Organisational Carbon Accounting for Local Governments

Course Curriculum

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VERSION CONTROL

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CONTENTS

COURSE INFORMATION

General information	
Name of the course	Organisational Carbon Accounting for Local Governments
Nominal duration of the course	40 hours Nominal duration of course is 40 hours, including 20.5 hours of supervised learning and 19.5 hours of unsupervised learning (including online modules, quizzes and assessment, and time for data gathering to support successful course completion).
Copyright owner of the course	Sustainability Victoria Copyright of this document is held by Sustainability Victoria. No part of this document may be reproduced by any process except with express written permission.
Training needs assessment	
Target market	Environmental and sustainability practitioners at Victorian local governments.
Context	***Paris Climate Agreement*** The broader international context for this course is underpinned by the Paris Agreement on Climate Change, which entered into force on 4 November 2016. At the twenty-first session of the Conference of the Parties ('COP21') to the United Nations Framework Convention on Climate Change ('UNFCCC') held in Paris, the world agreed to a global goal to limit average temperature increases to 'well below 2°C' and pursue efforts to keep warming below 1.5°C above pre-industrial levels. To achieve the 2°C goal, global greenhouse gas ('GHG') emissions in 2050 need to be 41 per cent to 72 per cent lower than they were in 2010. A total of 176 Parties have ratified the Paris Agreement, including Australia, which officially did so on 10 November 2016. All signatory countries are to set emissions reductions targets from 2020 and review their targets every 5 years to build ambition over time, informed by a global stocktake. ***Australian context*** Ahead of COP21, countries were invited to submit indicative post-2020 targets, known as Intended Nationally Determined Contributions ('INDCs'). Targets have been set by almost all Parties to the UNFCCC, representing over 96 per cent of global emissions, over 99 per cent of global GDP and 99.8 per cent of Australia's two-way trade. Australia's INDC dated August 2015 set an economy-wide target to reduce greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030. ***Victorian context*** Leading governments and organisations around the world are increasingly and formally committing to align their carbon reduction strategies with the goals of the Paris Agreement. Victoria's Climate Change Framework and the recently passed *Climate Change Act 2017* reflect the science-based emission reduction targets enshrined in the Paris Agreement. The Victorian Government has committed to reduce the state's greenhouse gas

	emissions by 15 to 20 per cent (below 2005 levels) by the year 2020, and reaching net zero emissions by 2050. To help achieve these goals, Sustainability Victoria is delivering the TAKE2 initiative - a pledge program for collective action on climate change. Under TAKE2, the Victorian Government has committed to reduce emissions from the operations of government departments by 30 per cent below 2015 levels by 2020. TAKE2 is also encouraging and supporting all Victorian individuals and organisations to voluntarily commit to tackling climate change. ***Science-based emissions targets*** Historically, many organisations have set carbon emissions reductions targets that are aligned to what they *think they can achieve* rather than what they *need to achieve* to mitigate the worst impacts of climate change. This has resulted in a patchwork of emissions reduction targets that are not comparable, of varying quality and, critically, inadequate in addressing the global emissions reduction challenge. In response to this situation, the Science Based Targets ('SBT') Initiative was formed by the World Wildlife Fund ('WWF'), Carbon Disclosure Project ('CDP'), World Resources Institute ('WRI') and United Nations Global Compact ('UNGC'). The SBT Initiative provides practitioners with information and guidance on setting emissions reduction targets that are aligned to the level of decarbonisation required to limit warming to 2°C (or 1.5°C in some scenarios). Science-based targets are robust and defensible, and are becoming the norm for organisations wishing to publicly announce their emissions reduction aspirations.
Drivers	Sustainability Victoria (SV) has identified a gap in the capacity of local government personnel in carbon accounting and management. This is a barrier in realising potentially significant emissions and cost savings for these organisations. This carbon accounting training course for Victorian local governments has been developed to address this gap under the Sustainability Victoria Local Government Energy Saver (LGES) program, stream 4 (capacity building).
Goal	The goal of this course is to build internal capacity of local government staff to undertake organisational carbon accounting and understand how carbon inventories can be used to set (and track progress against) emissions reduction targets, and inform strategic investment in energy efficiency and renewable energy measures. It is important to note that the course will **not** teach attendees how to develop a community-based GHG emissions inventory.
Challenges	The main challenges identified across local governments are as follows: • Different capability and carbon management knowledge across local governments • Lack of capacity / resource constraints • Lack of consistency in the development of carbon inventories • Boundary determination, including organisational and operational boundaries, and in particular boundaries for scope 3 emissions sources (based on relevance and materiality) • Efficiently focussing data gathering efforts on material emissions sources • Data availability and quality • Complexity of specific emissions sources and calculation methodologies, e.g. waste emissions, water emissions, street lights, public construction. • Lack of understanding on carbon management – how to use carbon inventories to inform decision-making and drive action.

