Climate Change Action Plan

Colac Otway
SHIRE

2023-2033

Acknowledgement of Country

The Colac Otway Shire proudly acknowledges the Gulidjan and Gadubanud peoples of the Eastern Maar Nation as the traditional custodians of the Colac Otway Region.

We acknowledge that the Colac Otway Shire is located and conducts business upon lands of the Gulidjan and Gadubanud people.

We pay our respects to their Ancestors and Elders, past, present and emerging.

We recognise and respect their unique cultural heritage, beliefs and relationship to their traditional lands and waters, which continue to be important to them today and into the future.

Executive Summary

Council recognizes the need for more urgent and extensive action to reduce greenhouse gas emissions and respond to climate change impacts.

Colac Otway Shire Council's Climate Change Action Plan 2023-2033 articulates our vision for our organization, community and environment to thrive in a safe climate and outlines our key focus areas for climate action:

1. Sustainable Built Environments
    - Renewable Energy
    - Sustainable Buildings
    - Sustainable Transport
    - Urban Greening
    - Integrated Water Management
2. Resource Consumption, Waste Reduction & Circular Economy
3. Biodiversity Protection & Regeneration
4. Leadership, Partnerships & Advocacy
5. Adaptation & Resilience

It provides an overview of Council's progress so far on responding to the impacts of climate change and highlights some of the climate actions we have undertaken over the past 12 years.

The Action Plan also explains the challenges we face that make our collective climate action response so important. Adapting to the impacts of climate change and mitigating further impacts will require a collective effort by our whole community including governments, industry, service providers, the emergency management and health sectors, communities, households and individuals.

Council also recognises that our community is skilled and well placed to take, lead and mobilise local action on climate change and Council will ensure that we inspire, enable and work with our community to take action on climate change.

Therefore, the Plan also outlines the ways we will collaborate and work together in partnership with: governments and their agencies; our community; environmental and climate groups; local businesses and key industries.

The 10 year Plan identifies 48 actions we will undertake as an organisation over the next five years and beyond to adapt to a changing climate and urgently mitigate against further impacts. To ensure that the Action Plan remains agile and adaptive, its implementation will be monitored and reported to Council and the community, with a formal review after five years.

Contents

1. Introduction

Council acknowledges its communities are facing a global climate change and biodiversity crisis, one that requires urgent action by all levels of government, including local councils.

The Colac Otway Shire, like many regions around the world, is increasingly experiencing the impacts of climate change. The region's natural environment is under threat, with changing weather patterns, rising temperatures and extreme weather events all having significant impacts on our natural landscapes, local community and economy.

One of the most visible impacts of climate change in the Colac Otway Shire is the change in frequency and intensity of extreme weather events, including droughts, floods, storm surge that exacerbates coastal erosion, and bushfires. These events have caused significant damage to the region's infrastructure, homes, and natural environment, as well as having significant economic consequences for the region.

Wye River Christmas Day Bushfire 2015

Colac CBD flooded

Coastal erosion at Apollo Bay

Climate projections highlight the likelihood that the impacts of climate change will significantly worsen over the coming decades and the urgency of the need for strong action if we are to prevent the most catastrophic harms of global warning.

Climate change impacts us at national, state, regional and local levels, down to households and individuals. Climate action must therefore be collectively undertaken through strategic planning, shared responsibility, partnerships and collaboration.

This Action Plan has been developed to provide the Shire with a pathway of clear and achievable climate change targets and actions to be undertaken over the coming decade. Our response centres around actions that Council and our community can take for climate change mitigation, adaptation and building climate change resilience. Colac Otway Shire Council recognises the important role it can play in working with, supporting and empowered our communities in their efforts to respond to a changing climate, to reduce emissions, to make sustainable choices, and to build resilience for the future.

2. State of the Climate

The demonstrable and impending impacts of a changing climate are recognised as a significant global challenge, requiring a concerted and unified response.

The latest report from the United Nation's Intergovernmental Panel on Climate Change (IPCC Report No. 6 https://www.ipcc.ch/assessment-report/ar6/) reveals that industrialised nations must re-evaluate their climate change targets to halve greenhouse gas emissions by 2030 and be carbon neutral by the early 2050s if they wish to prevent the most catastrophic harms of global warning. The report states that failure to slash emissions will mean average global temperatures will rise more than 1.5 degrees Celsius above pre-

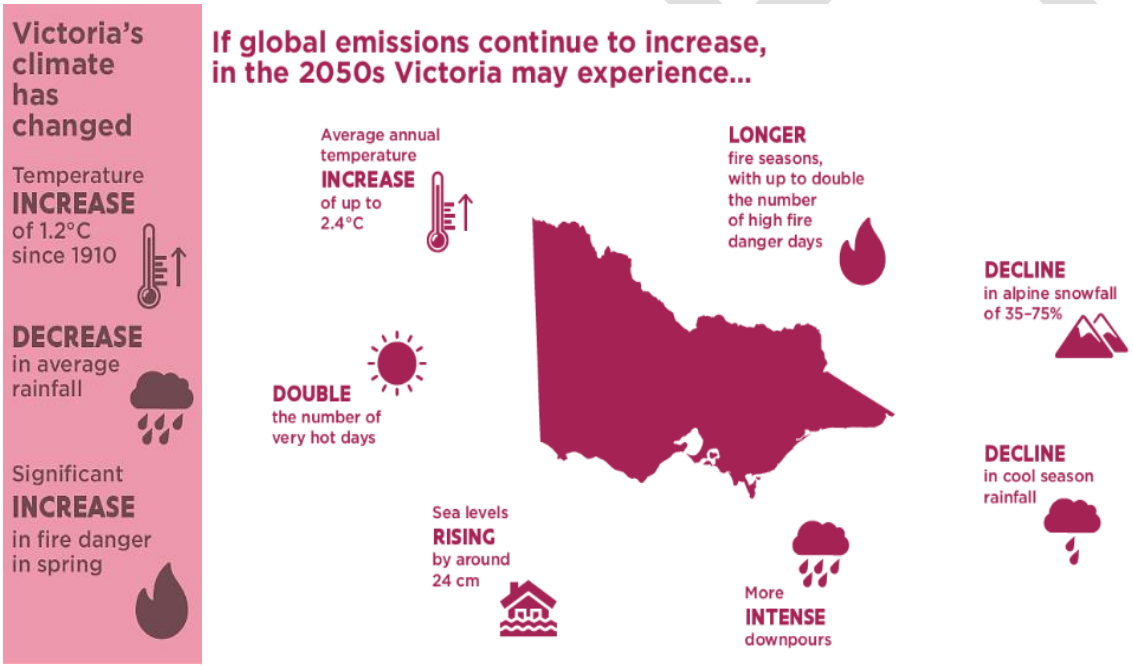
industrial levels. Past this threshold, the impacts will be severe, including species extinctions, irreversible melting of ice sheets and extreme sea level rise.

Australia is already feeling the effects of climate change. Our weather is becoming increasingly variable. More frequent extreme and cascading weather events are impacting communities and the economy, and threatening the environment. At the same time, summers are becoming steadily hotter and drier, leading to adverse health impacts, increased bushfire risks and ecological damage, and threatening agricultural production.

Victoria's climate has also changed in recent decades, becoming warmer and drier. These changes are expected to continue. Understanding the drivers and impacts of these changes, as well as what we can expect in the future, will help us to plan and adapt.

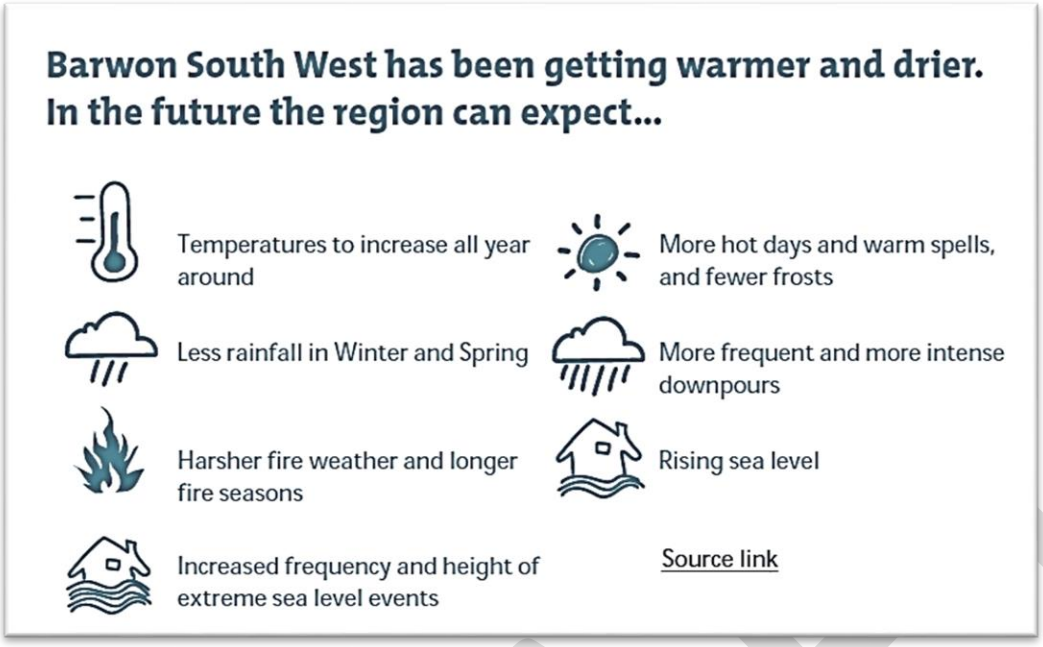
Projections for Victoria indicate the state is likely to become hotter and drier in the future, but the timing and extent of changes will vary across regions.

