

MTMPS5605B Manage utilities and energy

Unit descriptor	This unit covers the skills and knowledge required to identify enterprise utilities and energy requirements, and to manage their use, control waste and control costs. Utilities and energy are a significant cost component in the production of meat and meat products. Their efficient use affects the quality of the product, costs and profits.
Employability Skills	The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged, will assist in identifying Employability Skill requirements.
Application of the unit	<p>This unit is of particular interest to maintenance, engineering, production, environment and finance personnel working in a meat <i>industry context</i>.</p> <p>At this level individuals exercise considerable responsibility and accountability within enterprise structures and are required to make primary contributions to the values, goals and operations of the enterprise. They will typically have responsibility for the establishment and review of systems for the site or department. They may work with the assistance of external experts to develop plans and strategies.</p>

ELEMENT

Elements describe the essential outcomes of a Unit of Competency.

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

1 Identify enterprise utility and energy requirements and costs	1.1	<i>Utility and energy</i> requirements for all areas and operations of the enterprise are identified, consistent with <i>workplace</i> , customer and <i>regulatory requirements</i> .
	1.2	Current utility and energy costs are measured and impact on profitability is identified.
	1.3	Enterprise's future utility or energy requirements are determined consistent with enterprise goals and directions.
	1.4	Utility and energy requirements and costs are included in all forward planning.

2	Monitor and control enterprise utility and energy use	2.1	Performance standards and indicators are established, using agreed benchmarks and best practice methods.
		2.2	Team commitment to utility or energy management is developed, using consultative approaches.
		2.3	Systems for the accurate monitoring of utility and energy use and costs are developed.
		2.4	Enterprise operations are audited to assess use, misuse and waste of utilities and energy.
		2.5	Enterprise performance is monitored and systems and operations are adjusted or corrected.
		2.6	Contingency plans for failure of utility or energy supply and service are prepared.
		2.7	Workplace safety systems and procedures are updated to include requirements for safe use of utilities or energy.

3	Review performance and utility or energy costs	3.1	Strategies and/or procedures for more efficient use of utilities or energy and the minimisation of wastage are identified, evaluated and recommended.
		3.2	Alternative utility or energy sources and services are assessed for availability, suitability for enterprise product, contribution to sustainability, operations and cost.
		3.3	Appropriate utility or energy services are recommended and utility or energy supply conditions and charges negotiated.
		3.4	Enterprise utility and energy performance is monitored and measured .
		3.5	Performance information, including team feedback is analysed and reported to stakeholders .
		3.6	Recommendations for further improvements are prepared and implemented.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge required for this unit. Where bold italicised text is used, further information is detailed in the Range Statement.

- Analyse utility or energy tariffs and charges and options available to the enterprise.
- Apply relevant **mathematical** and **communication skills**.
- Calculate and analyse enterprise utility or energy costs and their impact on production costs.

- Communicate effectively with internal and external personnel with diverse roles, communication skills and cultures to determine utility or energy requirements and use.
- Consult with personnel across the enterprise to identify and resolve utility or energy waste problems.
- Determine current and future utility or energy requirements for enterprise operations. This includes analysing company goals, conducting utility or energy audits to identify consumption patterns and inefficiencies, measuring enterprise utility or energy consumption and cost, including waste, against agreed benchmarks.
- Develop performance measures and indicators for utility or energy consumption and costs, based on benchmarks and enterprise goals.
- Develop strategies for minimising and optimising utility or energy usage. This may include assessing and monitoring equipment performance, introducing energy efficient plant and equipment, comparing sources and recommending utility or energy substitution, changes to procedures, assessing and minimising non-working day use of utilities (eg lighting).
- Evaluate, cost and recommend alternative plant, equipment, procedures and utility or energy sources to improve *efficiency*. This includes researching sources, reviewing enterprise procedures, evaluating suitable alternatives for enterprise products and operations, and calculating initial and maintenance costs and payback periods.
- Explain principles and methods of heat transfer and how they impact on utility or energy use, waste and cost.
- Explain the concepts of base load and variable load of utility and energy services.
- Explain the principles of demand control (including co-generation or outage) and peak load shedding or shifting to minimise utility or energy costs.
- Explain the steam generation process and its use as an energy source in the plant.
- Identify and apply relevant *OH&S requirements*.
- Identify cost components related to the use of utility or energy including capital, purchase, replacement and maintenance costs for plant and equipment, payback periods and net utility or energy costs.
- Identify procedures and systems for measuring utility or energy use and waste, appropriate to the operations of the enterprise.
- Identify *utility or energy supply status* and sources available to the enterprise.
- Include safety requirements of utility or energy use in workplace health and safety systems and procedures.
- Interpret and review performance information and recommend strategies for improvement.
- Manage utility and energy costs. This will include calculating current utility or energy charges, comparing and recommending supply sources and costs, monitoring utility or energy budget, determining the impact of changes in utility or energy costs on budgets and profitability and taking actions to correct budget variations.
- Prepare contingency plans relating to utility or energy supply failure and incidents, which include emergency and safety procedures, alternative supplies (eg co-generation) and communication strategies.
- Prepare reports, resource proposals and recommendations in styles, formats and language appropriate for the audience.