Local government needs	Identified local government needs include: • Improve their understanding of carbon accounting standards and guidelines, in particular the National Greenhouse and Energy Reporting (NGER) Scheme (for scope 1 and 2 emissions sources) and the GHG Protocol (for scope 3 emissions sources) • Improve their understanding of sources of emissions factors and their application, including the National Greenhouse Accounts. • Have a clear understanding of how to determine their emissions reporting boundaries and apply materiality thresholds (and the relevance test for scope 3 emissions) to focus data collection efforts on the emissions sources that matter most • Ability to confidently navigate complex emissions sources and calculation methodologies, especially in relation to scope 3 emissions • Identify relevant and robust data sources • Understand the methodologies available to set emissions reduction targets, including science-based target setting methodologies • Gather a sound understanding of what can and should be done to reduce emissions within the context of local governments' corporate activities, based on abatement potential, financial and technical viability and other relevant considerations.
Course outcomes	
Objective	The course objectives are to: • provide specialised and relevant training services to local government staff which aligns with relevant legislation and recognised standards regarding the preparation of greenhouse gas inventories related to councils' operations • provide participants with skills and knowledge on how to report on their GHG inventories and use the outcomes for management purposes including: – measurement and monitoring of greenhouse gas emissions and energy use for all activities of the organisation – GHG reporting to assist councils to use it within their tactical / strategic business planning environment.
Learning outcomes	The course is designed to upskill participants in the following aspects of organisational carbon accounting: • Determining emissions reporting boundaries, including the organisational boundary (operations to be included in the inventory) and the operational boundary (sources of emissions to be included in the inventory). • Understanding and applying the concepts of relevance (in particular related to scope 3 emissions sources) and materiality. • Calculating the carbon inventory, including data collection and collation and relevant sources of emissions factors. • Documenting the carbon inventory results in a way that is easily replicated and maintained, and that enables local governments to maintain their emissions inventories and track their progress year-on-year. • Understanding the mechanics and options for setting targets, using inventories as a basis for visualising level of effort and ambition. • Understanding how carbon inventories can be used to inform strategic planning and investment in energy management opportunities.

Success criteria	The course will be deemed successful if: • It adequately addresses local government needs. • It enables participants to develop an emissions inventory for their organisation that is consistent with recognised standards. • It provides participants with enough information to effectively use their emissions inventories to inform their decision-making and prioritisation of investment decisions.
Course design	
Course structure	To be awarded the Statement of Attainment for the Carbon Accounting Course, participants must successfully complete two units: • Unit 1: Develop an organisational carbon inventory (20 hours) • Unit 2: Reporting and planning (20 hours) In order to undertake Unit 2, participants must complete Unit 1 as a pre-requisite. Participants must complete both units in the course to be awarded a Statement of Attainment.
Entry requirements	Candidates are expected to be able to use a personal computer, including the use of basic word processing, email and spreadsheet programs.
Assessment	
Assessment strategy	All assessment activities will be related to a carbon accounting context within a local government or simulated environments. A range of assessment methods will be used, such as: • practical exercises, for example the creation of a carbon inventory or significant elements of it • observation, for example of the application of appropriate methodologies • direct questioning, to determine underpinning knowledge as well as communication skills • online quizzes per module • online final assessment per unit.
Delivery	
Delivery mode	Delivery of the two units will take into consideration the individual needs of participants and will involve blended delivery mode as follows: **Unit 1: Develop an organisational carbon inventory** • ***Module 1: Foundations***: – Live webinar (1.5 hours) supported by a brief online module with supplementary reading material and quiz within online platform (OpenLearning). • ***Module 2: Accounting boundaries:*** – Live webinar (1.5 hours) supported by a brief online module with supplementary reading material and quiz within online platform (OpenLearning). • Based on Module 2 outcomes, participants will be allowed time for data gathering prior to undertaking Module 3. • ***Module 3: Develop a carbon inventory***:

	– Two consecutive face-to-face sessions in Melbourne, with regional satellite venues (Gippsland, Hume, Loddon-Mallee, Barwon South West and Grampians) for participants unable to go to Melbourne: ▪ Day 1 – 10:30 am to 4 pm ▪ Day 2 – 10:30 am to 4 pm • Unit 1 final assessment online quiz to be completed by participants using online training platform (OpenLearning). **Unit 2: Reporting and planning** • ***Module 1: Documenting carbon inventory results***: – Live webinar (1.5 hours) supported by a brief online module with supplementary reading material and quiz within online platform (OpenLearning). • ***Module 2: Target setting*** and ***Module 3: Strategic planning and investment:*** – Face-to-face session in Melbourne from 11 am to 3 pm, with regional satellite venues (Gippsland, Hume, Loddon-Mallee, Barwon South West and Grampians) for participants unable to go to Melbourne (OpenLearning). • Unit 2 final assessment online quiz to be completed by participants using online training platform (OpenLearning). To avoid duplication, the online modules will be the basis for the face-to-face sessions (in lieu of support slide).
Resources	Resources include: • leaner guide • online training platform • slides for face-to-face sessions • practical exercises • worked examples • emissions calculation tools for complex sources

UNIT 1: DEVELOP AN ORGANISATIONAL CARBON INVENTORY

Unit description

This unit describes the skills and knowledge required to develop and create an organisational greenhouse gas emissions inventory. Participants will apply accepted methodologies for accounting for carbon emissions and produce an inventory for their organisation.

Modules

Module	Objectives
1. Foundations	• Understanding the business case for carbon accounting. • Understanding carbon accounting standards and guidelines, in particular the National Greenhouse and Energy Reporting (NGER) Scheme (for scope 1 and 2 emissions sources) and the GHG Protocol (for scope 3 emissions sources). • Understanding sources of emissions factors and their application, including the National Greenhouse Accounts.
2. Accounting boundaries	• Determining emissions reporting boundaries, including the organisational boundary (operations to be included in the inventory) and the operational boundary (sources of emissions to be included in the inventory). • Understanding the concepts of relevance (in particular related to scope 3 emissions sources) and materiality.
3. Develop a carbon inventory	• Calculating the carbon inventory, including data collection and collation, relevant sources of emissions factors, and the application of carbon measurement methodologies.

Application of the unit

This unit supports the work of local council officers who are responsible for, or contribute to, the development of a greenhouse gas emissions inventory for their organisation.

Learning outcomes	Performance criteria *Performance criteria describe the required performance needed to demonstrate achievement of the outcome. Where **bold italicised** text is used, further information is detailed below.* *Assessment of performance is to be consistent with the evidence guide.*
1. Identify the context of carbon accounting	1.1. Current and emerging national and international ***trends*** in carbon emissions are identified 1.2. ***Drivers*** for ***carbon accounting*** are identified
2. Identify carbon accounting methodologies	2.1. Standard carbon accounting ***terminologies*** are defined 2.2. ***Accepted frameworks and methods*** for determining and quantifying greenhouse gas emissions are identified 2.3. Emission ***scopes*** are identified

3. Apply carbon accounting methodologies	3.1. Accounting ***boundaries*** are determined in consultation with ***relevant stakeholders*** 3.2. ***Activities/operations resulting in emissions*** are identified and discussed 3.3. ***Activity data*** is assessed and recorded 3.4. Organisational emissions are quantified and calculated using ***best practice*** methodologies
4. Develop and analyse the organisation's carbon inventory	4.1. Emission sources are presented within a carbon inventory, categorised by scope and scale and supported by ***references*** 4.2. Inventory is assessed against current ***compliance or voluntary reporting requirements***

Bold italicised wording in the learning outcomes and performance criteria is detailed below.

