



Module 6 – Identifying and Prioritising Greenhouse Gas Mitigation Options

1 Expected outcomes of this module

The purpose of this module is to prioritise actions to mitigate (reduce) Council greenhouse gas emissions.

The expected outcomes of this module are that the Climate Change Action Planning Group will:

- Research emission mitigation actions
- Prioritise emission mitigation actions using an evaluation process



Above: Members of Clarence Valley Council's 'Climate Change Action Plan Team' brainstorming potential mitigation actions at a workshop in November 2009

2 Resources required for module delivery

Delivery schedule	Complete following module 5 " <i>Undertaking and Interpreting Greenhouse Gas Inventories</i> ". The outputs from this module should feed into the Council's climate change action plan developed through module 7 " <i>Preparing an Action Plan</i> "
Time	At least 1.5 hours
Participants	All members of the Climate Change Action Planning Team including: <ul style="list-style-type: none"> • the Steering Committee • the Working Group
Materials	<ul style="list-style-type: none"> • A computer (ideally with internet access) • Emissions Reduction Action Templates • The greenhouse gas inventory • Walk through audit results for high energy consuming sites (if available) • Emissions reduction multi-criteria analysis (MCA) tool • A calculator for each breakout group • White board or A1 size paper and thumb tacks • White board pens or marker pens • Stickers (optional)
Assistance	Required to enter data into the MCA tool

3 How to complete the module

The following tasks should ensure that the expected outcomes of the module are achieved:

- Research possible emission mitigation actions relevant to the priority emission sources
- Identify council specific actions during a brainstorming session
- Estimate the mitigation potential of identified actions
- Prioritise mitigation actions using an evaluation process

3.1 Module preparation

3.1.1 Researching possible mitigation actions

The purpose of this task is to compile a list of mitigation actions which may be suitable to reduce Council emissions. Key sources of information include:

- *The ICLEI CCP Australia Council Profiles Database*
- *Various Council and corporate carbon management and emissions reduction plans*

Mitigation measures can also be identified by conducting a basic walk through audit. An action guide on how to conduct an audit can be found on the LGSA website (www.lgsa.org.au) along with number of resources as a starting point.

The facilitator should:

- Research mitigation actions used by councils across Australia
- Complete the Emissions Reduction Action Template in preparation for the workshop. An Emissions Reduction Action Template should be completed for each emissions source (i.e. electricity use, on-site fuel use, fleet vehicles, etc.) and include the following information (letters highlight the location of this information on the template):
 - The emissions source (A)
 - The estimated emissions quantity from the greenhouse gas inventory (B)
 - Researched mitigation actions (C)
 - Blank spaces for mitigation actions (D) to be completed during the workshop
 - Blank spaces for estimating mitigation potential (as a percentage) (E)
 - Blank spaces for estimating potential savings (tCO₂-e) (F)
 - A template should be produced and printed for every emissions source

It is likely that various staff members will need to be consulted in completing this task. It may be more appropriate for the facilitator, together with the Steering Committee, to delegate this task to another staff member with expertise and experience in this area

3.2 Workshop facilitation

3.2.1 Identifying new mitigation actions

The purpose of this task is to identify and record further potential mitigation actions for Council.

Prior to the workshop, the facilitator should:

- Delegate the task of typing the mitigation actions into the multi-criteria analysis (MCA) tool (point 2 of Box 1). This should be done during the workshop while participants are brainstorming and recording the actions on the Emissions Reduction Action Templates and particularly during the break in the workshop

During the workshop, the facilitator should:

- Present a summary of Council's greenhouse gas inventory and highlight the priority emission sources
- Form breakout groups that contain 3-5 people
- Distribute the Emissions Reduction Action Templates amongst the breakout groups
- Ask each group to brainstorm additional actions and enter them in the Emissions Reduction Action Template

3.2.2 Evaluating the mitigation potential of actions

The effectiveness of mitigation actions can be evaluated by estimating the impact each action would have on reducing greenhouse gas emissions. For example, a Council estimated its greenhouse gas emissions from fleet petrol use to be 500 T/CO₂-e per annum. The Council then identified that switching the council fleet from 6 cylinder to 4 cylinder vehicles could improve vehicle

efficiency by 15%. The mitigation potential of switching the entire fleet would therefore be 75 T/CO₂-e per annum.

During the workshop, the facilitator should:

- Ask each group to present their mitigation actions
- Ask the whole group to estimate the mitigation potential (as a percentage) and enter it into area (E) on the Emissions Reduction Action Template after each action has been presented¹
- Calculate the potential savings and enter this into area (F) by multiplying the mitigation percentage (E) by the estimated emissions quantity (B)
- Once this is completed invite the participants to take a break, allowing time for the assistant to type the mitigation actions into the MCA tool (point 2 of Box 1)

3.2.3 Evaluating the quadruple bottom line potential of actions using MCA

A robust climate change action plan must consider the challenges and impacts of implementing climate change actions. The climate change action plan should identify actions that are undesirable because of their environmental, social, financial or governance impacts (regardless of their ability to mitigate emissions).

The Workshop Package contains a MCA tool for use in evaluation mitigation actions. The tool can be used as it is to evaluate the quadruple bottom line potential of mitigation actions or it can be used as a template and customised

¹ In some instances, workshop participants won't be able to estimate the mitigation potential of an action. When this occurs, inform the group that the Steering Committee will undertake additional research to estimate the mitigation potential of the action.

to suit specific Council objectives. Details on using the MCA tool are presented in Box 1. MCA tools are relatively simple to develop with basic Excel skills.

