

Guidance note
**Climate Change
Responsibilities
and Opportunities
for Rural Councils
in Victoria**

Prepared by

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For nearly two decades, Ironbark Sustainability has worked with councils and their communities to reduce greenhouse emissions, tackle climate change and implement sustainability projects and programs. We bring together a wealth of technical and financial analysis, maintenance and implementation experience in the areas of building energy and water efficiency, climate action and strategy development, public lighting and data management. We pride ourselves on supporting our clients to achieve real action on sustainability.

Our Mission

The Ironbark mission is to achieve real action on sustainability for councils and their communities.

Ironbark is a certified B Corporation. We have been independently assessed as meeting the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.

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Introduction

Local governments are the closest level of government to the community in Australia and have a critical role to play in responding to climate change.

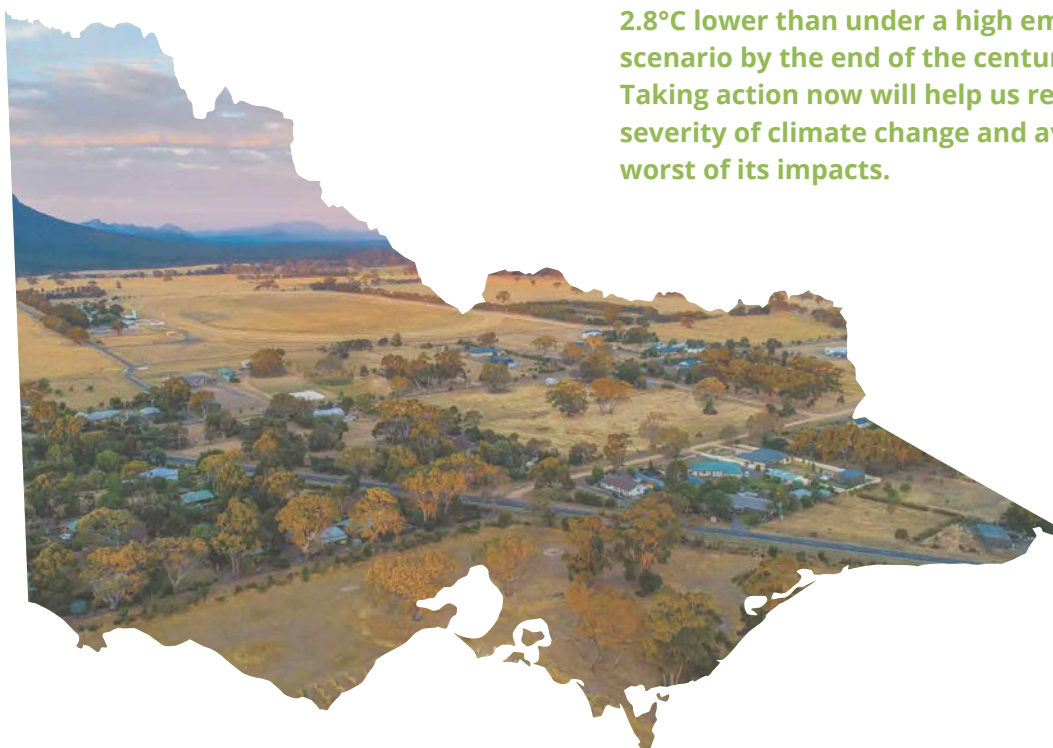
Climate Change in Victoria

Climate change is already having a significant impact on the lives and well-being of Victorians across the State.

Since 1900, Victoria's average annual temperature has increased by 1.2°C. As a result of this increase Victoria is already experiencing less rainfall and more days with dangerous weather conditions for bushfires, as well as a range of other impacts on landscape, productivity, culture and health and wellbeing. If no action is taken to mitigate climate change Victoria is projected to increase by another 1.4 to 2.4°C by 2050 (under a high emissions scenario)¹.

This is projected to result in a range of negative impacts such as less rainfall and around 40% more very high fire danger days. Under a high emissions scenario, parts of Victoria could experience summer days of up to 55°C and winter days of up to 33°C by the 2090s.²

However, local and global action on climate change is still able to reduce emissions significantly. Under a low emissions scenario average annual temperatures are projected to be 2.3°C to 2.8°C lower than under a high emissions scenario by the end of the century.³ Taking action now will help us reduce the severity of climate change and avoid the worst of its impacts.



Local governments are responsible for a broad range of community services and manage a substantial number of assets and infrastructure. Local governments in Victoria are additionally required to promote economic, social and environmental sustainability of their district and achieve the best outcomes for their municipal community, including for future generations. Failure to adequately consider climate change in council decision-making could also expose council to negligence claims and liability risk in the future.

From bushfire and flood risk to extreme heat and declining rainfall, rural councils are on the frontline of climate change impacts and are often first responders when disaster events occur. Rural municipalities are also at the epicentre of the energy and other economic transformation processes that are underway across Victoria. The physical impacts of climate change, together with national and state-wide systems transformation processes that are leading our climate change response, will bring both pressures and opportunities for rural councils and communities. Rural councils have a responsibility to act to reduce community vulnerability to climate change and have a critical role in ensuring that local circumstances are adequately considered and that rural communities benefit from the overall response to climate change.

This toolkit has been developed to provide rural councils in Victoria with a better understanding of their climate change roles and responsibilities as well as the opportunities available to councils that act. The toolkit also provides guidance and links to key resources to help rural councils meet their responsibilities and take meaningful action on climate change.

Rural councils have a responsibility to act to reduce community vulnerability to climate change and have a critical role in ensuring that local circumstances are adequately considered and that rural communities benefit from the overall response to climate change.

How to use these resources

This toolkit includes a high-level guidance note (this document), which provides an overview of key climate change responsibilities, opportunities and barriers for rural councils, plus four modules outlining key steps for action in different areas.

Each module has been designed to be a stand-alone document, so you can pick and choose which modules to explore based on where you are on your climate action journey. It is recommended, however, to read the Guidance Note in full before delving into the individual modules.

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as well as some ways to overcome common barriers faced by rural councils.

Guidance Note

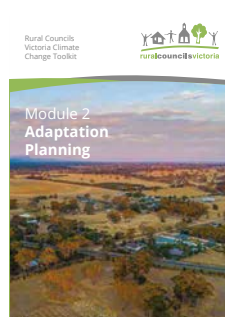
This document goes through local government climate change roles and responsibilities, including legislative requirements. It considers liability risks and benefits and opportunities for action,



council decision-making processes and ensure that climate change becomes a business-as-usual consideration in Council operations. It focuses on developing an understanding of roles and responsibilities across Council, integrating climate change into risk management processes, embedding climate change into key council plans and using climate change scenarios to inform decision making.

Module 1 Integrating Climate Change into Council Decision-Making

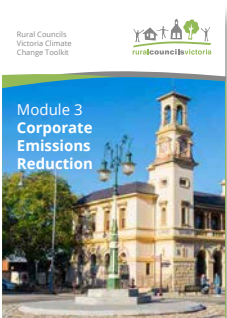
This module considers key actions to integrate climate change into



choosing an assessment approach, engaging stakeholders, identifying and prioritising actions and developing a monitoring framework. The module can be used when developing either corporate or community-based adaptation plans.

Module 2 Adaptation Planning

This module outlines nine key steps involved in developing an adaptation action plan. This includes defining your system boundary,



Module 3 Corporate Emissions Reduction

This module outlines the key steps to develop an emissions reduction plan for Council operations and services.

This includes developing an emissions inventory, establishing emissions reduction targets, developing an emissions reduction strategy, taking action and monitoring and evaluation.



Module 4 Community Emissions Reduction

This module takes you through the process to develop a municipal-wide emission reduction plan.

It follows the same set of steps as for developing a corporate emissions reduction plan but has a focus on different emissions and actions based on the emissions profile.

Ensuring climate action is effective

Effective climate action must reduce the overall climate risks that communities, economies, and ecosystems face.

This can only be achieved by addressing both the causes and the impacts of climate change, at a speed and scale commensurate to the problem.⁴

Figure 1 shows a simplified flow diagram, illustrating the relationship between climate change impacts and mitigation and adaptation responses. Both mitigation and adaptation responses work to reduce climate change impacts, but each focus on different levels and timeframes of action.

While action to mitigate climate change is required to prevent the long-term extreme risks associated with global heating over 2°C, it does not reduce the immediate risks faced by communities from climate change that has already occurred or is already locked in.

Climate change mitigation

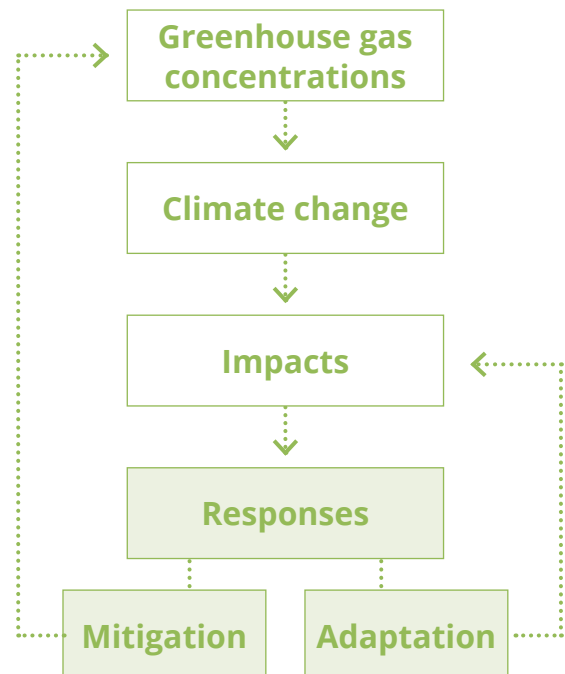
Addresses the global issue of increased atmospheric greenhouse gas concentrations. However, the atmospheric carbon lifecycle means the impact of mitigation actions on the climate will only be fully realised decades later.

Climate change adaptation

Actions that focus on addressing localised impacts of climate change, usually in the short to medium-term.⁵

On the other hand, if we focus only on adapting to climate change and do not address the causes of climate change, in particular increasing emissions and environmental degradation, rural communities will continue to face growing threats to their lives and livelihoods.

Figure 1: Mitigation and adaptation responses to climate change impacts



Source: CIFOR

Ensuring solutions are commensurate with the problem

When identifying climate change actions, it is important to ensure the impact of actions is at a scale commensurate with the program. When developing mitigation actions this can be achieved by assessing the emissions reduction potential of different actions against Council's corporate emissions inventory or the municipality's emissions profile and prioritising high impact actions. Mitigation activities should also seek to reduce emissions in line with a science-derived target, which is benchmarked against the action required to limit global warming to 1.5°C or 2°C (see emissions reduction targets in Modules 3 and 4). For adaptation, interventions should focus as much as possible on 'transformative' actions as opposed to 'coping' actions or 'incremental adaptation' (see step 8 in Module 2).

Integrating climate change into decision-making

Governments and organisations need to ensure the decisions they make now do not build in new risks to foreseeable issues. Making decisions that do not account for foreseeable climate change risks opens councils and other authorities up to issues of negligence and liability risks. Addressing these issues requires councils to integrate climate change considerations across decision-making. This includes assessing the potential impact of climate change on decisions made and assessing the expected greenhouse gas emissions associated with potential actions and decisions.

Why we should be aiming for 1.5°C

At the United Nations Framework Convention for Climate Change (UNFCCC) Paris Conference in 2015, 195 countries signed an international agreement to keep global temperature rise well below 2°C and as close to 1.5°C above pre-industrial levels as possible.

The difference between 1.5°C and 2°C is significant. The Intergovernmental Panel on Climate Change (IPCC) found that limiting warming to 1.5°C globally would reduce the projected frequency and magnitude of floods and droughts substantially⁶ and could result in 420 million fewer people being frequently exposed to extreme heatwaves.⁷ Two times more plant species and three times more insect species are projected to be lost in the 2°C scenario.⁸ Other research has found that in Australia, the chance of a drought equivalent to the 2006 drought occurring each year is 74% under 2°C warming compared to 52% in the 1.5°C scenario. The same research found that the chance of having hot summers, with severe heatwaves, power blackouts and bushfires, is 57% per year with 1.5°C warming compared to 77% for 2°C.⁹

Local government climate change roles and responsibilities

Different roles for different actors

Effective climate action requires complementary and coordinated action across different levels of governments, statutory bodies, civil society and the community. Each actor has a different role to play depending on their responsibility, influence and resources.

In 2015, roles and responsibilities for climate change adaptation across different levels of government were discussed in a Council of Australian Governments (COAG) meeting.¹⁰ Table 1 provides a summary of the agreed roles and responsibilities for Local, State and Federal Governments in Australia.

Effective climate action requires complementary and coordinated action across different levels of governments, statutory bodies, civil society and the community.

Table 1: Local Government Roles and Responsibilities

LOCAL GOVERNMENT	STATE GOVERNMENT	FEDERAL GOVERNMENT
<ul style="list-style-type: none"> • Administer relevant legislation to promote adaptation, including the application of relevant codes like the Building Code of Australia • Ensure policies and regulations under their jurisdiction incorporate climate change • Manage risks and impacts to public assets • Manage risks and impacts to LG service delivery • Collaborate with other levels of government and other councils to manage risks of regional climate change impacts • Facilitate building resilience and adaptive capacity in the local community • Work in partnership with the community to manage local climate risks • Advocate to state and federal government for policy reform 	<ul style="list-style-type: none"> • Provide local and regional climate science and projections • Provide assessment tools and other resources • Manage climate risks and impacts for State assets and services including emergency management, transport, land-use planning, environment, health services and public housing • Cooperate with other governments to manage risks from climate change impacts that cross state boundaries • Encourage climate resilience and adaptive capacity, including through: <ul style="list-style-type: none"> - Communicating climatic changes - Ensuring regulatory and market frameworks promote adaptation - Improving adaptive capacity and climate resilience in vulnerable communities - Supporting Local Governments 	<ul style="list-style-type: none"> • Provide national climate science and projections • Manage climate risks and impacts for Commonwealth assets • Work with other levels of government in managing climate change risks to public assets of national significance • Manage climate risks and impacts for federal programs and services, including environmental protection, community health, emergency management and national security • Lead reform on national adaptation and working with other levels of government to: <ul style="list-style-type: none"> - Ensure compliance with international treaties - Establish national adaptation priorities - Develop a consistent approach, for example through codes and standards for engineering works and buildings - Consider the needs of vulnerable communities. • Maintain a well-targeted social safety net and a strong, flexible economy.

Legislative requirements for Victorian councils

In Victoria, recent legislative changes have introduced an overarching duty of care for local governments to consider the impact of climate change on the municipal district as well as specific requirements to consider climate change in decision-making in key areas. These changes provide an important legal basis for local governments to act on climate change but should not be seen as a limit to action. Legislative requirements should be considered together with other imperatives discussed in this guidance note, including economic, social and environmental imperatives.

The Local Government Act 2020

The amendment to the local government Act in 2020, introduced a number of overarching governance principles that councils must give effect to in the performance of their role.

These include:

- achieving the best outcomes for the municipal community, including future generations, and
- promoting the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risks.

These governance principles place a clear responsibility on councils to ensure that decision-making is informed and seeks to minimise climate change risks.

Risk and Audit Committee

The amendment to the Local Government Act also introduced the requirement for local governments to establish an Audit and Risk Committee. Key functions and responsibilities of an Audit and Risk Committee include:

- monitoring compliance of Council policies and procedures with the overarching governance principle, and
- monitoring and providing advice on risk management.

This requires the Audit and Risk Committee to monitor and report on the inclusion of climate change related governance principles across Council's policies and procedures as well as risks relating to climate change across these policies and procedures.

The Local Government Act 2020 – Overarching governance principles

Part 2, Division 1:

9(1) A Council must in the performance of its role give effect to the overarching governance principles.

9(2) The following are the overarching governance principles-

9(2)(b) priority is to be given to achieving the best outcomes for the municipal community, including future generations;

9(2)(c) the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risks is to be promoted;

9(2)(d) the municipal community is to be engaged in strategic planning and strategic decision-making.

The Climate Change Act 2017

The Climate Change Act 2017 introduces specific requirements for local governments to consider climate change in decision making as well as state-wide requirements that councils will need to adhere to.

Emissions reduction

The Act legislates a state-wide net zero emission target by 2050. The net zero target requires Victoria to reduce its emissions as close to zero as possible and at the same time increase sequestration activities to remove greenhouse gases from the atmosphere.

The Act also provides the opportunity for local governments to make emissions reduction pledges alongside sector and state government pledges.

In 2021, Victoria's Climate Change Strategy introduced a 2030 interim emissions reduction target of 45-50% below 2005 levels.

Integrating climate change into decision making

The Climate Change Act also requires any decision made under the following pieces of legislation to consider climate change.

- Public Health and Wellbeing Act
- Environment Protection Act
- Catchment and Land Protection Act
- Marine and Coastal Act
- Flora and Fauna Guarantee Act
- Water Act
- Circular Economy (Waste Reduction and Recycling) Act

In considering climate change, the relevant decision-maker must have regard to:

- the potential impacts of climate change relevant to the decision or action, and
- the potential contribution to the State's greenhouse gas emissions of the decision or action.

An example of how this legislative requirement provides new obligations on local governments to consider climate change is the under the Public Health and Wellbeing Act. Under this Act, local governments are required to develop Municipal Public Health and Wellbeing Plans (MPHWP). As a result of the Climate Change Act, local governments are now required to integrate climate change into the development their MPHWP.

Many local governments in Victoria also have decision-making responsibilities under the Environment Protection Act, the Marine and Coastal Act, Flora and Fauna Guarantee Act and the new Circular Economy Act. Decisions made under any of these Acts must now consider both the climate change impacts and potential greenhouse gas emissions relevant to the decision.

Planning and Environment Act

Under the Planning and Environment Act a planning authority, such as local governments, must have regard to the Victorian Planning Provision (VPP).

In June 2022, Amendment VC216 was made to the VPP.

The amendment makes a significant shift in the focus of the VPP towards supporting greater action on climate change.

The amendment introduces supporting responses to climate change as a key purpose of the VPP and for the first time introduces concepts such as climate change mitigation, adaptation, net zero emissions and renewable energy as key considerations for planning decision-making.

A few notable amendments, among others, include:

Clause 11.01-25 (Settlement) to include strategies that contribute to net zero emission outcomes, integrate water resource management and support metropolitan and regional climate change strategies.

Clause 13.01-15 (Natural hazards and climate change) to add consideration of climate change and health.

Clause 15 (Built environment and heritage) to include planning policy to achieve ESD for buildings and subdivisions.

Clause 19 (Infrastructure) to include planning policy relating to minimising environmental impacts and increasing resilience to climate change risks.

The VC216 amendments are an outcome of Stage 1 of the Victorian Government's ESD roadmap. Stage 2 of the roadmap will focus on development of new ESD objectives and standards to support the achievement of strategies set out in the VPP.

For the first time, all local planning schemes will include provisions which expressly require the consideration of climate change (including mitigation and adaptation) as part of the decision making process.¹¹



Liability risk

Local governments that do not adequately consider and account for climate change when exercising their statutory responsibilities may be exposed to issues of liability and may risk a cause of action being taken against them.

A Council may be found to be negligent when exercising a responsibility if they are found to:

1. have a duty of care
2. have breached that duty through an act or an omission, and
3. a plaintiff has suffered damages caused by that breach.¹²

Research conducted by DELWP in 2021 found that: 'Councils have a duty of care in the context of climate change adaptation, [which] has been recognised by VCAT since 2010'. It also found that: 'The standard of care is higher for governments than others who may have a duty'.¹³

Claims could potentially arise from local government decision-making relating to:

- appropriateness of development approvals in flood prone, coastal or at-risk areas
- adequacy of emergency procedures
- responsibility for erosion and landslips,
- failure to undertake disease prevention programs
- failure to preserve public spaces and natural assets
- adequacy of building standards to withstand extreme weather events, and
- action and inaction regarding mitigation and adaptation measures.¹⁴

Councils failing to disclose information about climate change risks could also be exposed to potential liability.¹⁵

For more information of potential liability and negligence issues for Local Governments please refer to the following two documents:

[DELWP, 2021. Local Government Climate Change Adaptation Roles and Responsibilities under Victorian legislation, Guidance for Local Government Decision-makers.](#)

[Baker & McKenzie, 2011. Local Council Risk of Liability in the Face of Climate Change – Resolving Uncertainties: A Report for the Australian Local Government Association](#)



The 2021 DELWP Guidance for Local Government Decision Makers includes a checklist for decision-makers (page 14). Based on the guiding principles of the Climate Change Act 2017, this checklist can be used to help ensure Local Governments are taking appropriate steps to consider and account for climate change in decision-making and help protect themselves against liability risk.



Benefits and opportunities for action

There are significant benefits and opportunities available to rural councils who start acting on climate change.

These range from reducing council operational and financial risks to attracting investment and industry in your region.

Councils who proactively take action will put themselves and their communities in the best position to maximise the benefits and opportunities of the national and state-wide response to climate change.

The following tables summarise some of the key benefits of climate action for rural councils in Victoria.

Councils who proactively take action will put themselves and their communities in the best position to maximise the benefits and opportunities of the national and state-wide response to climate change.