Trends may include:

- growth in global emissions
- national and state emissions
- emissions per capita
- industry sector trends
- trends by emission type
- changes in sources

Drivers may refer to:

- organisational business plans
- voluntarily reduce emissions
- Commonwealth, State, Territory and local government legislation
- Australian Standards
- By-laws
- environmental sustainability compliance regulations
- objectives
- costs
- revenue
- access to capital
- codes of practice
- supply chain
- reputation
- OHS policies, procedures and programs
- Recruitment
- carbon management
- risk management

Terminologies include:

- carbon dioxide equivalent
- global warming potential
- Kyoto gases
- abatement
- emission factors
- scopes
- carbon footprint
- emissions inventory

Accepted frameworks and methods include:

- Regulatory guidelines (NGER)
- Australian Standards (NCOS)
- the Greenhouse Gas Protocol (GHG Protocol)
- ISO Standards
- UNFCCC Guidelines
- National Greenhouse Accounts (NGA)
- scientific measurement

Scope may include:

- Scope 1 (direct emission)
  - combusted fuels (stationary and transport)
  - refrigerants
  - landfill sites
- Scope 2 (indirect emissions)
  - purchased electricity, heat & steam
- Scope 3 (indirect emissions)
  - Purchased goods and services
  - Capital goods
  - Fuel- and energy-related activities not included in scope 1 or scope 2
  - Upstream transportation and distribution
  - Waste generated in operations
  - Business travel
  - Employee commuting
  - Upstream leased assets
  - Downstream transportation and distribution
  - Processing of sold products
  - Use of sold products
  - End-of-life treatment of sold products
  - Downstream leased assets
  - Franchises
  - Investments

Activities/operations resulting in emissions may include:	• use of electricity • use of natural~~s~~ gas • use of transport fuels • use of other stationary fuels • refrigerants • waste generated in operations • use of water • business travel • employee commuting
Boundaries may refer to:	• organisational boundaries • operational boundaries • operational control approach • financial control approach • list of inventory inclusions • list and justification for inventory exclusions • items selected for inclusion in Scope 3 • relevance test for scope 3 • materiality assessment
Relevant stakeholders may include:	• staff • management • emission manager/officer • technicians • advisors • contractors and sub-contractors • installers • technical experts • consultants • regulators • community • supporters
Activity data may refer to:	• organisational invoices, meter readings, estimates or other documentation detailing: – electricity consumption – natural gas consumption – transport fuels – waste contracts – water usage – transport contractors – business travel – employee commuting – paper usage

Best practice may include:	• Application of accepted methodologies – NGER (scope 1 and 2) and GHG Protocol (scope 3) – NGA Factors – independently assessed public reports
References may include:	• citations • emissions factor sources • sources and details of activity data • methodologies
compliance and voluntary reporting requirements may include:	• NGER • GHG Protocol • NCOS • CDP • GRI

Evidence guide

The evidence guide provides advice on assessment and must be read in conjunction with the learning outcomes and performance criteria.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of: • Effectively developing an organisational emissions inventory in a local government context • Knowledge of methodologies for accounting for greenhouse gas emissions • Knowledge of relevant legislation
Context of and specific resources for assessment	Assessment must ensure: • Activities are related to a carbon accounting context Resources implications for assessment include: • Access to suitable simulated or real opportunities and resources to demonstrate competence
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. These following assessment methods are appropriate for this unit: • Evaluation of students' preparation of their councils' carbon inventories • Practical exercises • Observation • Direct questioning • Online quizzes • Online final assessment

UNIT 2: REPORTING AND PLANNING

Unit description

This unit describes the skills and knowledge required to document the outcomes of the emissions inventory developed in Unit 1 by applying standard approaches for reporting on the inventory. Participants will also explore how carbon inventories can be used to set (and track progress against) emissions reduction targets, and inform strategic investment in emissions reduction measures.

