

Sustainable projects - how to reduce greenhouse gas emissions

This fact sheet has been developed to help practitioners manage their greenhouse gas (GHG) emissions throughout the life of a project. It provides a high level overview of the main steps required in establishing a carbon management and reporting process, and offers a list of references for further reading. It can be used for a wide variety of projects, such as a stormwater harvesting project or a council wide carbon mitigation strategy.

Note: The term 'carbon' is often used interchangeably with the phrase 'greenhouse gas (GHG) emissions', even though carbon dioxide is only one of the six key greenhouse gases.

Background

Global preoccupation with climate change and its potential impacts has emphasised the need to reduce anthropogenic greenhouse gas emissions (produced through human related activities). Australia, like other signing members of the international Kyoto Protocol, is committed to a reduction in carbon emissions. An increasing number of organisations are pledging to operate without adding to greenhouse gas emissions, and more and more projects are being run 'carbon neutral', be it because of a funding requirement or as a voluntary commitment.

Establish a methodology

There are a number of national and international methodologies that can be used for carbon accounting. In Australia (and Victoria in particular), the two main documents are:

- [The National Greenhouse and Energy Reporting Act 2007](#), which you will follow if you are required by law or by a contract to manage your GHG emissions
- [Vic EPA's Greenhouse Gas Inventory Management Plan](#), which is a very good example of how the above act can be applied to voluntary carbon accounting.

Greenhouse Gas Management Principles

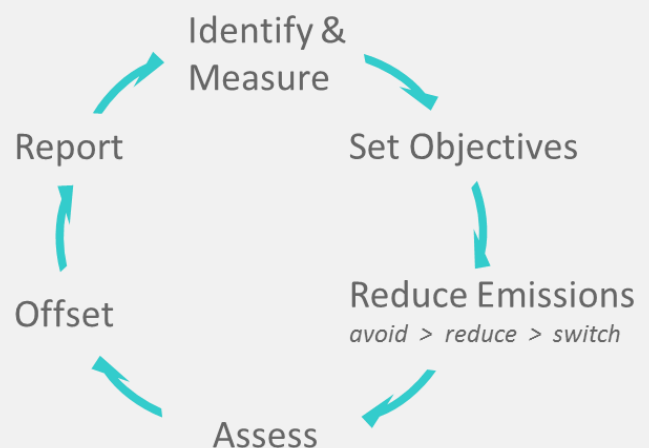
Identify and Measure

The first step in your carbon management process requires you to take an inventory of all your GHG emitting assets or activities, and measure their level of emissions.

The calculation process includes an assessment of the assets'/activities' energy requirements and a transformation into the equivalent level of CO₂ emissions. Taking the example of a stormwater harvesting project, the electricity used by a pump is measured in kWh, but needs to be transformed into kg of CO₂ equivalent emissions (in Victoria, 1kWh is equivalent to 1.23kg of CO₂ emitted into the atmosphere).

Note that carbon inventories need to be in line with the internationally accepted quality principles of **transparency, consistency, comparability, completeness** and **accuracy**.

Identifying your carbon footprint firsthand will allow you to use this data as your baseline measurement, against which you can compare future scenarios.



Set Objectives

After establishing the levels of emissions, it is important to set measurable emission reduction objectives. The target will usually be a percentage reduction within a certain timeframe, using the measured data as a baseline scenario - for example achieving a 15% reduction in carbon emissions in 5 years.

Reduce Emissions

Once the carbon footprint has been established, it is relatively easy to identify the activities or assets with the highest emissions which should be targeted by an emission reduction campaign. Using a hierarchical approach encourages the use of low cost strategies before the implementation of capital intensive measures:

1. Avoid – Think of where and when you are emitting GHGs unnecessarily, and implement measures to avoid these emissions. For example, you might educate your staff to turn off electric equipment (lights, computers, printers) in the office building when they are leaving at night.
2. Reduce – Think of options to reduce your emissions such as improving the efficiency of your processes or of your equipment (high energy efficiency ratings).
3. Switch – If you cannot reduce your energy consumption, you might choose to switch to fuel sources that are less carbon intensive (from renewable sources for example).

Assess

Taking into account all the carbon reduction activities you would like to put in place, re-assess the level of produced GHG emissions. The calculation will allow you to assess whether you are meeting the targets you set earlier on in the process, or whether you need to reduce your emissions further.

Offset

If you want to further lower your GHG emissions (to achieve carbon neutrality for example), you have the possibility of purchasing carbon offsets from accredited organisations, meaning that you invest in emission reductions elsewhere. Keep in mind that purchasing offsets should be a last resort and that the previous step of emission reductions should always be preferred.

Greenhouse Gas Reporting Processes

Whether you are required to report on your carbon management activities or whether it is a voluntary commitment, the final step in your carbon management strategy is the completion of an annual report which contains the following elements:

- Energy Audit Report – an inventory of all carbon emitting assets/activities and their level of energy consumption
- Carbon Inventory Report – the calculations leading to the GHG emissions being reported in terms of CO₂ equivalent
- Carbon Baseline – identify your baseline (year and total emissions)
- Carbon Performance – calculate the reductions in carbon emissions you have achieved and if applicable, set new objectives

When completing your report, remember to adhere to the quality principles of **transparency, consistency, comparability, completeness** and **accuracy**.

Further reading/Resource

[The Victorian Local Government Guide to reducing Carbon Emissions](#)

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