



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FDFTEC5002A Manage utilities and energy for a production process**

**Revision Number: 1**

## FDFTEC5002A Manage utilities and energy for a production process

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit of competency covers the skills and knowledge required to monitor, conserve and control costs of utility and energy supply to a production process.
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### Application of the Unit

<b>Application of the unit</b>	Responsibility for selecting suppliers and negotiating contracts will differ between workplaces. The purpose of this unit is to address the skills and knowledge required to assess requirements, identify suppliers with appropriate capacity, compare costs of supply, monitor usage patterns and recommend improvements to enhance efficiency and reduce cost. The authority to make final decisions on supply may or may not rest at this level.
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### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Assess utility and energy requirements	1.1. Energy and utility requirements for a given production facility are estimated 1.2. Estimates of requirements take account of historical patterns of use and forecast production volumes
2. Identify suppliers of energy and utilities	2.1. Existing and potential suppliers of energy and utilities are identified 2.2. Environmental costs and benefits associated with supply are identified and considered in supply criteria 2.3. Criteria for selection of suppliers is established and applied 2.4. Suppliers capable of meeting supply criteria are selected 2.5. Contingency procedures are reviewed or developed in the event of failure of supply
3. Monitor energy and utility use against budget	3.1. Use of energy and utilities is measured and recorded 3.2. Usage patterns are analysed against performance standards and budget allocations 3.3. Cost-effective options for balancing the scheduling requirements for production with containment of energy and utility costs are identified, assessed and implemented within level of responsibility
4. Contribute to the more efficient use of energy and utilities	4.1. Energy and utility losses or sources of waste are identified 4.2. Opportunities to improve efficient energy/utility application are identified, investigated and reported 4.3. Consultative mechanisms are established and/or reviewed to support continuous improvement and communicate information on energy and utility efficiency and related procedures

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

##### *Ability to:*

- map the uses of energy and utilities in production across the production site, including identifying patterns of usage (volume and spread of load)
- identify the units of measurement used to quantify energy and utilities
- identify methods used to measure usage rates of energy and utilities, including physical measurement instruments, such as meters and measurement techniques used to track inputs to and outputs of a process
- analyse historical data and sale/production forecasts to project energy and utility requirements for a given production system over a fixed period
- identify supplier criteria, such as cost and capacity
- identify costs of supply, including tariffs and charges, and peak demand/cost periods
- identify and evaluate opportunities to spread supplier load and risk by use of multiple suppliers and/or co-generation
- establish contingency plans and procedures in the event of supply failure taking into account food safety issues
- identify common methods and equipment for generating utilities for use on-site, such as steam generation and other utilities as appropriate for a given production facility
- where boilers are operated on-site, identify relevant licensing requirements to be met by operators as appropriate to boiler types and relevant issuing authority
- given existing energy and utility supply arrangements, determine the most efficient scheduling of production to meet the dual objectives of production outcomes and efficient energy/utility use
- monitor energy and utility usage rates of a given production facility and identify variances against budget/plan
- identify factors that affect the efficient use of energy and utilities, such as:
  - features of process/system configuration and design that conserve and/or recycle energy and utilities such as steam, heat and water
  - poor maintenance which can result in losses such as steam, glycol or ammonia leaks etc
  - procedures for shutting down plant and equipment (e.g. equipment left running during breaks)
  - procedures for conserving resources not directly related to the process, such as lighting and airconditioning
- assess the impact of these factors on energy and utility utilisation for a given production facility and identify opportunities to improve efficiency

**REQUIRED SKILLS AND KNOWLEDGE**

- based on investigations, develop improvement proposals (this may be undertaken with input from relevant technical specialists)
- assess and/or develop procedures to support efficient energy and utility utilisation (this measure of efficiency needs to take account of impact on process equipment, health and safety and food safety)
- establish and/or utilise consultative arrangements to canvass input on energy and utility efficiency including input on waste identification and reduction and options for improved efficiency
- communicate information on changes to workplace systems and procedures to support improvements
- use communication skills to interpret and complete work information to support operations of work team or area
- demonstrate and support cooperative work practices within a culturally diverse workforce

**Required knowledge*****Knowledge of:***

- uses of energy and utilities in production and units of measurement used to quantify energy and utilities
- methods used to measure usage rates
- elements of costs associated with supply, including tariffs and charges
- licensing requirements to be met by operators as appropriate to boiler types and relevant issuing authority
- factors that affect the efficient use of energy and utilities

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p><b>Overview of assessment</b></p>	<p>Assessment must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit must be achieved in accordance with food safety standards and regulations.</p>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>Evidence of ability to:</p> <ul style="list-style-type: none"> <li>• determine utility requirements and assess current practices</li> <li>• establish supply options and conduct analysis to determine most efficient arrangements</li> <li>• monitor and evaluate utility usage against targets and identify wastage or losses</li> <li>• identify and assess opportunities for improving energy efficiencies.</li> </ul>
<p><b>Context of and specific resources for assessment</b></p>	<p>Assessment must occur in a real or simulated workplace where the assessee has access to:</p> <ul style="list-style-type: none"> <li>• company information on energy and resource utilisation</li> <li>• details of contractual arrangements with suppliers</li> <li>• production scheduling requirements and systems</li> <li>• energy and resource utilisation information recording systems, requirements and procedures.</li> </ul>
<p><b>Method of assessment</b></p>	<p>This unit should be assessed together with core units and other units of competency relevant to the function or work role.</p>
<p><b>Guidance information for assessment</b></p>	<p>To ensure consistency in one's performance, competency should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.</p>

## Range Statement

<b>RANGE STATEMENT</b>	
<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<b>Policies and procedures</b>	Use of utilities and energy supplies and related work processes are consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of occupational health and safety (OHS) and environmental impact
<b>Utility and energy for a production facility</b>	Utility and energy for a production facility refers to: <ul style="list-style-type: none"> <li>• gas</li> <li>• power</li> <li>• water</li> <li>• steam</li> <li>• airconditioning</li> <li>• other utilities as appropriate to a production facility</li> </ul>
<b>Supply options</b>	Supply options include: <ul style="list-style-type: none"> <li>• internal supply of utilities, such as steam and air conditioning as well as external supply</li> </ul>

## Unit Sector(s)

<b>Unit sector</b>	Technical
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## Competency field

<b>Competency field</b>	
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## Co-requisite units

<b>Co-requisite units</b>		