BENEFITS TO COUNCIL OPERATIONS

Reduce risk of damage to assets and infrastructure	Extreme weather events made more frequent by a changing climate will increase the risk of severe damage to physical assets and infrastructure. Adaptations such as higher levees, bushfire resistant buildings and heat refuges will protect council assets during these events.
Reduce risk of disruptions to council services and operations	More frequent and severe climate hazards are likely to lead to increase disruption of Council services and greater challenges in maintaining Council assets and infrastructure. For example, more frequent extreme heat days lead to higher cancellation of health and community care services and put greater pressure on maintenance of natural assets. Proactive planning for increased extreme weather can help to minimise service disruptions and maintenance issues.
Reduce risk of liability and reputational damage	Local governments have a duty of care to their communities and have responsibility for the health and wellbeing of their constituents. Failure to take action to mitigate and adapt to climate change could lead to Council being held liable for adverse outcomes or face significant reputational damage.
Reduce risk of unplanned expensive transition processes	Global shifts towards a low carbon economy mean that fossil-fuel powered assets, such as internal combustion engine vehicles, will become obsolete over the coming decades. Careful planning and early adoption of alternative technologies for these assets will ensure a gradual and cost-effective transition process.
Reduce council operational and maintenance costs	<p>Council's operational costs will be reduced by decreasing energy demands through energy efficiency and onsite renewable energy generation. These actions can have payback periods of as little as four years.</p> <p>By adapting assets in response to climate change and procuring assets with reduced maintenance needs, such as electric vehicles, councils will also reduce their maintenance costs.</p>



BENEFITS TO COMMUNITY

Reduce exposure and vulnerability to climate related extreme weather and disaster events

An increase in the frequency and severity of extreme weather events, including extreme fire weather, is likely to have a significant impact on rural communities. Rapid global emission reduction will mitigate the worst and most severe climate change impacts, reducing the expected magnitude of future climate hazards. Local adaptation actions that reduce exposure and vulnerability to climate hazards, for example flood levees and heat refuge and tree planting programs, can support the community to better cope with the impacts already being experienced.

Enhance well-being and liveability of rural communities

Many of the actions required to adapt to climate change can also enhance the liveability of regional communities by improving local amenity. Using integrated water management approaches to manage flood risk, for example, can create more green spaces and help to reduce heat island impacts, while increasing tree canopy cover in townships will increase shading and make services and retail precincts accessible for longer during hot days. The installation of solar and battery systems can improve energy security, in particular on extreme heat days.

Reduce risk that municipal community is 'left behind' in the low carbon transition

For Victoria to achieve its zero emissions goals, all sectors of the economy and all parts of society must be included in the low carbon transition. Councils are uniquely placed to support, educate, and advocate on behalf of all members of the community, making sure no one is left behind.



ECONOMIC DEVELOPMENT OPPORTUNITIES

Large scale renewable energy	To achieve its renewable energy targets, the Victorian government is developing Renewable Energy Zones to allow the connection of 10 GW of additional renewable generation to the grid. Large scale renewable energy projects will benefit rural councils by creating jobs and supporting investment in the local economy.
Carbon sequestration	As governments and businesses increasingly commit to net zero targets, the demand for carbon credits to offset emissions will grow. This presents an opportunity for rural councils to work with local landowners and create carbon sequestration projects to generate carbon credits. These can be used to offset the local community's emissions or sold on the carbon credit market. Several Catchment Management Authorities are working on developing carbon exchange programs, whereby local organisations will be able to purchase offsets directly from carbon sequestration projects within the region.
Energy security through micro-grid and battery systems	A microgrid is a local energy grid, where power is generated close to where it is consumed. Microgrids can be connected to the central grid, however, can also be disconnected and operate in an "island" mode, particularly when they include energy storage systems. This provides greater energy security, as during periods of wider grid instability or outage the microgrid can isolate itself and be self-sufficient. A microgrid also allows sites with small renewable generation capacity to benefit from the excess generation of neighbouring facilities.
Green hydrogen	Green hydrogen is a zero emissions alternative to fossil fuels and is expected to be used for assets that cannot be electrified. As significant amounts of renewable energy are required to produce green hydrogen, rural Victoria can take advantage of its ample renewable resources to co-locate generation with hydrogen hubs. This will strengthen local supply chains and create jobs.
Infrastructure to support the visitor economy	Personal responsibility for environmental protection is influencing the tourism industry as people increasingly understand the impact of their lifestyles, including travel. Providing infrastructure to support people in minimising their emissions, for example electric vehicle charging, will attract visitors and boost the local economy.

Addressing rural council barriers to action

During the consultation process undertaken for the development of this toolkit, a number of specific barriers were identified to rural councils taking greater action on climate change.



The table below outlines these barriers and provides suggested solutions, also identified by rural council staff, that could be considered to overcome the barrier.

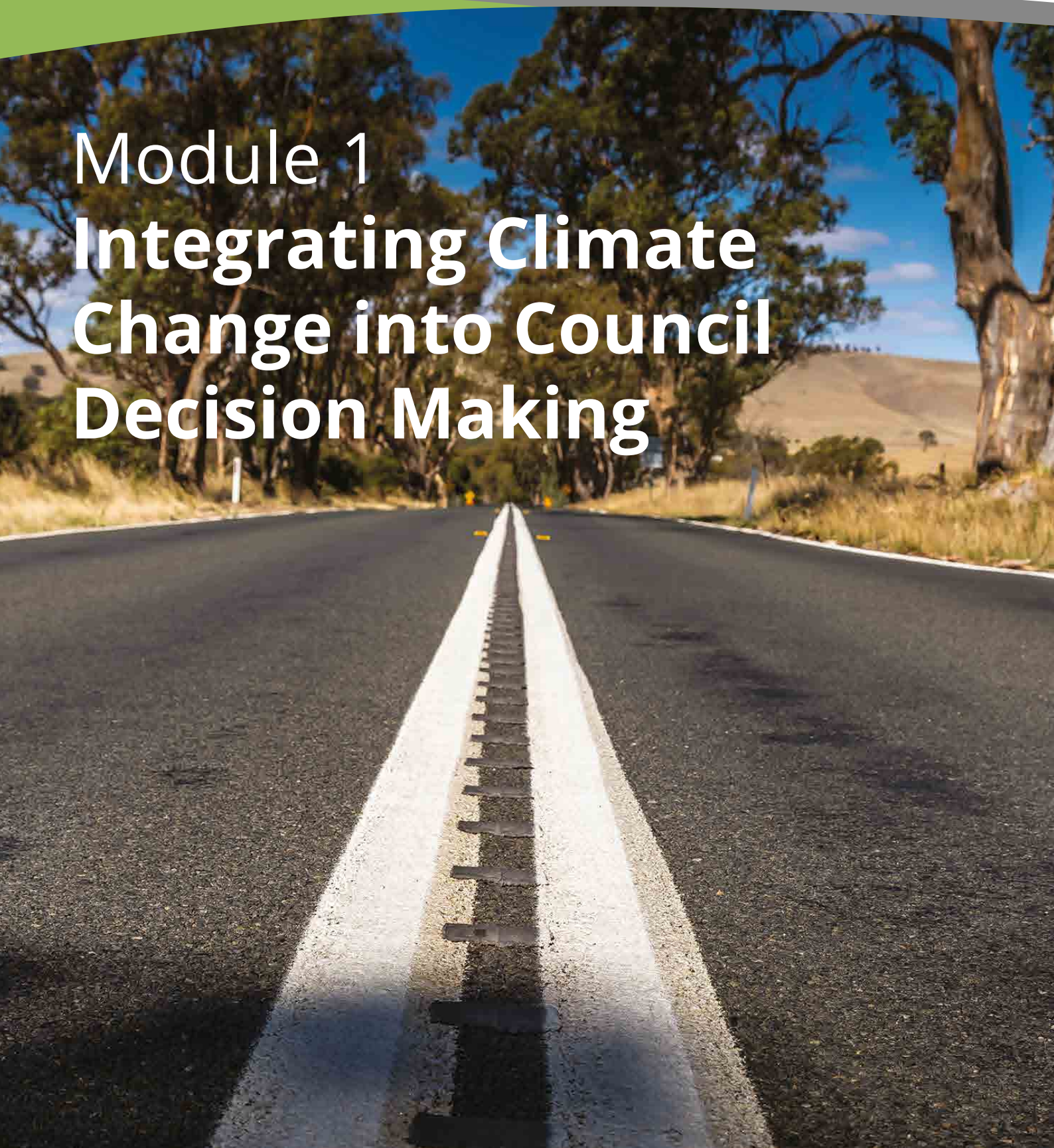
BARRIERS	POSSIBLE SOLUTIONS
Low internal council resourcing to undertake climate action	<ul style="list-style-type: none"> • Adopting a shared services model: sharing an officer or technical resource across a number of neighbouring councils. • Sharing templates, policies, plans with other councils - don't reinvent the wheel. • Good workforce planning: demonstrating the need for resources in a quantitative way. • Highlight that there are funding opportunities being missed because there is insufficient internal resourcing to secure and project manage opportunities. • Working with key stakeholders in the community to implement climate action and enhance impact.
Lack of internal council climate change knowledge and expertise	<ul style="list-style-type: none"> • Utilise the RCV Climate Change Toolkit (This toolkit). • Seek support and guidance from local government peers through the Climate Emergency Australia Basecamp forum. This is platform for council officers to share ideas and resources. • Upskilling by attending webinars and workshops.
Lack of understanding of organisational roles	<ul style="list-style-type: none"> • Refer to Table 1 in the Module 1 of this toolkit for information on the different roles and responsibilities for climate action across Council. • Establish a cross-council climate change working group (see Toolkit Module 1). • Seek support from the Climate Emergency Australia Basecamp forum.
Low organisational priority	<ul style="list-style-type: none"> • Educate Councillors about climate change, its impacts and Council legislative requirements to consider climate change (as well as potential liability risk for not considering it). • Demonstrate financial benefits of action, in particular the high return on investment for energy efficiency and renewable energy actions. • Explain the benefits of acting earlier, including economic development opportunities, and the transitional risks associated with not acting. • Include the social context of climate change and potential impacts on community, business and industry in discussions.
Lack of funding for climate action	<ul style="list-style-type: none"> • Work with greenhouse alliances and other councils on regional initiatives that may have lower initial costs. • Seek grant funding for actions where available, for example for the installation of public facing electric vehicle charging infrastructure. • Consider finance for actions with high return on investment, for example from the Clean Energy Finance Corporation (CEFC). • Set up an Environmental Upgrade Finance program in your LGA to facilitate low interest capital to ratepayers for adaptation and energy efficiency actions.

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Module 1

Integrating Climate Change into Council Decision Making



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About this module

This module of the Rural Councils Victoria Climate Change Toolkit looks at actions that can be taken to integrate climate change into Council decision-making and help climate change become a business-as-usual consideration in Council planning and operations.

Section 2 of this module outlines key roles that different departments across Council have in response to climate change. Section 3 considers organisational risk management approaches for climate change and Section 4 provides an overview of actions that Council can take to embed climate change into decision-making. Finally, Section 5 provides information on the use of climate change scenarios to inform Council decision-making.

It is recommended that Council staff first read the Local Government Climate Change Responsibilities and Opportunities Guidance Note, part 1 of this toolkit.

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Developing an understanding of climate change roles and responsibilities across council

Action on climate change is not just the responsibility of Council Environment and Sustainability teams.

Climate change impacts cut across Council operations and almost all Council departments have roles and responsibilities related to climate change. Building an understanding of the different roles and responsibilities is an important first step in integrating climate change into Council decision-making and taking more systematic action.

Table 1 outlines common climate change roles and responsibilities for different areas of Council. This is not an exhaustive list but is intended to help Council staff build an understanding across the organisation of how climate change may need to be considered by different areas.

Establishing a Cross-Council Climate Change Working Group

Establishing a cross-council working group on climate change can help to build a greater understanding of climate change roles and responsibilities across Council. By facilitating the sharing of information on climate change impacts and risks, a cross-council working group can help to improve the identification and prioritisation of risks by ensuring the true extent of impacts and risks across Council is understood. A working group can also improve the identification and help facilitate the co-design of actions that support outcomes in multiple areas. This approach can also reduce the risk of actions being implemented in one area adversely affecting other council areas.

Table 1: Council department climate change roles

AREA	CLIMATE CHANGE ROLE
Executive Leadership	<ul style="list-style-type: none"> • Ensure Council adheres to climate change related governance principles • Integration of climate change into Council Plan • Development of Climate Change Policy • Actively monitor and report on climate change issues across council • Ensuring meaningful engagement with municipality on climate change issues, including Traditional Owners • Updating Council advocacy plan to include climate change issue to advocate to state and federal governments
Audit and Risk Committee	<ul style="list-style-type: none"> • Monitor Council adherence to climate change related governance principles • Integrate climate change into council risk management procedure • Include climate change in organisation strategic risk register • Support organisation embedding climate risk considerations into operations and planning
Environment and sustainability	<ul style="list-style-type: none"> • Climate change subject matter experts • Support development of climate change policy and integration of climate change into Council strategies and plans • Monitor and report on Council's greenhouse gas emissions • Lead the development of climate change strategies and plans • Monitor implementation of climate actions
Fleet Managers	<ul style="list-style-type: none"> • Adopt fuel efficiency and emission standards across fleet • Commence planning for EV transition • Educate and empower staff to use the new EV technology
Parks and Open Spaces	<ul style="list-style-type: none"> • Identify climate adapted tree species for future planting • Improve water efficiency and increase use of recycled water • Develop programs to green townships, particularly for heat hotspots • Assessing the viability of 'food forest' or community garden projects
Public Health and Community Care	<ul style="list-style-type: none"> • Conduct heat health planning/develop heatwave management plan • Manage vulnerable persons registers • Integrate climate change considerations into MPHWP • Assist clients plan and prepare for extreme weather and emergency events • Identify heat hot spots and shading needs in rural townships

AREA	CLIMATE CHANGE ROLE
Asset, Building and Facility Managers	<ul style="list-style-type: none"> • Assess climate change impacts on asset maintenance requirements and lifecycle • Apply climate adjusted standards in infrastructure design • Apply environmentally sustainable design (ESD) and water sensitive urban design (WSUD) principles and approaches to asset and building design, particularly in rural townships • Consider embodied carbon when planning infrastructure projects • Improve energy efficiency and use building management system (BMS) to optimise energy use in buildings, heating, ventilation and air conditioning (HVAC) and appliances • Ensuring materials used for construction are acquired from a sustainable source
Emergency Management	<ul style="list-style-type: none"> • Ensuring emergency preparedness planning accounts for climate change • Assess the potential impact of concurrent or successive disaster events as a result of climate change • Upgrade evacuation centres with solar and battery systems for energy security during disaster events
Finance	<ul style="list-style-type: none"> • Monitor financial impacts of extreme weather events, including changes to insurance premiums • Embed and monitor sustainability requirements in procurement policies • Re-invest the energy and resource savings into further mitigation or adaptation activities
Planning	<ul style="list-style-type: none"> • Consider potential impact of climate change on planning decisions • Include environmental overlays in planning scheme where required • Implement the Council Alliance for a Sustainable Built Environment (CASBE) recommendations for Green Star rating
HR	<ul style="list-style-type: none"> • Inclusion of climate change training in corporate induction • Support identification of climate change training needs • Support/advocate for new/additional sustainability staff in council • Ensure staff can access appropriate assistance programs to support them manage climate change related mental health issues
Waste	<ul style="list-style-type: none"> • Assess options for emissions reduction from municipal landfill • Ensuring best practice approach when developing recycling procedures • Support introduction of FOGO collection • Ongoing education to promote benefits of circular economy • Pilot use of recycled materials in infrastructure

Integrating climate change into councils' risk management processes

The IPCC defines climate risk as the potential for consequences where something of human value (including humans themselves) is at stake and where the outcome is uncertain. Climate risks are a key component of a council's risk profile.

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Types of climate risk

There are both direct and indirect climate risks to councils. Direct risks occur when a council is directly impacted by climate change hazards. It can affect assets, infrastructure and operations that are owned or managed by the council. Examples include damage to assets and infrastructure resulting from extreme weather events or drought-induced soil contraction, increased maintenance requirements of open spaces due to declining rainfall, and risks relating to the functional performance of assets, such as maintaining thermal comfort in council facilities during extreme heat events.

Some of the types of infrastructure that may be exposed to climate change impacts are:

- Roads
- Drains
- Footpaths
- Council facilities like libraries, town halls and pools
- Public open space.

Indirect risks influencing a council's operations include:

- Increased insurance premiums or refused insurance cover.
- Disruption to council workforce as staff members are impacted by climate impacts such as extreme weather events.
- Litigation risks from failure to adequately manage public infrastructure and community facilities.

Indirect risks also include litigation risks from:

- Failing to take into account climate change as part of strategic planning and development approvals.
- Inadequate emergency procedures.
- Failing to provide information on climate change and hazard risks.
- Releasing incorrect information on climate change and hazard risks.

Additionally, there are the broader impacts of climate change on the community and associated risks, some of which are strongly influenced by council planning and decision making (e.g. heat hotspots in rural townships and new developments).

Iterative risk management

The IPCC 5th Climate Change Assessment Report identifies iterative risk management as a useful framework to guide decision-making in complex situations characterised by persistent uncertainty. It involves iteratively considering assessment, action, reassessment and response in relation to climate change impacts. It is particularly important because actions taken to manage a climate risk will affect the outcome.

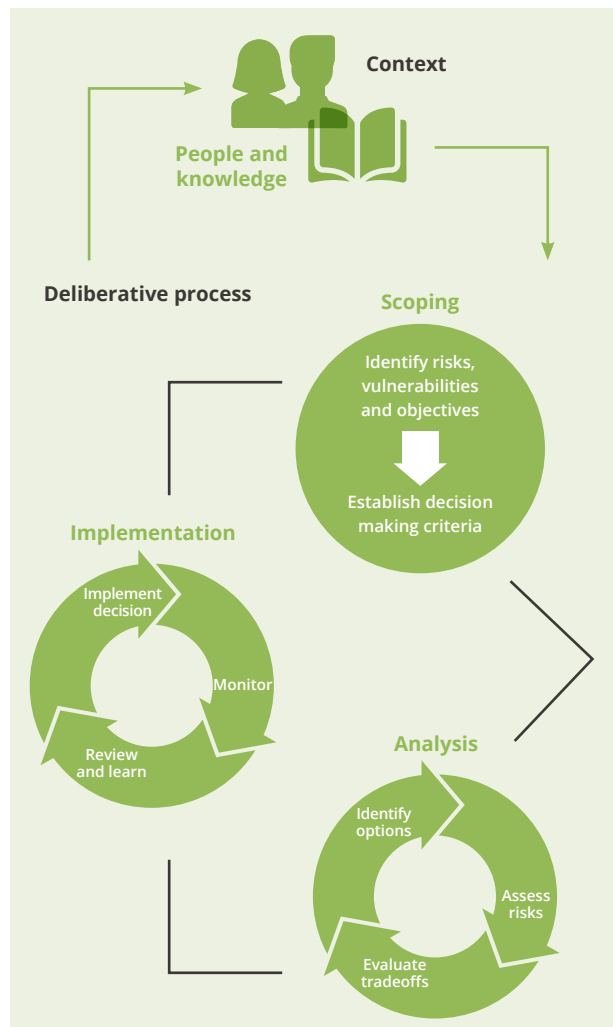
Figure 1 shows that the internal risk management process starts with scoping the risks, including establishing decision-making criteria.

Risks identified through the scoping stage feed into the analysis stage where decisions on the preferred actions are made before implementation of the decision. Critical to this stage is the evaluation of trade-offs or any potentially negative impacts that may result from the identified action. This includes consideration of whether the action is likely to result in a non-trivial increase in greenhouse gas emissions. Such actions are considered 'maladaptive' and should not be pursued if there are viable alternative options to reduce the risk.

All actions that are implemented should be carefully monitored to assess their impact, ensure they do not lead to any unintended negative consequences and document learnings. Learnings from implementation of actions then feed into the subsequent scoping stage, which starts the cycle again.

The external context (people and knowledge) shapes both the process and its outcomes. The process can continue for decades or more, particularly in the case of council assets, which have lifetimes of 50 years or more.

Figure 1: Climate-change adaptation as an iterative risk management process with multiple feedbacks



Audit and risk committees

Audit and Risk Committees are established under the Local Government Act 2020. These committees have a key role in monitoring the compliance of Council policies and procedures with the overarching governance principles in the Local Government Act 2020 including climate change related governance principles. Given their important role in managing climate risk, it is recommended that climate change should be specifically mentioned within their charter.

An example of a council Audit and Risk Committee that has included monitoring climate risk as part of their role is the committee of [Greater Shepparton City Council](#).

Strategic risk register

Including climate change risks in Council's strategic risk register is a key way to ensure the regular monitoring and reporting of climate change risks by Council. Councils will usually need to report on strategic risks quarterly, including actions taken to ameliorate strategic organisational risk. This helps to ensure that climate change remains a priority on Council's agenda.

Council's risk management framework

Under the Local Government Performance Reporting Framework councils are required to develop a Risk Management Framework and identify their strategic risks. Integrating climate change into the Risk Management Framework will support councils to embed consideration of climate risks into their risk management approach. It will also ensure regular reporting on climate change risks to senior management and executive leadership teams.

The key things to include in the risk management framework are:

- An acknowledgement of climate change as an important risk that councils face,
- A description of the types of climate risks the council needs to consider (described in more detail in Section 3.1),
- A requirement for the council to report on climate risks,
- A requirement for consideration of climate risks to be cross-organisational,
- A requirement for climate change risks to be considered in all council decisions,
- An outline of an iterative risk management approach to managing and developing council assets, as outlined in Section 3.2, and
- An acknowledgement of the importance of not 'building in' new climate risks by not adequately considering climate change in decision making.

Embedding climate change considerations into council policies and plans

There are a number of different strategies and approaches that Council can take to embed climate change into council decision and ensure Council is meeting its requirements under the Local Government Act 2020.

Some Victorian councils have made it a requirement that every report going to their Executive Management Team has a section addressing climate change. While other councils require that all actions within their Climate Change Strategy are reported on each quarter by the relevant department. This section outlines some key actions Council can take to embed climate change into decision-making.

This section outlines some key actions Council can take to embed climate change into decision-making.

Developing a Climate Change Policy

Establishing a Council Climate Change Policy provides a clear statement of intent for how climate change should be considered across Council as well as Council's level of ambition.

Key elements recommended to be included in a Climate Change Policy include:

A policy statement

This should outline Council's position and role in responding to climate change. It can also include statements linking the legislated responsibilities for example under the Local Government or Climate Change Acts.

Scope of Policy

It is recommended that the Climate Change Policy is developed as a whole-of-Council policy.

Policy objectives

Objectives should describe what Council intends to achieve in response to climate change. This could include objectives focused on developing of a framework to guide decision-making on climate change, improving climate risk management processes, reducing climate change risk and vulnerability and establishing net zero emission targets for corporate and community emissions.

