SCENIC RIM

CLIMATE CHANGE ROADMAP 2024–2034

SCENIC RIM
REGIONAL COUNCIL

CONTENTS

ABBREVIATIONS

BoM	Bureau of Meteorology
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CCFBIP	Council Carbon Footprint/Baseline Inventory & Pathway
EV	Electric Vehicle
FFDI	Forest Fire Danger Index. The FFDI is an indicator of dangerous fire weather conditions for a given location.
GHG	A greenhouse gas (GHG or GhG) is a gas that absorbs and emits radiant energy at thermal infrared wavelengths, causing the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3).
ICE	Internal Combustion Engine
ICLEI	International Council for Local Environmental Initiatives
IPCC	Intergovernmental Panel on Climate Change
QCRC	Queensland Climate Resilient Councils
SoA	Summary of Actions
SoI	Statement of Intent
SRRC	Scenic Rim Regional Council

1. OVERVIEW

Located in South East Queensland, the Scenic Rim boundaries stretch from Peak Crossing and Gleneagle in the north down to the New South Wales border, and from Tamborine Mountain in the east, to Cunningham's Gap in the west. The region is home to a population of more than 43,000 people where residents and visitors value the scenic views and natural environment, country heritage and rural lifestyle, and friendly caring and connected communities (Scenic Rim Regional Council, 2018). The agricultural sector is the second highest employer in the Scenic Rim providing jobs through diverse agribusinesses and agritourism.

Climate Change has the potential to diminish the region's environmental, social and economic values by impacting our natural ecosystems, agricultural productivity, businesses, built environment, and communities. The Scenic Rim has already seen an increase in extreme fire weather days, a change in rainfall distribution patterns, and a decrease in streamflows (Refer - 3. Why we are doing this). The predicted impacts of climate change pose a very real threat to the region and we will be increasingly affected by changes in temperature, rainfall, and extreme weather conditions (BoM & CSIRO, 2022) that can result in floods, bushfire and unseasonal weather events.

The role of the Scenic Rim Regional Council, in collaboration with the local community and other levels of government, is to provide essential services, manage local risks, and support disaster recovery. Supporting Council's adopted *Climate Change Statement of Intent*, this *Scenic Rim Climate Change Roadmap 2024-2034* (Roadmap) has been developed to guide Council and the Scenic Rim region towards reducing greenhouse gas (GHG) emissions, building climate resilience within our communities and ecosystems, and enabling our region to withstand and recover quickly from the hazards posed by a changing climate.

This Roadmap will enable Council to embed climate change considerations into corporate decision-making and guide our planning and response to both slow moving and fast changes in our climate. It includes strategic objectives and high level actions for improving the adaptive capacity of our region and for reducing GHG emissions and do our part in contributing to global climate change mitigation over the next ten years. In order to make the achievement of the strategic objectives more manageable, three 3 Year Action Plans will be developed. The first of these plans, *Scenic Rim Climate Change 3 Year Action Plan 2024-2026,* accompanies this Roadmap and contains a detailed inventory of high-level actions to be implemented over the next three years, relevant stakeholder` roles and responsibilities, and funding opportunities.

VISION

"By 2034, the Scenic Rim will have made significant progress towards net zero emissions and have greater resilience to climate change impacts. The region will be responsive to climate change as a catalyst for reducing our dependence on natural resources, increasing the sustainability of our businesses and industries, and improving the resilience of our natural systems, communities, and built environment."

Climate change has the potential to impact all aspects of our lives and, as such, requires action by all areas of Council. Consequently, the objectives and actions within this Roadmap are interlinked with objectives in many Council strategies and plans. Achieving this vision will require collaboration among various groups internal and external to Council and will be supported by this Roadmap and associated Action Plans.

2. POLICY CONTEXT

In 2019, Council resolved to acknowledge that climate change is a risk that requires prompt and ongoing focus by Council. Subsequently an *Interim Climate Change Statement of Intent* was developed and adopted 20 January 2020. On the 22 November 2022 Council agreed to the content and release of the final *Scenic Rim Regional Council Climate Change Statement of Intent* (see below) and to progress with the development of the *Scenic Rim Climate Change (this) Roadmap 2024-2034*.

SCENIC RIM REGIONAL COUNCIL CLIMATE CHANGE STATEMENT OF INTENT

The Scenic Rim Regional Council is committed to upholding the guiding expectations identified in the *Scenic Rim Community Plan 2011-2026 (Revised 2018)*. These can broadly be summarised as ensuring the long term economic, social and environmental sustainability of the region. Council recognises the significant impacts that climate change presents for our region along with the direct and indirect impacts of severe weather and disaster events including flood, fire and drought. In the face of global uncertainty, we need to consider the challenge of climate change as a threat to achieving the best future for our region.

While the future presents many challenges, Council is well placed to work together with local communities, businesses, industries and other levels of government in mitigating and adapting to climate change. It is our intent to rise to this challenge, ensuring our Council plays a pivotal role in support of our unique and diverse region.

The key themes below provide a focus for further action.

1. Respect and learn from the strong scientific evidence surrounding human influence on climate and the associated impacts on human and natural systems including threats to our life supporting ecosystems;
2. Acknowledge the Scenic Rim region is at risk from climate change, with associated impacts for community health and wellbeing, economic productivity, the natural environment, biodiversity and essential infrastructure and services;
3. Commit to a more sustainable future through exploring how climate change adaptation and mitigation can be mainstreamed into decision making;
4. Engage with our diverse communities to ensure the path forward is unifying for the Scenic Rim region;
5. Lead our local community through advocacy and collaboration in reducing our dependence on natural resources as we transition to a carbon neutral economy;
6. Recognise that transition to a carbon neutral economy will bring challenges and costs to Council and the community;
7. Develop strong partnerships and alliances with community, industry and partners to achieve mutually beneficial outcomes;
8. Advocate at all levels of government to support and contribute in our response to climate change through practical action to ensure the financial burden of such actions does not land unfairly on Council or our communities.

This Roadmap uses the *Statement of Intent* themes stated above as guiding principles for the strategic objectives and actions for Council's climate change response. Interlinked themes are listed against the Strategic Objectives in Section 5 by number.

FEDERAL, STATE AND REGIONAL POLICY

All levels of government are responding to the current and projected impacts of climate change. Table 1 identifies the key international, national, state, regional and local level agreements, legislation, strategies and plans that are relevant to this Roadmap.

