Australian Government

Department of Education, Employment and Workplace Relations

MSS015001A Measure and report carbon footprint

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit of competency covers determining the carbon footprint of a product or product class across the value chain. It includes determining the carbon dioxide (CO2) equivalent tonnes and the point of obligation for reporting purposes.
It also includes calculating the embodied carbon of a product.

Application of the Unit

This unit applies to the measuring of the carbon footprint along a value chain or portion of a value chain which may be internal or external to the enterprise.
The requirement to measure the carbon footprint could occur as part of an enterprise's regulatory obligation, market or social response or for other purposes.
It would typically be undertaken by a manager or technical specialist who had a major responsibility for sustainability as part of a broader work role, or sustainability may be their primary work responsibility.
Skills covered by this unit may be applied individually or in a team context.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

1 Map carbon sources and sinks along the value chain	1.1 Select portion of the value chain for analysis
	1.2 Identify process steps along the chain
	1.3 Identify the carbon-related change which occurs at each step
2 Determine nature and source for carbon emissions	2.1 Determine carbon emissions from each step
	2.2 Determine source of each emission
	2.3 Identify measurements available for each emission and each source
3 Quantify carbon	3.1 Quantify each emission
	3.2 Determine CO2 equivalent tonnes for each emission
	3.3 Determine point of obligation and total obligation, as required
	3.4 Determine total carbon embodied in product
4 Recommend strategies for reducing carbon footprint	4.1 Short-list high carbon sources
	4.2 Determine root cause of emissions
	4.3 Identify relevant carbon sinks
	4.4 Investigate methods for reducing emissions
	4.5 Prepare recommendation for improvement
5 Report carbon footprint	5.1 Identify purpose of report and key stakeholders
	5.2 Compile data, implications and recommendations
	5.3 Consult with stakeholders, as appropriate

Required Skills and Knowledge

Required knowledge includes:

- process and changes which occur at each step in selected value chain
- carbon emission sources
- root cause analysis
- methods of reducing carbon emissions and embodied carbon
- carbon equivalence of different emissions
- relevant legislation, regulation and protocols, including greenhouse gas protocols and associated ISO standards

Required skills include:

- calculating, manipulating and interpreting numeric data, including establishing series, means and averages, correlations and rates of change
- calculation of carbon emissions, carbon footprint and embodied carbon
- interpreting specifications, operating procedures, manuals, regulations and other complex documents
- consulting with internal and external stakeholders
- analysing and problem solving
- drafting reports

Evidence Guide

Overview of assessment	A person who demonstrates competency in this unit must be able to measure carbon or carbon equivalent usage along all or part of a value chain and recommend strategies to reduce emissions.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently apply the skills covered in this unit of competency in new and different situations and contexts. Critical aspects of assessment and evidence include: • identifying and mapping portion of value chain for carbon footprint analysis • quantifying carbon footprint, including embodied carbon into each process step • identifying strategies for minimising carbon footprint as part of measure and report process.
Context of and specific resources for assessment	• This unit of competency is to be assessed in the workplace or a simulated workplace environment. • Assessment should emphasise a workplace context and procedures found in the candidate's workplace. • This unit of competency may be assessed with other relevant units addressing sustainability at the enterprise level or other units requiring the exercise of the skills and knowledge covered by this unit. • The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team.
Method of assessment	• In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess directly. • Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. • The language, literacy and numeracy demands of assessment should not be greater than those required to undertake the unit of competency in a work-like environment.
Guidance information for assessment	

Range Statement

Carbon emissions	Carbon emissions means all materials which enter the process or site but which do not leave as part of the product and so includes:
	• known or able to be physically measured emissions of:
	  • gases, vapours and fumes
	  • liquids
	  • solids
	• assumed emissions through material balancing
	• assumed emissions through energy loss, including heat, friction and other energy conversion yield losses
	• relevant greenhouse gases, including those defined under the Kyoto protocol

Embodied carbon	Embodied carbon is the total of carbon consumed in the manufacture, use and disposal of the product expressed as CO2 equivalent tonnes
Portion of the value chain	Portion of the value chain includes: • internal and external value chain sections

Unit Sector(s)

Sustainability

Custom Content Section

Not applicable.