Principles

Given the breadth of potential climate action establishing a set of principles guide decision-making and the development of action can ensure that actions are as effective as possible. Principles could align with the Climate Change policy principles set out in the Climate Change Act 2017.

Responsibilities

This section should outline the responsibilities for implementation of the policy across Council, including Councillors, Executive Leadership, relevant committees and managers and staff from across Council.

An example policy is [Gannawarra Shire Council's Climate Change Policy](#)

Integrating climate change into key council plans

Council plans

The [NAGA Embedding Climate Change in the Council Plan](#) report outlines how you can embed climate change in your Council Plan, and why you should do this. This includes information on incorporating climate change into:

- A statement of commitment to climate change, incorporated into the Mayor's statement at the start of the Plan.
- The section on local context, opportunities and challenges; covering your emissions and sources as well as local impacts and vulnerabilities.
- Strategic objectives and strategies. While climate change can be considered as a theme in its own right, it is also important to consider climate change as a risk across all themes.
- Strategic indicators that relate to climate change, such as food waste diverted from landfill or tree canopy coverage.
- Initiatives/priorities, ensuring that there are one or two projects that aim to address emissions reduction, climate change adaptation and/or advocacy around climate action.

Climate change can also be considered in Council's 10-yearly Community Vision.

Municipal public health and wellbeing plan

Local Government are now required to consider climate change when developing Municipal Public Health and Well-being plans. This should include consideration of any potential climate change on the health and well-being of the municipal district as well as potential greenhouse gas emissions of any decision or action taken.

The Department of Health and Human Services has developed guidance on how to integrate climate change into a council's MPHWP [here](#).

Emergency management plans

Climate change should be integrated into Council's Municipal Emergency Management Plan as well as other related emergency plans, including flood, bushfire and heatwave management plans. While climate change does not change council responsibilities for emergency management, it is already having a significant impact on the frequency, duration and severity of climate related hazards resulting in greater disaster events.

In Victoria, we are already seeing bushfire seasons becoming longer and fires burning much more intensely, as was witnessed in the 2019/20 Black Summer Bushfires. We are also already experiencing more extreme heat days across the state, while sea-level rise and more intense rainfall events risk more severe flooding.

Ensuring the emergency preparedness and response actions assesses and plans for the increased frequency and severity of these events is essential in ensuring Local Governments can provide critical life-saving support their community in future disasters.



Planning

Amendment VC216 to the Victoria Planning Provisions, introduced in June 2022, provides new requirements for planning authorities, like Local Governments, to consider climate change when making planning decisions. The amended planning scheme now requires climate change to be considered in a range of ways from the inclusion of strategies that contribute to net zero emission outcomes to the inclusion of planning policies that achieve ESD for buildings and subdivisions and that minimise environmental impacts and increase resilience to climate change risks.

The Council Alliance for a Sustainable Built Environment (CASBE) has developed the [Sustainable Design Assessment in the Planning Process \(SDAPP\) tool](#) to:

- support planners achieve more sustainable building outcomes,
- assess sustainable development matters during the planning permit application process, and
- support the consistent inclusion of key environmental performance standards into the planning permit approvals process.

It provides guidance to planners across 10 sustainable building categories, from energy and water efficiency to construction and building management

The amended planning scheme now requires climate change to be considered in a range of ways from the inclusion of strategies that contribute to net zero emission outcomes to the inclusion of planning policies ...

Asset Management Plans

Councils are required to have processes in place for planning, acquisition, operation and maintenance, renewal and disposal of assets, including managing risks and costs over the entire lifetime of council assets.

The Local Government Asset Management Better Practice Guide states that: 'The long-lived nature of many assets and the need for their ongoing renewal means that planning must be based on an understanding of the full costs throughout each asset's lifecycle, and address both short and long-term planning needs'.

As many Council assets can have life spans of over 40 years, consideration of projected changes to the future climate up to and beyond 2050 is critical to ensure that new and renewed assets can maintain functional performance over their entire lifetime.

To ensure that climate change is consistently considered across all Asset Management Plans, it is recommended that it is made a requirement within Council's Asset Management Policy.

Moyne Shire Council recently updated its 10-year Asset Management Plan, which included strong consideration of climate change.

Specifically, the plan:

- Acknowledges climate change as a key driver of asset management, planning and investment
- Notes that: 'Climate change, extreme weather and emergency events are impacting and are forecast to continue to impact on Council and community assets and safety.'
- Highlights extreme weather events, climate change and buildings and structures not built to withstand climate change events as causes of high asset risks, such as 'storm, flood and fire events impacting on asset condition and usability, community safety and resilience.'
- 'Addresses impacts of climate change and extreme weather events on the existing capacity, sustainability and functionality of the asset base, and impacts on community safety' in asset renewal, upgrade and acquisition forecasting.
- States that 'asset design, renewal and development will need to incorporate features, equipment and materials that reduce the impact of climate change and weather.'
- Has an action that 'templates for development, planning and reporting for key asset activities under the main asset lifecycle management processes will be developed, and include responses to climate change and emergency events.'
- Requires that 'monitoring and addressing the impacts of climate change, weather and emergency events are included in asset planning and reporting.'

Using climate change scenarios to inform decisions

As future climate change impacts for rural Victoria cannot be precisely known and are dependent on the scale and urgency of global action to reduce emissions and mitigate climate change, it is important to plan and prepare for a range of different climate change scenarios for your region.

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While it is important to understand and prepare for the worst-case scenario, making decisions with only the worst case in mind could lead to unnecessary decisions or actions that are over engineered or designed at great cost to Council.

Developing a set of climate change scenarios for your municipal area can help to improve the understanding the different types and magnitudes of impacts on your region, at different degrees of warming. Comparing the expected differences between different climate change scenarios can also help determine thresholds for decision-making and trigger points for action, which can help to improve planning and ensure Council funds are used most effective.

According to the IPCC, assessment of the widest possible range of potential impacts, including low-probability outcomes with large consequences, is central to understanding the benefits and trade-offs of alternative actions.

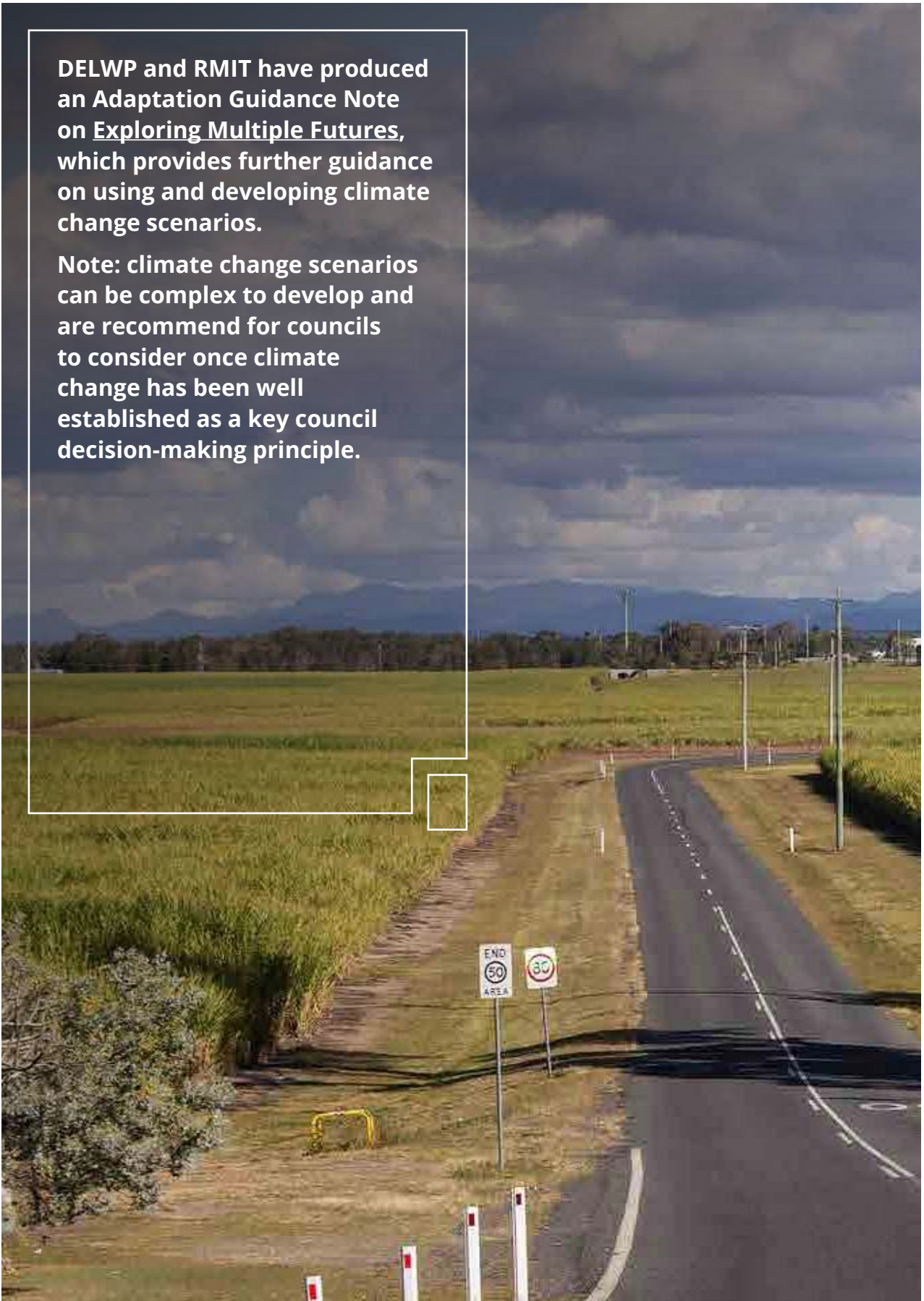
Narrative-based climate change scenarios

One of the most common forms of climate change scenarios is narrative based scenarios. Narrative based scenarios seek to describe the expected impact of different magnitudes of climate change on Council assets, operations and services or on issues of importance to the region, for example impacts on key economic sectors or community health and well-being.

When developing climate change scenarios, it is critical that they are based on credible scientific projections, for example Victoria's Climate Projections 2019, and describe plausible future scenarios for your region.

DELWP and RMIT have produced an Adaptation Guidance Note on Exploring Multiple Futures, which provides further guidance on using and developing climate change scenarios.

Note: climate change scenarios can be complex to develop and are recommend for councils to consider once climate change has been well established as a key council decision-making principle.



Module 2

Adaptation

Planning



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About this module

This module of the Rural Councils Victoria Climate Change Toolkit provides guidance on how rural councils can develop an adaptation action plan.

This can either be for Council's own operations, assets and services or to support the wider municipal community adapt and build resilience to climate change. The module firstly introduces key adaptation concepts and then outlines nine steps to undertake when developing an adaptation action plan.

Throughout the module, links have been made to additional guidance or resources that staff may want to refer to when planning each step. Additionally, the appendix provides a list of other tools that may support further analysis of climate change risk and vulnerabilities for specific issues, for example conducting an asset vulnerability assessment.

The module firstly introduces key adaptation concepts and then outlines nine steps to undertake when developing an adaptation action plan.



Adaptation concepts

Adaptation	The process of adjustment to actual or expected climate change and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities.
Adaptive capacity	Adaptive capacity is the ability of a system to adjust to climate change to moderate potential damages, take advantage of opportunities and cope with consequences.
Climate change	Changes in the state of the climate, including an increase in extreme weather events, long-term changes in weather patterns and sea level rise, attributed directly or indirectly to human activity.
Exposure	The presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected by a hazard.
Hazard	The potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources.
Maladaptation	Adaptation action that adversely affects other systems, sectors or social groups, increases their vulnerability or increases greenhouse gas emissions.
Resilience	The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure.
Risk	The potential for consequences where something of value is at stake and where the outcome is uncertain. Risk is often represented as probability or likelihood of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur.
Sensitivity	Sensitivity is the degree to which a system is affected, either adversely or beneficially, by climate variability or change.
Vulnerability	The degree to which a system, sector or social group is susceptible to the adverse effects of climate change. Vulnerability depends on the nature of the climate changes to which the system is exposed, its sensitivity to those changes and its adaptive capacity.



Define your system boundary

The first step when developing an adaptation action plan is to define the system which the plan will apply to.

This is most likely to be a functional or geographic boundary but could also be an economic sector or system. Defining the boundary is important in establishing the scope of the adaptation plan and will help to focus the thinking of stakeholders involved in the consultation process.

Corporate Adaptation Plan

The main functional boundary used by local governments is Council's corporate operations, assets and services. If Council has not previously developed an adaptation action plan, then it is recommended to initially focus here as councils will have direct control over the actions within a corporate adaptation plan. Ensuring that a council's assets, operations and services are resilient to climate change impacts is an important first step in building the resilience of the municipality as a whole.

Specific adaptation plans may also be developed for sub-systems such as Council's building assets.

Councils may also choose to develop a single adaptation action plan that considers both council operational and community climate change risks or develop combined adaptation and mitigation plans either at the corporate or community level.

Community Adaptation Plan

Many councils will also develop community adaptation action plans which use the municipal border as the system boundary. These adaptation plans consider all potential economic, social and environmental impacts of climate change to different sections of the community as well as to businesses, industries and the natural environment within the district. The development of community adaptation plans requires strong community engagement to ensure that the plan adequately identifies potential risk and impacts to different sections of the municipality and ensure solutions are tailored to local needs. Council is likely to have a range of roles within the delivery of actions within a community adaptation action plan. These include directly implementing some actions, supporting community or business groups to implement others and advocating for changes to systems or policies that are outside the control of council or stakeholders within the region.

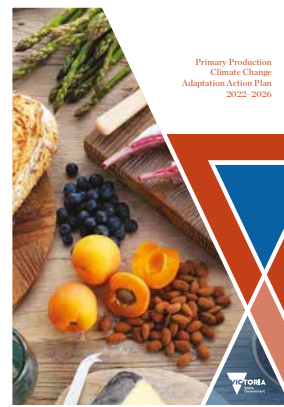
Victorian government – Adaptation plans

In 2021 the Victoria government released a series of adaptation plans to support the state's regions and key sectors plan for and adapt to climate change.

Regional Adaptation Strategies (RASs) have been developed for each of the state's regions, including Barwon South West, Gippsland, the Grampians, Hume, Loddon-Mallee and Greater Melbourne. The RASs are five-year practical strategies developed by the community to address the unique challenges and opportunities that climate change brings to Victoria's regions and guide locally relevant practical action.



System-based Adaptation Action Plans (AAPs) have been developed for seven state-wide systems, including the Built Environment, Education and Training, Health, Natural Environment, Primary Production, Transport, and the Water Cycle. The AAPs are guiding government action and helping institutions, businesses and individuals take informed action to respond to the risks and opportunities of our changing climate.





Identify key hazards

After defining the boundary of the adaptation plan, the next step is to identify the key climate related hazards that will affect your organisation or region.

For local governments, the hazards that affect the municipality and Council's operations, assets and services will almost always be the same. In Victoria key climate change related hazards include:

- Bushfire
- Extreme Heat
- Reduced rainfall
- Drought
- Soil Contraction
- More severe storms
- More intense rainfall events
- Flash flooding
- Riverine flood
- Sea level rise

The next step is to understand how these hazards are projected with climate change for your local area. The Victorian Government, Bureau of Meteorology and CSIRO have developed a range of tools that provide information on the expected climate change impacts under different emissions scenarios (low, medium and high global emissions concentrations), across different time scales (2030, 2050, 2070 and 2090) for different geographical areas.

...
**developed a
range of tools
that provide
information on
the expected
climate change
impacts under
different
emissions
scenarios**
...

Below is a list of key climate change projections available for Victoria.

Table 1: Climate change information and projections sites

NAME	ORG.	SUMMARY OF TOOL	ADDRESS
Victoria's Future Climate Tool	DELWP	Provides future climate projections for 2030, 2050, 2070 and 2090 for medium and high emissions scenarios. Can display projections at state, regional and LGA levels and ABS Statistical Areas Level 1.	vicfutureclimatetool.indraweb.io
Regional Climate Change Explorer	CSIRO	Provides summary climate change projection information for NRM regions, including for drought and marine and coastal impacts.	climatechangeinaustralia.gov.au/en/projections-tools/regional-climate-change-explorer/clusters
Thresholds Calculator	CSIRO	Allows users to explore projected changes to maximum and minimum temperatures and rainfall at specific localities across multiple timescales and medium and high emissions scenarios.	climatechangeinaustralia.gov.au/en/projections-tools/threshold-calculator
Climate Data Online	BoM	Provides historical observations on key climate data and variable for weather stations across Australia. Useful for determining how the local climate has already changed.	bom.gov.au/climate/data

The Victorian Government and CSIRO also released the 2019 Victorian Climate Projections which included regional reports that summarised the key climate change projections for 10 regions across Victoria. The regional reports can be accessed [here](#).

At the end of this step

The team should develop a summary of the key climate related hazards affecting the region and the projected changes in frequency or severity of each hazard under different emissions scenarios.

Climate change impacts should be considered at least out to 2050, however highlighting climate change projections out to 2070 or 2090 can help to illustrate the different impacts of the different emissions scenarios. This summary can be used to inform engagement with key stakeholders as well as senior decision-makers.

Emissions scenarios

To assist climate scientists in the consistent modelling of climate change impacts, the IPCC has outlined standardised scenarios called Representative Concentration Pathways (RCPs), ranging from RCP8.5 (high emissions scenario) to RCP2.6 (low emissions scenario).

These scenarios are based on the likely emissions production at a global level (i.e. the total amount of emissions produced by all countries) and consider the environmental systems used to process various concentrations of atmospheric carbon dioxide¹. Each scenario is associated with a different projected range of global warming, as outlined below:

**RCP 8.5
(high
emissions)
3.2–5.4°C
hotter
by 2100**

**RCP 4.5
(medium
emissions)
1.7–3.2°C
hotter
by 2100**

**RCP 2.6
(low
emissions)
0.9–2.3°C
hotter
by 2100²**

Taking into account the diversity of climate action at a global scale, it is relevant to consider high (RCP8.5) and medium (RCP4.5) scenarios to understand our future climatic landscape.

Building a picture of your LGA in 2050

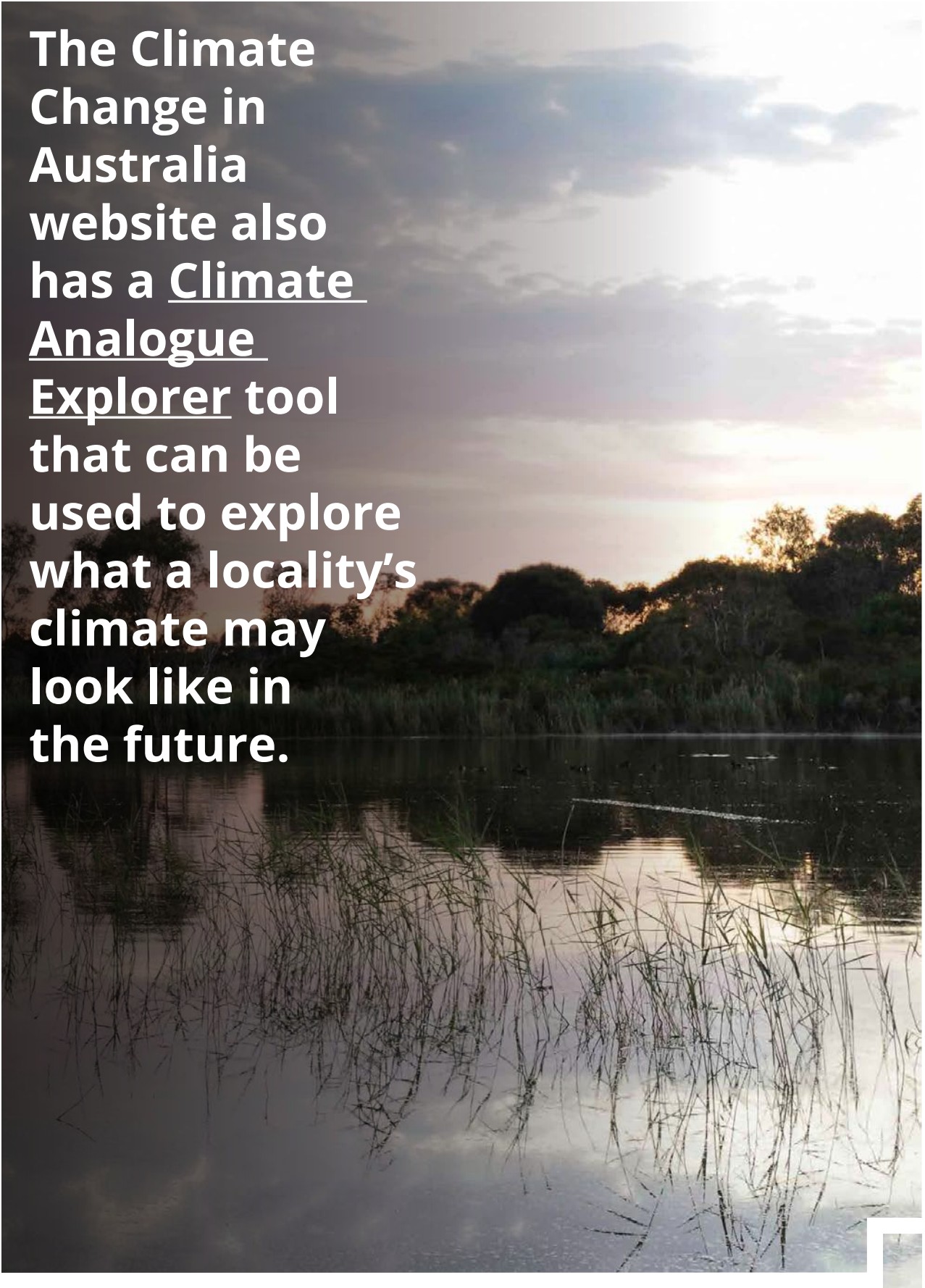
A good way to engender action on climate change is to develop a clear narrative description of what your LGA could look like in the future if no action is taken to mitigate or adapt to climate change. A narrative description is generally easier for people to understand and engage with than a list of number or figures.