Comparison of observations and projections in Victoria suggest that temperature has been tracking towards the upper limit of projections while winter rainfall has been tracking towards the drier end of projections. By the 2050s, if the current global warming rate continues, Victorian towns could experience around double the number of very hot days each year compared to the 1986–2005 average.



Source: https://www.climatechange.vic.gov.au/victorias-changing-climate

Current climate change trends mean hotter and drier conditions for the future of South West Victoria, less rain in winter, more intense rainfall events, biodiversity loss and sea level rise.



Source: Regional Adaptation Snapshot Barwon South West

Current predictions suggest that by 2030 we can expect the Barwon South West to experience:

- An average temperature rise of almost 1 degree C;
- An increase in the number of hot days (over 30 degrees C);
- A decrease in rainfall over spring of 7% and a decrease in the annual average rainfall of 4%.

Unless emissions are drastically reduced in the short to medium term, by 2070 the region can expect to see:

- An average temperature increase of 2.4 degrees C
- Significant biodiversity losses
- More hot days over 30 degrees C
- Total rainfall decline
- Higher evaporation rates, reducing available water
- Run off decline into catchments by as much as 50%.

3. Impacts and Risks for our Region

The changing weather patterns we are experiencing, including rising temperatures and changing rainfall patterns, have significant impacts on the region's natural environment, including the health of forests and water resources. For example, rising temperatures and reduced rainfall can lead to increased stress on plant life, resulting in drought, wildfires, and other environmental hazards.

Climate change is one of the most significant threats to biodiversity. Our unique and diverse flora and fauna face multiple impacts, including changing temperatures, altered rainfall patterns, rising sea levels, and more frequent extreme weather events.

Climate change also has the potential to cause significant economic consequences for the region. Agriculture, forestry, and tourism are all vulnerable to climate change impacts, with changes in weather patterns and extreme weather events having significant impacts on these industries. For example, droughts and bushfires can lead to significant crop, stock and farm infrastructure losses, while changes in rainfall patterns can impact the growth of forests and impact the availability of water resources for agriculture and tourism.

Victorian Public Health and Wellbeing Plan 2019-23 states that "Climate change also affects health in many ways – directly by the increased intensity and frequency of extreme weather events such as prolonged heatwaves, floods and bushfires, and indirectly through worsening air quality, changes in the spread of infectious diseases, risks to food safety and drinking water quality, and effects on mental health." Climate change also has consequences for growing health inequalities, with population groups such as the elderly, young children, people with a chronic disease and low-income households disproportionately affected by the effects of climate change.

Climate change impacts will increasingly impact on Council services. High fire danger days and extreme rainfall events are already impacting when it is safe for Council officers to work outdoors or travel to different parts of the Shire to deliver services. Maintaining and growing green open spaces is challenging in a hotter and drier climate, and drainage infrastructure has difficulty coping with more flooding and higher intensity rain events.

The demand on Council services will change and increase because of climate impacts. Climate change increases community vulnerability and will significantly impact on vulnerable cohorts such as low-income households, people with disabilities, as well as infants and the elderly.

Climate change also creates risks for Council. It poses financial risks through the cost of retrofitting infrastructure and rebuilding in cases of damage to property and assets from impacts such as extreme weather events, flooding and landslides. Insurers are beginning to factor climate change into premiums and are limiting their coverage of significant risks. Governments are also increasingly exposed to legal action for failing to proactively adapt to climate change.

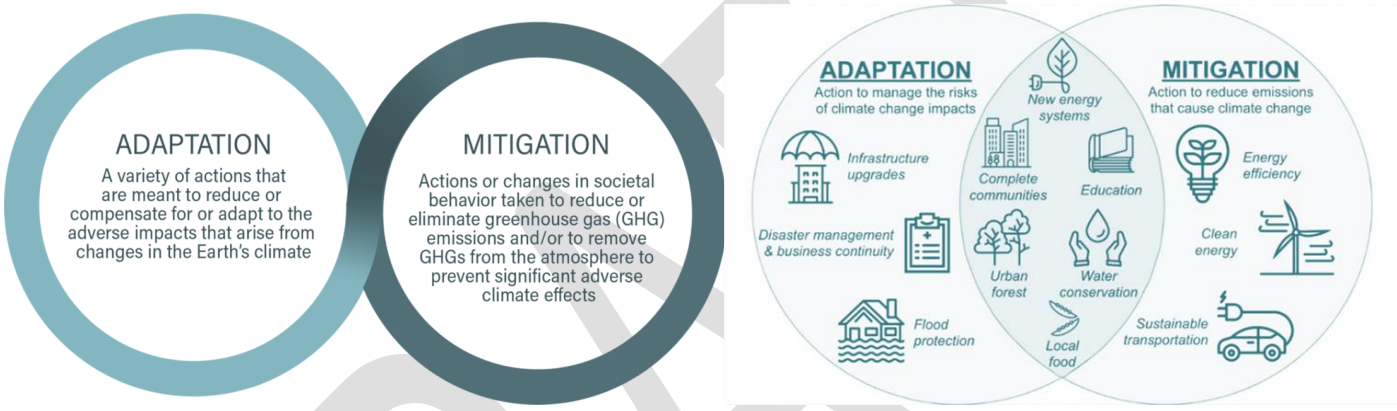
Planned, well-informed and coordinated action is needed to manage climate change impacts and continue providing quality public services and minimise negative outcomes for human or ecological systems due to climate impacts.

Early action also has significant financial and social benefits. Proactive climate change adaptation and mitigation saves money by avoiding larger risks and future impacts, rather than bearing the cost of remediating impacts and retrofitting adaptation responses. It also supports social cohesion, equity, and wellbeing and resilience by reducing vulnerability and harnessing opportunity. Many of the actions we can take to reduce greenhouse gas emissions and tackle climate change bring with them environmental, economic, social and health co-benefits.

4. Approaches to Addressing the Challenges of Climate Change

Climate change adaptation and mitigation are two complementary approaches to addressing the challenges of climate change. At the core of effective climate change action are the dual approaches of minimising the factors contributing to further anthropogenic changes to global climate and adapting to those consequences that can no longer be avoided. Adaptation measures are necessary to reduce the negative impacts of climate change that are already being felt (manage the unavoidable), while mitigation measures are important for reducing greenhouse gas emissions and preventing further climate change (avoid the potentially unmanageable).

Mitigation involves reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by minimising sources of these gases (for example, reducing the burning of fossil fuels for electricity, heat or transport) or enhancing the systems that accumulate and store these gases, such as oceans, forests and soil. Mitigation strategies include transitioning to renewable energy sources, improving energy efficiency, and implementing carbon capture and storage solutions.



Adaptation (adapting to life in a changing climate) involves adjusting to actual or expected future climate. Adaptation measures are typically designed to help communities and ecosystems adjust to the impacts of climate change that are already occurring or are expected to occur in the future. The goal is to reduce our vulnerability to the harmful effects of climate change (such as sea level encroachment, more intense and extreme weather events or food insecurity). These actions also encompass opportunities capitalizing on changes in future agricultural production by diversifying to build resilience and sustainability (e.g. growing warmer climate crops).

A comprehensive approach that incorporates both adaptation and mitigation measures will be necessary to ensure a sustainable future by building resilience and reducing the impacts of climate change on communities and ecosystems.

Adaptation and resilience actions also offer opportunities to maximise environmental and social benefits such as improved quality of urban biodiversity and waterways, carbon storage potential, positive health outcomes, and increased community safety.

5. Current National, State and Local Strategic and Legislative Context

The Federal *Climate Change Act 2022* was introduced at a national level to create ambitious new targets for Australia's greenhouse gas emissions reductions and to establish a framework for strong action on climate change, recognising the urgent need for this.

Through this legislation Australia has pledged to reduce greenhouse gas emissions by 43% below 2005 levels by 2030 and to achieve net zero emissions by 2050. It recognises that we must: anticipate, prepare for and

adapt to the impacts from a warming climate; and that we must mitigate catastrophic climate change by reducing our emissions and playing a leadership role in supporting other nations to reduce theirs.

This will require an economic transformation on a large scale. Despite the significant challenges, it is also recognised that this transformation will provide great opportunity for regional Australia. As industries emerge, adapt and grow, they will create demand for workers in electricity generation, manufacturing and many other sectors. Decarbonised and emerging industries will provide a sustainable future for regional economies and communities.

Victoria adopted a *Climate Change Act 2017* that committed to net-zero emissions by 2050, establishing a 5-yearly framework to reduce emissions and ensure that state-wide systems are prepared to adapt to the impacts of climate change. In recent years the government established more ambitious new targets to cut emissions: 28–33% by 2025 below 2005 levels, 50% by 2030 below 2005 levels, with a commitment to reduce emissions by 75% to 80% (on 2005 levels) by 2035 and net zero by 2045. The Victorian government has also committed to a 95% renewable energy target by 2035 and has also adopted Climate Adaptation Action Plans for seven sectors, namely: agriculture; energy; industrial processes and product use; land use, land use change and forestry; transport; waste; and whole of government. It has also supported the development of community-led Regional Climate Adaptation Strategies, including the Barwon South West Regional Climate Adaptation Strategy.

Through the adoption of the Colac Otway Shire Environmental Sustainability Strategy 2023-2033 and this Action Plan, Council will continue to strive to achieve best outcomes for our climate and the greatest opportunities for our communities.

Over the life of this plan, we will make significant progress in adapting to and mitigating the impacts of climate change across the five focus areas outlined in this plan. We will achieve this by completing or facilitating the forty eight individual actions identified in this plan. Many actions involve partnerships and collaboration, with community action and stakeholders playing a key role in achieving the targets.

