Australian Government

Department of Education, Employment and Workplace Relations

MSACMT670A Develop and manage sustainable energy practices

Revision Number: 1

MSACMT670A Develop and manage sustainable energy practices

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit covers the skills needed to identify opportunities for and make improvements in sustainable energy practices in production, maintenance and logistics. Areas covered include efficient use of raw materials, management of waste, electricity conservation, heat conservation and management, water management, environment protection and environment obligations of enterprises.

Application of the Unit

Application of the unit	This is the highest level sustainable energy unit in the CM. In a typical scenario, there is a need to reduce ***waste*** in the ***value chain***. Part of this is the cost of energy to the process. Some of this is ***necessary waste*** but typically a large part of energy use in ***unnecessary waste*** and so should be totally eliminated. In order to make these savings, there is a need to analyse energy use and cost in all its forms and then develop and implement plans for the more efficient use of energy. This unit primarily requires the application of communication and problem solving skills associated with collecting and analysing information. An ability to analyse energy use of technology or processes will be applied. Initiative and enterprise, and planning and organising are also required to develop plans for efficient energy use. This unit also requires aspects of self management and learning to ensure feedback and new learning is integrated into the development of processes.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

Employability Skills Information

Employability skills	This unit contains employability skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Analyse energy use	1.1. Identify all energy consuming processes 1.2. Determine quantity and nature of energy consumed 1.3. Analyse energy consumed and generated in different parts of the process 1.4. Determine source of energy consumed in process 1.5.
2. Develop energy conservation plans	2.1. Determine the efficiency of use of energy by all energy consuming processes 2.2. Determine causes of low efficiency of use 2.3. Develop plans for increasing the efficiency of energy use 2.4. Determine benefit/cost of plans
3. Develop energy trading plans	3.1. Compare energy generating activities with energy consuming activities 3.2. Determine feasibility of energy consuming activities using energy generated by other activities 3.3. Develop plans for energy trading 3.4. Determine benefit/cost of plans
4. Investigate alternative sources of energy	4.1. Develop a specification for energy required 4.2. Identify a range of sources for that energy 4.3. Determine benefit/cost for alternative energy sources
5. Develop plans for more efficient energy use	5.1. Compare benefit/costs for different alternatives developed 5.2. Rank proposals based on benefit/cost compare to limited resources 5.3. Check proposals meet regulatory requirements 5.4. Recommend proposals for improving energy efficiency
6. Implement selected plans	6.1. Liaise with relevant people to implement energy efficiency plans 6.2. Follow through to ensure implementation occurs 6.3. Monitor implementation and make adjustments as required 6.4. Check new energy usage to ensure

ELEMENT	PERFORMANCE CRITERIA
	improvements have occurred

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• analysis • mathematics • communication • problem solving • data gathering • planning and organising
Required knowledge
• types and sources of energy • methods of analysing energy efficiency for different types of energy • methods of converting energy values from one form to another • alternative sources of energy • principles of energy efficiency • relevant regulatory/legislative requirements • energy trading schemes and procedures • process needs for energy

Evidence Guide

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 requirements	The person will be able to analyse the energy use of any/all part/s of the process and determine if there are more efficient/cheaper ways of achieving the same result.
What critical aspects of evidence are required to demonstrate competency in this unit?	Evidence of analyses of energy consumed and improvements made should be available.
In what context should assessment occur?	Assessment needs to be conducted in an organisation where energy is a significant cost component or by project, simulation or case study.
Are there any other units which could or should be assessed with this unit or which relate directly to this unit?	This unit is related to: • *MSACMT270A Use sustainable energy practices* - which covers the individual application level, and • *MSACMT671A Develop and manage sustainable environmental practices* - which covers general environmental practices.
What method of assessment should apply?	Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria, skills and knowledge. A holistic approach should be taken to the assessment. Assessors should gather sufficient, fair, valid, reliable, authentic and current evidence from a range of sources. Sources of evidence may include direct observation, reports from supervisors, peers and colleagues, project work, samples, organisation records and questioning. Assessment should not require language, literacy or numeracy skills beyond those required for the unit. The assessee will have access to all techniques, procedures, information, resources and aids which would normally be available in the workplace. The method of assessment should be discussed and agreed with the assessee prior to the commencement of the assessment.
What evidence is required	If evidence is from a major project to improve energy

EVIDENCE GUIDE	
for demonstration of consistent performance?	efficiency, then it may provide sufficient evidence. If evidence is from a number of minor improvements to energy then a range of such improvements will be needed to provide sufficient evidence.

Range Statement

RANGE STATEMENT 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.	
Waste	Waste (also known as muda in the Toyota Production System and its derivatives) is any activity which does not contribute to customer benefit/features in the product. Within manufacturing, categories of waste include: • excess production and early production • delays • movement and transport • poor process design • inventory • inefficient performance of a process • making defective items. Waste for this unit may include activities which do not yield any benefit to the organisation or any benefit to the organisations customers.
Necessary waste	Necessary waste is any activity or cost which does not contribute directly to customer benefit/feature in the product, and which **cannot** be avoided (eg regulatory compliance and fixed costs). Necessary waste cannot be eliminated but should be managed.
Unnecessary waste	Unnecessary waste is any activity or cost which does not contribute directly to customer benefit/features in the product and **can** be avoided. Unnecessary waste should be eliminated as quickly as practical.
Energy	Energy is used to mean all sources of energy used by the process be it electricity, gas or mobile transport fuel. The uses of the energy will also be potentially wide and include heating and cooling, moving materials (including pumps and conveyors), modifying materials (including cutting, forming, weaving, knitting, reacting, moulding, extruding, mixing), generating pressure/vacuum or providing motive power for

RANGE STATEMENT	
	equipment and transport.

Unit Sector(s)

Unit Sector	CM Tools

Co-requisite units

Co-requisite units	

Functional area

Functional Area	