The first step in developing this description is to select the year and emissions scenario on which it is based. It is recommended to use the high emissions scenario in 2050 as the starting point. Many of the most significant impacts of climate change are projected to begin or escalate after 2030 while timeframes of 2070 or 2090 are too far in the future for most people to engage with.

Next, using the projection tools listed in Table 1, identify key climate change projection variables to build your narrative around. These could include the number of days over 35°C or 40°C per year, the number of 'hot nights' (when the temperature stays over 22°C), projected decline in rainfall across different seasons and projections of extreme fire or severe drought days as well as any information on impacts the natural environment, flood risk, health issues and pests or invasive species.

The Climate Change in Australia website also has a [Climate Analogue Explorer](#) tool that can be used to explore what a locality's climate may look like in the future. For example, by 2050 under a high emissions scenario, Benalla's climate is projected to resemble Parkes' present-day climate.

The Climate Change in Australia website also has a Climate Analogue Explorer tool that can be used to explore what a locality's climate may look like in the future.





Select assessment approach

At this stage in the process it is important to determine which approach and assessment method will be used to develop the adaptation plan.

There are three key assessment methods that are commonly used when developing an adaptation plan, plus an integrated approach which considers all three. These are:

1 Climate impact assessment **2** Vulnerability assessment **3** Climate risk assessment

1 Climate impact assessments

Focus on how current and projected changes in the climate affect a particular asset, activity, group or resource. Impact assessment relies heavily on quantitative climate data to determine specific impacts on the asset or resource. As such, this approach is often only used for assessing impacts on specific assets and infrastructure³.

2 Vulnerability assessments

Focus on analysing which parts of the system are most likely to be negatively impacted by climate change and then consider how this vulnerability can be reduced. The vulnerability of an asset, resource or group is determined by its exposure to a climate hazard and its sensitivity to impact or change.

Vulnerability = Exposure x Sensitivity / Adaptive Capacity

3 Climate risk assessments

The most common approach used to develop organisational or community wide adaptation plans due to their ability to manage uncertainty. Adaptation planning must necessarily manage uncertainty as most climate change impacts are projected but not precisely known.

As with standard organisational risk management approaches, risk is defined in terms of consequence and likelihood.

Risk = Consequence x Likelihood

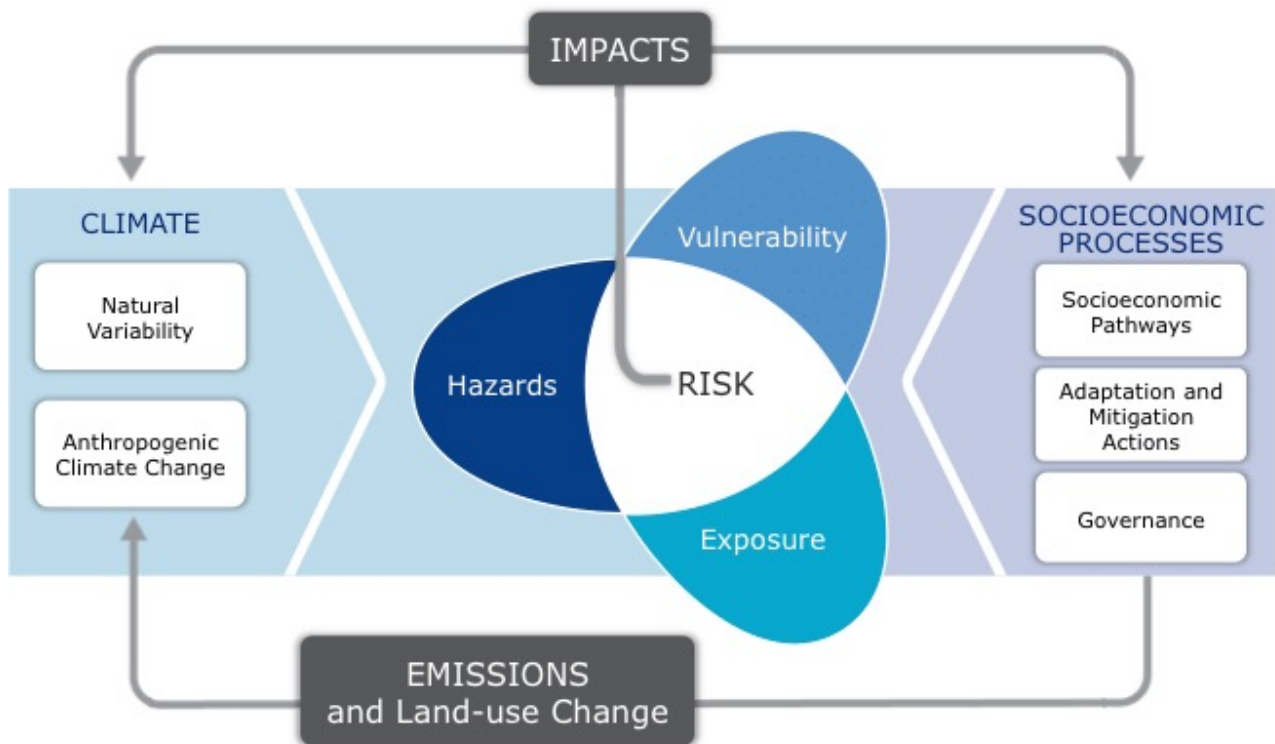
When considering the relative consequence or potential impact of different climate change hazards to a system or region it must be considered in relation to the vulnerability and the exposure of the region or system to that hazard.

Consequence = Hazard x Vulnerability x Exposure

The climate risk therefore becomes the magnitude of the hazard x the level of vulnerability x the exposure x the likelihood of the event occurring.

Climate Risk = Climate Hazard x Vulnerability x Exposure x Likelihood

Figure 1: IPCC conceptual framework for Climate Change Risk



Source: IPCC Fifth Assessment Report

Figure 1 shows the IPCC's conceptual framework for considering climate change risk.

When developing adaptation plans or strategies at an organisational or regional level it is common to use the risk assessment approach in the first instance but then to conduct more detailed climate impact assessments for specific assets. These can be conducted at the same time or as a key action identified within the adaptation plan. For the remainder of this module, it is assumed Council uses a risk assessment approach.

More information

Is available on each of these three assessments methodologies in the guidance document: *Local climate change adaptation planning, a guide for government policy and decision makers in Victoria*, produced by RMIT for the Victorian Centre for Climate Change Adaptation Research, available [here](#).



Identify key stakeholders

Climate change impacts every organisation and community across Australia differently.

While the many local government areas in Victoria will experience similar changes to their local climate, each municipality's unique social, economic and environmental circumstances mean the impact of the changes will be experienced to different degrees. It is therefore essential that there is proactive and meaningful engagement with key stakeholders relevant to the adaptation plan boundary when identifying climate change risks and developing and prioritising adaptation actions.

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Corporate Adaptation Plan Stakeholders

For a corporate adaptation plan, it is important to engage managers and technical staff from areas of Council that are likely to be impacted by climate change. This includes representatives from:

- assets and infrastructure
- buildings and facilities
- parks and open space
- health and community care
- emergency management
- environment and sustainability teams
- finance
- risk assurance, and
- executive leadership teams.

Representatives engaged should have a good understanding of the area of council operations they are representing and a good understanding of the operational risks and issues that their area currently manages. They should also have appropriate decision-making responsibilities to inform the development of actions. Senior decision-makers should also be engaged early in the process to ensure appropriate buy-in and support for the plan.

Councils may also seek to engage community representatives in the development or review of the adaptation plan. This is particularly important when considering actions that seek to reduce community vulnerability to climate change risks through enhancement of council assets. For example, reducing heat vulnerability through planting trees.

...
engage
community
representatives
...



Community Adaptation Plan Stakeholders

For a community adaptation plan, Council should engage a broad section of the municipal community to ensure the different climate change impacts and risks are appropriately identified. These should include community, business and industry representatives. Special attention should be given to engaging with Traditional Owners as well as groups that may be more vulnerable or exposed to climate change impacts, including lower socio-economic groups, the elderly and people with disabilities. Councils should also engage with the relevant council staff as noted in the Corporate Action Plan Stakeholders section.

Within rural councils, typical stakeholders may include:

- Traditional Owners
- Aboriginal Victorians
- Local business associations
- Industry representatives
- Landcare groups
- Environmental groups
- Neighbourhood Houses
- District health representatives
- Emergency services
- Country Women's Association
- Rotary clubs
- Student and youth groups
- Church groups
- New migrant groups



Understanding the system

As climate change impacts a wide range of areas, identifying and prioritising key issues to be addressed within the adaptation plan can be a challenging task.

Engaging stakeholders in a workshop at the start of the adaptation planning process to develop a shared understanding of the region or system can help to break down self-interest, build an understanding of how climate change may be impacting other areas of the organisation or district and increase understanding of the interconnectedness of different issues. Figure 2 highlights key interdependencies between different sectors in Australia.

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...
**develop a
 shared
 understanding
 of the region
 or system**
 ...

Process

There are many different facilitation techniques that can be used to conduct the workshop, but the focus should be providing stakeholders with an overview of climate change projections for the region and then allowing space for different community representatives to discuss:

- what they personally value most about the region
- key social, economic and environmental assets of the region
- challenges currently being faced by the region
- concerns for how climate change is currently and may further affect the region, and
- key barriers and opportunities for action.

Responses from participants should be mapped out and common issues, concerns and barriers across different areas identified. A similar approach can be used for corporate adaptation planning with slightly modified discussion points.

The workshop should also aim to develop a shared vision for the region/system as well as goals for the adaptation plan. This will establish an agreed scope for the development of the adaptation plan and help to engender buy-in and ownership of the plan.

Note: As the adaptation plan is further developed the vision and goals may be revised or refined as the objective and the actions of the plan become clearer.

Figure 2: Interdependencies between key sectors in Australia⁴





Identifying climate risks

The next step is to identify how climate change is affecting council operations and services or key sectors across the region.

First pass risk screening

The first step in this process is to conduct a first pass risk screening. This is a qualitative exercise to develop a preliminary understanding of climate change risks to your organisation or region. The purpose of this step is to identify, at a high-level, potential climate change issues for further assessment. The outcome of the risk screening is likely to be a long list of potential climate risks for your organisation or region.

Process

The risk screening is ideally completed as part of a stakeholder workshop but can also be completed through individual consultation with key council or community representatives. If time and resources are limited, it could initially be conducted as a desk-based exercise, however the analysis results should, at minimum, be tested and refined with the stakeholder groups identified in Step 4 to ensure that potential impacts and risks have been correctly identified.

Corporate Adaptation Plans

A first pass risk screening can be conducted by assessing each climate change hazard identified in Step 2 against each of Council's operations and services areas to determine relevant risks.

For example, extreme heat may lead to disruption of health and community care services or flooding may lead to damage or inundation of Council facilities. Any other issues or challenges identified in Step 5 should also be considered against the different climate hazards to determine if these will be exacerbated with climate change.

Community Adaptation Plans

A first pass risk screening can be conducted by assessing the climate change hazards identified in Step 2 against key social, economic and environmental assets for the region to determine climate change risk areas.

For example, increased frequency of drought may have severe economic impacts on agriculture in the region with flow on impacts to downstream business in the region. Hotter nights and longer heatwaves are likely to increase health impacts, particularly for the elderly.

Second pass risk assessment

Once the preliminary climate change risks have been identified, the next step is to undertake a more detailed analysis of the potential impact of each risk on the organisation or region and the likelihood of the risk occurring.

As discussed in Step 3, the consequence or potential impact of the risk is the magnitude of the hazard x the exposure x the level of vulnerability of that part of the system. As climate change alters the frequency (as well as the magnitude) of many climate hazards, the likelihood of the climate risk occurring will change based on timescales and emissions scenarios.

It is therefore recommended to assess the potential magnitude and likelihood of the climate hazard occur at different timescales (e.g. present day, 2030 and 2050) for different emissions scenarios (e.g. medium and high emissions scenarios). This can be done using the climate projections data identified in Step 2, although additional projections information may also need to be identified. Risk ratings for each risk can be determined using a standard risk matrix (Figure 3) or Council's own risk assessment procedure.

The outcome of this approach will be a number of risk ratings for each risk based on the timescale and emissions scenario. This will provide a strong insight into how climate risk profiles are expected to change, and which climate risks may be increasing most significantly.

Process

The second pass risk assessment should be conducted in a workshop or through close consultation with key stakeholders who have detailed knowledge of the parts of the system or region that are being impacted by the climate hazard. These stakeholders will be best able to describe the potential impact of the hazard on the system now and under future climate conditions. Conducting the risk assessment as a workshop with multiple different stakeholders can also help to build a shared understanding of the range of climate change impacts, which will support the identification and prioritisation of actions in later steps.

Further guidance on conducting a first pass risk screening can be found at [CoastAdapt](#)

Figure 3: Risk assessment matrix

PROBABILITY	CONSEQUENCES				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	High
Unlikely	Low	Low	Medium	Medium	Medium
Rare	Low	Low	Low	Low	Medium

Prioritising risks

After the second pass risk assessment has been completed Council should have a risk rating for all risks. While it is likely that not all risks will be able to be addressed, Council should seek to take action to address or ameliorate all extreme risks and the majority of (if not all) high risks.

Some risks may be rated as low or medium now but increase to high or extreme in 2030 or 2050 under the different emissions scenarios. It is important to consider these risks now even if the only action is to continue monitoring the risk while other more pressing risks are addressed. Noting, however, it is usually more cost effective to address future risk early. Future high or extreme risks could also be included in Council's strategic risk register to ensure they regularly monitored and reported on by the executive leadership.

...
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Identify actions

Identifying and developing actions will require working with key stakeholders that have responsibility over the action area as well as community, business or industry groups that may have a stake, benefit or risk being negatively impacted by the action.

The process should begin by developing an understanding what action is already being taken to adapt to climate change, including by council, the community or other actions. The identification of previous or existing actions is likely to require both desktop research and stakeholder consultation. An assessment of identified risks against existing action can then be used to help determine where adaptation actions can build off existing work and where is the greatest need for additional action.

The development of adaptation actions should be informed by adaptation principles. The *Victorian Climate Change Act 2017* identifies six guiding principles for climate change decision-making, which have been further elaborated to inform adaptation planning in Victoria's Climate Change Adaptation Plan 2017-2020.

These have been outlined on the following page.

Six guiding principles for climate change decision-making

1 Informed decision-making



Adaptation responses should:

- be based on the best available evidence in the context of uncertainty
- be flexible and iterative, allowing for adjustments as circumstances change and new information is made available.

4 Integrated decision-making



Decision-makers should:

- give priority to responses that are most likely to provide the greatest net social, economic and environmental benefit for Victoria
- consider the costs of climate change, including externalities and long-term costs.

2 Equity



Adaptation responses should:

- be equitable and fair
- consider both the present and the short, medium and long-term future
- adhere to principles of intra- and intergenerational equity.

5 Community engagement



Adaptation responses should:

- actively involve the community in setting policy directions and priorities
- value and respect the knowledge and perspectives of Traditional Owner groups and Aboriginal Victorians.

3 Risk management



Adaptation responses should:

- ensure that risks are addressed by those who are best-placed to manage them
- avoid unintended consequences (maladaptation)
- not undermine our ability to adapt to climate change over the long-term
- consider trade-offs, and understand and recognise the costs of and limits to adaptation.

6 Complementarity



Adaptation responses should:

- build on the experience of regions, sectors, communities and industry in adaptation
- complement existing and planned adaptation work
- contribute to and be compatible with efforts to reduce greenhouse gas emissions.

When identifying actions, it is important to remember that there may be additional work that needs to be undertaken prior to Council being able to directly address the identified risk. This may include training or capacity building activities, to ensure staff and decision-makers have the relevant knowledge to take action or undertaking more detailed climate risk or impact assessments where the exact extent of risks may not be known. More information on the different types of adaptation actions as follows:

Types of actions

Building adaptive capacity actions

These actions seek to build the knowledge, skills and capacity of individuals, the community or organisations to be able to undertake adaptation actions. These actions will not directly reduce climate risk but will enable timely and effective action to reduce risks to be taken. Examples of building adaptive capacity actions include:

- Identifying Council climate change knowledge and training needs.
- Conducting training or other education and awareness activities.
- Monitoring climate change impacts on council services.
- Conducting more detailed climate impact assessments.
- Integrating climate change risk and vulnerability assessments into asset management plans.
- Integrating climate change into Council's strategic risk register.
- Undertaking feasibility studies.

Delivering adaptation actions

These actions seek directly ameliorate risks, reduce exposure or decrease vulnerability of assets, resources and groups to climate change. They can support groups or sectors build resilience and adapt to climate change. Examples of delivering adaptation actions include:

- Increasing street trees to reduce impacts of extreme heat.
- Implementing integrated water management projects to reduce flood risk.
- Upgrading watering and irrigation systems to improve water efficiency.
- Creating shelter belts on farms to provide greater shade for livestock and enhance local biodiversity.
- Installing solar and battery systems at emergency evacuation centres to ensure energy security during emergency events.

Advocacy actions

The last type of action is advocacy for changes to policy settings and other issues that directly affect the region but that are outside the control and immediate influence of Council or the community. Examples of issues that Council or the community may want to develop advocacy actions around include:

- Water rights and environmental flows.
- Amending the Planning and Environment Act to provide a legislated requirement to account for climate change in planning decisions.
- Increased funding for place-based adaptation programs.

It is likely that there will be a range of building adaptive capacity, delivering adaptation actions and advocacy actions within the final adaptation plan.



Prioritising actions

It is common that more actions will be identified than is practical or feasible for Council to implement, at least in the short term. Actions must therefore be phased and prioritised according to their potential impact and effectiveness and in consideration of constraints such as technical feasibility, cost and specialist knowledge.

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Phasing actions

Categorising actions into short, medium and long term priorities can help to prioritise which actions to include in the adaptation plan.

Short term priorities will tend to be actions that address climate change issues that are already occurring (for example extreme heat) and have solutions that are actionable based on existing knowledge and technology (for example increasing tree canopy cover in rural townships to reduce heat islands).

Long term priorities may be issues that either present only a low current risk (although they may have a high or extreme future risk) or require actions that require further developments in technology.

Note: While the initial adaptation plan will focus more on short term priorities, it is important to also lay the groundwork so that Council is able to effectively address medium and long-term priorities in subsequent adaptation plans.

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and long-term
priorities
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Developing a prioritisation framework

A prioritisation framework is an effective way to assess identified actions and determine which actions Council should initially focus on. Establishing a prioritisation framework also ensures transparency around decision making and accountability of how council funds are being spent.

Multi-criteria analysis

A simple and effective way to develop a prioritisation framework is to use a multi-criteria analysis. A multi-criteria analysis involves identifying a set of clear decision-making criteria against which proposed actions are assessed and scored. Criteria will often be weighted based on their importance. After assessing actions against each criterion, they can be prioritised based on the ranked score of different actions. Ideally, prioritised actions should score highly against multiple criteria. Criteria can be developed in consultation with or by stakeholders engaged in the development of the adaptation plan.

Commonly used criteria include:

- Impact (the degree to which the action reduces the risk).
- Reach (how widespread are the benefits of the action).
- Level of change (is the action focused on improving Council's coping capacity or does it aim to deliver more transformational change – see Different categories of adaptation table on next page).
- Impact on emissions (does the action increase or decrease emissions).
- Cost of action.

Other criteria could also include, does it:

- address a specific vulnerability?
- align with the Council Plan?

Prioritising enabling actions

As discussed in Step 7, effective adaptation requires building the adaptive capacity of individuals and organisations to better be able to identify, design and implement adaptation actions. Building adaptive capacity and other enabling or foundational actions, however, may score low using a multi-criteria analysis as they may have no direct impact on reducing a climate risk. It is therefore important to identify and prioritise critical enabling actions that will help Council effectively and efficiently deliver the range of adaptation actions identified and achieve its overall adaptation objectives and outcomes.



It is recommended to only use a small but meaningful number of criteria, ideally four to five. Too many criteria tend to produce anomalous results as key criteria can be 'outweighed' by multiple secondary or tertiary criteria.

It is important to 'sense check' the ranking of actions after scoring has been completed to make sure the ranking makes sense. Sometimes if a criterion is given too heavy a weighting it can skew the results. For example, if cost has too great a weighting there may be an excess of low cost and low impact actions that have scored highly.

Table 2: Example multi-criteria analysis for adaptation actions

IDENTIFIED ACTION	IMPACT	REACH	LEVEL OF CHANGE	COST	SCORE
Action 1	High	Section of community	Incremental Adaptation	Low	86%
Action 2	Medium	Individual	Coping	Medium	42%
Action 3	High	Whole Community	Transformation	Medium	93%



Different categories of adaptation

Coping, incremental and transformative adaptation

When assessing adaptation actions, it is important to consider the level of change that the action is expected to bring. There are three common categorisations of actions based on their level of change.

Coping

Aim to support people or resources better cope with climate change but they do not significantly reduce vulnerability or exposure to climate change or build adaptive capacity. An example of coping action is taking out crop insurance against extreme weather events.

Incremental adaptation

Focuses on making incremental changes to the way a system or asset operates or is managed to guard against climate change impacts. An example of incremental adaptation is improving water efficiency, increasing use of recycled water or using shading to continue growing the same produce under changing climate conditions.

Transformational adaptation

Seeks to address the root cause of vulnerability to climate change. This can include a range of actions from changing modes of production to challenging inequitable power structures that leave certain groups or communities more vulnerable or exposed to climate change. Another agricultural example may include changing crops varieties to types that are more adapted to the new or expect future climate or undertaking local landscape restoration that improves biodiversity and soil moisture, reducing the susceptibility of the land to drought.

Another example is advocating to change water rights to ensure minimum environmental flows and equitable access for all producers.

Effective place-based adaptation will require all three types of adaptation.

Coping and incremental adaptation may be necessary in the short and medium term, while action to deliver more systemic change is being worked on. However, it is important to ensure that actions identified do not only focus on coping or incremental adaptation but also seek to make long-term changes that address the root cause of vulnerability to climate change.