6. Colac Otway Community Emissions Profile

Like all regions, Colac Otway Shire and its community and economy contributes to greenhouse gas emissions through various activities such as agriculture, transportation, and energy use.

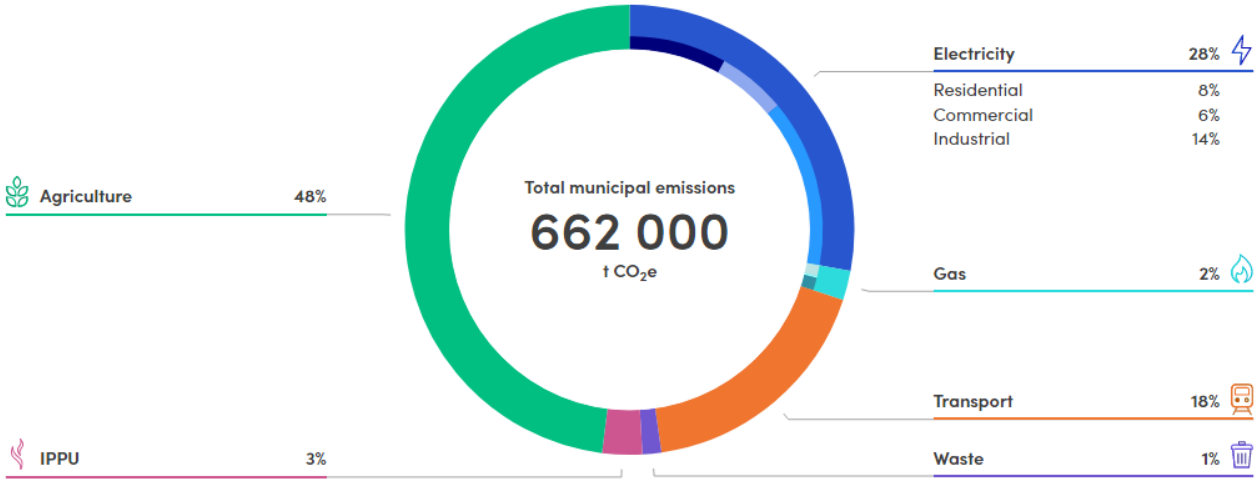
Colac Otway Shire as a municipality produced 662 kilotons of carbon dioxide equivalent (CO_2-e) emissions in 2020/2021, accounting for 0.76% of the state's total emissions. The largest source of emissions in the shire was from agriculture, which accounted for 48% of the total, followed by energy use (30%) and transportation (18%).

The Snapshot Community Emissions Profile (https://snapshotclimate.com.au/ below outlines the major sources of carbon emissions for the entire municipality. It has been developed to be consistent with the Global Protocol of Carbon Emissions reporting (GPC Protocol) BASIC+, the international standard for cities and local government areas.

Due to the approximate nature of the profile, the emission values are represented as rounded numbers. This profile includes the following sources:

- Stationary energy - grid supplied electricity/gas
- Transport - on-road use and domestic passenger air travel
- Waste - landfill and wastewater
- Agriculture – methane produced by livestock digestive processes, manure management and synthetic fertilizer use
- Land Use Change - land clearance and reforestation
- Industrial Processes and Product Use (IPPU) - industrial processes, refrigerant use.

Colac Otway Community Emissions Profile (2020/21)



Source: https://snapshotclimate.com.au/locality/municipality/australia/victoria/colac-otway/

7. Our Climate Active Community in Colac Otway Shire

Colac Otway Shire Council communities are passionate and committed to protecting the environment and undertaking action on climate change. Communities across the shire have urged Council to lead in this space and to work collaboratively to support local efforts to reduce environmental impacts. Many community members are already undertaking significant steps towards this, including by installing renewable energy and increasing home energy efficiency, reducing consumption, reusing and recycling, and composting organic waste.

Colac Otway is home to an impressive range of local businesses and community-led grassroots action. Businesses and community groups alike are resilient, organised and self-driven. Many businesses within Colac Otway have implemented energy efficiency and waste reduction programs, leading the way in their own sectors. These businesses have realised many added benefits, including a reduction in operating costs whilst building sustainable brands.

Local community sustainability and climate action groups create and deliver targeted programs and offer support in areas such as waste minimization, energy efficiency, renewables, food security and community gardens, while also advocating for urgent climate change action by all levels of government. Local conservation organisations are also delivering on sustainability outcomes through land management and biodiversity improvements.

Council is committed to leadership, advocacy and partnership to support our communities' and businesses' aspirations for a climate-safe future and to help amplify their climate change action advocacy priorities.

Solar power generation system at the Australian Lamb Company, Colac

8. About this Plan

Climate change is a critical issue that requires urgent action at all levels of government, including local government. In Victoria, local governments have developed climate change action plans to address the impacts of climate change and reduce greenhouse gas emissions. These plans are designed to guide local communities in taking action on climate change and provide a framework for sustainable development and adaptation to climate change impacts.

The City of Melbourne was the first local government in Victoria to develop a climate change action plan in 2002. Since then, many other local governments across the state have followed suit, with more than 30 local councils in Victoria now having climate change action plans in place. These plans vary in scope, scale, and content, but all aim to reduce greenhouse gas emissions, build resilience to climate change impacts, and promote sustainable development.

The objective of Colac Otway Shire Council's Climate Change Action Plan is to provide a pathway of clear and achievable climate change actions for Council to undertake over the coming decade. Embedded in forming this Action Plan is the imperative to prevent and ameliorate climate change impacts. Our response centres around actions that Council and our community can take for climate change mitigation, adaptation and building climate change resilience.

The Action Plan includes a range of measures aimed at reducing greenhouse gas emissions, including energy efficiency and renewable energy, waste reduction and recycling, and sustainable transport. The Plan also includes initiatives aimed at building resilience to climate change impacts, such as emergency management planning, land use planning, urban greening, and biodiversity conservation programs. Further, it outlines actions to support community engagement and education aimed at raising awareness about climate change, promoting sustainable living, reducing greenhouse gas emissions and encouraging community action.

Mature street trees providing shade and urban cooling in Hesse Street, Colac

Council's work through this process will enable Council to continue to reduce its operational emissions; maintain its commitment to broad emissions reductions and net zero emissions; and to provide support to communities and businesses to become more resilient to, mitigate the impacts of, and adapt to, a changing climate.

How we developed this plan

We undertook a range of activities to inform the development of this document.

These included:

- Review of Council's Environment Strategy 2010-2018 and its targets.
- review of Council's greenhouse gas emission reduction and other climate change mitigation and adaptation actions and achievements since 2010;
- staff workshops to inform and gather ideas and climate change action opportunities;
- research and review of literature such as other council's climate change action and/or response plans and climate science articles/reports;

- community survey and 10 community drop-in sessions to inform the development of Council's overarching Environmental Sustainability Strategy and climate change related themes;
- targeted stakeholder workshops to inform the development of Council's overarching Environmental Sustainability Strategy and climate change related themes and suggested implementation actions;
- discussions with Council staff, community members, other councils, climate change networks and government agencies;
- development of environmental sustainability targets;
- development of Council's Environmental Sustainability Strategy and its strategic goals;
- prioritisation of climate change actions based on level of Council control and with consideration given to resourcing limitations.

Colac Otway Shire is committed to supporting building adaptive capacity to climate change in all areas of Council's control and influence, with the support and collaboration of all levels of government and our passionate local communities.

We hope with leadership, collaboration and advocacy this will support our communities, the wider region and the world towards a sustainable and climate-safe future.

This plan has been developed in consultation with community groups, businesses and agencies from across the municipality.

We would like to extend our gratitude to many individuals and organisations whose enthusiasm, commitment and contributions helped shape the plan, and with whom we will continue to work closely to deliver it:

COMMUNITY GROUPS & NON-GOVERNMENT ORGANISATIONS

- Otway Climate Emergency Action Network
- Climate Action Team
- Southern Otway Sustainability
- Central Otway Landcare Network
- Upper Barwon Landcare Network
- Southern Otway Landcare Network
- Birregurra Community Group
- Friend of the Barwon
- Colac Sustainability Group

BUSINESS & TOURISM PEAK BODIES

- Colac Chamber of Commerce
- Apollo Bay Chamber of Commerce
- Great Ocean Road Regional Tourism
- Colac Large Employers Group

GOVERNMENT AGENCIES

- Sustainability Victoria (SV)
- Great Ocean Road Coast & Park Authority (GORCAPA)
- Parks Victoria (PV)
- Wannon Water
- Barwon Water
- Department of Energy, Environment and Climate Action (DEECA)
- Corangamite Catchment Management Authority (CCMA)

Strategic Alignment

Council's Environmental Sustainability Strategy outlines a number of key strategic directions and goals that this plan, and the implementation of the actions outlined within it, directly addresses and will help council work toward achieving:

STRATEGIC THEMES	STRATEGIC DIRECTION
Climate Change	Council and the Shire focus on energy efficiency and rapidly moving towards a zero-carbon future whilst improving resilience to changes in short and long-term climatic conditions.
Natural Environment	A healthy and connected natural environment that protects indigenous landscapes and enhances natural ecosystems, public health and liveability.
Built Environment	Sustainable, resilient and accessible infrastructure and places.
Water	A water sensitive shire with a focus on integrated water management, water sensitive urban design, healthy waterways and reduced reliance on potable water.
Waste & Pollution	A clean and safe Council and shire that minimises waste generation and maximises reuse and recycling, working towards a sustainable circular economy.
Partnership, Leadership & Advocacy	Council provides leadership, advocacy, brokering, communication and conduit roles to help achieve environmental outcomes. Leadership will also be shown through the development, strengthening and nurturing of partnerships.

