



Australian Government

MSS015011 Conduct a sustainability energy audit

Release: 1

MSS015011 Conduct a sustainability energy audit

Modification History

Release 1. Supersedes and is equivalent to MSS015011A Conduct a sustainability energy audit.

Application

This unit of competency covers conducting an audit for the specific resource of energy in an organisation or part or all of its value chain and to prepare recommendations for a reduction of, and more efficient use of, energy.

This unit applies inside organisations and their value chains. The unit has been developed with manufacturing operations as a focus. However, because of the range of organisations in a typical manufacturing value chain it may also be applied to other types of organisations (e.g. supplier of goods or services or a customer).

The energy audit may be conducted to assist in regulatory compliance or as part of a strategy to improve the sustainability of manufacturing operations. The emphasis in the unit is on informing decision making in regards to energy use in a value chain or site.

A manager or technical specialist who has a major responsibility for sustainability as part of a broader work role would typically undertake this, or sustainability may be their primary work responsibility. The manager or technical specialist may undertake this alone or as part of a team.

The technical measurement of operational performance or measurement of emissions or other environmental impact is not covered by this unit. However, there is a requirement to present and organise data. The complexity of this requirement will vary according to the type and scale of the organisation's processes.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Sustainable operations

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|---|---|
| 1 | Identify all sources and uses of energy in process | 1.1 Identify all sources of energy external to the site. |
| | | 1.2 Identify all sources of energy within the site. |
| | | 1.3 Identify all uses of energy by process unit. |
| | | 1.4 Identify energy type and intensity required by each process unit. |
| 2 | Calculate theoretical use of energy | 2.1 Calculate theoretical net use of energy by type and intensity for each process unit. |
| | | 2.2 Calculate overall energy balance for process/site. |
| | | 2.3 Evaluate the need for energy consumption by process and units within the process compared to alternative processes/units. |
| 3 | Measure actual use of energy | 3.1 Determine actual net energy use for overall process/site. |
| | | 3.2 Determine actual net energy use for each process unit. |
| | | 3.3 Calculate difference between theoretical and actual energy use by unit and overall. |
| | | 3.4 Identify actual energy type used by each process unit. |
| 4 | Develop strategies for reducing the use of energy | 4.1 Rank units by difference between theoretical and actual energy use. |
| | | 4.2 Rank units by actual energy use. |
| | | 4.3 Identify units using higher intensity energy than required. |
| | | 4.4 Develop strategies to reduce energy consumption and/or use lower intensity energy. |

5	Prepare a recommendation for an energy use reduction strategy	5.1	Consult with key stakeholders.
		5.2	Identify strategies required to meet regulatory or similar requirements.
		5.3	Rank strategies by benefit/cost ratio.
		5.4	Short-list preferred energy reduction strategies.
		5.5	Prepare recommendation for improving energy usage.

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Energy/energy type includes one or more of

- operational heating and cooling
- motive energy
- lighting
- waste energy.

Energy intensity includes one or more of required

- temperature
- power
- pressure.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS015011A Conduct a sustainability energy audit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS015011 Conduct a sustainability energy audit

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include the ability, for one or more processes, to:

- define appropriate boundaries for the sustainability energy audit
- conduct energy balance analyses for a site, value chain or process
- identify high energy use/waste units/areas
- undertake benefit/cost ratio analyses
- ensure improvement strategies proposed reflect stakeholder needs and regulatory environment.

Knowledge Evidence

Must provide evidence that demonstrates sufficient knowledge to interact with relevant personnel and be able to audit energy usage including knowledge of:

- nature of energy wastage
- energy balancing techniques for process and process steps (sometimes known as heat balancing)
- methods of measuring actual process amount/flows
- waste reduction/energy efficiency strategies and methods along with costs, effectiveness and alternative strategies (e.g. efficient lighting, efficient window glass and efficient motors)
- cost-benefit analysis
- relevant legislation, regulation and protocols.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- The collection of performance evidence is best done from a report and/or folio of evidence drawn from:
 - a single project which provides sufficient evidence of the requirements of all the elements and performance criteria
 - multiple smaller projects which together provide sufficient evidence of the requirements of all the elements and performance criteria.

- A third party report, or similar, may be needed to testify to the work done by the individual, particularly when the project has been done as part of a project team.
- Assessment should use a real project where a sustainability energy audit is conducted for an operational workplace.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing relevant environmental monitoring, management or technology services about performing the competency being assessed within the last twelve months.

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