Monitoring framework

The last step is to develop the monitoring framework that will guide the implementation and monitoring and evaluation of Council's adaptation actions.

Developing the framework can be conducted concurrently with steps 6–8 (identifying and prioritising risks and action) and can help to inform the prioritisation of risks to address.

Identifying strategic priorities areas

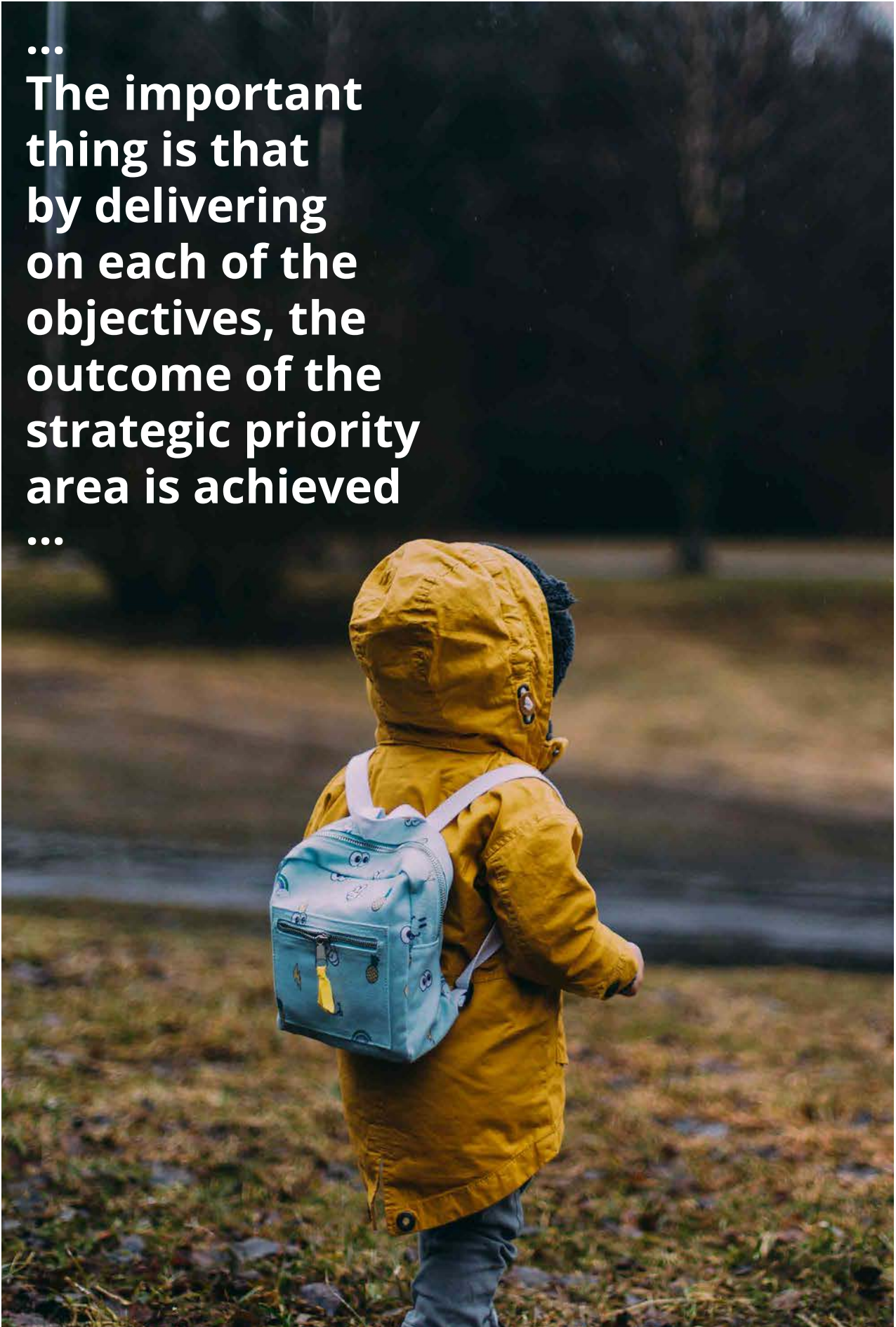
While identifying strategic priority areas is not essential, it can help to focus the decision-making and prioritisation process and supports the effective communication of council adaptation priorities.

Strategic priority areas relate to themes of actions that are being prioritised in this phase of the adaptation plan. Strategic priority areas can include capacity building or process-based priorities as well as priorities that focus on addressing specific climate change risks or reducing community vulnerabilities.

Example strategic priority areas include:

- Building capacity of Council to identify and respond to climate change risks.
- Integrating climate change into council decision-making.
- Reducing climate change risks to council assets and services.
- Reducing community vulnerability to extreme heat or extreme weather events.
- Building the resilience of the municipal community to climate change.
- Building a climate smart and resilient agriculture sectors (or other priority sector).

...
**The important
thing is that
by delivering
on each of the
objectives, the
outcome of the
strategic priority
area is achieved**
...



Developing objectives and indicators

Outcomes

Once the strategic priority areas are identified outcomes should be developed that can be used to identify whether Council has achieved what they intended for each priority area. Outcome statements are usually time-bound and describe the end result of the actions.

For example By 2030, climate change has become a business-as-usual consideration in council decision-making.

Objectives

The next step is to develop objectives that describe how the different outcomes of the different strategic priority areas will be achieved. Objectives are usually written as 'To' statements.

For example, an objective of Strategic Priority 1 could be: To build the capacity of council staff to better identify climate change risks to their area.

A strategic priority area or outcome may have one or a number of objectives, as required. The important thing is that by delivering on each of the objectives, the outcome of the strategic priority area is achieved.

Actions

The actions that have been identified in the previous steps should now be grouped under the relevant strategic priority area and objective. Again, delivering all the actions should deliver on the objective or at least support Council progress down the path of achieving that objective, if it is a long term objective.



At this stage it is worth reviewing actions and objectives and ensure they align and will deliver the outcomes. There may need to be small adjustments made to objectives or outcomes to align with identified actions or additional actions may need to be added to ensure the objectives can be achieved.

Developing indicators and means of verification

The final step is to develop indicators for all the actions. Indicators are used to measure whether the actions have been achieved. Each action may have both output and outcome indicators.




Output indicators describe what was done. For example: At least 10 staff members complete climate change impact assessment training.

Outcome indicators describe what result of the action was. For example: At least 80% of relevant staff can describe how to conduct a climate change impact assessment for their area.

For each indicator a means of verifying that the indicator has been achieved should also be identified.

Table 3 highlights an example of an output and outcome indicator and means of verification for a training activity.

Table 3: Example indicators and means of verification

Action	Indicators	Means of verification
<p>Training</p> <p>Key council staff complete training on conducting climate change impact assessments</p> 	<p>Output Indicator</p> <p>At least 10 staff members complete climate change impact assessment training</p> <p>Outcome Indicator</p> <p>At least 80% of relevant staff can describe how to conduct a climate change impact assessment for their area</p> 	<p>Training attendance records</p> <hr/> <p>Surveys of staff post-training</p> 

Case studies

Assessing climate change impacts on coastal inundation Moyne Shire Council

Situated where the Moyne River meets the Southern Ocean, Port Fairy is impacted by both coastal inundation and riverine flooding. Under climate change, sea level rise and higher intensity rainfall events are projected to increase the severity and frequency of both riverine and storm tide floods in the township, exposing more public and private assets to loss and damage.


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Determining the potential impact of coastal inundation and riverine flooding is a complex process, which requires modelling of how projected changes in Sea Level Rise (SLR), storm surge and flood extent could combine to increase inundation and flood height. To understand these potential impacts, Moyne Shire Council undertook a series of flood studies and coastal assessment over the last 15 years.

Each assessment has sought to build on previous work undertaken and increase the understanding of the flood and inundation risk for the Port Fairy Community. Importantly this has included modelling the potential impact of flood and storm surge events for SLR of 0.2m, 0.4m, 0.8m and 1.2m (representing the years 2030, 2050, 2080 and 2100). The potential impact of climate change on rainfall intensity was also accounted for by modelling more significant flood events (1-in-20 and 1-in-100 year events as opposed to 1-in-10 year events), which were determined to be in line with current climate change rainfall projections.



The modelling found a substantial increase in the number of properties at risk of flooding or coastal inundation at 1.2 metres compared to 0.8 metres of SLR for both a 1-in-20 year riverine and 1-in-100 year storm tide flood and a 1-in-100 year riverine and 1-in-20 year storm tide flood event.

The assessment process led to the development of the Port Fairy Local Flood Plan Development Plan, which establishes a Nominal Flood Protection Level to the maximum flood extent of a 1-in-100 year riverine and a 1-in-100 year storm tide flood at 1.2 metres of SLR. Significantly this is higher than the minimum provision under the Victorian Marine and Coastal Policy of planning for not less than 0.8 metres of SLR by 2100. However, accounting for current climate change projections for both SLR and rainfall demonstrated the significantly higher risk to the township, if this level was not taken into account. 

Addressing heat vulnerability in regional Victorian towns

Central Victorian Greenhouse Gas Alliance


***Cool It* is a collaborative project coordinated through the Central Victorian Greenhouse Alliance and funded by the Department of Environment, Land, Water and Planning. It was a partnership between nine regional and rural Victorian councils.**

The project used existing spatial data to determine areas of participating councils that were vulnerable to heat impacts. These were then prioritised based on pedestrian activity in those areas, as well as surface temperature and material. The identified heat vulnerability parcels were each scrutinised further to recommend specific streets and parks for cooling measures, informed by each Council's strategic and policy position.

This work fed into Stage 2 of the project to address heat vulnerability through accelerating investment in new climate resilient tree assets. The project evaluated and recommended tree species for planting, based on their suitability to climate change scenario for the local area in 2050. A short-list of 100 tree species was developed and shared with councils. This included 50 species that are currently planted by participating councils and 50 new species to be trialled.

Rather than seeking to tackle the larger and more complicated issue of climate change adaptation, *Cool It* has demonstrated the value in focussing on tangible outcomes such as healthy cooler cities and towns.

The project has generated a lot of interest due to the multiple benefits that come from improving greening outcomes in small regional towns and cities, including improved amenity, air quality and tree shade.

By reinforcing the relationship between natural resources and climate change, it was possible to make more explicit over time how the assets that many people hold dear are potentially vulnerable to climate risks. 



Greening Wellington

Wellington Shire Council


Wellington Shire Council is currently in the process of developing Greening Wellington, Council's Urban Forest Plan and Significant Tree Register.

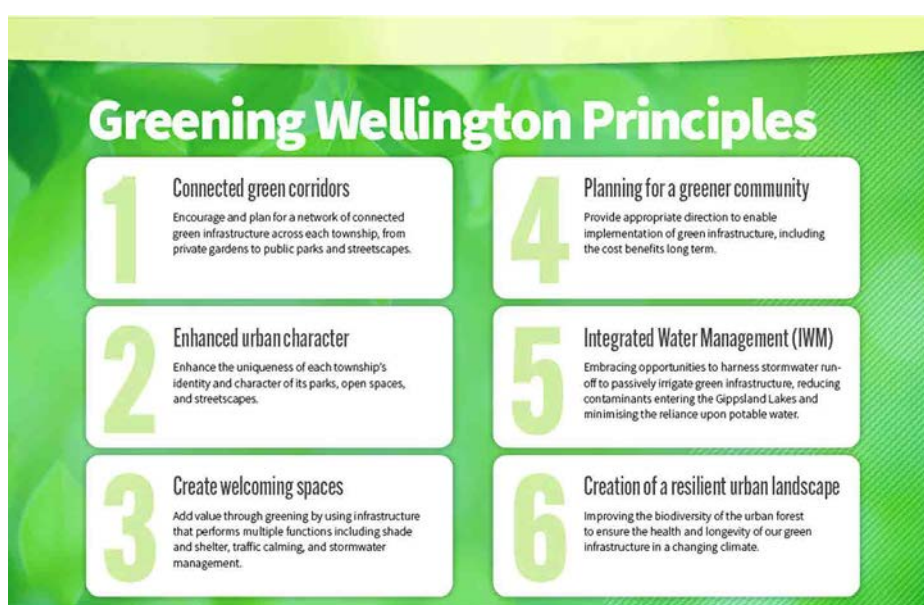
Driven by the Natural Environment and Parks Team, the program seeks to broaden the scope of Council's strategic direction concerning green assets. It responds to the important role of these assets and their long-term benefits, which have often been overlooked in lieu of the built infrastructure. One of the main themes throughout the document is changing the attitudes towards green assets, specifically trees.

Consultation with key internal stakeholders at the draft stage took place to inform actions and the direction of Greening Wellington. Once in draft form, presentations were made to Council's Corporate Management Team and Councillors, before being sent to external stakeholders such as Landcare and town planning consultants for their feedback. Greening Wellington has also been presented at community sessions including to school groups as well as the broader community.

These sessions have identified a high level of enthusiasm for the program as well as other projects that are already being delivered, or are being planned, by some of Council's committees and volunteer groups.

Greening Wellington has been developed in house, allowing experienced staff to have input into the program. Although still in the early stages, Council's Natural Environment and Parks Team are starting to see program components come to fruition, including the development of a Significant Tree Register and the initiation of a full urban forest audit. Greater discussions about vegetation impacts are also being held in the early stages of planning for projects delivered by Council and the value of vegetation is progressively being better understood across departments. Greater emphasis on green assets and funding have already seen over 1,000 trees planted in townships.

Should the five-year implantation plan be fully funded, it is estimated that the investment in green infrastructure will be in the vicinity of \$8m. Funding would come from Council and seek matching contributions from State and Federal Governments, local philanthropic organisations, as well as the private sector. The feedback from local Landcare Groups and interested members of the public has been positive and supportive of Council taking these steps to prioritise the natural environment. 



Appendix:

Adaptation guidance documents and tools

TOOLS/GUIDANCE DOCUMENT	ORGANISATION	DESCRIPTION
Local climate change adaptation planning: A guide for government policy and decision makers in Victoria	<u>Victorian Centre for Climate Change Adaptation Research (VCCCAR)</u>	Guidance on the process of effectively considering climate change impacts, with an emphasis on place-based adaptation.
Place-based adaptation guidance	<u>DELWP</u>	Provides guidance on developing regional and place-based adaptation strategies.
Adaptive capacity assessment tool	<u>How Well Are We Adapting (HAWWA)</u>	A tool to conduct a quick adaptive capacity scan to understand their organisational strengths, opportunities and priorities.
Local-scale climate risk assessment	<u>CoastAdapt</u>	Guidance and tools for conducting different types of risk assessment.
Asset Vulnerability Tool	<u>SECCCA</u>	Tools and approaches to support SECCCA councils understand how council buildings, drainage and local road assets will be impacted by various climate scenarios.
Sustainable Development Assessment in Planning Process (SDAPP) Toolkit	<u>CASBE</u>	The SDAPP Toolkit aims to provide a streamlined and consistent methodology for requesting, receiving and assessing built environment sustainability outcomes through the planning process.

References

1. IPCC, 2014, AR5 Synthesis Report, Topic 2, Future Climate Changes, Risks and Impacts, https://ar5-syr.ipcc.ch/topic_futurechanges.php
2. IPCC, 2014, AR5 Synthesis Report, Topic 2, Future Climate Changes, Risks and Impacts, https://ar5-syr.ipcc.ch/topic_futurechanges.php
3. VCCCAR, 2012, Local climate change adaptation planning: A guide for government policy and decision makers in Victoria, <http://www.vcccar.org.au/sites/default/files/publications/VCCCAR%20Local%20Climate%20Change%20Adaption%20Planning-WEB.pdf>
4. National Climate Resilience and Adaptation Strategy, 2015, p24

Module 3 Corporate Emissions Reduction



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About Ironbark Sustainability

For nearly two decades, Ironbark Sustainability has worked with councils and their communities to reduce greenhouse emissions, tackle climate change and implement sustainability projects and programs. We bring together a wealth of technical and financial analysis, maintenance and implementation experience in the areas of building energy and water efficiency, climate action and strategy development, public lighting and data management. We pride ourselves on supporting our clients to achieve real action on sustainability.

Our Mission

The Ironbark mission is to achieve real action on sustainability for councils and their communities.

Ironbark is a certified B Corporation. We have been independently assessed as meeting the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.

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About this module

This part of the Rural Councils Victoria Climate Change Toolkit looks at how councils can reduce their own emissions.

All local governments produce emissions in the delivery of their operations and services. By taking active steps to reduce these emissions, councils can directly contribute to national and global mitigation efforts and provide leadership to their communities.

This guide considers only **corporate emissions**. These are emissions from operations over which a council has the ability to introduce and implement operating policies. They include emissions from stationary energy consumption at council-owned or occupied facilities, council's fleet and plant, concrete and asphalt for road works, and council-operated landfills.

Corporate emissions differ from **community emissions**, which are emissions from across the whole municipality. They include emissions from residential, commercial and industrial stationary energy consumption and transport, waste treatment, agriculture (including livestock and fertilisers), land use change and industrial processes and product use. If you want to find out more about reducing municipality-wide emissions, you can refer to the Community Emissions Reduction component of the toolkit.

Here, we take you through five steps to addressing your corporate emissions:

1

Insight

Gain an understanding of your community emissions.

**2**

Target

Set targets for emissions reduction.

**3**

Strategy

Plan how your council will meet its targets.

**4**

Action

Take action to reduce emissions.

**5**

Monitoring and evaluation

Assess and evaluate progress.



Before taking action, it is important to understand where your emissions are coming from.

Define emissions boundary

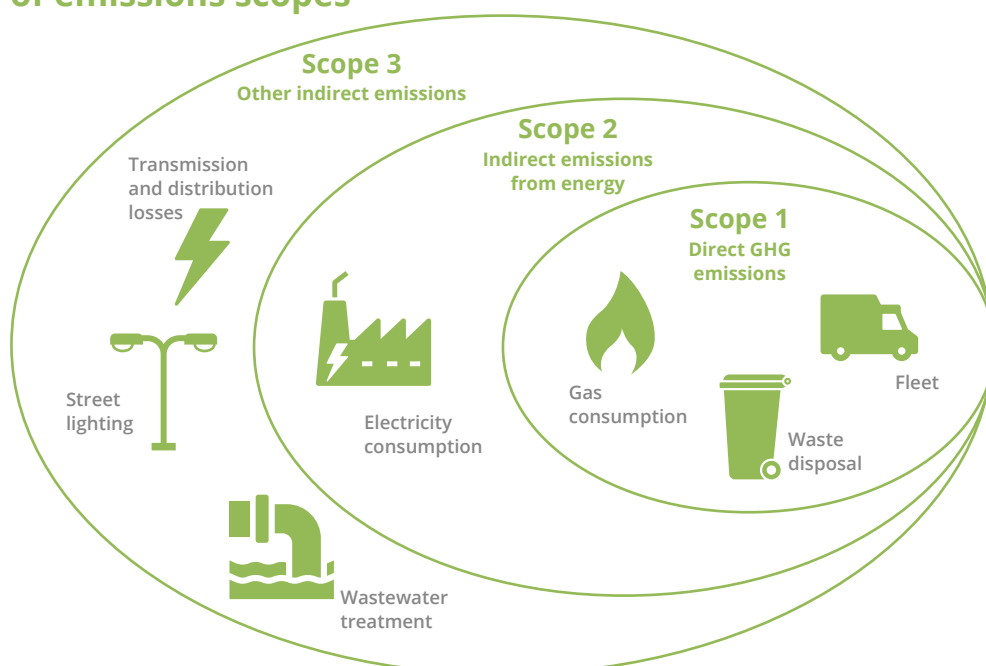
Establishing a corporate emissions inventory firstly requires determining your Council's emissions boundary based on either its financial or operational control.

Operational control can be defined as whether Council has the ability to set operating policies, health and safety policies and environmental policies and is the recommended approach for rural councils in Victoria. The operational control approach also aligns with National Greenhouse and Energy Reporting Scheme (NGERS) reporting requirements.

An emissions inventory will include both direct and indirect emissions produced through the delivery of Council's operations and services.

Best practice carbon accounting categorises these emissions into three scopes, as illustrated in Figure 1. Scope 1 emissions include emissions directly produced by the local government's operations and services, for example the consumption of petrol within a council's vehicle fleet. Scope 2 emissions are emissions produced by the consumption of grid electricity within local government facilities. Scope 3 emissions are indirect emissions associated with the production, manufacturing or transport energy, resources and materials. For example, emissions associated with the production and use of concrete and asphalt in the construction of roads and other assets by Local Governments. Scope 3 emissions can also include emissions associated with activities outsourced by local governments, such as fuel usage by contractors. The use of the Scope system for carbon accounting ensures emissions are apportioned according to operational and decision-making responsibility and prevents double counting by different organisations.

Figure 1: Summary of emissions scopes



Emissions inventory

An inventory of Council's corporate emissions is required to identify opportunities for reduction. This is a quantified breakdown of all emissions sources within Council's operational boundary. The inventory will also form the baseline against which emissions reductions can be tracked.

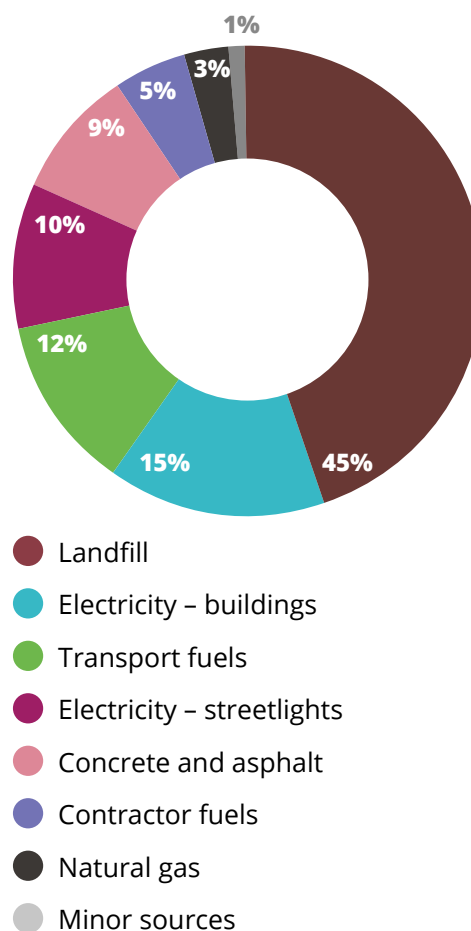
Common major emissions sources for Victorian local governments include:

- Council-managed landfill
- Electricity – Council-owned buildings
- Electricity – streetlights
- Water use – Council owned buildings
- Transport fuels
- Concrete & asphalt
- Natural gas
- Contractor fuels

Other minor emissions sources are likely to include fugitive emissions from HVAC, lubricants use and other Scope 3 emissions such as stationary and paper use and business travel.