Strategic goals of the Council's Environmental Sustainability Strategy 2023-2033:

Goal 1	Protected and thriving natural landscapes, ecosystems and habitats
Goal 2	Environmentally sustainable and climate resilient public infrastructure, open spaces and urban settlements
Goal 3	An adaptive and resilient Council and Shire moving towards a zero-emission future and limiting the impacts of climate change
Goal 4	Green and sustainable local economies, industries and growth that protect intrinsic environmental values
Goal 5	Enhanced environmental stewardship through environmental awareness raising and education
Goal 6	Strong and inclusive environmental leadership, collaboration and advocacy

The action tables in Section 11 of this plan indicate which strategic goal of Council's Environmental Sustainability Strategy each action relates to.

Council's Climate Change Action Plan strongly aligns with Council's other key strategic plans and strategies that include goals, objectives or targets relating to climate change:

- Council Plan 2021-2025
- Environmental Sustainability Strategy 2023-2033
- Environmental Sustainability Policy and Framework 2021
- Colac Otway Health & Wellbeing Plan 2021-2025
- Colac Otway 2050 Community Vision
- Colac 2050 Growth Plan
- Colac Otway Climate Change Adaptation Plan 2017-2027

- Active Transport Strategy 2013-2023
- Colac Stormwater Development Strategy 2020
- Resource Recovery and Waste Management Strategy 2021-2030
- Lake Colac Foreshore Masterplan 2016
- Draft Urban Forest Strategy 2015
- Colac Integrated Water Management Plan 2014

9. What has Colac Otway Shire achieved so Far

Climate Change Mitigation

In 2010, Council set an ambitious target to achieve carbon neutrality by 2020. Council has worked towards this goal over many years and through a range of initiatives reductions of 68 per cent have been achieved by the end of 2021-22.

Council formally became Carbon Neutral for the 2020-21 financial year by purchasing Climate Active certified carbon offsets for its remaining residual emissions (Scope 1 & 2).

We will continue to maintain our Carbon Neutral status moving forward and will endeavour to expand our operational emissions boundary to include more Scope 3 emissions as the Council's and its supply chains' associated data capture mechanisms improve over time.

Council invested $1.46 million in energy efficiency and renewable energy generation projects with an average payback period of 4.8 years. $456,000 (30%) of this has been received from grants by State and Federal Governments and $1 million has been contributed by Council.

ORGANISATIONAL EMISSIONS FOR 2021-22

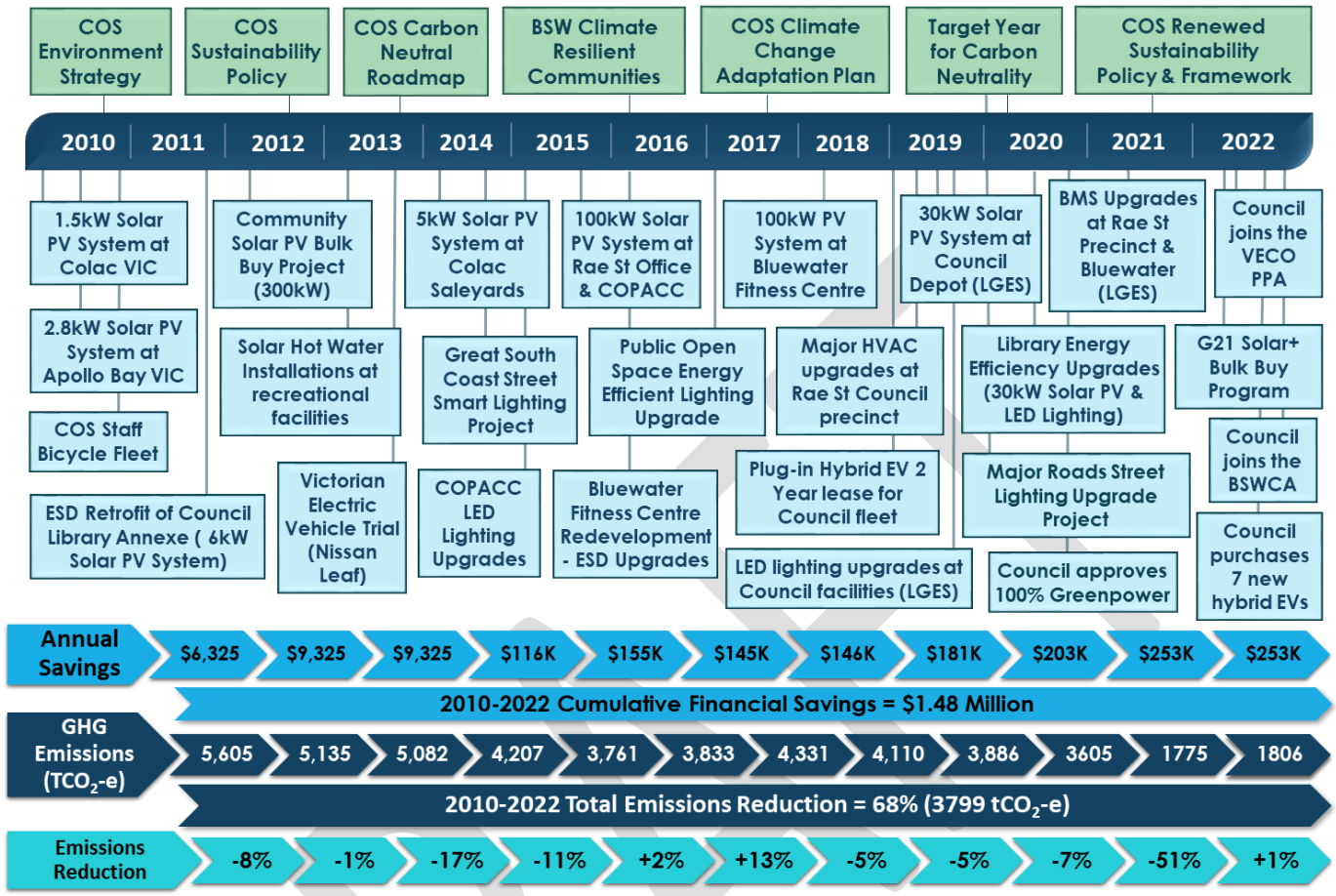
Total COS Greenhouse Emissions (CO2-e tonnes)					
Year	Buildings	Gas	Street/ Public Lighting	Fleet	Total
2010-11	1,999	311	1,181	2,114	5,605
2011-12	1,916	290	1,202	1,727	5,135
2012-13	1,879	323	1,182	1,698	5,082
2013-14	1,484	186	1,014	1,523	4,207
2014-15	1,356	3	872	1,530	3,761
2015-16	1,846	282	436	1,269	3,833
2016-17	1,881	478	412	1,560	4,331
2017-18	1,887	488	406	1,329	4,110
2018-19	1,747	470	406	1,263	3,886
2019-20	1,389	466	417	1,333	3,605
2020-21	0* (1,199)	451	0* (379)	1,324	1,775 (3,353)
2021-22	0* (1,341)	464	0* (334)	1,342	1,806 (3,481)

*Numbers in brackets show emissions avoided by purchasing 100% Greenpower.

Council's investment was paid back by the savings generated (avoided electricity costs relating to solar PVs and reduced electricity consumption) by the end of 2020.

Council has 4 small (<6kw), 2 medium (30kW) and 2 large (100kW) solar PV systems installed on council facilities with a total of 275 kW generation capacity. This provides Council with approximately 350,000 kWh of clean, emissions free electricity generated per annum, saving approximately $70,000 per annum in avoided electricity costs.

Colac Otway Emissions Reduction Timeline 2010-2022



Climate Change Adaptation

In 2012 Colac Otway Shire commenced a collaborative project called Climate Resilient Communities of the Barwon South West (CRC BSW). The project involved 10 Councils within the Barwon South West region and a range of partners, including Catchment Management Authorities and water authorities. Its aim was to help communities throughout the region to understand what risks and opportunities might be presented by future extreme weather events.

The project built municipal preparedness to extreme climate events through a wide range of planning and embedding projects ensuring that all 10 BSW Councils developed a Climate Change Adaptation Plan. With the support of regional partners, Colac Otway Shire Council applied for and received funding to create a regional climate change alliance to build on the strong community of practice that was established through the project. In October 2021 this resulted in the formal incorporation of the Barwon South West Climate Alliance, of which Council is a committed member.

In 2017 Colac Otway Shire adopted a ten-year Climate Change Adaptation Plan, which has guided Council's significant adaptive achievements to date. Many of actions identified are well underway or have been successfully completed. These include:

- Western District Lakes Adaptation Pathways Project (led by the CCMA);
- Colac Stormwater Strategy was developed in 2019 and considered impacts of higher intensity rainfall in Colac on its drainage system and impact on flood potential;

- State Government funded 'Preparing Local Government for Climate Change and Emergency Management' program, to assist in building council's capacity to prepare and respond to emergency events. Projects delivered were focused on the development of a better understanding of where natural hazards, triggered by extreme weather events, have the potential to cause serious damage and disruptions to communities, services and infrastructure to assist in planning for and to minimise the impacts of future emergency management events;
- capacity building training to local communities relating to community leadership of bushfire preparedness and recovery;
- C90 Planning Scheme amendment that implements changes to the Floodway Overlay (FO) and Land Subject to Inundation Overlay (LSIO) maps and schedules to improve the performance of the Colac Otway Planning Scheme in responding to flood events in Colac and surrounds;
- Strengthening Telecommunications Against Natural Disasters (STAND) Project – improved resilience of communications to provide resilient public internet access at buildings that may be used by communities during emergencies or natural disasters in Barwon Downs, Forrest, Carlisle River, Gellibrand, Beech Forest, Lavers Hill, Wye River and Apollo Bay;
- G21/Geelong+ Solar Bulk Buy program that was run by Geelong Sustainability (240 kW of Solar and 167 kWh of Battery Storage installed in Colac Otway - 292.4 Tonnes of CO_2 Emissions abated per annum);
- Supporting community groups that are delivering projects that address the impacts of climate change and improve community and environmental resilience (e.g. Apollo Bay 100% Renewable Roadmap; Apollo Bay Neighbourhood Battery Feasibility Study; Residential Energy Audits and Educational Videos);
- Birregurra Flood Study which incorporated climate change scenarios; and
- Urban Street Tree Planting Program.