- Prepare strategies to spread utility or energy use to avoid supplier peak demand or cost periods.
- Present reports according to legal and enterprise requirements.
- Recommend utility or energy suppliers and negotiate supply and costs.
- Research best practice models in utility or energy assessment, planning, use and sustainability, and assess their applicability for the enterprise.
- Take action to improve own work performance as a result of feedback from others, self-evaluation, or in response to changed work practices and technologies.
- Utilise information and communications technology including budget and costing modelling software to analyse costs of alternative utility or energy management or purchase strategies.

RANGE STATEMENT

The Range Statement relates to the Unit of Competency as a whole. It allows for different work environments within the meat industry and situations that may affect performance. This includes any 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. Bold italics wording in the Elements and Performance Criteria, and Required Skills and Knowledge, is detailed below.

<i>Industry context</i> includes:	<ul style="list-style-type: none"> • cost centres or departments operating semi-autonomously within guidelines of the parent enterprise or company, eg retail meat departments, boning rooms, food service and meat retail • domestic and export establishments.
<i>Utilities and energy</i> supply may be contestable or non-contestable and include:	<ul style="list-style-type: none"> • coal, wool, etc • electricity, eg on site generation such as wind, oil or diesel, co-generation, hydro, gas or coal generated • fuel oil, distillate, petrol • gas (natural and bottled) • telecommunications • water and steam.
<i>Workplace requirements</i> may include:	<ul style="list-style-type: none"> • enterprise-specific requirements • OH&S requirements • Quality Assurance requirements • Standard Operating Procedures • sustainable work practices • the ability to perform the task to production requirements • work instructions.
<i>Regulatory requirements</i> may include:	<ul style="list-style-type: none"> • animal welfare • commercial law including fair trading, trade practices • consumer law

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- corporate law, including registration, licensing, financial reporting
 - environmental and waste management
 - equal opportunity, anti-discrimination and sexual harassment
 - Export Control Act
 - industrial awards, agreements
 - relevant state and federal regulations regarding meat processing
 - taxation
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Benchmarks may be industry benchmarks established through partnerships or base figures determined by the enterprise.

Strategies for reducing costs of utility or energy supply may include:

- bulk purchasing alliances
 - encouraging sustainability
 - reducing use and wastage
 - replacing external supplies with on-plant generation or co-generation (using wind, biogas methane, etc) at lower cost or at suppliers' cost
 - spreading use to avoid peak demand or cost periods through scheduling, computerised demand management systems
 - substitution.
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Utility and energy **wastage** and inefficient use may be caused by:

- equipment not suitable for the job
 - equipment running unnecessarily
 - equipment used constantly
 - inefficient equipment
 - poor maintenance of equipment, operating systems
 - poor procedures.
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Strategies and measures for **measuring** use and waste may include:

- cubic metres per tonne hot carcass weight or equivalent cattle weight
 - departmental meters
 - inflow and outflow comparisons
 - litres per kilogram hot carcass weight or equivalent cattle weight
 - unit of utility or energy per (tonne) dressed carcass weight
 - unit of utility or energy per kilogram processed, manufactured or prepared product
 - water – m³, \$ per tonne HCW, m³, \$ per kg of processed, manufactured or prepared product.
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- Stakeholders** may include:
- company owners, directors, shareholders, financiers
 - competitors
 - management and employees
 - suppliers, customers, consumers
 - unions and employer associations.
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Mathematical skills may relate to complex actual and hypothetical, technical and financial modelling, calculations, interpretation or analysis. Mathematical information may be complex and relate to product and product quality, financial operations, personnel, operations, sales and turnover, exports, etc.

- Communication** may:
- be with culturally, ethnically and socially diverse individuals and groups
 - involve preparation of reports which may be complex, contain information from a range of technical sources and include mathematical and graphic information and data
 - involve reading and interpreting workplace-related documentation
 - occur in a variety of sensitive, conflictive, collaborative and supportive environments
 - be formal or informal and involve face-to-face and technological/electronic methods
 - require analysis and presentation of complex concepts, technical information, mathematical information and other data in simple or complex formats
 - require persuasion, negotiation and assertiveness skills.
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- Utility and energy **efficiency** may relate to:
- characteristics of installed load
 - cost saving measures not directly related to plant performance (eg lighting, after hours use)
 - cost saving measures related to plant performance
 - sustainability, green, co-generations
 - tariffs.
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- OH&S requirements** may include:
- enterprise OH&S policies, procedures and programs
 - OH&S legal requirements
 - Personal Protective Equipment (PPE) which may include:
 - coat and apron
 - ear plugs or muffs
 - eye and facial protection
 - head-wear
 - lifting assistance
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- protective boot covers
 - protective hand and arm covering
 - protective head and hair covering
 - uniforms
 - waterproof clothing
 - work, safety or waterproof footwear
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- requirements set out in standards, codes of practice etc.
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Utility or energy supply status may include:

- contestable suppliers
 - sole supplier
 - supplier and purchaser (buy enterprise generated surpluses).
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EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment	<p>The meat industry has specific and clear requirements for evidence. A minimum of three forms of evidence is required to demonstrate competency in the meat industry. This is specifically designed to provide evidence that covers the demonstration in the workplace of all aspects of competency over time.</p> <p>These requirements are in addition to the requirements for valid, current, authentic and sufficient evidence.</p> <p>Three forms of evidence means three different kinds of evidence – not three pieces of the same kind. In practice it will mean that most of the unit is covered twice. This increases the legitimacy of the evidence.</p> <p>All assessment must be conducted against Australian meat industry standards and regulations.</p>
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>Competency must be demonstrated through sustained performance over time, at an appropriate level of responsibility and authority under typical operating and production conditions for the enterprise.</p>
Context of and specific resources for assessment	<p>Assessment must be conducted in a workplace context under normal production and operating conditions.</p>
Method of assessment	<p>Recommended methods of assessment are:</p> <ul style="list-style-type: none"> • a third party referee report of sustained performance at appropriate level of authority and responsibility • assignment focusing on understanding and application of

principles and theory to workplace operations

- simulation
- workplace projects with a focus on company environment and conditions.

Assessment practices should take into account any relevant language or cultural issues related to Aboriginality, gender, or language backgrounds other than English. Language and literacy demands of the assessment task should not be higher than those of the work role.

Guidance information for assessment

Resource materials available from MINTRAC, telephone 1800 817 462.

Meat and Livestock Australia (www.mla.com.au):

- *Best Practice Wastewater Treatment* (1998)
- *Energy management brochures* (1998)
- *Environmental Management Systems Manual* (Mar 1999) PPI 033
- *Greenhouse and the red meat processing industry* (Sep 1995) PPI 164.

Sustainable Energy Authority Victoria and EPA Victoria 2002, *Energy and greenhouse management tool kit* (www.seav.sustainability.vic.gov.au).

US Department of Energy 2004, *Contracting for a Resource Efficiency Manager*, A Federal Energy Management Program, Operations & Maintenance Center of Excellence Guidebook (www.energy.gov).