In order to develop an inventory, Council will need to collate data on key emissions sources. Typical places to source data for each emissions type can be found in Appendix 1.

Figure 2: Example Corporate Emissions Inventory



Future emissions modelling

Considering how your emissions will change over time will help you identify where to focus your efforts. Considering your business-as-usual (BAU) projections allows you to understand what these changes would look like if council took no action.

For corporate emissions, the most significant contributor to increasing emissions is population growth within a council's municipality. This impacts Council's emissions through increases in number and use of buildings, fleet miles travelled and waste going to landfill. This increase in emissions will be partially offset by a reduction to the emissions intensity of grid supplied electricity and standardised improvements to energy efficiency in buildings and vehicle design. For regions with low expected population growth, your BAU projection could indicate a slow decline in emissions over the coming decades.

You can revisit future emissions modelling once you have established the actions you will be undertaking (Strategy and Action stages). This will allow you to estimate the impacts of your planned actions and how they will help you reach your targets (Target stage). In doing so, it is important to understand the impact of council interventions in combination. Sometimes projects amplify each other's impact, as in the case of purchasing GreenPower while also replacing gas appliances with electric alternatives.

...
the most significant contributor to increasing emissions is population growth within a council's municipality...
increases in number and use of buildings, fleet miles travelled and waste going to landfill
...



Target

An emissions reduction target is a statement that outlines the ambition of Council to act.

Establishing an emissions reduction target can support greater cross organisational action by establishing the means, speed and trajectory of emissions reduction action expected within a local government's operations.

A well-considered target can:

- Unite and motivate stakeholders to take action
- Communicate the scale of change expected, desired or required
- Demonstrate commitment to achieving change.

There are typically three ways that a local government may choose to set a target. Regardless of the method used, an emissions reduction target must be time-based.

Recommended approach –

Science-derived target

A Science-derived Target (SDT) is determined from an external requirement, in this instance, the recommendations of the IPCC to avoid catastrophic climate change. It may be better thought of as a limit or cap, rather than a target.

It is independent of other considerations beyond limiting global warming to below 2.0°C, and as close as possible to 1.5°C, and does not consider how easy or difficult the target will be to achieve.

Note: To develop a corporate SDT councils will need to engage a consultant with expertise in this area.

Alternative approaches –

Aspirational target

An Aspirational Target is set according to political or other considerations and will typically involve something memorable or easy to communicate. The primary motivation for this target is to establish a common rallying point and to motivate all stakeholders.

It is often used as a secondary public target that is connected to a more complicated primary target. For example, local governments might use a net zero emissions reduction target as their aspirational or public target, while keeping their Science-derived Target for internal strategy development.

Action plan based target

An Action Plan Based Target is one that is constructed from what can be achieved from the actions being considered in a Council's action plan. It can be ambitious; however, its scope is directly derived from planned actions that are viable for implementation.

This approach is valuable in monitoring performance against the action plan but is best used in conjunction with an SDT to avoid catastrophic climate change. An Action Plan Based Target should be regularly reviewed and adjusted as further opportunities for councils to reduce emissions arise.

Strategy

Using the information identified in the Insight stage and your chosen Target, you can now begin to develop an Action Plan.

When developing an emissions reduction action plan, the following should be considered to help identify and prioritise actions:

1. Priority emissions sources – what are the largest sources of emissions for Council?
2. Available mitigation opportunities – what solutions exist for reducing emissions?
3. Cost effectiveness – what are the most cost-effective solutions and have the best return on investment for Council?

Actions that address significant council emissions, using existing available technology and have good returns on investment should be considered high priority actions when developing Council's emissions reduction plan. This is particularly important for low resource, rural councils.

Identify priority emissions sources

Sectors with the greatest emissions represent the greatest opportunity for emissions reduction and should be prioritised for action. Using your corporate inventory, identify the highest emissions sources for your council.

For Victorian rural councils, the highest emissions sources typically:

- Landfill
- Electricity – streetlights
- Electricity – Council-owned buildings
- Fuel usage (council fleet and contractor fuels)
- Natural gas (may include bottled LPG), and
- Concrete and asphalt use.

Actions that address significant council emissions, using existing available technology and have good returns on investment should be considered high priority actions

...

Identify mitigation opportunities

When identifying possible mitigation opportunities, the emissions reduction hierarchy (Figure 3) can be used to help prioritise actions.

Efficiency

The hierarchy recommends implementation of efficiency actions to reduce energy or resource demand as the first step. Reducing energy and resource consumption directly reduces emissions and saves council money. Common efficiency actions for Victorian rural councils include replacing streetlights with high efficiency LEDs and improving energy efficiency of council building through energy efficient equipment and lighting, optimising HVAC systems and improving insulation of facilities. In larger facilities conducting energy efficiency audits may be required to identify all opportunities.

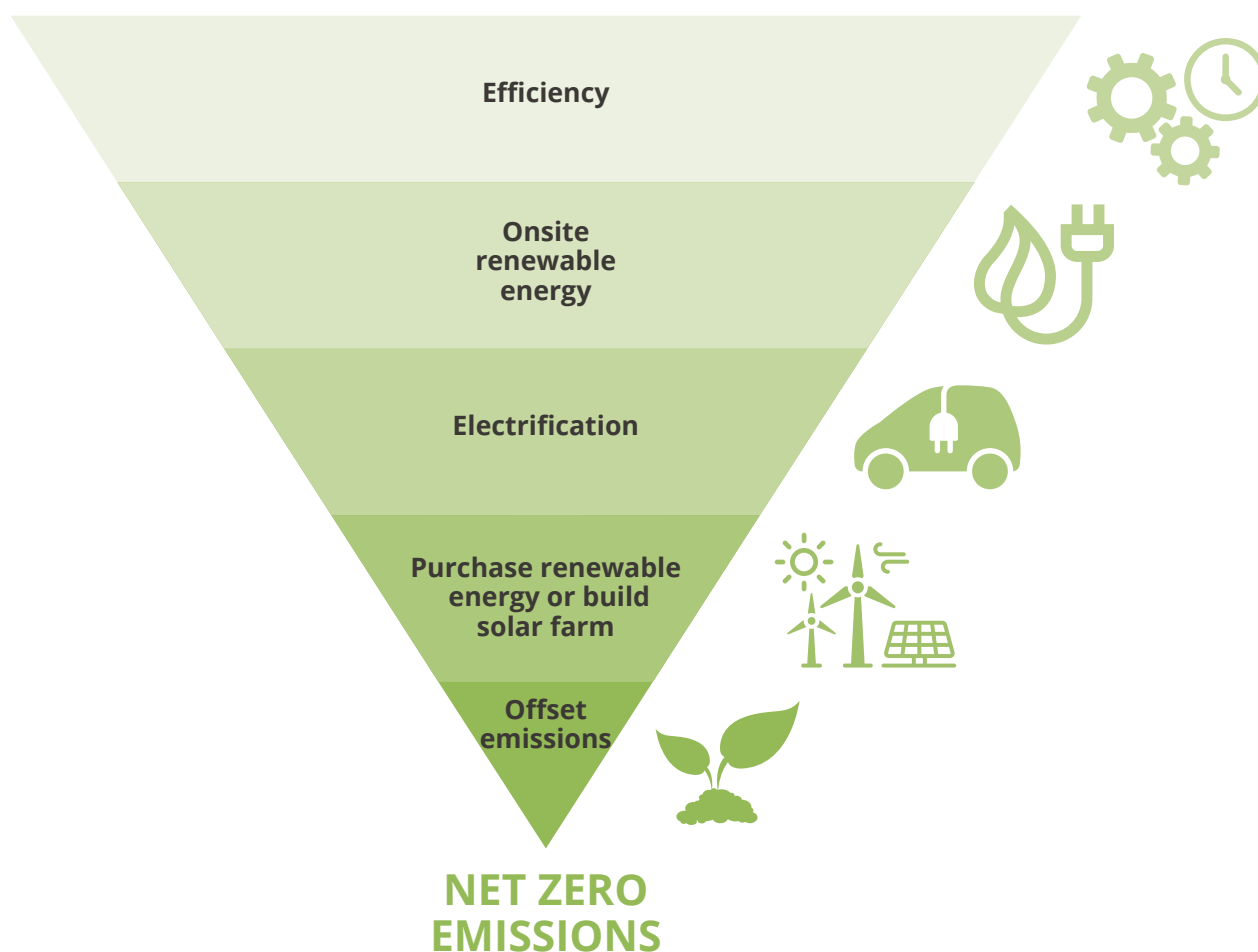
Efficiency actions can also be considered in other areas, such as concrete usage. By modifying design specifications or increasing the amount of recycled content in road construction, councils can reduce the amount of concrete used, reducing emissions and saving money.

Efficiency actions typically have the highest return on investment for councils.

Onsite renewable energy

Rooftop solar systems or other onsite behind the meter renewable energy generation at high electricity consuming council facilities should be considered next. By using electricity generated onsite, behind the meter solar systems reduce the amount of electricity that council needs to purchase from the grid, thereby reducing Council's electricity bills and Scope 2 emissions. Rooftop solar systems also have excellent returns on investment which can be as low as four years.

Figure 3: Emissions reduction hierarchy



Selecting sites for rooftop solar

Not all sites are suited for rooftop solar installation. When initially identifying possible sites for solar systems, council should consider the following:

- How much electricity does the site use during daylight hours?
- Is there sufficient roof space to install solar panels?
- Is the rooftop shaded by trees or other buildings?
- Are there any structural issues that would prevent solar panels being installed?

Electric alternatives already exist for the majority of gas systems used within council facilities in Victoria and are often more efficient and lower cost to operate and maintain.

Electrification

The next set of actions recommended is the electrification of Council's fleet and gas systems, such as heating and cooking facilities. Electrification of Council assets will increase Council electricity consumption, but by using renewable energy to power Council facilities electricity emissions can be reduced to zero. In addition, operation and maintenance costs for electric vehicles and equipment are typically lower, leading to long term savings to Council.

Gas transition

Electric alternatives already exist for the majority of gas systems used within council facilities in Victoria and are often more efficient and lower cost to operate and maintain. High costs can be incurred when writing off assets before the end of their lifecycle or when retrofitting council facilities. To reduce costs, it is recommended to phase out gas systems in line with Council's asset replacement cycle and capital works program. This may require conducting a life cycle assessment of all Council gas systems to inform the transition plan.



An important low-cost action that will support the transition away from natural gas is for Council to adopt a policy of replacing all gas systems with electric alternatives at the end of the asset lifecycle and banning the installation of new gas systems in new builds and retrofits.

Fleet transition

Transitioning Council's fleet is more complex as electric vehicle technology is at different levels of maturity and cost across different asset classes. For example, while EV alternatives are already available for small plant, passenger vehicles, vans and buses, there are limited EV alternatives for utes, heavy fleet and large plant at present in the Australian market.

To ensure the transition to EVs is timely and cost-effective councils should identify when suitable EV alternatives are expected to be available for each asset class and develop an EV transition plan which aligns with Council's vehicle asset replacement cycle. This will help ensure that Council can transition its fleet at minimal additional capital expenditure and reduce the risk of being left with stranded assets or expensive last minute transition processes.

Fleet transition plan

The development of a fleet transition plan can ensure a smooth and effective transition of Council's fleet to electric alternatives. A fleet transition plan should include:

- An analysis of the Council's existing fleet and usage, including small and large plant
- An analysis of viable electric alternatives for each vehicle type,
- A charging strategy, including number, type and location of charging stations needed
- An assessment of maintenance requirements and capabilities
- Identification of sites that may to be upgraded to support additional electricity loads required for charging, and
- Identification of any Council policies that may need to be revised to allow for the transition.

Purchase renewable energy

Purchasing 100% renewable electricity for Council assets and facilities through a corporate renewable energy Power Purchase Agreement (PPA) is a simple cost-effective way to reduce all electricity emissions to zero by giving councils direct access to energy generated from large-scale solar and windfarms. Increasingly PPAs can be negotiated at no additional cost to standard electricity contracts. The Business Renewables Centre Australia provides information on [how to set up a PPA](#) and also runs PPA 'bootcamps'.

Some councils, including rural councils, are now also assessing the feasibility of building their own solar or wind farms to offset electricity emissions and generate income for Council. While a solar farm does not have the same return on investment (ROI) as many behind the meter solar systems, they can still have ROIs of 10-15 years for an asset lifecycle of 25 years. Greater Shepparton City Council's [GVCE Mooroopna Solar Farm](#) is one example of this type of project.

VECO case study

The Victorian Energy Collaboration (VECO) is a partnership that has allowed 46 Victorian councils to purchase some or all of their electricity through a renewable electricity Power Purchase Agreement (PPA).

As a result of the project almost half of the entire sector's electricity load is being powered by renewable energy. This is equivalent to taking 90,000 cars off the road every year. The PPA is also expected to save councils up to 35% on their electricity bills on average and will run for 9.5 years starting July 1 2021. The electricity will be provided by two wind farms: Dundonnell wind farm near Mortlake and Murra Warra II wind farm near Horsham.

Offset emissions

The final step in achieving net zero emissions is to purchase offsets for any remaining emissions. As the last step in the hierarchy this should be done once all emissions that can be reduced have been.

For rural councils with access, ownership or management of sufficient land, generating offsets through carbon sequestration should also be considered. This could include reforestation and afforestation projects or projects to rehabilitate wetlands. Investing money into local carbon sequestration projects can not only help Council achieve net zero but also supports the local community and economy.

Appendix 2 provides a comprehensive list of further actions councils can implement to reduce corporate emissions. However, developing a strategy is not as simple as picking from a list of potential actions. You need to consider your emissions inventory, how emissions are expected to change over time and where there is the greatest scope for your council to reduce emissions.

Emissions reduction low hanging fruit

Whilst each Council is unique, the following actions are considered 'low hanging fruit' for corporate emissions reduction. They present the biggest emissions abatement potential for the lowest cost, or best return on investment.

- Upgrade streetlights and public lighting to LED lamps
- Audit energy use at large uildings (e.g. town halls, aquatic centres) and implement energy efficiency measures such as equipment upgrades and metering and monitoring
- Install solar PV on council-owned buildings
- Replace all gas appliances with electric alternatives at end of life
- Procure 100% renewable energy through a Power Purchase Agreement
- Adopt fuel emission standards for new Council fleet and train drivers on fuel-efficient driving techniques

Quantify impact

To determine which actions are feasible for your council to implement you can complete a high-level cost/benefit analysis of each proposed opportunity. This analysis should estimate the expected annual emissions reduction potential, implementation and

operational costs, and annual financial savings of each action. This information can then be used to determine the expected return on investment (ROI) of each action.

This analysis should include a proposed timeline to implement the action, for example 200 kW of solar PV installed on Council buildings over 4 years.

Financing mitigation

The changes required to reduce emissions will require investment of capital into Council's mitigation actions. There are several ways to source funds to do this:

Invest council capital

This option is best for smaller projects with returns on investment of less than 10 years, for example behind the meter solar at Council facilities. Allocation of budget each year will allow Council to reduce emissions and save costs over the long term, for example with lower electricity bills.

Grant funding

State and Government grants are becoming increasingly available for projects supporting the transition to a low carbon economy. Grants can assist councils to implement projects with longer or no return on investment, for example installation of fast EV charging infrastructure.

Financing

Large-scale projects can explore financing options with the Clean Energy Finance Corporation (CEFC). The CEFC provides cost-effective finance to incentivise borrowers to preference best-in-class clean energy assets. For more information see [here](#)

For significant projects, a mixed finance approach can be taken. A 5MW solar farm project by the City of Newcastle was majority financed by a \$6.5 million loan from the CEFC, plus a \$1 million grant from the NSW Government. Council only needed to invest the remaining \$500,000 from its own budget, with the business case predicting a \$9 million return on investment over 25 years.

Engage

Present the results of the cost/benefit analysis to key Council stakeholders. Request their feedback on the feasibility of implementing each action. Questions to ask could include:

- Is the timeframe realistic? Does it work with existing programs, e.g. asset replacement plans?
- Is it viable for Council to implement? Is the ROI acceptable?
- Are there any barriers to implementation?
- Are there any additional opportunities not covered?

Use feedback generated from this engagement to update the cost/benefit analysis and identify actions that are feasible for Council to implement within the timeframe of the action plan.

Prepare

Your Action Plan should include the results of the Insight, Target, and Strategy stages. It should also identify the context of why the plan is needed and how it interacts with Council's other plans and strategies.

An example format of an Action Plan is:

4. Executive Summary: overview of the plan.
5. Introduction: what the plan is for and what it includes.
6. Background/context: why the plan has been developed, including local, state, federal and global drivers.
7. Corporate inventory results: your key emission sources.
8. Council's emissions reduction target: what you are aiming for and by when.
9. Recommended actions: what each action involves, proposed timing of implementation and results of the cost/benefit analysis.
10. Emissions reduction pathway: the expected progression towards your target once all actions have been implemented.





Action

Once a strategy has been developed, the fun begins. Action!

Your Action Plan will have established a clear and practical pathway of actions to reduce your corporate emissions in accordance with your target. This plan will have only considered the high-level costs and benefits of each action as part of the prioritisation process.

Before implementing any action, you must develop a detailed business case to determine its viability in your specific context. This will ensure each action has the best chance of success to both reduce emissions and deliver a return on investment for Council.

Example business case – behind the meter solar



A business case for installing behind the meter solar onto a specific Council building or facility would first consider whether there are any barriers to installing such a system. These barriers could include:

- Structural issues with the roof or building
- Low power quality at the site
- Roof availability – are there other services already located on the roof? Is the roof shaded by vegetation or other buildings?
- The site's electricity profile – is usage predominantly at night?

Once the feasibility of installing a system is determined, the next step is to calculate the optimum size of the system (in kW) by considering:

- Electricity demand during hours of generation – how much will the site consume during daylight hours?
- Dimensions of available roof area – what size system will fit?
- Solar resource at the site (e.g., using peak sun hours) – how much will the system generate?
- Solar panel efficiency

Following this, a financial analysis must be undertaken. This analysis will determine:

- What is the cost to install the system?
- What will be the ongoing maintenance costs?
- How much money will be saved in electricity bills, due to the reduced demand for grid electricity?

A comparison between the cost of installing the solar PV system and the ongoing financial savings of the system will determine the return on investment (ROI), indicating how many years it will take to recoup the initial capital investment. If the ROI is within an acceptable length of time, the project is viable for implementation.



Monitoring and evaluation

Mitigation actions recommended for implementation will largely achieve savings by reducing Council's demand for resources such as grid-supplied electricity, diesel and petrol. This means ongoing emissions and financial savings may go unnoticed.

A formalised monitoring process will ensure this data is captured and impact is tracked over time. This can be done by:

- Assigning responsibility for monitoring progress to a member of staff.
- Collecting annual data (as required for an inventory).
- Comparing data between years to see what usage has changed.
- If there are unexpected changes (e.g. significantly more or less consumption than typical), investigate why. Are there gaps in data collection? Have there been changes to Council's services? Significant new assets acquired, or assets decommissioned?

Financial savings identified through this monitoring process can then be used to fund additional staff time to further implement and monitor emissions reducing actions. Progress towards achieving Council's emissions reduction target can also be measured and communicated to internal and external stakeholders.



Case studies

LED Streetlight Bulk Changeover Central Victorian Greenhouse Alliance and Wimmera Mallee Sustainability Alliance

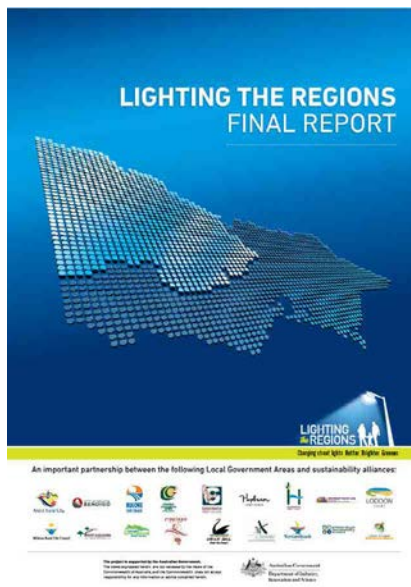
Street lighting is one of the largest sources of greenhouse gas emissions for Victorian councils. In 2014, the Central Victorian Greenhouse Alliance, the Wimmera Mallee Sustainability Alliance and sixteen councils partnered to carry out an energy efficient bulk upgrade of minor road streetlights as part of the Lighting the Regions program.

The project attracted federal government funding and remains the largest streetlighting partnership project ever undertaken in Australia, covering an area of 35% of Victoria.

The project successfully upgraded more than 22,000 streetlights to LED technology, resulting in greenhouse gas savings over the 20 year life of the new lights of more than 172 MtCO₂-e, equivalent to taking more than 37,000 cars off the road for one year.

Savings are already being reflected in council power and maintenance bills with more than \$1m per year being saved. This represents an average payback period of five years for the local government investment in the project.

Twenty-two community and celebration events were also held in partnership with local community and environmental groups. This raised the profile of the project and encouraged residents to continue with their own local energy efficiency initiatives. Over the duration of the project, the Lighting the Regions website had an impressive 24,040 page views, with 15,985 visitors to the website. Surveys indicated a raised awareness by families as a key target market for future energy saving initiatives and projects. T



Barwon South West Carbon Offset Program Corangamite Catchment Management Authority

In 2022, the Corangamite Catchment Management Authority received funding from DELWP's Regional Climate Change Adaptation Strategy Grant program for the design and feasibility of a circular carbon offset program.