10. Our Targets

TARGET AREA	SPECIFIC TARGETS	SUPPORTING STATEMENT
 Net zero greenhouse gas emissions	• Maintain Carbon Neutral Council Operations (Scope 1 & 2). • Net Zero Corporate Emissions (Scope 1, 2 & 3) by 2040. • Our community will have transitioned to a Net Zero Carbon Community by 2040. • Reduce Council's corporate emissions by 75% by 2030 and 85% by 2040 (Baseline year 2010-11). • Council's Light Fleet will comprise zero emissions vehicles by 2030 and its heavy plant and equipment by 2040.	Council commits to reporting on corporate greenhouse gas emissions and implementing actions and delivering projects and programs to reach net zero emissions for Council operations.
 100% Renewable Electricity	• Council will obtain 100% of its electricity from emissions free renewable energy sources.	Council commits to obtain 100% of its electricity from emissions free renewable energy sources and increase its renewable energy generation capacity.
 Zero recoverable waste to landfill	• Divert 80 per cent of waste from landfill by 2030.* • Cut total waste generation by 15 per cent per capita by 2030.*	Council commits to report on and reduce waste sent to landfill.
 Reduce potable water use	• Reduce Council's operational potable water consumption by 10% by 2030 and 20% by 2040.	Council commits to reducing the overall volume of potable water through its operations used for non-potable purposes.
 Adaptive biodiversity protection and land management	• Increase tree canopy cover in urban settlements by 5% by 2030 and 10% by 2040.	Council commits to protecting and enhancing biodiversity on Council owned and managed land and increasing urban canopy cover.

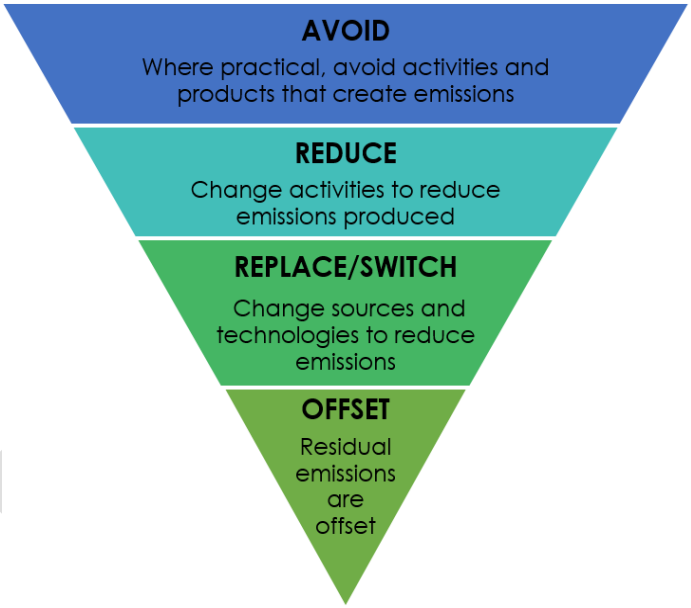
* *Resource Recovery and Waste Management Strategy 2021-2030*

This plan prioritises actions related to greenhouse gas emissions reduction and zero emissions renewable energy use and transition as they offer Council significant opportunities to have the most direct impact on mitigating climate change.

Council's commitment to maintain its Net Zero Emissions status will be underpinned by the principles of the Emissions Reduction Hierarchy, to ensure that emissions reduction is the key focus of our work so that Council can reduce its reliance on offsets in the future. Actions in the top section of the hierarchy are preferable and should be prioritised to those towards the bottom because they are more transformative, long-lasting and are more sustainable over the long term.

Carbon emission offsets acquired by Council to compensate for its residual emissions that cannot be avoided or reduced at present will be fossil fuel avoiding offsets.

Emissions Reduction Hierarchy



11. Climate Action Focus Areas

This plan will support Council's ambition to deliver on the first key strategic direction of the Environmental Sustainability Strategy 2023-2033 that Council and the Shire will 'focus on energy efficiency and rapidly moving towards a zero-carbon future whilst improving resilience to changes in short and long-term climatic conditions'. The five focus areas that underpin this action plan are:

Sustainable Built Environments

From renewable energy to urban greening and integrated water management, this focus area will help Council to implement effective measures to improve existing infrastructure, and to design and construct buildings that prioritise sustainability. Through the actions of this focus area Council will also support our residents to reduce their carbon footprints, preserve natural resources, and build communities that are functional, sustainable and aesthetically pleasing.

Delivering sustainable design outcomes in our built environments and transitioning to renewable energy will help develop greater resilience to our changing climate. Actions implemented through this focus area will also support the development of Integrated Water Management and sustainable transport.

Rainwater Garden in Elliminyt

Council's Kerbside Waste Collection Bins

Resource Consumption, Waste Reduction & Circular Economy

Resource consumption and waste reduction are critical components of addressing climate change, and there has been a growing focus on circular economy principles to achieve this. The circular economy concept aims to create a model that will minimise waste and resource consumption by keeping materials and products in use for as long as possible.

This focus area relates in particular to consumption of fuel, electricity, water and materials, and covers how both individuals and Council can contribute to positive change by taking a more considered approach to what we consume and our waste outputs. It also includes measures to help our communities transition to a circular economy, in which we seize opportunities to extensively reuse, recycle and repurpose.

Resource consumption and waste are significant contributors to carbon emissions that drive climate change through emissions associated with landfills and production and transport of materials and goods.

Biodiversity Protection & Regeneration

This focus area aims to ensure Colac Otway's diverse and invaluable natural landscapes are protected and enhanced now and into the future. Healthy local ecosystems are vital for a sustainable future for our region and beyond. Only by fostering resilience in local environments will we – and native flora and fauna – be able to thrive in changing climate conditions.

Work in this area will include strategic and adaptive management, stewardship, on-ground works and collaboration to: enhance habitat for native flora and fauna; extensively replant and regenerate degraded areas; reduce the coverage of and impacts caused by invasive species; protect waterways; and sequester and drawdown carbon that is already present in the environment.


Barongarook Creek revegetation


Climate Resilient Communities of the BSW Project Team

Leadership, Partnerships & Advocacy

The leadership, partnerships and advocacy focus area empowers Council to lead in areas of governance within its sphere of control and influence, as well as to undertake meaningful collaboration with, and support mobilisation and empowerment of, our communities.

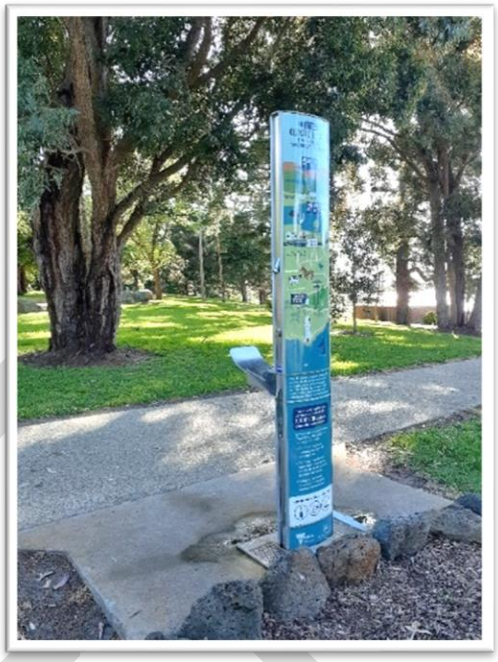
Through this focus area, Council will develop and foster partnerships with leaders, stakeholders and communities across the region. Actions in this area will also foster grassroots community action, empowering our communities to take strong collective action and implement climate solutions. Council will advocate for ongoing adaptive and flexible approaches to managing and join with others to respond to our changing climate.

Adaptation & Resilience

Adaptation and resilience are key pillars in Council's response to a changing climate. As the changes in our environment accelerate, we can expect to see ever increasing incidence of disasters and extreme weather events.

The actions in this focus area will help Council to effectively respond to these challenges and to build both Council and community preparedness for them.

It will help us to deliver and foster the practices necessary to create resilience in communities and individuals and protect our way of life. At the forefront of Council's targeted actions in this area are: human health, resilience to extreme weather events, emergency and disaster preparedness, and education.



Hydration Station in the Colac Botanic

The Action Tables on the following pages provide more context and detail about each focus area and include the related climate change actions, their timeframe for implementation and resourcing requirements.

As you read ahead, you'll find some coding within the Action Tables relating to the estimated cost of implementation, current resourcing status and timeframes:

- Cost: Low ($0–$50,000), Med ($50,000–$150,000), High (150,000+)
- Resourcing: F = Funded within existing resources or S = Subject to external funding and/or funding by Council as part of an Annual Budget process in the applicable years
- Timeframe: Short (1–3 years), Medium (4–6 years), Long (7-10 years), or Ongoing

Sustainable Built Environments

Buildings and infrastructure account for a significant proportion of global greenhouse gas emissions. To address this, sustainable design and construction are essential to reduce energy use and greenhouse gas emissions, while improving indoor air quality and occupant comfort. Examples of sustainable building practices include the use of energy-efficient lighting and appliances, passive solar design, and the use of sustainable materials such as recycled steel and timber.