Modules

Module	Objectives
1. Documenting carbon inventory results	• Documenting the carbon inventory results in a way that is easily replicated and maintained, and that enables local governments to maintain their emissions inventories and track their progress year-on-year.
2. Target setting	• Understanding the approaches and options for setting targets, using inventories as a basis for visualising level of effort and ambition.
3. Strategic planning and investment	• Understanding how carbon inventories can be used to inform strategic planning and investment in emissions reduction opportunities.

Application of the unit

This unit supports the work of local council officers who are responsible for, or contribute to, the disclosure of carbon inventory outcomes and strategic planning and investment decisions regarding emissions reduction opportunities.

Learning outcomes	Performance criteria *Performance criteria describe the required performance needed to demonstrate achievement of the outcome. Where **bold italicised** text is used, further information is detailed below.* *Assessment of performance is to be consistent with the evidence guide.*
1. Review the organisation's carbon inventory	1.1. Barriers to the accounting and reporting process are identified 1.2. ***Implications*** of the organisation's emissions inventory are identified and discussed
2. Document the outcomes of the carbon inventory	2.1. Current ***best practice*** in carbon reporting is discussed 2.2. ***Indicators*** are developed in consultation with ***relevant stakeholders*** 2.3. Report is developed and documented based on best practice and in alignment with organisational requirements 2.4. Recommendations for improving reporting procedures are documented in accordance with organisational guidelines
3. Understand carbon management options	3.1. ***Carbon management*** options are identified and discussed, including setting emissions reduction targets and pathways.

Bold italicised wording in the learning outcomes and performance criteria is detailed below.

Implications may include:

- Organisational business plans
- Voluntary reporting programs
- Commonwealth, State, Territory and local government legislation
- Australian Standards
- relevant By-laws
- environmental sustainability compliance regulations
- objectives
- liabilities
- costs
- revenue
- access to capital
- codes of practice
- market value
- supply chain
- reputation
- competitive advantage
- OHS policies, procedures and programs
- recruitment
- carbon management

Carbon management may include:

- the carbon management hierarchy, including:
  - setting emission reduction targets
  - emission avoidance from change in practices or process
  - emissions reductions
  - fuel switching
  - sequestration
  - purchasing offsets
  - grid decarbonisation
- behavioural changes
- compliance requirements
- energy efficiency opportunities
- onsite and offsite renewable energy
- Power Purchase Agreements (PPA)
- switch off campaigns
- upgrade of old equipment
- optimal stop / start processes
- reducing maximum demand
- calibration of metering equipment
- resetting of cooling and heating systems
- smart technologies
- retro-fitting more efficient technologies

Best practice refers to:

- adherence to guideline principles, such as:
  - relevance
  - completeness
  - consistency
  - transparency
- independently verified publicly disclosed reports
- case studies, including examples from:
  - industry
  - commerce
  - government
  - community
  - international
- current methodologies and formats
- current trends
- Australian standards (e.g. NCOS)
- Commonwealth, State, Territory and local government legislation

Indicators may include:

- productivity/efficiency ratios
- intensity ratios
- percentages

Relevant stakeholders may include:

- staff
- management
- emission manager/officer
- technicians
- advisors
- contractors and sub-contractors
- installers
- technical experts
- consultants
- regulators
- community
- supporters

Evidence guide

The evidence guide provides advice on assessment and must be read in conjunction with the learning outcomes and performance criteria.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of: • Effectively developing a report for an emissions inventory • Knowledge of best practice for reporting of greenhouse gas emissions • Knowledge of available target setting methodologies • Knowledge of how carbon inventories can be used to inform strategic planning and investment in energy management opportunities • Knowledge of relevant legislation
Context of and specific resources for assessment	Assessment must ensure: • Activities are related to a carbon accounting context Resources implications for assessment include: • Access to suitable simulated or real opportunities and resources to demonstrate competence
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. These following assessment methods are appropriate for this unit: • Practical exercises • Online quizzes • Online final assessment