate the scheduling of generating units to maintain optimum system efficiency
 - Apply appropriate diagrams and symbols
 - Operate screen based equipment.
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Evidence Guide

EVIDENCE GUIDE

8) This provides essential advice for assessment of the competency standard unit and must be read in conjunction with the Performance Criteria and the Range Statement of the unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this competency standard unit and shall be used in conjunction with all components parts of this unit and, performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

8.1)

Longitude competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accord with Industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment.

Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an

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assessment method and developing assessment instruments. Sample assessment instruments are included in the Assessment Guidelines of this Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

8.2)

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated Performance Criteria shall be demonstrated on at least two occasions in accordance with the "Assessment Guidelines - UEP06". Evidence shall also comprise:

- A representative body of Performance Criteria demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:

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- Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the Performance Criteria and Range Statement
- Apply sustainable energy principles and practices as specified in the Performance Criteria and Range Statement
- Demonstrate an understanding of the essential knowledge and associated skills as described in 6) Essential Knowledge and Associated Skills of this unit
- Demonstrate an appropriate level of skills enabling employment
- Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedure
- Demonstrated performance across a representative range of contexts from the prescribed items below:
 - The knowledge and application of relevant sections of: Occupational Health and Safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures
 - Forecasting load profiles
 - Identifying unit status
 - Preparing generation schedules
 - Implementing generation schedules
 - Operating and loading characteristics of generation plant
 - Dealing with an unplanned event by drawing on essential knowledge and skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items.

Context of and specific resources for assessment

8.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.

Competency Standards should be assessed in the workplace or

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simulated workplace and under the normal range of workplace conditions.

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work.

In addition to the resources listed above in Context of assessment', evidence should show competency working in limited spaces with different types of plant and equipment as well as different structural/construction types and methods and in a variety of environments.

Method of assessment

8.4)

This unit shall be assessed by methods given in Volume 1, Part 3 "Assessment Guidelines".

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires that the specified essential knowledge and associated skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent assessment and relationship with other units

8.5)

There are no recommended concurrent assessments with this unit, however in some cases efficiencies may be gained in terms of learning and assessment effort being concurrently managed with allied competency standard units where listed.

Nil

Key competencies

8.6)

Evidence that particular key competencies have been achieved within this unit is in the context of the following Performance Criteria of evidence. See Volume 2, Part 4 for an explanation of Key competencies and levels of this Training Package.

Key competencies	Example of Application	Performance Level
How are ideas and information communicated	Refer to the following example of application: Explain ideas and actions, make suggestions for alternative actions and deal with contingencies	2

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within this competency?	and non-routine situations.	
How can information be collected, analysed and organised?	Refer to the following example of application: Information with regard to operations, faults and maintenance may be observed and monitored for analysis and organised into records and reports.	2
How are activities planned and organised?	Refer to the following example of application: Planning the required activity, to include co-ordination and use of equipment, materials and tools to avoid backtracking and rework.	2
How is team work used within this competency?	Refer to the following example of application: Coordinate activities of the team and provide appropriate support to other team members in completion of work tasks to meet the team's goals.	2
How are mathematical ideas and techniques used?	Refer to the following example of application: Calculation of time to complete routine projects, operations, tasks, estimation of distances, levels, loads and material requirements.	2
How are problem solving skills applied?	Refer to the following example of application: Determine solutions which focus on long and short-term resolution of work task problems.	2
How is use of technology applied?	Refer to the following example of application: Access, communicate, measure and provide information to monitor operations and performance of plant and equipment.	2

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Skills Enabling Employment

8.7)

Evidence that competency in this unit incorporates skills enabling employment is in the context of the following performance. See Volume 2, Part 5 for definitions and an explanation of skills enabling employment.

Skills for Employment		Example of Application
1	Developing and using skills within a real workplace	Refer to the following example of application: Completion of tasks within an acceptable timeframe and performance with some supervision.
2	Learning to learn in the workplace	Refer to the following example of application: Comprehension and application of theoretical knowledge to well-developed skills.
3	Reflecting on the outcome and process of work task	Refer to the following example of application: Focused on improvement in own and other team member's performance in the workplace.
4	Interacting and understanding of the context of the work task	Refer to the following example of application: Working understanding of the processes and systems which apply to the workplace.
5	Planning and organising the meaningful work task	Refer to the following example of application: Achieving work tasks in a timely manner and ensuring that the work team achieves its stated work goals.
6	Performing the work task in non-routine or contingent situations	Refer to the following example of application: Seek advice and apply solutions to problems relevant to the workplace environment.

Range Statement

RANGE STATEMENT

7) This relates to the competency standard unit as a whole, providing the range of contexts and conditions to which the Performance Criteria apply. It allows for different work environments and situations that will affect performance.

Stations/generation plant may include main power station, remotely controlled power station, independent power producers, single and multiple generating sets and interconnected/isolated power systems.

Safety standards may include relevant sections of Occupational Health and Safety legislation, relevant State and federal legislation, national standards for plant and enterprise safety rules.

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; enterprise operating instructions; dedicated computer equipment; enterprise/site standing and operating instructions; enterprise log books; manufacturer's operation and maintenance manuals; and equipment and alarm manuals.

Technical and operational indicators may include local indicators and recorders and computers.

Communications may be by means of telephone, two way radio, pager, computers (electronic mail) and operating logs (written or verbal).

Appropriate personnel for consultation, give or receive direction may include supervisor/team leader or equivalent, power plant operations personnel or equivalent, technical and engineering officers or equivalent, maintenance staff, other operating staff or equivalent, system controller/network controller, field operator, independent generators and fuel suppliers.

Strategies and resources may include fuel, quality of supply, contract and commitments.

Generic terms are used throughout this Training Package for vocational standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms are given in Volume 2, Part 1.

Unit Sector(s)

Not Applicable

Literacy and numeracy skills

Literacy and numeracy skills 2.2)

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 Literacy and Numeracy

Reading 4 Writing 4 Numeracy 4

Competency Field

Competency Field 4)

Operations