Renewable energy is an extremely important part of sustainable built environments. This includes the use of solar, wind, and geothermal energy to power homes and buildings. The implementation of renewable energy can help to reduce reliance on fossil fuels and reduce greenhouse gas emissions.

Transport is another key component of sustainable built environments. Electric and hybrid vehicles, cycling and walking infrastructure, and public transport systems all contribute to reducing greenhouse gas emissions. This can help to reduce air pollution, improve public health, and enhance the liveability of urban areas.

Urban greening, including parks and street trees, can help to mitigate the effects of climate change by providing shade, improving air quality, reducing the urban heat island effect, and increasing biodiversity. Initiatives such as this will also create many opportunities for recreation and social interaction.

Finally, integrated water management is critical for sustainable built environments. This includes the capture and reuse of stormwater, the use of water-efficient fixtures and appliances, and the implementation of water-sensitive urban design. Integrated water management can help to reduce water consumption and protect water resources, while also providing opportunities for enhanced urban amenity.

Action No.	ACTION	TYPE OF RESPONSE	LEAD	COST	RESOURCING	TIMEFRAME	Related COS ESS Goal
Renewable Energy							
1.1	Pursue new opportunities and clean technologies to reduce Council's operational emissions: a. Determine the achievable renewable energy generation capacity for Council and identify assets suitable for alternative energy infrastructure, including the analysis of lifecycle costs and benefits. b. Maximise solar energy and battery storage on all Council buildings and facilities. c. Council will build internal capacity through staff education and training to understand and implement the carbon emissions hierarchy (i.e. reduction of emissions prioitised over offsetting).	Mitigation	Council	Medium	S	Short	Goal 2 Goal 3

1.2	Actively participate and support education, investigation, feasibility and development of community energy innovation and initiatives, led by the community.	Mitigation Adaptation	Community	Low	F	Ongoing	Goal 2 Goal 3 Goal 5 Goal 6
Sustainable Buildings							
1.3	Review Council's processes for the design of new Council buildings, as well as maintenance and renewal programs, and develop an ESD Policy to ensure resource efficiency measures are consistently delivered and to improve environmental sustainability and climate change resilience.	Mitigation	Council	Low	F	Medium	Goal 3
1.4	Support Environmentally Sustainable Design (ESD) outcomes through planning controls, policy and education and the National Construction Code (NCC).	Adaptation	Council	Medium	F & S	Ongoing	Goal 2 Goal 3
1.5	Support and facilitate/partner with other organisations in bulk-buy programs for energy efficient technologies, including but not limited to solar panels, batteries, solar-boosted hot water systems and heat-pumps to increase uptake in the community.	Mitigation	Other Stakeholders	Low	F	Ongoing	Goal 2 Goal 3 Goal 4 Goal 6
Sustainable Transport							
1.6	Develop a Fleet Transition Plan (FTP) and transition Council's operational fleet and equipment to zero emissions vehicles: in accord with the FTP.	Mitigation Adaptation	Council	High	S	Short (FTP) & Long	Goal 3 Goal 6
1.7	Encourage and support the installation of public electric vehicle charging infrastructure powered by renewables throughout the shire.	Mitigation Adaptation Influence	Council	Low	F	Ongoing	Goal 2 Goal 3 Goal 4 Goal 6
1.8	Support and encourage increased use of sustainable and active transport within the community by: a. Advocating for public transport providers to improve quality, connectivity, frequency and reach of current and future public transport services (including increased rail service frequency between Colac and Geelong). b. Increasing the interconnectivity of pathways in urban environments and activity corridors across the shire. Council's Planning to ensure well-connected cycling and	Adaptation Influence	Council	Low	F	Ongoing	Goal 1 Goal 2 Goal 3 Goal 6

	walking paths are delivered in all new greenfield developments.						
Urban Greening							
1.9	Encourage and foster urban greening a. Adopt minimum greening requirements and methodologies for the development of sustainable and biodiverse streetscapes, infrastructure and open space areas in new developments. b. Support measures to green and mitigate urban heat in new developments. c. Utilise climate resilient flora species that support biodiversity outcomes in community spaces.	Adaptation Mitigation	Council	Medium	S	Short to Medium	Goal 1 Goal 2 Goal 3 Goal 6
1.10	Develop Nature Strip Planting Guidelines to encourage neighbourhood and street-scale urban greening and urban gardening.	Mitigation Adaptation	Council	Low	F	Short	Goal 1 Goal 2 Goal 3
1.11	Accelerate Council's Tree Planting Program (road reserves, nature strips and public open spaces) to increase urban cooling and carbon drawdown/sequestration.	Mitigation Adaptation	Council	Medium	F & S	Ongoing	Goal 1 Goal 2 Goal 3
Integrated Water Management							
1.12	Increase the application of Integrated Water Management principles and practices to: a. Embed them in all strategic decision making and town planning, especially relating to alternative water use and waterway, wetland and coastal health. b. Use adaptation programs to reduce stormwater flooding impacts on people, infrastructure, places and the environment. c. Integrate stormwater reuse into natural and built environments to create multifunctional community spaces.	Adaptation	Council	High	F & S	Short to Medium	Goal 1 Goal 2 Goal 3
1.13	Increase adoption of nature-based, green-blue infrastructure solutions: a. Prioritise the use of nature-based solutions and infrastructure to adapt to climate change impacts such as coastal erosion, sea level rise, urban heat, stormwater management and bushfire resilience.	Adaptation	Council & Other Stakeholders	High	Subject to external funding and/or operational budget	Long	Goal 1 Goal 2 Goal 3 Goal 6

	b. Explore alternative water supplies suitable for use in the irrigation of public open spaces to reduce Council's reliance on potable water. c. Encourage passive irrigation techniques for urban landscapes. d. Adopt Water Sensitive Urban Design practices to increase stormwater infiltration, promote evapotranspiration, mitigate flooding and remove pollutants from stormwater runoff. e. Implement best practice stormwater treatment and harvesting infrastructure and practices.				requests		

Resource Consumption, Waste Reduction & Circular Economy

Electricity production is one of the biggest sources of greenhouse gas emissions, and reducing electricity consumption is an important component of climate change mitigation by the use of renewable energy sources, energy-efficient appliances and buildings, and the adoption of smart grid technologies.

The use of fossil fuels is another major contributor to greenhouse gas emissions, and reducing fuel consumption is critical for addressing climate change. This includes initiatives such as promoting public transportation, the use of electric vehicles, and the development of alternative fuels such as biofuels and hydrogen.

The production and consumption of materials is another major contributor to emissions, and the circular economy seeks to reduce waste and resource consumption by reducing the use of virgin materials, promoting the use of recycled materials, and designing products for durability and reuse.

Waste reduction is another critical component of the circular economy. Examples of this are promoting and enabling recycling and composting, reducing food waste, and designing products for easy disassembly and recycling.

Water is a critical resource, and reducing water consumption in our everyday lives is a key component of sustainable resource management. This includes initiatives such as water conservation, the use of recycled water, and the promotion of sustainable water management practices in agriculture, industry and our communities.

By reducing water and electricity consumption, promoting alternative fuels, reducing material consumption, and implementing waste reduction initiatives, we can create a more sustainable future and reduce our emissions and impact on the environment.

Action No.	ACTION	TYPE OF RESPONSE	LEAD	COST	FUNDING	TIMEFRAME	Related COS ESS Goal
2.1	Reduce Council's waste and environmental impacts by integrating the waste and emissions reduction hierarchy, life cycle analysis and sustainable procurement within Council projects, contracts and tenders.	Mitigation Adaptation Influence	Council	Medium to High	F & S	Medium	Goal 2 Goal 3 Goal 4 Goal 5 Goal 6
2.2	Protect the environment from waste impacts: a. Protect the environment from litter pollution in public open spaces through enforcement, education and control measures. b. Monitor, review and improve litter reduction measures for wetlands and waterways. c. Partner with key agencies to better educate the community about illegal dumping and litter prevention.	Mitigation Influence	Council	Medium	F & S	Ongoing	Goal 1 Goal 2 Goal 4 Goal 5 Goal 6

	d. Promote programs and businesses that reduce the impact of waste on the environment. e. Advocate for increased enforcement, technical advice and support from the Victorian Environment Protection Authority.						
2.3	Avoid creating waste and recover and reuse more resources in all points of the circular economy: a. Continue to deliver and improve a sustainable kerbside recycling system. b. Support new and existing markets for recovered resources (e.g. recycled content products). c. Review and improve waste data capture and reporting processes for landfill, kerbside collection and resource recovery. d. Partner with other agencies to promote research and the development of clean technologies that increase reuse, recovery and recycling. e. Encourage events to minimise waste production.	Mitigation Influence	Council & Other Stakeholders	Low to Medium	F & S	Ongoing	Goal 1 Goal 2 Goal 4 Goal 6
2.4	Increase public recycling infrastructure, including glass only public recycling bins.	Mitigation	Council	Medium	S	Short	Goal 1 Goal 2 Goal 4 Goal 5
2.5	Increase use of recycled materials in Council's road, building and other infrastructure constructions.	Mitigation	Council	Medium to High	S	Medium	Goal 2 Goal 3 Goal 4
2.6	Improve management and efficiency of Council-operated facilities by actively monitoring and managing energy and water consumption through data capture, smart technology and accurate reporting.	Mitigation	Council	Low	F	Short	Goal 2 Goal 3
2.7	Reduce potable water usage in existing and future Council owned facilities, assets and operations.	Mitigation Adaptation	Council	Medium	S	Short to Medium	Goal 1 Goal 2 Goal 3
2.8	Continue implementing energy efficiency and emissions reduction programs in Council-owned and operated facilities, services and operations where practicable.	Mitigation Adaptation	Council	High	S	Ongoing	Goal 2 Goal 3

2.9	Foster a thriving green business economy: a. Attract new sustainable industries. b. Encourage existing businesses to reduce the environmental impact of their operations. c. Support and promote regional/State/Federal programs that encourage and promote environmentally sustainable business practices.	Adaptation Influence	Council & Other Stakeholders	Medium	S	Ongoing	Goal 1 Goal 2 Goal 3 Goal 4

Biodiversity Protection & Regeneration

Climate change is one of the most significant threats to biodiversity in Victoria. Our unique flora and fauna face multiple impacts, including habitat loss, changes in species distribution, increased extinction risk, and increased fire risk. Effective conservation planning, habitat restoration, and carbon sequestration are essential strategies to mitigate these impacts and protect Victoria's biodiversity for ecological health and future generations.