Table 1 Relevant international, national, state, regional and local level agreements, legislation, strategies and plans relating to climate change

STRATEGIC DOCUMENT	STRATEGIC LEVEL LINK	STRATEGY
2016 Paris Climate Change Agreement – Australian Ratification	International Climate Change Agreement	Target: Keep global temperature rise below 2°C above pre-industrial levels and pursue efforts to limit the increase to 1.5°C. Article 7: covers a range of climate change adaptation recognitions and commitments.
Sendai Framework for Disaster Risk Reduction 2015-2030	International Agreement adopted by UN Member States	Outlines targets and priority actions to address climate change risks through a disaster risk reduction focus.
Climate Change Act 2022	Australian Government Legislation	The Act operates as 'umbrella' legislation to implement Australia's net-zero commitments and codifies Australia's emissions reductions targets under the Paris Agreement. ▪ Reduce net GHG emissions to 43% below 2005 levels by 2030. ▪ Reduce net GHG emissions to zero by 2050.
National Climate Resilience and Adaptation Strategy 2021-2025	Australian Government Strategy	Provides a set of principles to guide effective adaptation practice and resilience building within a changing climate.
Queensland Climate Action Plan	Queensland State Government Plan	Queensland State Government's commitments currently are ▪ 50% renewable energy target by 2030. ▪ 70% renewable energy target by 2032. ▪ 80% renewable energy target by 2035. ▪ 30% emission reduction below 2005 levels by 2030. ▪ Zero net emissions by 2050.
Queensland Climate Transition Bill 2023 (if passed)	Queensland State Government Bill	This bill puts forward state targets required to meet Paris Agreement obligations based on current science and modelling. ▪ 75% reduction in emissions on 2005 levels by 2030. ▪ Net zero emissions by 2035.
Pathways to a climate resilient Queensland: Climate Adaptation Strategy 2017-2030 (Q- CAS)	Queensland State Government Strategy	Provides a partnership framework for local governments to develop regional innovative adaptation solutions, embedding climate risk in planning and development decisions for a changing climate via Queensland Climate Resilient Councils (Q-CRC) and QCoast2100 programs.

Queensland Strategy for Disaster Resilience	Queensland State Government Strategy	Provides a partnership with local governments and other stakeholders to deliver and implement disaster resilience policy and proactive resilience initiatives to reduce exposure and vulnerability to risk.
Queensland State Planning Policy (SPP)	Queensland State Government Policy	Recognises planning must consider climate change mitigation and adaptation at all levels.
Queensland Planning Act 2016	Government Legislation	Requires local government planning schemes to consider and respond to climate change.
Queensland Disaster Management Act 2003	Government Legislation	Requires local governments to prepare a disaster management plan in line with State Guidelines. This includes emergency and disaster response and recovery actions in relation to climatic events.
Queensland Waste Reduction and Recycling Act 2011	Government Legislation	Requires local government to consider and plan waste management operations and practice with the aim of reducing climate change impacts of waste management and disposal.
ShapingSEQ: South East Queensland Regional Plan 2017	Regional Plan	Provides a framework for growth management, and sets planning direction for sustainable growth, global economic competitiveness and high-quality living to ensure the effects of climate change are managed to optimise safety and resilience for communities and the natural environment. Goal 4: Sustain. Element 9: Climate change.
ShapingSEQ Review	Amendment to ShapingSEQ - in process	Targeted amendment to ensure ShapingSEQ's benchmarks and expectations for dwelling growth and critically, housing choice and diversity, are updated to reflect real housing need.
Scenic Rim Community Plan 2011-2026 (Revised 2018)	Council Plan	Ensure the long term economic, social and environmental sustainability of the region.
Scenic Rim Regional Council Corporate Plan 2026	Council Plan	Area of Focus - Adaptation to changing climate and weather patterns: Develop a program of work to facilitate climate adaptation across the region (see Operational Plan).
SRRC Operational Plan 2022-2023	Council Plan	Area of Focus - Adaptation to changing climate and weather patterns. Activities including the development of this Strategy, increase community awareness, incorporate disaster mitigation in design and operation of Council's facilities and assets, increase environmental sustainability, and evaluation of options for increasing water resilience, continue 1 Million Trees Program.
Scenic Rim Regional Council Climate Change Statement of Intent	Statement of Intent	Themes in the Roadmap and Action Plan are interlinked with the themes stated in the SoI.

3. WHY WE ARE DOING THIS

Australia has warmed, on average, 1.44 ± 0.24 °C since national records began in 1910, with most warming occurring since 1950 (Figure 1). The warming in Australia is consistent with global trends, with the degree of warming similar to the overall average across the world's land areas. In the south-east of Australia, there has been a decrease of around 10 per cent in April to October rainfall since the late 1990s and a decrease in streamflow at most gauges across Australia since 1975.

There has been an increase in extreme fire weather and a longer fire season across large parts of the country since the 1950s (BoM & CSIRO, 2022).