The project is a joint initiative between Barwon South West councils and two Catchment Management Authorities (CMAs) with an overarching objective to support the region's councils to offset their emissions locally. This has involved matching council areas with high carbon neutrality targets with those with high carbon offset potential.

As well as seeking to meet the carbon neutrality targets of councils, the program aims to realise complimentary benefits of achieving regional natural resource management (NRM) outcomes including improved water quality, soil health and habitat connectivity, as well as adaptation to climate change.

It will also support local community groups and private landholders to undertake NRM projects and support a local revegetation industry by leveraging private and public funding into local projects. Benefits such as improved soil quality are expected to improve land quality and provide for sustainable agricultural productivity and economic growth in the long term.

The project has a comprehensive list of existing stakeholders including 10 councils, 2 CMAs, the system developer (FLINTpro) and a carbon offset certifier (South Pole). The BSW Climate Alliance, water corporations, private companies and businesses are slated for future involvement in the project to assist in various aspects of offset creation, distribution and purchase. Blue, Teal and Green Carbon offset opportunities will be managed by the system developer to ensure they are aligned with the carbon offset requirements of the 10 purchasing councils. Once these offset requirements are allocated, future public and private carbon offset purchasers will be serviced. 🌿



Appendix 1: Sources of emissions data

GHG EMISSION SOURCE	SUGGESTED SOURCES	EMISSIONS CALCULATION APPROACH
Scope 1		
Transport and stationary fuels	<ul style="list-style-type: none"> Fuel consumption reports from Fleet Manager / Fuel Card Fuel consumption reports from finance – bulk fuel from depot Purchases of bottled gas – invoices/reports from supplier 	<p>Consumption quantity x Emission factor provided by National Greenhouse Accounts (Table 3: Fuel combustion emission factors)*</p> <p>Consumption quantity can be calculated using total spent</p>
Natural Gas	<ul style="list-style-type: none"> Billing Data from Building Facilities Management team Utility Management System Purchases of bottled gas – invoices/reports from supplier 	Consumption quantity x Emission factor provided by National Greenhouse Accounts (Table 2: Emission factors for the consumption of gaseous fuels)*
Fugitive Emissions (Refrigerants)	<ul style="list-style-type: none"> For large heating ventilation and air conditioning systems / smaller reverse cycle air conditioners – building air conditioning maintenance team For refrigerant top-up in vehicles – team maintaining Council's vehicles Council procurement division 	Refrigerant top-up quantities (x) <u>Global Warming Potential of Refrigerant</u>
Lubricants (Oil) and Lubricants (Grease)	<ul style="list-style-type: none"> Council procurement division Mechanics service provider who service Council vehicles and plant 	Consumption quantity (x) Emission factor provided by National Greenhouse Accounts (Table 3: Fuel combustion emission factors)*
Landfill	Use the <u>NGERS Solid Waste Calculator</u>	

GHG EMISSION SOURCE	SUGGESTED SOURCES	EMISSIONS CALCULATION APPROACH
Scope 2		
Electricity (Council) Emissions produced due to the electricity used by buildings that Council owns and occupies	<ul style="list-style-type: none"> Utility bills from the electricity retailer or finance department (preferably a spreadsheet with all data for the financial year) Utility Management System 	Consumption quantity x Emission factor provided by National Greenhouse Accounts (Table 46: Scope 2 and 3 emissions factors – consumption of purchased electricity by end users)*
Scope 3		
Streetlighting# Emissions produced through the electricity used by streetlights that Council pays the bills for	<ul style="list-style-type: none"> Electricity bills from the retailer 	Consumption quantity (kWh) x Emission factor provided by National Greenhouse Accounts (Table 46: Scope 2 and 3 emissions factors – consumption of purchased electricity by end users)*
Electricity (Commercial) Emissions produced through the electricity used by buildings that Council owns but does not occupy	<ul style="list-style-type: none"> Electricity bills from the retailer 	Consumption quantity (kWh) x Emission factor provided by National Greenhouse Accounts (Table 46: Scope 2 and 3 emissions factors – consumption of purchased electricity by end users)*
Contractor fuels Where council contracts other companies to undertake works for them that use large amounts of fuel, Council should report the emissions for the fuel use as their Scope 3 emissions. Examples are waste and road works contractors.	<ul style="list-style-type: none"> Contractors to provide data on fuel used for Council projects Procurement team <p>NB: data from every contractor does not need to be captured. For example, Council could focus on collecting data from:</p> <ul style="list-style-type: none"> Contractors with annual spend (\$) > \$100,000; or Top 3 Contractors in order of spend (\$) 	<p>Fuel consumption quantity by fuel type (e.g. petrol, diesel) for each contractor or collectively x Emission factor provided by National Greenhouse Accounts (Table 3: Fuel combustion emission factors)</p> <p>Consumption quantity can be calculated using total spent</p> <p>How to select which contractor to include?</p> <ul style="list-style-type: none"> It could be decided internally; however, some suggestions are as follows: <ul style="list-style-type: none"> Contractors with annual spend (\$) > \$100,000 Top 3 Contractors in order of spend (\$)







GHG EMISSION SOURCE	SUGGESTED SOURCES	EMISSIONS CALCULATION APPROACH
Water use Emissions produced through the processes associated with delivery of water to Council facilities, and disposal of wastewater	<ul style="list-style-type: none"> Utility bills from the water retailer or finance department (preferably a spreadsheet with all data for the financial year) Utility Management System 	<ul style="list-style-type: none"> Water usage quantity* emission factor provided by the Bureau of Meteorology, as follows: Bureau of Meteorology's National performance report 2019–20: urban water utilities. Table 2.3 Average volume of residential water supplied per property (kL/property) Table 2.6 Total net greenhouse gas emissions per 1,000 properties (t CO₂ equivalent/1,000 properties) Report can be accessed here
Corporate waste Emissions created from the waste produced at Councils' sites	<ul style="list-style-type: none"> Waste activity data from Waste services Kerbside waste audit report Data from landfill on the disposed/received quantities 	Quantity of waste by type (x) Emission factor provided by National Greenhouse Accounts (Table 47: Waste mix methane conversion factors)*
Scope 3 components of Scope 1 and Scope 2 emissions <ul style="list-style-type: none"> Electricity Transport and Stationary fuels Natural Gas Lubricants 	As per Scope 1 and Scope 2 entries	Consumption quantities (x) Scope 3 Emission factors provided by National Greenhouse Accounts (Appendix 4 Scope 3 emission factors)*
Construction Materials (Asphalt/Concrete/Cement)		Approach #1 Refer Infrastructure Materials Calculator Approach #2 Consumption quantities (x) emission factors provided by The Australian Life Cycle Inventory Database Initiative








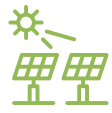

* National Greenhouse Accounts Factors 2021 can be accessed [here](#)



Streetlighting can be reported as a Scope 2 or 3 emission for councils depending on if they fall under council's operational control. Any metered open space lighting that Council owns and maintains is to be included as Scope 2; however, all other streetlights owned by DNSP/DB is Scope 3.

Appendix 2: Actions and Interventions

Below are some examples of emissions mitigation actions for councils to reduce their corporate emissions. Note that the feasibility of these actions will depend on each council's unique circumstances and will not necessarily have the same cost or impact indicated here. Council should conduct a detailed business case for each action before deciding whether it should be implemented.

ACTION	DESCRIPTION	LIFETIME COST [#]	ABATE-MENT	TIME-FRAME ⁺
100% renewable power purchase agreement 	A long-term agreement to purchase electricity directly from a renewable energy generator, locking in the price and quantity of supply.	\$	Very high	Short
Street lighting upgrade 	Replacement of streetlights with LED lamps, which are significantly more efficient than standard lamps.	\$	High	Short
Parks and open space lighting upgrades 	Replacement of lights in parks, open space and sporting fields with LED lamps, which are significantly more efficient than standard lamps.	\$	Medium	Short
Smart lighting 	Lighting control networks that allow nuanced, real-time control of street lighting to ensure more efficient operation.	\$	Medium	Medium
Sustainable Policies for Works Program 	Policies for buildings, equipment and infrastructure that embed sustainability principles into the design, construction and procurement of council assets.	\$	Medium	Short
Energy audits and efficiency, particularly at large and medium sites 	Implementation of energy efficiency measures (lighting upgrades, building management systems, HVAC upgrades) that will reduce energy consumption at key council facilities.	\$	Medium	Short

ACTION		DESCRIPTION	LIFETIME COST [#]	ABATE- MENT	TIME- FRAME ⁺
Electrification of gas systems		Develop a plan to phase out gas equipment and heat and cooling systems.	\$	Low	Medium
Kerbside FOGO collection		Introduction of kerbside food organics and garden organics collection could reduce waste disposed of at Council landfill by up to 20%.	\$\$	Very high	Short
Landfill gas flaring		Reduce emissions from landfill by flaring methane.	\$\$	High	Medium
Purchase of offsets		Purchasing accredited carbon credits to offset unavoidable greenhouse gas emissions.	\$\$	Very high*	Medium
Generation of offsets		Financing projects in the community that reduce emissions (e.g. afforestation, renewable energy), generating accredited carbon credits to offset unavoidable emissions.	\$\$	Very high*	Long
Behind the meter solar		Solar panels installed at council facilities, providing both zero emissions energy and significant financial benefits by reducing purchase of grid electricity.	\$\$	Medium	Medium
Passenger vehicle transition		The electrification of Council's passenger fleet, including installation of vehicle charging infrastructure.	\$\$	Low	Short
Solar farm		Large-scale solar installation (>500 kW) that operates as a renewable energy generator on the wholesale electricity market.	\$\$\$	Very high	Long
Utility vehicle transition		The electrification of Council's utility fleet, including installation of vehicle charging infrastructure.	\$\$\$	Medium	Medium

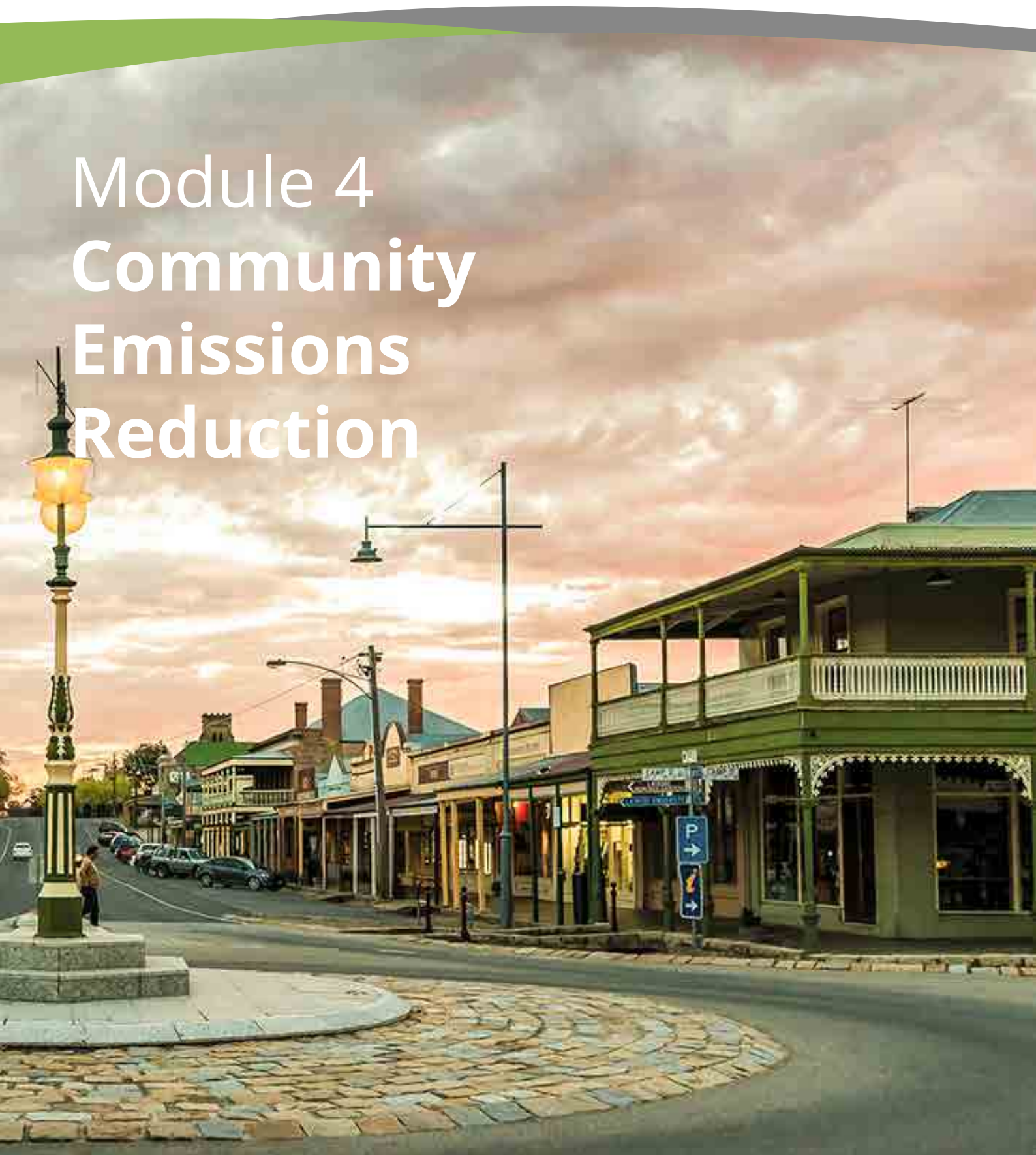
ACTION	DESCRIPTION	LIFETIME COST [#]	ABATE-MENT	TIME-FRAME ⁺
Battery storage 	Batteries work with solar systems, allowing energy generated during the day to be stored and used at night or on overcast days.	\$\$\$	Medium	Long
Heavy vehicle transition 	The electrification of Council's heavy vehicle fleet, including installation of vehicle charging infrastructure.	\$\$\$	Medium	Long

Lifetime cost includes expected returns on investment

+ Timeframes: Short (6 months–2 years), medium (2–10 years) and long (10+ years)

* Offsets are not considered true abatement opportunities as they do not avoid greenhouse gas emissions. They should be used as a final step to achieve net zero emissions, offsetting any unavoidable emissions once all other available abatement actions have been implemented.

Module 4 Community Emissions Reduction



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About Ironbark Sustainability

For nearly two decades, Ironbark Sustainability has worked with councils and their communities to reduce greenhouse emissions, tackle climate change and implement sustainability projects and programs. We bring together a wealth of technical and financial analysis, maintenance and implementation experience in the areas of building energy and water efficiency, climate action and strategy development, public lighting and data management. We pride ourselves on supporting our clients to achieve real action on sustainability.

Our Mission

The Ironbark mission is to achieve real action on sustainability for councils and their communities.

Ironbark is a certified B Corporation. We have been independently assessed as meeting the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.

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About this module

This part of the Rural Councils Victoria Climate Change Toolkit looks at how councils can help their communities reduce their emissions.

Councils are well placed to do this, through their service delivery, their regulatory power, and their roles as major employers, purchasers and landlords.

This guide considers only **community emissions**. These are emissions from across the whole local government area. They include emissions from electricity and gas consumption, transport, waste treatment, agriculture, land use change and industrial processes and product use.

Community emissions differ from **corporate (or operational) emissions**, which are limited to emissions from a council's operations. Council's corporate emissions are a small subset of the municipality's community emissions. If you want to find out more about reducing council corporate emissions, you can refer to the Corporate Emissions Reduction component of the toolkit (Module 3).

Addressing your community emissions comes with a range of benefits to residents, businesses and to council. Firstly, it helps meet the requirement in the Local Government Act to achieve the best outcomes for the municipal community, including future generations. It also ensures that your community can capitalise on the benefits of reducing emissions, such as reduced costs. It can attract people to your local area (e.g. EV chargers) and can also foster greater social cohesion, for example, bringing together groups of businesses or residents to tackle emissions. Other emissions reduction activities (e.g. tree planting or improving bicycle infrastructure) increase the liveability and environmental value of the area.

Here, we take you through five steps to addressing your municipality's community emissions:

1

Insight

Gain an understanding of your community emissions.



2

Target

Set targets for emissions reduction.



3

Strategy

Plan how your council will meet its targets.



4

Action

Take action to reduce emissions.



5

Monitoring and evaluation

Assess and evaluate progress.





Insight

Before taking action, it is important to understand where your emissions are coming from.

Emissions profiles

Understanding your current emissions will help you determine where to focus your emissions reduction efforts. This can be done using your emissions profile, which shows your current emissions broken down by sector.

You can access a free community emissions profile for your municipality using [Snapshot Climate](#). [Snapshot](#) breaks your emissions down into electricity, gas, transport, waste, land use and agriculture, and will soon provide information on industrial processes and product use too. These are all of the sectors that are usually considered when compiling an emissions profile.

Future emissions modelling

Considering how your emissions will change over time will also help you identify where to focus your efforts. For example, electricity may be a large source of emissions now, but its importance will reduce over time as more renewable energy is fed into the grid. Or, your population may be declining while agricultural industry intensifies, changing the mix of emissions over time.

Considering your business-as-usual (BAU) projections allows you to account for these types of factors. It is what happens without

Figure 1: Example Snapshot community emissions profile

Strathbogie

2019/20 municipal emissions snapshot



council taking any action and understanding it will help you work through the Target, Strategy and Action phases.

Indeed, you may like to revisit future emissions modelling once you have established the actions you will be undertaking (Strategy and Action stages). This will allow you to estimate the impacts of your planned actions and how they relate to your targets (Target stage). In doing so, it is important to understand the impact of council interventions in combination. Sometimes projects amplify each other's impact, as in the case of purchasing GreenPower while also replacing gas appliances with electric appliances. However, not all projects work well together. For example, once businesses or residents have undertaken to purchase GreenPower, a subsequent project on energy efficiency will not increase emissions savings. It is worth noting, however, that in the latter example the project will still lead to financial savings.

In Appendix 1 we outline some of the things you should look at when modelling future emissions, as well as some useful data sources. Unfortunately, getting a robust model of future emissions is not a straightforward exercise and you may want to consider getting external support in doing so, perhaps through a regional collaboration. Alternatively, you may find it sufficient to gain a qualitative understanding of the things expected to affect your future emissions, or to focus your efforts on understanding the expected impact of your chosen actions.

Key stakeholders

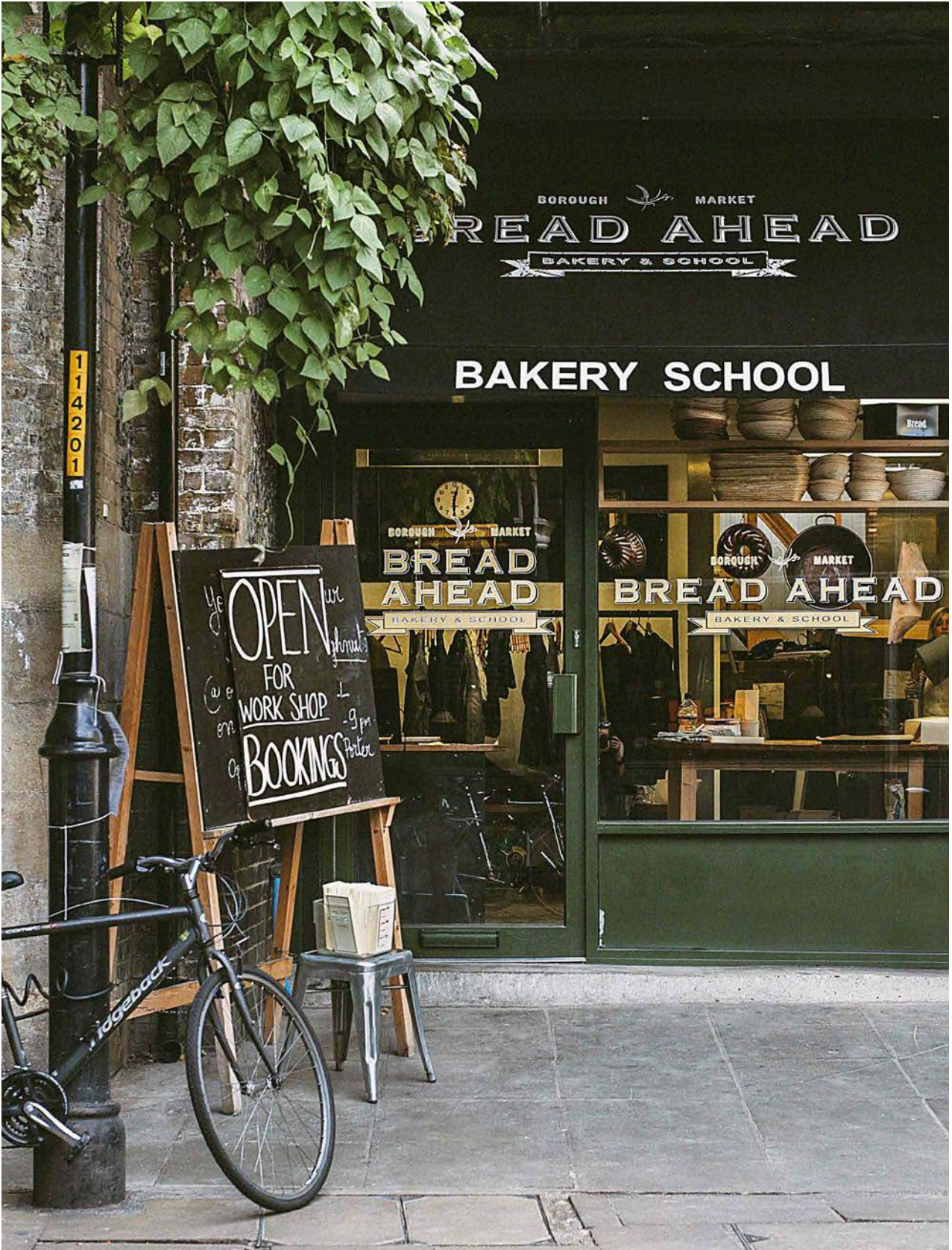
It is important to understand what your key stakeholders are already doing to reduce emissions and what their capacity and motivation for further action is. This will help you to identify where you can leverage momentum, where emissions are already being addressed and where there are gaps to be filled or support is needed.