One of the most effective ways to mitigate the impacts of climate change on biodiversity is through habitat restoration. Restoring degraded habitats can provide critical refuges for many species and help maintain ecosystem services such as carbon storage, water purification, and erosion control. This includes reducing the impacts of invasive species, increasing habitat connectivity, and implementing fire management strategies that promote biodiversity.

Adaptive conservation planning is also essential to protect Victoria's and our Shire's biodiversity from the impacts of climate change by identifying key areas for conservation, developing management plans, and monitoring species and ecosystems to track changes and identify new threats.

Species may be able to adapt to some of the impacts of climate change, but only if they have enough time and suitable habitats to do so. Providing suitable habitats and reducing other stressors, such as pollution, invasive species and habitat loss, can help increase the resilience of ecosystems and species to the impacts of climate change.

Increasing the amount of carbon stored in vegetation and soils can help mitigate the impacts of climate change and provide multiple benefits for biodiversity. This can be achieved through carbon sequestration and drawdown actions such as reforestation, land management practices that promote carbon storage, and restoration of wetlands.

Action No.	ACTION	TYPE OF RESPONSE	LEAD	COST	FUNDING	TIMEFRAME	Related COS ESS Goal
3.1	Reduce the impact of invasive species on natural systems, agriculture, and the community: a. Manage invasive species and their impacts on Council owned and managed land. b. Prioritise invasive species control activities in areas of high biodiversity values and environmental reserves. c. Manage invasive species and their impacts on private land through effective land use planning where appropriate. d. Establish and support partnerships with other agencies, community groups and education providers to facilitate cross-boundary invasive species management. e. Advocate for increased funding, programs and enforcement relating to invasive species control on public and private land.	Adaptation Influence	Council	Medium	F	Ongoing	Goal 1 Goal 6

3.2	Investigate and implement where possible suitable techniques and approaches to reduce domestic and feral animal impacts on native wildlife.	Adaptation	Council & Other Stakeholders	Low	F	Short	Goal 1 Goal 6
3.3	Partner with Barwon Water, Wannon Water, the CCMA, GORCAPA and our community to improve the biodiversity values and ecological health of our waterways.	Adaptation	Other Stakeholders	Medium	F & S	Long	Goal 1 Goal 6
3.4	Support the restoration of indigenous biodiversity and ecological processes in rural and coastal landscapes through planning controls, education and incentives.	Adaptation	Other Stakeholders	Low	F	Medium	Goal 1 Goal 5 Goal 6
3.5	Prioritise the protection and establishment of biolinks and native vegetation corridors to reduce habitat fragmentation and increase biodiversity, connectivity and help nature adapt to climate change.	Adaptation	Council & Other Stakeholders	Medium	F	Medium	Goal 1 Goal 5 Goal 6
3.6	Engage and partner with and learn from Traditional Owners to: a. Promote knowledge exchange and cultural education. b. Support and advocate for greater access to country to facilitate stronger cultural connections. c. Conduct ecological burns in primarily Council managed landscapes and ecosystems that benefit from or need fire to thrive.	Adaptation	Council & Other stakeholders	Medium	F & S	Long	Goal 1 Goal 3 Goal 5 Goal 6
3.7	Foster and support environmentally sustainable agriculture and local food production by working in partnership with local business, government and community: a. Promote sustainable agriculture practices through planning controls, policy, education and incentives. b. Support local farming industries and community groups to learn about and implement environmentally sustainable practices in the agriculture sector. c. Support programs that engage our community in local sustainable food production. d. Promote adaptive farming opportunities to remain competitive in a changing climate and achieve optimised food and fibre production while ensuring long-term sustainability.	Mitigation Adaptation	Other stakeholders	Low	F	Ongoing	Goal 3 Goal 4 Goal 5 Goal 6

	e. Investigate and support local drawdown and carbon offset opportunities to sequester carbon in our local landscape e.g. regenerative farming, revegetation, seaweed farming, blue carbon.						

Leadership, Partnerships & Advocacy

Climate change is one of the most pressing challenges facing the world today, and addressing it requires strong leadership, partnerships, and advocacy. This involves collaboration, governance, and mobilization actions to empower people to implement climate solutions at work, support communities to take action, advocate for change, and join with others in responding to the climate challenges. Effective governance is also critical for addressing climate change, and it involves developing policies, regulations, and strategies that support climate action.

Joining with others is an important climate change action that involves collaborating with other organizations, governments, businesses and the community to share knowledge and resources, to develop and implement climate change solutions and to amplify the impact of climate solutions. This includes engaging with communities and stakeholders to ensure that their perspectives are taken into account in decision-making processes and participating in collaborative climate action opportunities and programs and engaging in regional and local climate change networks to share best practices and coordinate action to achieve shared goals.

Empowering people to take action on climate change via initiatives like training programs, educational campaigns, and community engagement is important to help them implement climate solutions and create opportunities for participation and strong partnerships.

Advocacy involves promoting and advancing climate change solutions by communicating the importance of action to decision-makers and the public. This includes advocating for policies and programs that support climate action, engaging with stakeholders and communities to build support, and using media and other communication channels to raise awareness about the need for concerted climate action now.

Action No.	ACTION	TYPE OF RESPONSE	LEAD	COST	FUNDING	TIMEFRAME	Related COS ESS Goal
4.1	Continue to partner across the region and government sector to deliver on climate change initiatives through a collaborative approach; e.g. Barwon South West Climate Alliance, Sustainability Victoria programs and energy efficiency and partnership opportunities.	Adaptation Mitigation Influence	Other Stakeholders	Low to High	F & S	Ongoing	Goal 1 Goal 2 Goal 3 Goal 4 Goal 5 Goal 6
4.2	Strongly advocate for Environmentally Sustainable Design (ESD) and climate change adaptation and mitigation principles and policies to be incorporated within the Planning Scheme by the State government.	Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6
4.3	Advocate to State and Federal government for urgent and impactful action on climate change that benefits our local community, including households, local businesses, and the agricultural sector.	Mitigation Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6

4.4	Encourage and foster the uptake of electric vehicles throughout the region through partnerships, advocacy and strategic support.	Mitigation Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6
4.5	Advocate with and on behalf of coastal and small rural communities for programs and funding that address energy security and independence; and vulnerability to secondary impacts of climate change due to location, terrain or vegetation type (e.g. landslips, trees over roads and power lines, erosion and inundation).	Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6
4.6	Work with other levels of government and community partners to apply Integrated Water Management across the municipality and region to retain water in the landscape to improve water security, protect against drought, bushfire and heat.	Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6
4.7	Engage with Traditional Owners, local growers, peak bodies and land managers to promote resilient land management and regenerative agriculture practices, including indigenous land management techniques such as the sensitive use of fire to regenerate habitat.	Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6
4.8	Advocate for support and equitable access for vulnerable community members to renewable energy and emissions reduction opportunities.	Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6
4.9	Support community groups and networks including 'Friends of' groups, Landcare and sustainability groups to undertake direct action and community led knowledge sharing and advocacy.	Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6
4.10	Identify, amplify and act upon shared advocacy goals between the Shire and the community (groups and businesses), by facilitating networking opportunities.	Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6
4.11	Explore models of genuine collaboration with the Shire's community to facilitate wherever possible active, wide-ranging and meaningful community participation across all action areas of the Climate Change Action Plan.	Adaptation Influence	Council in partnership with others	Low	F	Ongoing	Goal 3 Goal 6

Adaptation & Resilience

In recent years there has been a growing recognition of the importance of adaptation measures and the need for resilience building. This can involve measures such as increasing the resilience of infrastructure and ecosystems, improving water management and planning, and developing heatwave and extreme weather plans.

Adaptation measures are critical in reducing the vulnerability of communities and ecosystems to the impacts of climate change. Adaptation actions include improved and adaptive infrastructure and building design and construction, natural resource management, emergency management and community engagement, as well as research and innovation. By continuing to invest in these actions, we can build a more resilient future and protect our communities and natural resources from the impacts of climate change.

By understanding the risks we face, adapting the way Council operates, supporting community resilience and building plans for effective emergency responses, Council will support a thriving future for our region. Actions in this area will also help Council to seize the positive opportunities that are likely to arise from a changing environment.

Adaptation measures are important because even if we are to reduce greenhouse gas emissions to zero today the impacts of climate change will still be felt for decades to come.