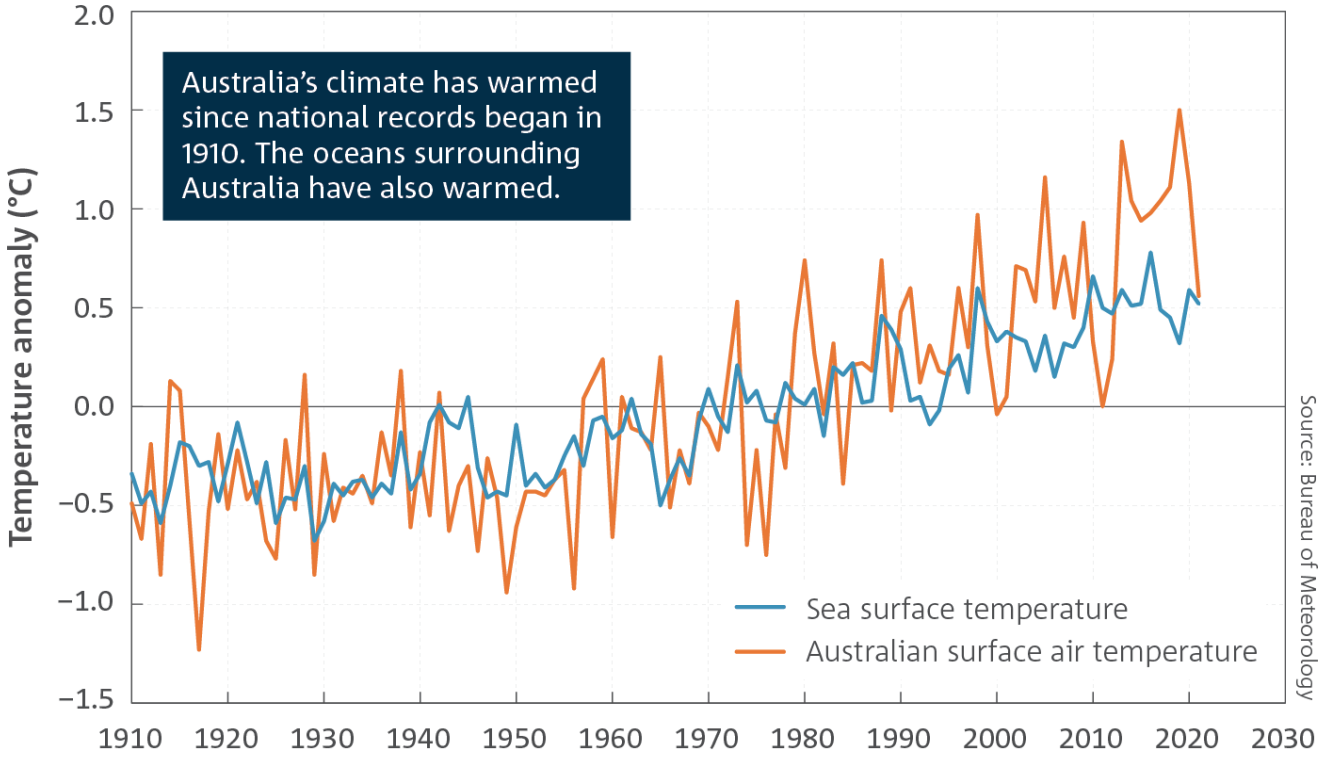


Figure 1 Line chart of the temperature anomaly relative to the 1961 to 1990 average, in degrees Celsius, from 1910 to 2021, for temperatures over Australia and for sea surface temperatures in the Australian region. Source: BoM & CSIRO (2022)

Warming is observed across Australia in all months with both day and night-time temperatures increasing. This shift is accompanied by an increased number of extreme nationally averaged daily heat events across all months, including a greater frequency of very hot days in summer. For example, 2019 experienced 41 extremely warm days, about triple the highest number in any year prior to 2000 (Figure 2). Also in 2019, there were 33 days when national daily average maximum temperatures exceeded 39°C, a larger number than seen in the 59 years from 1960-2018 combined. When relatively cooler years do occur, it is because natural drivers that typically cool Australia's climate, such as La Niña, act to partially offset the background warming trend (BoM & CSIRO, 2022).

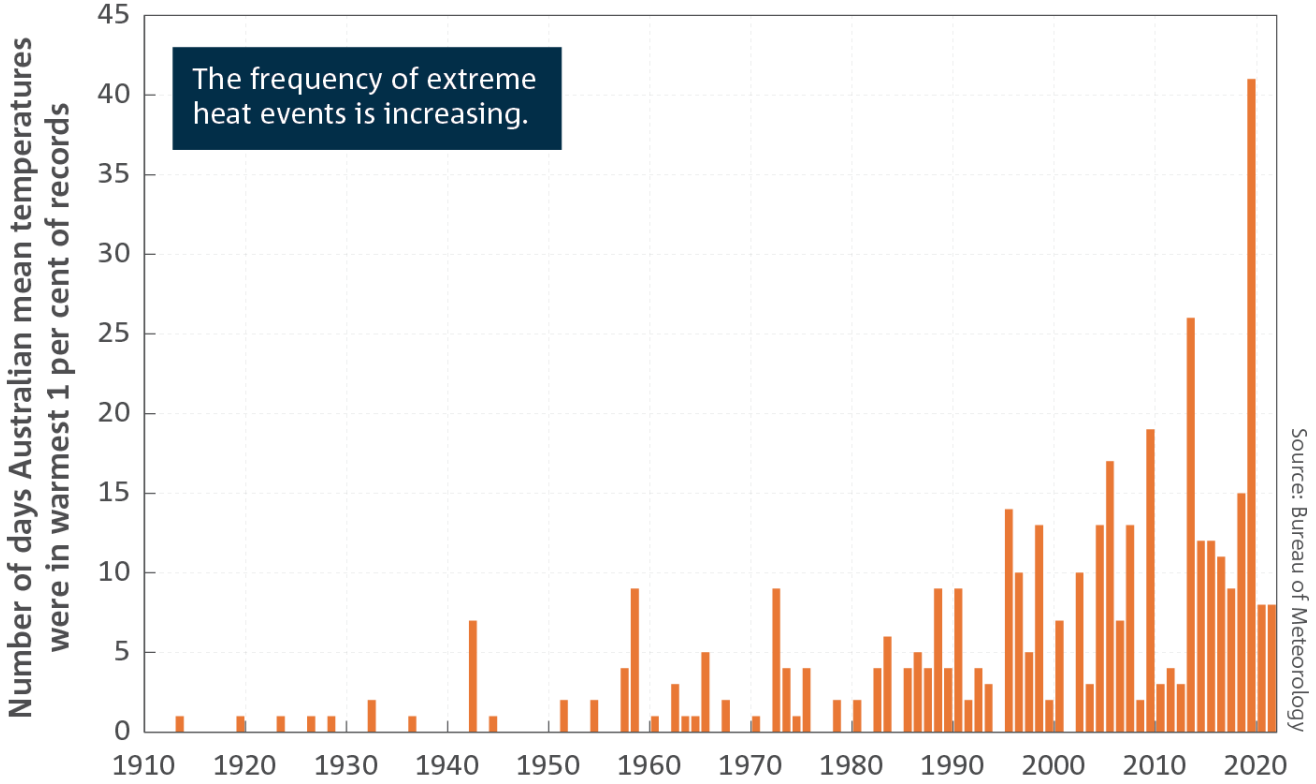


Figure 2 Number of days each year where the Australian area-averaged daily mean temperature for each month is extreme (extremely warm days). Extremely warm days are defined as those where daily mean temperatures are the warmest 1 per cent of days for each month, calculated for the period from 1910–2021. Source: BoM & CSIRO (2022)

Beaudesert looking south towards the mountains and forests of the Mount Barney, Border Ranges and Lamington National Parks

Controlled burn in Boonah

The frequency of dangerous fire weather days (Figure 3) has increased significantly in recent decades across many regions of Australia, especially in the south and east. These increases are particularly evident during spring and summer and are associated with an earlier start to the southern fire weather season (Figure 4).