Box 1 – Using the MCA in the Risk Assessment Tool

1. Insert agreed criteria and weightings into the appropriate cells. The tool comes with default criteria and weightings. Ensure that weightings add up to 100%.

Weighting	5%	25%	25%	25%	15%	10%	Emissions reduction estimate (CO ₂ -e)	
Criteria	Immediacy	Financial viability	Political feasibility	Community acceptance	Flexibility	Concurrent effects		
Code	Emissions reduction action							

2. Populate MCA with mitigation actions, codes and mitigation potential.

Weighting	5%	25%	25%	25%	15%	10%	Emissions reduction estimate (CO ₂ -e)	
Criteria	Immediacy	Financial viability	Political feasibility	Community acceptance	Flexibility	Concurrent effects		
Code	Emissions reduction action							

3. Score each criteria using drop down menus. Default drop down options are descriptive of the criteria being analysed

Weighting	5%	25%	25%	25%	15%	10%	Emissions reduction estimate (CO ₂ -e)	
Criteria	Immediacy	Financial viability	Political feasibility	Community acceptance	Flexibility	Concurrent effects		
Code	Emissions reduction action							

4. The tool will calculate a total MCA score based on each criteria score and their relative weightings. Mitigation actions can be prioritised based on this and their emissions reduction.

Weighting	5%	25%	10%	Total Score	Emissions reduction estimate (CO ₂ -e)
Criteria	Immediacy	Financial viability	Concurrent effects		
Code	Emissions reduction action				
	Switch to biodiesel	Medium term	Low cost	3.1	300.0
				2.4	

Prior to the workshop, the facilitator should:

- Read Box 1 and become familiar with the operation of the MCA tool
- Amend the MCA tool as required

During the workshop, the facilitator should:

- Use a data projector to project the MCA tool to the whole Working Group
- Ensure the Working Group agree with the criteria and weightings of the criteria or amend as agreed
- Facilitate a live scoring session of the mitigation actions using the MCA tool with the whole Working Group

3.3 Finalising module outputs

3.3.1 Completing the evaluation of mitigation potential

During the workshop, the participants may not have completed the Emissions Reduction Action Templates. Following the workshop, the facilitator, Steering Committee or a nominated staff member may have to complete the mitigation potential section (E) and potential savings (F) of the Templates. In some cases estimating the mitigation potential of actions can be quite difficult and the facilitator, Steering Committee or a nominated staff member may have to do further research and/or engage experts to assist with this task.

3.3.2 Plotting effectiveness scores against MCA scores

To prioritise adaptation actions, **the facilitator or the Steering Committee should:**

- Develop a blank chart with appropriate scales on each axis for the effectiveness score and the MCA score (this can be done on a white board or large sheets of paper such as A1 size)
- Use the scores for each action to plot action codes on the chart (the codes make the process quicker and easier to read). This can be done using a marker pen or stickers, which can be moved as desired
- Define clusters of high, medium and low priority actions once all codes are plotted on the chart

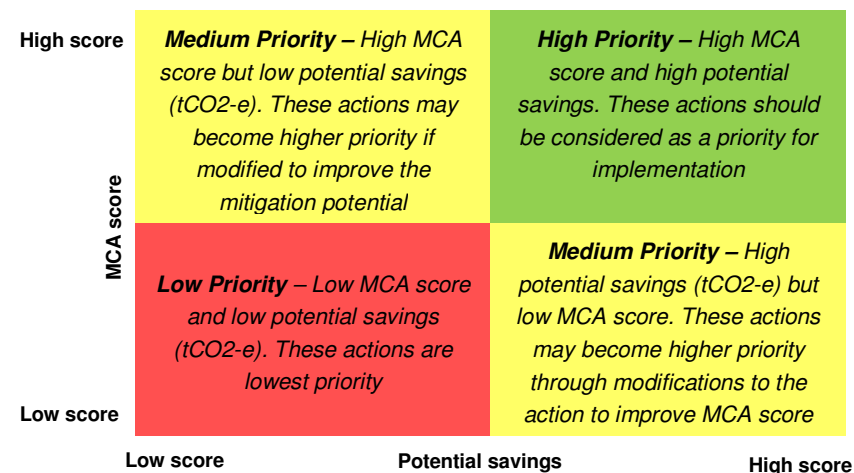


Figure 1: Prioritisation matrix for adaptation actions incorporating MCA and risk effectiveness scores

4 The delivery checklist

Following completion of this module, Council should have achieved the following:

Module deliverables	Complete
Identified relevant mitigation actions through literature review and audits	Yes / No
Estimated emissions reduction for each researched action	Yes / No
Brainstormed actions and assessed their emissions reduction potential	Yes / No
Agreed criteria and weightings for MCA of mitigation actions	Yes / No
Prioritised mitigation actions using MCA and mitigation potential	Yes / No
Re-evaluated actions to confirm priority	Yes / No

5 Useful references

ICLEI Oceania, 2008, *Cities for Climate Protection Australia Local Government Action on Climate Change Measures Evaluation Report 2008*.

ICLEI Oceania, 2009, *Communities for Climate Protection New Zealand Actions Profile 2009*.

Department of Environment, Water, Heritage and the Arts, 2010, *CCP Australia Council Profiles Database*.

Council and corporate carbon management emissions reduction plans

Links to useful resources are found on the LGSA website (www.lgsa.org.au)