Action No.	ACTION	TYPE OF RESPONSE	LEAD	COST	FUNDING	TIMEFRAME	Related COS ESS Goal
5.1	Update Council's key policies, strategies and plans to promote economic, social and environmental sustainability, while mitigating and planning for climate change risks.	Mitigation, Adaptation Influence	Council Community Other Stakeholders	Medium	F & S	Ongoing	Goal 2 Goal 3 Goal 6
5.2	Identify areas and ecosystems vulnerable to flooding, inundation, erosion and landslips and investigate monitoring and adaptation options: a. Identify vulnerable, priority sites at risk of environmental degradation and damage to infrastructure. b. Incorporate current research and data and advocate for and participate in detailed Local Hazard Assessments to build knowledge base and assist decision making. c. Work with relevant partners and stakeholders to protect priority vulnerable ecosystems. d. Advocate for greater protection for vulnerable ecosystems within the Planning Scheme by the State Government.	Mitigation, Adaptation Influence	Council Community Other Stakeholders	High	S	Medium to Long	Goal 2 Goal 3 Goal 6

5.3	Support local communities to overcome barriers to investing in climate resilience measures, including energy efficiency, water harvesting, renewables and energy storage.	Mitigation Adaptation Influence	Council Community Other Stakeholders	Low	F	Ongoing	Goal 2 Goal 3 Goal 6
5.4	Pursue financial divestment away from fossil-fuel-aligned investments.	Influence	Council	Low	F	Ongoing	Goal 6
5.5	Support the reduction of non-energy carbon emissions and increase carbon storage: a. Support business and community efforts to reduce non-energy emissions. b. Advocate for and support community efforts in relation to carbon sequestration through revegetation, soil carbon capture, and seaweed cultivation.	Adaptation Influence	Council Community Other Stakeholders	Low	F	Ongoing	Goal 1 Goal 3 Goal 6
5.6	Monitor and adapt public health programs as required to respond to a changing climate and its impacts on human health and wellbeing, in line with the related priorities outlined in the Victorian Health and Wellbeing Plan 2019-2023 and Council's Municipal Health and Wellbeing Plan.	Adaptation Influence	Council Other Stakeholders	Low	S	Ongoing	Goal 3 Goal 6
5.7	Build on our existing bushfire prevention, relief and recovery programs by developing a Bushfire Prevention Action Plan in line with the Barwon South West Regional Strategic Bushfire Management Plan.	Adaptation Influence	Council Other Stakeholders	Low	S	Short	Goal 1 Goal 2 Goal 3 Goal 6
5.8	Advocate to the Department of Transport and Planning, DEECA and key emergency management organisations to evaluate and improve road networks and communications infrastructure that facilitate emergency management coordination and access.	Adaptation Influence	Other Stakeholders Council	Low	S	Ongoing	Goal 2 Goal 6

12. Monitoring, Evaluating and Reporting

The Action Plan's implementation and the impact of the actions delivered will be monitored and evaluated in three key ways:

1. Quantitative measurement and analysis of environmental outcomes such as emissions reductions;
2. Assessment of the effectiveness of changes to organisational processes and procedures; and
3. Community recognition and approval of Council's efforts in taking climate change action.

The Action Plan and its implementation will be reviewed in 2028 and the Plan will be updated based on the findings of the review. This approach will enable us to respond to the evolution of climate change science, information, technology, legislation and available solutions, and to the impacts being experienced locally.

Council's Environment Team will provide annual reporting to Council's Executive Management Team, Councillors and the community about the progress of the Action Plan's implementation and progress towards Council's Environmental Sustainability Targets.

Council acknowledges the strong and ongoing interest and contributions from the community in its efforts to progress environmental sustainability outcomes and climate change action. Environmental, sustainability and climate action groups will continue to be informed about Council's progress in climate change action. Additionally, broad scale media like Council's social media pages, used to promote the development and exhibition of the draft Climate Change Action Plan, will continue to be utilised.

13. Appendix A: References and Useful Resources

The following resources have underpinned and heavily informed the development of this plan:

- Climate Change Act 2022
- Climate Change Act 2017
- AR6 Synthesis Report: Climate Change 2023
- Climate Action - Victoria's path to a net-zero emissions and climate resilient future
- Victoria's Climate Science Report 2019
- Victorian Climate Projections data
- Snapshot Climate - Australian Emissions Profiles
- Barwon Climate Change Projections 2019
- Barwon South West Regional Climate Adaptation Strategy 2020-2025
- Colac Otway Shire Environmental Sustainability Strategy [link to be inserted]

14. Appendix B: Glossary – Key Climate Terms to Understand

Active Transport Physical activity undertaken for transport purposes, rather than recreation e.g. cycling or walking.

Adaptation Preparedness and resilience to the impacts of climate change occurring now and into the future.

Alternative Water Non-drinking water from sustainable sources such as rainwater, stormwater, recycled and grey water.

Anthropogenic of, relating to, or resulting from the influence of human beings on nature. Environmental change caused or influenced by people and their activities, either directly or indirectly.

Blue Carbon / Blue-Green Carbon Carbon that is captured and stored by wetlands and coastal ocean ecosystems, typically in seagrass, mangrove and saltmarsh environments.

Biodiversity The variety of all life-forms and the ecosystems of which they are a part, including plants, animals, fungi, protists (including algae) and bacteria, and their encoded genes.

Carbon Neutral A state of net zero carbon emissions, commonly achieved through reducing emissions, as well as purchasing offsets.

Carbon Drawdown Drawing carbon down from existing levels of greenhouse gases in the atmosphere to reverse global warming

Carbon Offset An exchange or reduction of emissions to compensate for emissions made elsewhere, commonly measured in tonnes of carbon dioxide-equivalent (CO2 -e).

Carbon Sequestration The removal of carbon from the atmosphere by capturing or storing it through biological, chemical and physical processes

Circular Economy A closed system in which reuse, recycling and disposal channels are in-built to consumer and industrial products, to eliminate waste.

Climate Change The long-term rise in global average temperature, caused by human influence, resulting in negative effects such as sea level rise, ocean acidification, extreme weather events, loss of biodiversity and increase in human suffering.

Climate Change Impacts A wide range of current and future physical, environmental, social and financial effects.

Community The people or organisations that live, work, visit or are connected to the region.

Community Resilience The sustained ability of a community to respond to, withstand and recover from shocks and stressors. Acute shocks include disasters like fires, floods and terror events.

Decarbonisation The transition to a low or zero carbon economy to limit the effects of climate change.

Divestment Reducing and then eliminating connection to funds invested in fossil-fuel supporting industries, typically through banking, loans, shares and other financial portfolios.

Environmentally Sustainable Design (ESD) A school of design that seeks to improve building performance, reduce environmental impact, resource use and waste, and create healthy environments for occupants and users.

Extreme weather events Unseasonal or extreme weather events for the affected region.

Greenhouse Gas (GHG) Gases such as carbon dioxide, methane and others that, when present in the atmosphere, increase the amount of solar radiation absorbed, leading to a rise in global average temperature. GHGs are primarily released by the combustion of fossil fuels.

Inter-governmental Panel on Climate Change (IPCC) United Nations body for assessing the science related to climate change. The panel provides regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.

Life Cycle Analysis (LCA) Assessing the total cost of an asset throughout its useful life taking account of the planning, design, construction, acquisition, operational, maintenance, rehabilitation and disposal costs.

Mitigation Limiting and avoiding the most harmful effects of climate change, primarily achieved through reducing global carbon emissions.

Natural disaster A sudden or violent event in nature (e.g. earthquakes, hurricane or flood) that kills a lot of people or causes a lot of damage.

Net Zero (emissions) Carbon emissions are produced, but balanced out with equivalent offsets. Carbon dioxide is captured and sequestered equivalent to the CO_2 emitted. Organic Living things or material from living things, such as food and garden waste or animal manure.

Non-energy emissions GHG emissions created through industrial and manufacturing processes, agriculture and livestock production, and waste management practices.

Recycled Products Products that are made from or contain recycled materials such as plastic, glass, rubber or any material that would otherwise be sent to landfill.

Regenerative Agriculture A conservation and rehabilitation approach to food and farming systems. It focuses on topsoil regeneration, increasing biodiversity, improving the water cycle, enhancing ecosystem services and supporting biosequestration. Agroecology or Sustainable Agriculture are alternative terms.

Renewable Energy Energy generated from renewable sources such as solar, wind or geothermal, in contrast to the energy from fossil fuels such as coal, natural gas or oil.

Residual Emissions The emissions still being generated after reductions through avoidance, efficiency and renewable energy generation.

Resilience Ability to recover or adapt to changes in environmental and/or living conditions at a personal, community, economic and ecological level.

Shire/Corporate Emissions Greenhouse gas emissions from Shire projects and operations, included within the scope of the Climate Active Carbon Neutral Standard.

Shire/Community Emissions All Greenhouse Gas emissions from within the Shire boundaries, including residential and commercial energy use, transport and waste.

Soil Carbon Carbon stored in the soil ecosystem in various forms.

Sustainable Agriculture Farming practices and research that replenish soil and improve crop yields and plant health while minimising the use of non-renewable resources. Also referred to as regenerative agriculture.

Urban Heating An increase in localised temperature due to the urban built environment, primarily due to high amounts of concrete and asphalt, and a reduction in vegetation. Increasing tree canopy cover is a key method to reduce these effects.

Water Sensitive Urban Design (WSUD) A holistic approach to water management that integrates urban design and planning with social and physical sciences in order to deliver water services and protect aquatic environments in an urban setting.

Zero-emissions Vehicle A vehicle with no tailpipe emissions, typically powered by electricity from a battery or hydrogen.