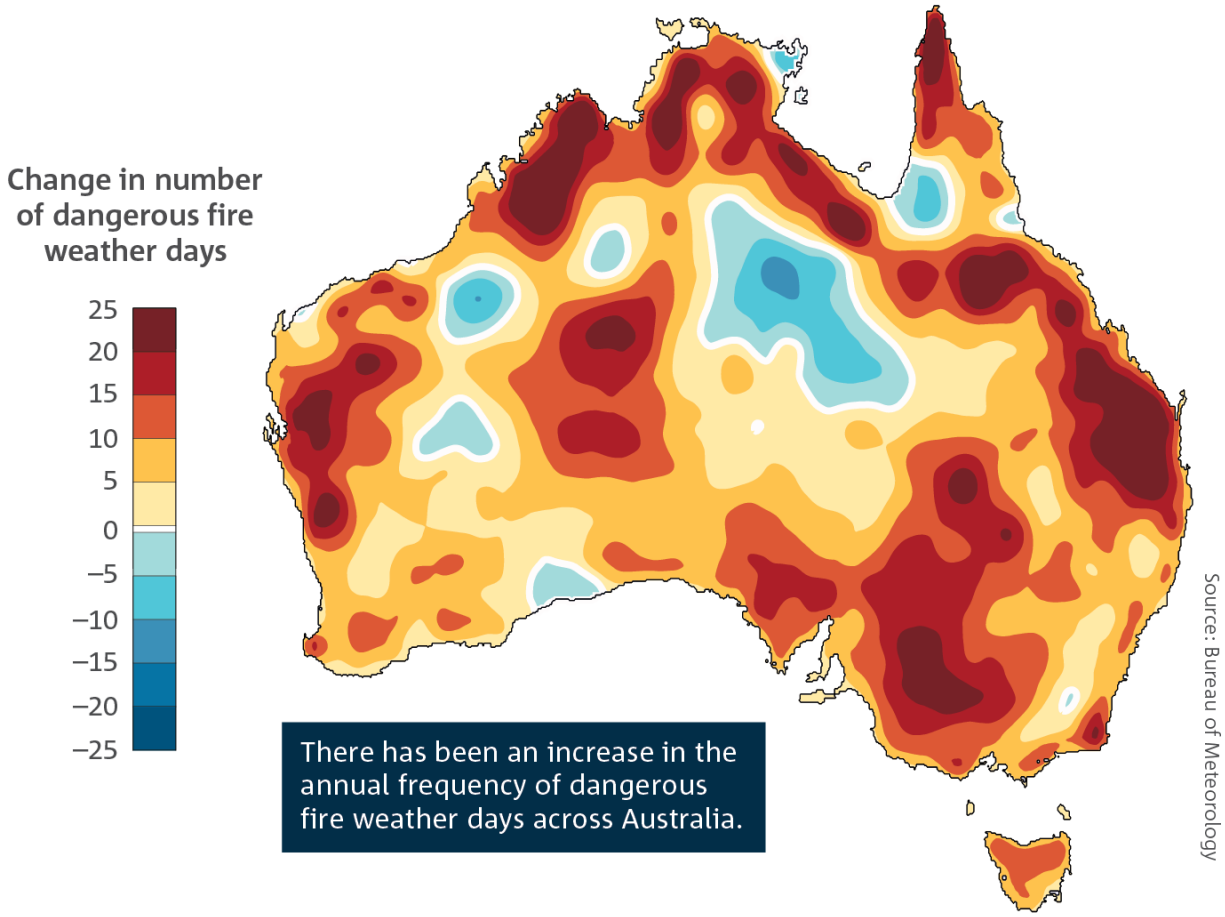


Figure 3 Change in the annual (July to June) number of days that the Forest Fire Danger Index (FFDI) exceeds its 90th percentile between the two periods: July 1950 to June 1986 and July 1986 to June 2022. The FFDI is an indicator of dangerous fire weather conditions for a given location.

Source: BoM & CSIRO (2022).

The average temperature of each future year is now expected to be warmer than any year prior to the commencement of human-caused climate change. This is scientifically referred to as climate change 'emergence '. A longer fire season for the south and east and an increase in the number of days experiencing dangerous fire weather is projected.

Australia's cool season rainfall is projected to decrease across many regions of the south and east, likely leading to more time spent in drought. As the climate warms, heavy rainfall is expected to become more intense throughout Australia (BoM & CSIRO, 2022).

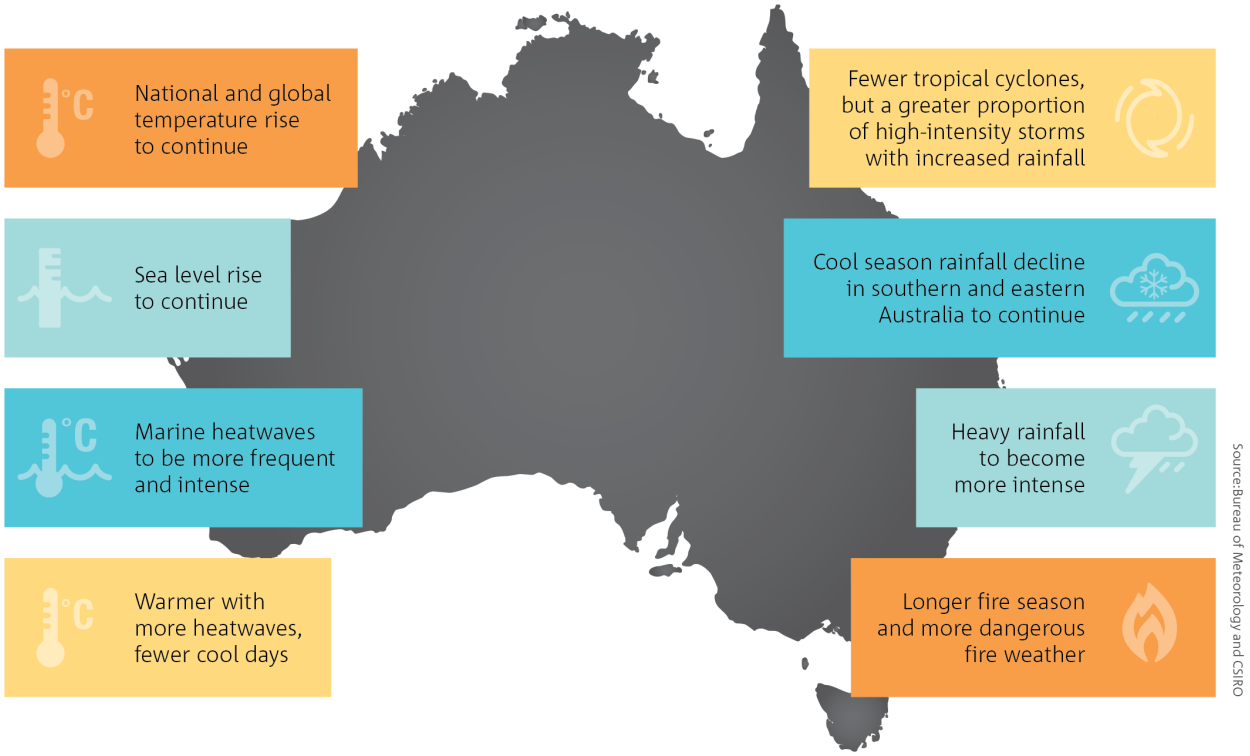


Figure 4 Overall predicted trends in the Australian climate due to climate change. Source: BoM & CSIRO (2022)

Forceful flood waters over bridge near Kooralbyn in December, 2010

Australia is projected to continue to get hotter into the future, with more extremely hot days and fewer extremely cool days. Ongoing climate variability means each year will not necessarily be hotter than the last, but the underlying probabilities are changing. This leads to less chance of cool years and a greater chance of repeatedly breaking

Australia's record annual average temperature (e.g. record set in 2005 was subsequently broken in 2013 and then again in 2019). While the previous decade was warmer than any other decade in the 20th century, it is likely to be the coolest decade for the 21st century (Figure 5) (BoM & CSIRO, 2022).