Interventions

It is also important to understand how councils can influence emissions. Broadly speaking, councils can undertake the following intervention types:

- Education, e.g. workshops, websites and posters
- Advocacy
- Facilitation to encourage action by groups of key stakeholders
- Developing and implementing new policies or regulations, e.g. modifying the planning scheme or increasing resourcing for enforcement
- Embedding emissions reduction in plans and strategies
- Purchasing and performance/supply contracting, e.g. installing chargers at council facilities or mandating emissions reductions in road building materials
- Provision of loan schemes, incentives or grants, e.g. free parking for EVs or Environmental Upgrade Agreements
- Creating or encouraging/requiring monitoring standards like Star Ratings on appliances or NABERS ratings

...
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Target

An emissions reduction target is a statement that outlines the ambition of a council to act. It sends a message both to the community and council staff on the priority given to the issue by council.

A well-considered target can:

- Unite and motivate stakeholders
- Communicate the scale of change needed or desired
- Demonstrate commitment

There are many ways to establish a target, ranging from simply choosing a year to achieve net zero to aligning with international climate science.

Community engagement

A target can rally support within the community and encourage council decision-makers to take action. As such, it is important to engage with the community both when setting the target and when communicating the target once it has been established.

You may be worried about being criticised for not meeting community-wide targets, but this can be avoided by being clear on the line of accountability. Unlike operational or corporate targets, it is not a council's responsibility alone to meet the target. It is important to be clear that the target relies on support and action from all levels of the community, businesses and government. For example, you may like to adapt the text below.

While Council has a critical role to play in reducing emissions and adapting to climate change, it is important to acknowledge that Council is not solely responsible for the municipality achieving the community emissions reduction target. Emissions reductions at this scale will require contributions from residents, businesses and industry, and the state and federal governments.

Science-derived target

A science-derived climate target is one that is based on the global emissions reductions needed to halve emissions by 2030 and reach global net zero by 2050. You can read more about how to set a science-derived target and request a free science-derived target for your municipality on this [website](#).

Other ways of setting a target

You could consider the following ways to set your target:

- Align with the Victorian State government's target of net zero emissions by 2050
- Align with the Cities Power Partnership, which recommends emissions are reduced by 75% by 2030 and net zero emissions by 2035
- Select a year to achieve net zero emissions or interim reductions, as agreed with your community



Strategy

In this section you will bring together the information identified in the Insight stage, and your understanding of the targeted outcomes, to decide what your council will do to support emissions reductions.

Your strategy will be comprised of:

Strategic priorities

These are your high-level areas of focus, which can be based on process (e.g. council leadership and supporting communities) or specific areas of action (e.g. energy and waste).

Objectives

These sit beneath and feed into the strategic priorities.

Targets

These outline how to determine if the objectives have been achieved and need to be underpinned by an understanding of the baseline data.

Actions

These show the specific work to be undertaken.

In many cases, your strategic priorities and objectives will already be set for you, for example from other council plans or from a council motion. In other cases, the strategic priorities and objectives can be developed by looking at your planned actions. Some example strategic priorities and objectives are given in Appendix 2.

To develop your actions and associated targets you will need to answer the following questions:

- What actions are needed in the community to reduce emissions?
- What is the role of other stakeholders?
- What are the barriers and challenges preventing these actions from occurring?
- What is the business-as-usual (BAU) uptake of these actions, and what is the role of council in accelerating their uptake?
- What actions are already planned by other areas of council?
- How can other areas of council participate in the strategy?
- Which actions deliver the best 'bang for buck'?

Data analysis (building on the analysis done in the Insight stage) and stakeholder engagement will help you answer these questions.


The following section provides some examples of the types of actions and interventions councils can take to reduce community emissions. However, developing a strategy is not as simple as picking from a list of potential actions. You need to consider your community emissions profile, how emissions are expected to change over time and where there is the greatest scope for your council to influence emissions.



Council actions and interventions

Although some actions are likely to be impactful across most council areas, it is important to consider your own council's characteristics (e.g. emissions profile, forecasts, demographic information, key stakeholders) to determine the actions that will be the most impactful for you.


Below are some examples of community emissions mitigation actions for councils. Note that the usefulness of these actions will vary between councils.

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SECTOR	DESIRED OUTCOME	COUNCIL INTERVENTION
Energy* 	Renewable energy	<ul style="list-style-type: none"> Facilitate Solar PV installations on residential properties (especially rental, multi-dwelling properties and low income housing), commercial properties and schools Provide information on grants and rebates for household and business solar PV installation Support community energy initiatives Promote GreenPower to residents and businesses Run programs and educational campaigns on renewable energy Power Purchase Agreements (PPAs), noting that costs are likely to much higher than when local government PPAs like the VECO PPA were implemented
	Improved energy efficiency	<ul style="list-style-type: none"> Facilitate programs or provide incentives or education campaigns on energy efficiency appliances upgrades for residents and businesses Facilitate bulk buys for energy efficiency measures Develop electrification <u>education programs and incentives</u>

SECTOR	DESIRED OUTCOME	COUNCIL INTERVENTION
Energy* 	Low emissions buildings	<ul style="list-style-type: none"> Require new buildings to achieve a high level of energy efficiency Incentivise high performance buildings Increase enforcement of planning requirements Investigate neighbourhood battery trials Advocate to the State and federal government to lift the minimum standards in the National Construction Code (NCC)
	Electricity and renewable energy market advocacy	<ul style="list-style-type: none"> Be a strong local voice on the key committees and advocacy on energy, e.g. Australian Energy Market Operator, Australian Energy Market Commission, Australian Energy Regulator and Energy Security Board
	Reduced use of gas	<ul style="list-style-type: none"> Facilitate working groups to discuss key stakeholder challenges and opportunities for transiting away from gas Work with industry and large gas users, and ask what support they need to transition away from gas in a manner that maintains operational viability Ban gas in new developments (except some industrial areas where they should also work to co-locate for green gas hubs) Provide education around the benefits of switching away from gas
Waste 	Reduced emissions from landfills	<ul style="list-style-type: none"> Manage emissions from existing landfills Advocate for or implement the installation of methane flaring Investigate waste to energy infrastructure
	Food Organics Garden Organics (FOGO) waste diversion	<ul style="list-style-type: none"> Provide FOGO collection services Ensure sufficient different bin types and education on waste
	Develop the circular economy	<ul style="list-style-type: none"> Promote sharing services and the sharing economy Create circular economy hubs and connect makers and buyers

* Although electricity and gas emissions are a major source of emissions for most councils, they will also decrease over time without needing to take any action as coal and gas is being displaced by solar, wind, hydro and batteries across the grid. That said, there are many opportunities remaining, particularly in the commercial and industrial sectors where complex ownership of facilities presents a barrier to uptake.

SECTOR	DESIRED OUTCOME	COUNCIL INTERVENTION
Agriculture 	Renewable energy	<ul style="list-style-type: none"> Start the discussion with business and agricultural stakeholders to understand the need (if there is a need) for support Provide information on available funding for renewable energy technology
	Energy efficiency and electrification	<ul style="list-style-type: none"> Provide information and support farmers to: <ul style="list-style-type: none"> Conduct energy audits Replace petrol or diesel equipment with electrical pumps, motors or other electric equipment Discuss and plan for zero emissions transport fuels
	Carbon sequestration in soils	<ul style="list-style-type: none"> Provide information on carbon sequestration opportunities and programs, such as the Barwon South West Carbon offset program Support farmers and landowners access to regional and state government programs such as the Victorian Carbon Farming Program
	Climate resilience	<ul style="list-style-type: none"> Provide information on <u>alternative farming technology, practices and techniques</u> to increase resilience in a changing climate Facilitate information and knowledge sharing on emissions reducing agricultural and land management practices
	Other	<ul style="list-style-type: none"> Link local farmers to research and pilot opportunities, for example through <u>Farmers for Climate Action</u> Provide incentives for farmers and producers to implement emissions reduction activities Work with local business groups and state government to identify centralised co-located facilities for the production and use of gas and fuels



SECTOR	DESIRED OUTCOME	COUNCIL INTERVENTION
Transport 	Increased uptake of Electric Vehicles (EVs)	<ul style="list-style-type: none"> • Provide education to counter range anxiety • Implement planning changes to promote EVs • Provide education promoting the benefits of EVs • Share information on the locations of EV chargers • Provide incentives to people using EVs (e.g. designated parking areas and discounted parking rates) • Advocate for stronger vehicle emissions standards • Replace council fleet with EVs (although this in itself has a small impact on community emissions, it stimulates the resale market and can be used as an education opportunity)
	Expanded EV charging network	<ul style="list-style-type: none"> • Provide assistance to third parties wanting to install EV chargers • Encourage new developments to be EV-ready through assessment of planning applications • Install public EV charging at council facilities • Plan for EV charging at neighbourhood and street levels. This is particularly important in areas where there is no or low levels of off-street parking so installing private chargers won't be possible
	Increase use of public transport, active transport and car share services	<ul style="list-style-type: none"> • Increase and maintain walking and cycling facilities and infrastructure • Develop and deliver behaviour change programs • Develop educational programs on the benefits of car sharing and active and public transport • Create incentives to facilitate uptake of alternative transport options • Create a new regulation or policy requiring the installation of car share infrastructure (i.e., car share car spaces) in new developments • Facilitate and promote e-bike programs
	Other	<ul style="list-style-type: none"> • Implement leading road and footpath construction specifications. Adopting best practice product selection can reduce emissions by as much as 60% • Stimulate planning for heavy and long-distance fleet



Once a strategy has been developed, the fun begins. Action!

A well-designed project is clear about:

- Who are you targeting and why (e.g. specific businesses because they are heavy energy users)?
- What do you want them to do? It is important to make sure the actions match their capacities (e.g. renters may find it difficult to install rooftop solar)
- What outcomes do you expect and how will you monitor these (including collection of baseline data)? This is discussed further in the next section.
- What resources do you have and what do you need?
- What are the governance arrangements?
- When will the project be delivered and what is the best time for your audience?
- How does the project link back to your targets and objectives?

Including project participants and partners from the outset will help you gain buy-in and help create projects that are well-designed. You may even be able to hand over project management, leadership or other roles to interested community partners; this is particularly useful in resource constrained environments, where councils may find they can have the greatest impact by facilitating action.

You may be able to learn from other municipalities about what to do (and what not to do). Of course, it is important to adapt projects to your local situation rather than simply copying what others have done.

...
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 ...



Monitoring and evaluation

Effective monitoring and evaluation is the key to knowing whether your strategy and your actions are being delivered successfully.

Good monitoring and evaluation can also help you to recalibrate existing projects to improve outcomes and develop better projects in the future.

You need to monitor both the strategy's targets, and the impact of the actions you are undertaking.

Successful monitoring and evaluation of the strategy should be considered during the Strategy phase. You will need to identify and collect baseline data related to your targets to allow you to monitor success.

Monitoring and evaluation of actions should be planned at the commencement of the Action phase. Again, baseline data needs to be considered, and needs to be regularly collected during the project implementation. This will allow the project to be adjusted to maximise impact.

To understand your impact, there are a few key things to consider:

Action impacts

Are the outcomes you're expecting occurring at the expected time and rate?

Business-as-usual impacts

What would have happened if council hadn't implemented the project? Answering this can be difficult. One way is to look at a 'control', such as a council or a town with very similar characteristics that is not implementing the same program.

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Note that it is generally not possible to attribute changes in your emissions profile to a particular action, or even a suite of actions. This is because there is a mismatch between the scale of most actions and the scale at which emissions are reported. It is also very challenging to get highly accurate emissions profiles at the municipal scale. Appendix 4 gives some other useful data sources you can use for monitoring.

Case study

Supporting local climate action planning

Macedon Ranges Shire Council

Following the development of Council's Climate Change Action Plan in 2017, Macedon Ranges Shire Council developed a Cool Changes program that works with local communities across the shire to respond to climate change and facilitate the development of local climate action plans.

Council has assumed the role of facilitator to help communities develop place-based action plans that are palatable and appropriate for their geographic, economic and social landscapes. Of these seven plans, five are complete and two are in the early stages of community consultation.

The plans provide an opportunity to strengthen projects and programs relevant to the community, raise awareness for climate action and identify opportunities for communities to play their role in responding to and mitigating climate change. A range of consultation methods have assisted in this, including surveys, community events, workshops and digital engagement. To break down complex conversations around climate change, a graphic recorder attended the workshop sessions to facilitate easier engagement with the topic.

A mix of initiatives, focus areas and specific actions have come of the five completed plans, responsive to local residents' climate change concerns and priorities. In future, these Community Climate Action Plans will be used when creating a shire-wide Climate Emergency Response Plan.




This Plan will bring the local plans into one and explore what ideas and actions can be scaled up and effective across other areas of concern. Importantly, this will give Council an opportunity to return to the database of previously engaged stakeholders and community members.






Rather than starting from the beginning for the development of the shire-wide emergency response plan, Council is excited to bring participants back together and affirm the value of the community's input to-date. 📝



Appendix 1: Future emissions modelling

It is important to consider the factors influencing how your emissions might change over time. The table below gives some of the main factors and potential data sources. Even if you can't find data on the given factors, you should think about the expected trends and how they might influence the best actions to take in your municipality.

FACTOR	DESCRIPTION	DATA
Population growth/decline 	Population changes impact energy consumption from housing, commercial activity and transport	The state government's Victoria In Future data on projected population growth. For some councils more detailed projections including households and dwellings are also available through .id consulting
Greenfields or infield development 	This will be closely related to population growth, but may also highlight areas where you can influence emissions	Information from your planning department, such as areas of planned greenfield development, rates of infill development or zoning changes that will impact on industry
Economic growth/decline 	Economic growth typically means increases in emissions. However, it is possible to decouple economic activity from emissions so that businesses can thrive whilst reducing emissions	ABS and .id consulting

FACTOR	DESCRIPTION	DATA
Changes to mix of industry or agriculture 	<p>You might consider if there are signs of a new industry or type of agriculture coming online or an existing industry/agricultural sector in decline</p>	<p>Your planning department may be able to help identify sectors that are being incentivized (e.g. a new renewable energy zone) or if there is a large emissions source being planned (e.g. a new airport). While now out of date, the Climate Change Authority's Australian Agriculture Emissions Projections report may also provide some useful information</p>
Electricity grid emissions intensity 	<p>The emissions associated with grid-supplied electricity will continue to decline as more renewable electricity is fed into the grid</p>	<p>You could model changes to the electricity emissions factor based on meeting government renewable energy targets</p>
Technology improvements 	<p>Improvements to technology provide opportunities for emissions reductions. For example, as household batteries are refined and taken up, they will become cheaper, which will further increase their take-up</p>	
Uptake of zero emissions transport 	<p>Electric vehicles are expected to cost the same as internal combustion engine cars around 2026–2027, which will accelerate their take up and reduce transport emissions</p>	<p>Information from CSIRO's electric vehicle projections 2021 may be useful</p>
Uptake of renewables 	<p>The uptake of solar in Victoria continues to increase as it becomes more affordable for households and businesses</p>	<p>Solar PV trend data from the Clean Energy Regulator</p>

Appendix 2:

Strategic priorities and objectives

Some examples of strategic priorities and objectives are provided below. These are examples only, rather than being suggested objectives or targets. You will need to determine the best priorities, objectives and targets through your analysis in the Insight stage. Also note that only a few examples are given and that your plan will most likely have more than these.

Process-based examples

STRATEGIC PRIORITY 1	STRATEGIC PRIORITY 2	STRATEGIC PRIORITY 3: RESILIENCE
Council as leaders in climate action	A thriving net zero community	A resilient and adaptive community
<p>Objective 1.1: Reduce electricity consumption</p> <ul style="list-style-type: none"> Target: Purchase all electricity from renewable sources by <year> <p>Objective 1.2: Transition Council fleet to EV</p> <ul style="list-style-type: none"> Target: All Council fleet transitioned to EV by <year> 	<p>Objective 2.1: Reduce emissions from waste</p> <ul style="list-style-type: none"> Target: Reduce proportion of food and garden organics in residential waste by X% by <year> <p>Objective 2.2: Reduce transport emissions in the community</p> <ul style="list-style-type: none"> Target: Reduce transport emissions in the community by X% by <year> 	<p>Objective 3.1: Increase Canopy cover</p> <ul style="list-style-type: none"> Target: canopy cover on private land increased to X% by <year>. <p>Objective 3.2: Embed climate change into Council strategic planning</p> <ul style="list-style-type: none"> Target: Climate change embedded into budget planning process by <year>

Action-area based examples

STRATEGIC PRIORITY 1 TRANSPORT	STRATEGIC PRIORITY 2 WASTE	STRATEGIC PRIORITY 3: ELECTRICITY
<p>Objective 1.1: Increase active transport</p> <ul style="list-style-type: none"> Target: Increase proportion of trips made by active transport by X% by <year> Target: Increase km of bicycle paths by Xkm by <year> <p>Objective 1.2: Increase number of EV chargers in the municipality</p> <ul style="list-style-type: none"> Target: X public EV chargers installed by private providers by <year> 	<p>Objective 2.1: Reduce emissions from landfill</p> <ul style="list-style-type: none"> Target: Increase diversion of food organics and garden organics by X% by <year> Target: Reduce emissions from Landfill A by X% by <year> 	<p>Objective 3.1: Reduce commercial electricity use</p> <ul style="list-style-type: none"> Target: Reduce commercial electricity use by X% by <year> <p>Objective 3.2: Improve energy efficiency of new buildings</p> <ul style="list-style-type: none"> Target: High performing building standards for new buildings adopted by <year>

Appendix 3:

Data sources

Some useful data sources include:

- Number of EV registrations based on ABS data – new data coming soon.
- Number of EV chargers in municipality
- Census data on number of vehicles per dwelling and method of travel to work, noting that while this data is good for planning purposes it is only collected every five years so is unlikely to be sufficient for monitoring purposes.
- Google transport data – available for some municipalities
- Solar PV adoption data from the Australian PV Institute – you might like to compare adoption rates with similar municipalities who have not implemented a solar project to gauge your program's success in lifting solar penetration above business-as-usual.

Council climate actions checklist



This checklist has been developed to support Rural Councils work through the actions discussed in the Climate Change Toolkit. The checklist begins with recommended actions to carry out when first getting started with climate action in your council. These actions cut across the guidance note and four toolkit modules. The checklist then follows the key steps outlined in each of the four modules.

Getting started

ESTABLISHING CLIMATE CHANGE AS KEY COUNCIL CONSIDERATION

Action	Resource	Status
Develop an understanding of Local Government Climate Change Roles and Legal Responsibilities	Guidance Note	
Identify if Council has any additional decision-making responsibility under scheduled legislation under the Climate Change Act 2017	Guidance Note	
Familiarise yourself with climate change barriers and opportunities for rural councils	Guidance Note	
Establish a cross-organisational climate change working group	Module 1	
Ensure that climate change is part of the remit of the Audit and Risk Committee	Module 1	
Develop a climate change policy	Module 1	
Raise awareness of requirements to consider climate change in planning decisions (in line with the Victoria Planning Provisions)	Module 1	

BUILD AN UNDERSTANDING OF CLIMATE CHANGE RISKS TO COUNCIL AND THE COMMUNITY

Action	Resource	Status
Familiarise yourself with climate change projections for Victoria	Module 2	
Familiarise yourself with adaptation concepts and assessment approaches	Module 2	
Undertake a desktop review to develop a first pass climate change risk assessment for council's operations	Module 2	
Undertake a desktop review to develop a first pass climate change risk assessment for the community	Module 2	

BUILD AN UNDERSTANDING OF COUNCIL AND MUNICIPAL EMISSIONS

Action	Resource	Status
Develop a corporate emissions inventory for Council operations	Module 3	
Understand the municipal emissions using the Snapshot community emissions tool	Module 4	
Understand your municipality's Science Derived Community Emissions Target, which you can request for free from this website	Module 4	

Next steps

MODULE 1: INTEGRATING CLIMATE CHANGE INTO COUNCIL DECISION MAKING

Action	Status
Integrate climate change into Council's Risk Management Framework	
Incorporate climate change into the Council Plan	
Address climate change in your Municipal Public Health and Wellbeing Plan	
Incorporate climate change into your council's Asset Management Plans	
Incorporate climate change into your council's Emergency Management Plans	
Develop climate change scenarios for use in decision making (Advanced)	

MODULE 2: ADAPTATION PLANNING

Action	Corporate	Community
Identify key stakeholders, both within and external to council		
Develop a shared understanding with stakeholders and a common vision		
Undertake more detailed climate change risk assessments in consultation with key stakeholders		
Identify actions that are already being undertaken to adapt to climate change, including by council, the community and other actors		
Prioritise actions		
Develop a monitoring framework		

MODULE 3: CORPORATE EMISSIONS REDUCTION

Action	Status
Consider how your emissions are expected to change over time	
Develop a corporate emissions reduction target	
Identify priority areas for corporate emissions reduction	
Identify opportunities for reducing operational emissions and the impact they will have on emissions	
Prioritise these opportunities	
Develop a strategy and action plan	
Begin implementing actions, making sure you consider monitoring and evaluation from the outset	

MODULE 4: COMMUNITY EMISSIONS REDUCTION

Action	Status
Consider how your emissions are expected to change over time, either through modelling or by developing a qualitative understanding of future trends	
Find out what your key stakeholders are already doing to reduce emissions, and what their capacity and motivation for further action is	
Develop a community emissions reduction target	
Identify your strategic priorities and objectives, including developing targets to allow you to determine if the objectives have been achieved	
Develop and prioritise community emissions reduction actions	
Develop a strategy and action plan	
Begin carrying out your community emissions reduction activities, making sure you consider monitoring and evaluation from the outset	