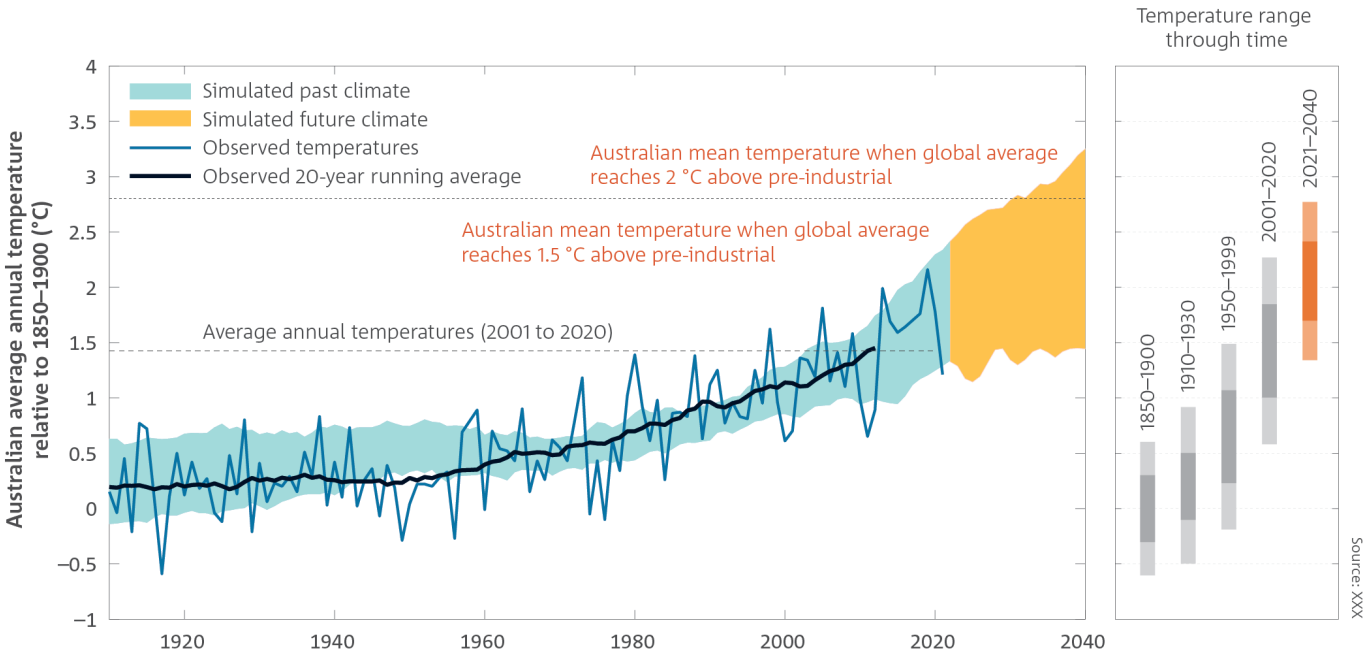


Figure 5 Recorded Australian average annual temperature relative to 1850-1900 (blue) and predicted temperature to 2040 based on BAU (yellow). Source: BoM & CSIRO (2022)

LOCAL CLIMATE CHANGE EFFECTS

TEMPERATURE

Scenic Rim's average, maximum and minimum temperatures are projected to continue to rise. For the near future (2030), the annually averaged warming is projected to be around 0.97°C above the climate baseline of 1986-2005, 19.9°C[1]. By the year 2070, the projected range of warming will reach between 2.1 to 3.8°C above the baseline temperature. Scenic Rim's baseline mean maximum summer temperature is close to 31.1°C. This could result in the following mean maximum summer temperatures for RCP8.5[2] and RCP4.5 (Syktus et al. 2020).

RCP[2]	YEAR	MEAN MAXIMUM SUMMER TEMP (°C)
	Baseline 1986-2005	31.1
RCP8.5	2030 2050 2070 2090	32.1 33.2 34.4 35.6
RCP4.5	2030 2050 2070 2090	32.3 32.7 33.3 33.5

Such rapid changes in temperature could have an effect on the lifecycles of local flora and fauna, the viability of agricultural enterprises, and increase the prevalence of mosquito-borne diseases and other harmful pests. Increases in the average and maximum temperatures will also increase cooling costs for private and publicly owned buildings.

The frequency, intensity and duration of all heatwaves over the past decade has exceeded predictions for 2030 and there is likely to be a substantial increase in the frequency and duration of heatwaves in the coming decades (BoM & CSIRO, 2022; Queensland Department of Environment and Science, 2022). The duration of heatwaves is projected to increase by 0.31 days by 2030, 1.3 days by 2050, 3.6 days by 2070, and 7.6 days by 2090 for the Scenic Rim (Syktus et al. 2020). Such a change represents one of the most significant climate risks to our region.

In Queensland, heatwaves are responsible for more deaths than all other natural hazards combined. Those groups most at risk include the elderly, the homeless, and those with pre-existing health conditions. In addition, heatwaves can have an impact on critical infrastructure services, livestock and other agricultural practices, building cooling costs, and local flora and fauna.

RAINFALL

High climate variability is likely to remain the major factor influencing rainfall changes in the next few decades. By the year 2090, projections of average total annual rainfall show little change across the Scenic Rim region. However, the temporal distribution of rainfall will change with wet seasons becoming wetter and dry seasons drier. Consecutive dry days are projected to increase by 2.5 by the year 2090. By late this century, it is likely that the region will experience more time in drought compared to the present day (Syktus et al. 2020).

The combination of a drier dry season and wetter wet seasons, and an increase in drought conditions, could lead to a range of risks and changes such as soil loss through erosion (during heavy rainfall), localised flooding, compaction of soils leading to reduced absorption of rainfall, soil movement leading to fractures in built structures, and impacts on agricultural enterprises and native flora and fauna.

EXTREME WEATHER EVENTS

A warmer world is likely to intensify wind and storm events increasing risks to people, private property, important infrastructure, agricultural enterprise and the local environment.

1. Based on average of mean minimum and maximum monthly temperatures for the period 1986-2005 at Amberley AMO (040004). Amberley is the closest weather station to the Scenic Rim that has data covering the required time period for these calculations.
2. The representative concentration pathway or RCP corresponds to the amount of radiative forcing in W/m2 used to model different potential climate outcomes.

Binna Burra after the Black Summer bushfires, 2019-2020.

Perhaps of most concern to the Scenic Rim will be the increase in FFDIs. Bushfire weather is a measure of fuel dryness and hot, dry, windy conditions. The bushfire events experienced in 2019 have highlighted the ever-present risk of bushfire. The combination of higher average temperatures, more frequent and longer heatwaves, and an overall drying trend is likely to result in an increase in bushfire risks across the Scenic Rim region.

THE ECONOMIC COST OF CLIMATE CHANGE

Climate change exposes Council to a variety of financial risks. After adjusting for inflation, the economic cost of extreme weather in Australia during the period 2010-2019 was more than double the cost of extreme weather in the 1970s, totaling $35 billion (Climate Council, 2021). By around mid-century, extreme weather events exacerbated by climate change, as well as the impacts caused by rising sea levels, could cost the Australian economy $100 billion every year (Climate Council, 2021). Impacts from climate-related events have been highest in Queensland with cumulative economic damages of approximately $30 billion in the period 1970-2019.

Increasing natural hazard risk associated with climate change can also affect insurance affordability and financing ability. Longer term impacts of repeat events can impact investor confidence and the socioeconomic wellbeing of the region (Burton & Dredge, 2007). Climate-related financial risks should be viewed as an added incentive to reduce GHG emissions and increase the adaptive capacity of our region more rapidly.

PHYSICAL AND INFRASTRUCTURE RISKS

Physical risks are disruptions to economic activity or reductions in asset values resulting from the physical impacts of climate change. As climate impacts including flooding, bushfire, and extreme weather events continue to accelerate, the risk to council infrastructure and services increases as do community needs (Burton & Dredge, 2007). Along with increased costs due to replacing or repairing damaged infrastructure, there are also increased costs associated with obtaining insurance cover for those assets.

TRANSITION RISKS

Transition risks relate to the impact of changes in regulation or pricing introduced to facilitate a transition to a low-carbon economy. These impacts primarily arise from actions taken by governments, but also individuals and businesses. One example is a regulatory requirement to place a levy on carbon emissions. The introduction of a carbon levy would increase the cost of doing business for Council.

A more direct economic transition risk is the shift from internal combustion engine (ICE) vehicles to electric vehicles (EV). For example, an owner of an ICE vehicle may have to accept much less for the resale of their vehicle in the future, as buyer

preferences switch to EVs. The sale of vehicles powered by petrol and diesel are considered to be in structural decline (globally), having peaked at 86 million sales in 2017. In 2022, one in every seven passenger cars sold around the world was an electric vehicle, up from one in every 70 in 2017 (Climate Council, 2023).

LIABILITY RISK

An inadequate response towards climate change adaptation also raises the potential for legal risk (Reserve Bank of Australia, 2019). Members of the community may seek redress due to property loss or damage as a result of inadequate consideration of possible future climate change impacts. One of the most common concerns for councils as climate impacts escalate is increasing litigation, with 21% of coastal councils surveyed in 2019 citing this as their highest concern (Climate Council, 2021).

PLANNING AND POLICY RISK

At some point, the Queensland State and Federal governments may employ regulatory or other coercive measures to force local government compliance in achieving renewable energy and emissions reduction targets. If this eventuates, Council will be faced with substantial costs. For example, transitioning to EVs sooner rather than later is likely to minimise pressure on future budgets for Scenic Rim Regional Council, as it will spread the costs over time.

CLIMATE IMPACTS AND RISKS FOR KEY LOCAL SECTORS

Climate change was considered the sixth highest public sector risk overall in a survey of Council leaders in Australia in 2022/23 (JLT Public Sector, 2023) with 25% of respondents ranking it as the highest. Furthermore, the *Climate of the Nation Report 2022 (Quicke & Venketasubramanian, 2022)* survey found that 75% of Australians are concerned about climate change in general, 83% of Australians are concerned climate change will result in more bushfires, droughts and flooding affecting crop production and food supply, and that 79% of Australians support a phase out of coal-fired power stations. Failure to make efforts to reduce GHG emissions could harm the region's reputation and lead to dissatisfaction within the community.

Figure 6 illustrates global climate stressors, hazards and impacts and Table 2 lists specific climate risks and impacts for key sectors within the Scenic Rim region.

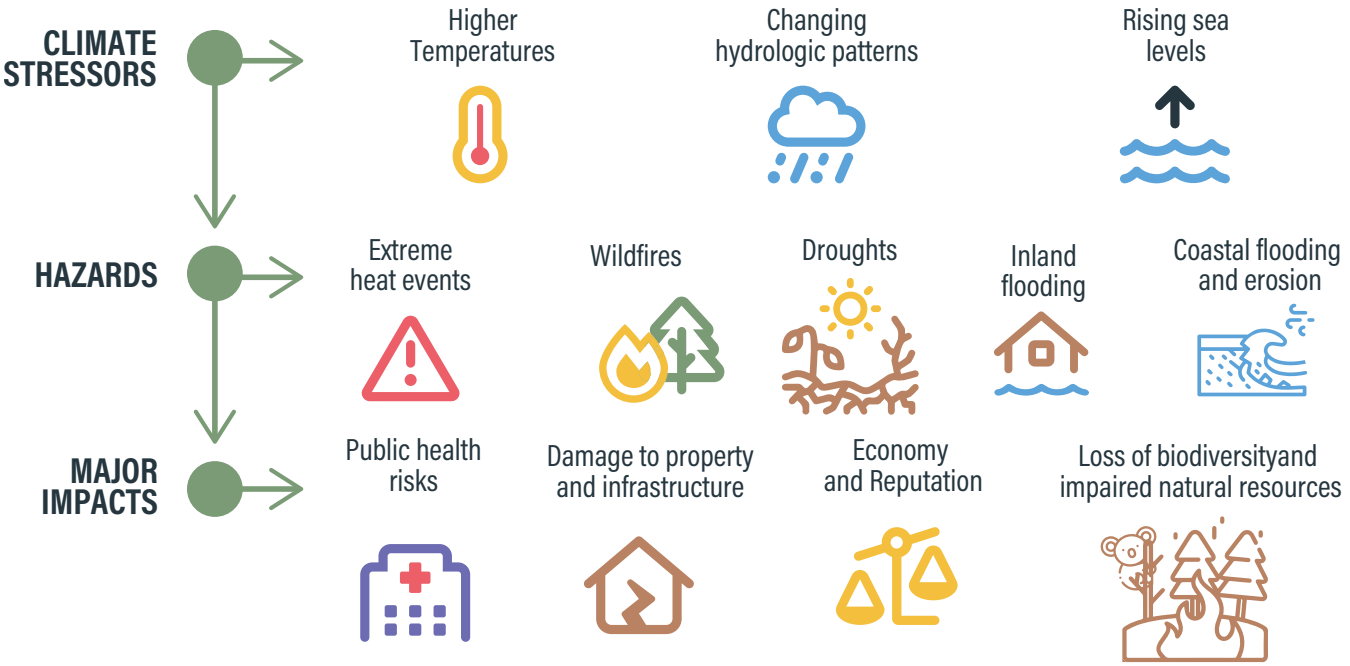


Figure 6 Generalised stressors, hazards and major impacts due to climate change based on Ehlers (2022)

Table 2 Climate risks and impacts for the Scenic Rim region

	SECTOR	CLIMATE RISKS AND IMPACTS
LOSS OF BIODIVERSITY AND NATURAL RESOURCES	**Biodiversity**	Increased bushfire risk Reduced rainfall and drought Increased risk of landslip due to more intense rainfall events Wider distribution of invasive species Increased rates of runoff, erosion and soil loss, flowing into local streams and rivers Harmful algal blooms
	Agriculture	Increased costs of raw materials Changing or unpredictable flowering and yields Drier winter and spring months leading to declines in crop and livestock returns Increased heat stress reducing animal productivity Greater damage due to increased bushfire season and other extreme weather events Depletion in soil fertility (native nitrogen stocks) and decline in soil structure Changing customer behaviour and preferences
ECONOMY AND REPUTATION	**Economy**	Impacts to agribusiness, agritourism due to changing weather patterns Impacts to nature-based tourism and manufacturing industries due to extreme weather events Impacts to transport/logistics industry due to damaged roads and infrastructure Loss of business confidence due to increased technological uncertainty Increased building energy and water use and costs
	Reputation	Not keeping up with community needs or expectations Impact on reputation as a sustainable destination Increased community emissions due to lack of leadership in relation to sustainable transport, energy efficiency and renewable energy
DAMAGE TO PROPERTY AND INFRASTRUCTURE	**Built Environment, Infrastructure and Services**	Disruption to critical services from more frequent extreme weather events and heatwaves Increased risk of damage by bushfire Increased landfill fire risks Damage to roads and other public assets due to flooding
PUBLIC HEALTH RISKS	**Human Health**	Increased demand on health and emergency services Increased risk of mosquito-borne diseases Increased mental stress in the community due to impacts Exacerbation of asthma and respiratory allergies due to increased allergens Heat related illness and death, cardiovascular failure

Since 2008, an average of more than 20 million people per year (world-wide) have been displaced by extreme weather events, many of which were exacerbated by climate change, according to the IPCC (2022). In the long term, there could be significant increases in the number of people forced to migrate due to climate change impacts such as sea level rise, long-term drought, floods and fire and large-scale conflict due to competition for food, water and energy.

Sunset view from Mount French overlooking Fassifern, 2017 (Credit: Lachlan Gardiner)

CO-BENEFITS & TRADE-OFFS

Some carbon sequestration projects may have benefits for broader sustainability objectives (co-benefits), including biodiversity conservation and improving catchment water systems, while others may have a risk of negatively impacting these sustainability objectives (trade-offs). It is essential to identify potential co-benefits and trade-offs when planning any project, whether it relates to adaptation to or mitigation of climate change impacts.

Depending on the approach taken, converting biomass to biofuels may have the co-benefits of waste to energy and wild-fire risk management, but it can have negative consequences for catchment drainage systems, soil fertility, and biodiversity.

The establishment of single-species plantations over large areas for forestry plantations may contribute to carbon sequestration but may reduce biodiversity and diminish adaptive capacity to climate change.

Regenerative agriculture and carbon farming, on the other hand, can have positive outcomes (co-benefits) for biodiversity and ecosystem health, in addition to sequestering carbon.

Adaptation measures also need to be considered in this context. Building dams to secure water supplies can have extremely adverse effects on catchment ecosystems as can fire hazard reduction burning on rural and forest ecosystems, ultimately degrading the ecosystem services[3] on which we rely.

Whether environmental management actions aimed at climate mitigation and adaptation simultaneously enhance or undermine other sustainability objectives will depend on how they are implemented at regional and local scales.

3. Ecosystem services are defined as the direct and indirect contributions of ecosystems to human well-being, and have an impact on our survival and quality of life. There are four types of ecosystem services: provisioning, regulating, cultural and supporting services (Pearce, 2023).

4. WHERE ARE WE NOW

The following sections provide an overview of the *SRRC Climate Change Governance Assessment* carried out by Queensland Climate Resilient Councils (Climate Planning, 2018), the *Council Carbon Footprint/Baseline Inventory and Pathway* (100% Renewables, 2022), and *Scenic Rim Municipal Emissions Snapshot* using the Snapshot Community Climate Tool (Ironbark Sustainability and Beyond Zero Emissions, 2023).

CLIMATE CHANGE ADAPTATION GOVERNANCE ASSESSMENT

As part of Council's membership of the Queensland Climate Resilient Councils (QCRC) program, a review of key corporate documents was undertaken in 2018 (Climate Planning, 2018). The process contained two key stages:

- **Stage 1: Information Analysis** - typology-based review of local government inclusion and influence of climate change in publicly available corporate documents
- **Stage 2: Governance Assessment** - qualitative review of local government consideration of climate change adaptation governance in corporate documents.

The results of the corporate document analysis showed that only two of the fifteen corporate documents analysed had at least one climate-related typology present. For the governance assessment, seven publicly available documents that were considered to either drive organisational decision-making or report on the effectiveness of those processes were assessed against ten core governance indicators. Only one of these documents made reference to climate change. Overall, this assessment identified that formal recognition of climate change in Scenic Rim Regional Council's governance documents was inadequate. In order for Council to improve its climate change governance performance, QCRC recommended that Council create a climate change policy and also embed climate change into the Corporate Plan as soon as practical (Climate Planning, 2018).

However, since this assessment was completed (2018), many of these documents have been superseded or updated by SRRC. 'Adaptation to changing climate and weather patterns' is now an area of focus in the *SRRC Corporate Plan*. In addition, climate considerations have now been included in the *SRRC Operational Plan*, *Scenic Rim Community Plan 2011-2026 (Revised 2018)*, *Scenic Rim Regional Prosperity Strategy*, *Waste Management and Resource Recovery Strategy*, *Scenic Rim Agribusiness and Agritourism 10-Year Roadmap* and the *SRRC Biodiversity Strategy*.

Council will further improve its performance through implementation of this Roadmap. Strategic objectives to enhance Council's adaptation governance are included under Theme 1 in the Summary of Actions.

COUNCIL CARBON FOOTPRINT/ BASELINE INVENTORY & PATHWAY

In order to understand the context and position of Council in the greenhouse emissions landscape, Council engaged a consultant to audit Council's greenhouse emissions (see Table 3 and Figure 7) and carbon footprint for the 2020/2021 financial year. Council's carbon footprint was developed in accordance with the Australian Government's Climate Active Standard[4] for included emissions sources. Council now has the ability to calculate its own emissions inventory annually using this methodology.

Council's 2020/21 carbon footprint was 65,127

4. The Climate Active program is delivered by the Australian Government Department of Industry, Science, Energy and Resources, and accounting for emissions aligns with the international GHG Protocol.

tonnes of carbon dioxide equivalent (t CO_2-e). 82% of this was from landfill waste and 10% from professional services. Emissions associated with landfill waste are expected to increase further from 2025 onwards due to anticipated higher intake of waste from neighbouring Councils (100% Renewables, 2022).

Table 3 Council's Carbon Footprint (100% Renewables, 2022)

EMIISSION SOURCE	ACTIVITY DATA	UNITS	SCOPE 1* (t CO_2-e)	SCOPE 2* (t CO_2-e)	SCOPE 3* (t CO_2-e)	TOTAL* (t CO_2-e)	RATIO (%)
Landfill waste	42,964	t	53,463			53,463	82.1
Professional services	33,762,300	$			6,752	6,752	10.4
Diesel	900	kL	2,447		125	2,572	3.9
Electricity	1,845,275	kWh		1,436	166	1,602	2.5
Streetlighting	375,207	kWh		-	326	326	0.5
Petrol	41	kL	94		5	99	0.2
Concrete	160,757	$			158	158	0.2
Asphalt	227,380	$			93	93	0.1
LPG - Stationary	27	kL	41		3	44	0.1
Diesel - Stationary	1	kL	2		0	2	0
Petrol - Stationary	4	kL	2		1	3	0
Refrigerants	82	kg	13			13	0
TOTAL			**56,062**	**1,436**	**7,629**	**65,127**	**100.0**

* All figures are rounded to the nearest tonne carbon dioxide equivalent

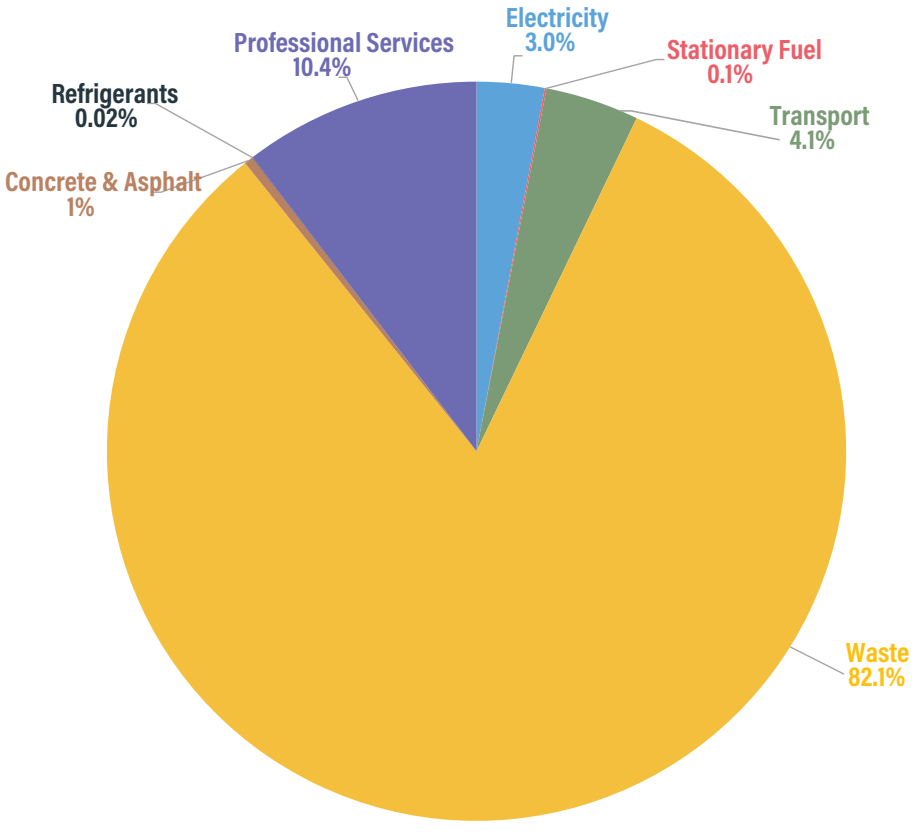


Figure 7 Simplified Council emissions inventory (100% Renewables, 2022)

General abatement opportunities and more detailed potential energy efficiency and renewable energy projects are described in the resulting report *Council Carbon Footprint/Baseline Inventory & Pathway (CCFBIP)* (100% Renewables, 2022). These include scope for abatement, risks and mitigation, costs and benefits, and specific site assessments. Recommendations for sustainable transport, sustainable procurement, design, equipment and services specifications are also stated. This information will be used to guide the implementation of this Roadmap and associated Action Plan.

COMMUNITY CLIMATE TOOL MUNICIPAL EMISSIONS SNAPSHOT

The Snapshot Climate portal (Ironbark Sustainability and Beyond Zero Emissions, 2023) has been developed to give councils and communities free access to community emissions data to support climate action planning. The Snapshot Community Climate Tool uses a common framework to estimate emissions for every municipality in Australia allowing for comparisons between regions. All the local profiles add up to the national emissions total, meaning that no emissions go unaccounted for.

All Snapshot profiles, both historical and current, have been calculated in line with the *Global Protocol for Community-Scale Greenhouse Gas Inventories* (GPC) developed by the World Resources Institute, C40 Cities and ICLEI (Ironbark Sustainability, 2022).

There is more than a 35,000 t CO2-e difference between the emissions from waste calculated in the *CCFBIP* and the estimated emissions from the Municipal Snapshot. The *CCFBIP* report was based on landfill intake data whereas the Snapshot uses State/Region population proportionality and State level solid waste generation to determine Municipal waste emissions. This method assumes that the scaling factors used for moving from the state to municipal levels are appropriate (Ironbark Sustainability, 2022). In this case, the scaling factor has significantly underestimated the emissions from waste in the Scenic Rim region. Electricity, gas, Industrial Processes and Product Use (IPPU), transport and agriculture all include some degree of local activity data and therefore can be considered more accurate. Certainly, data provided for emission sources other than waste in the snapshot are a good first step to understanding community emissions activity in the Scenic Rim.

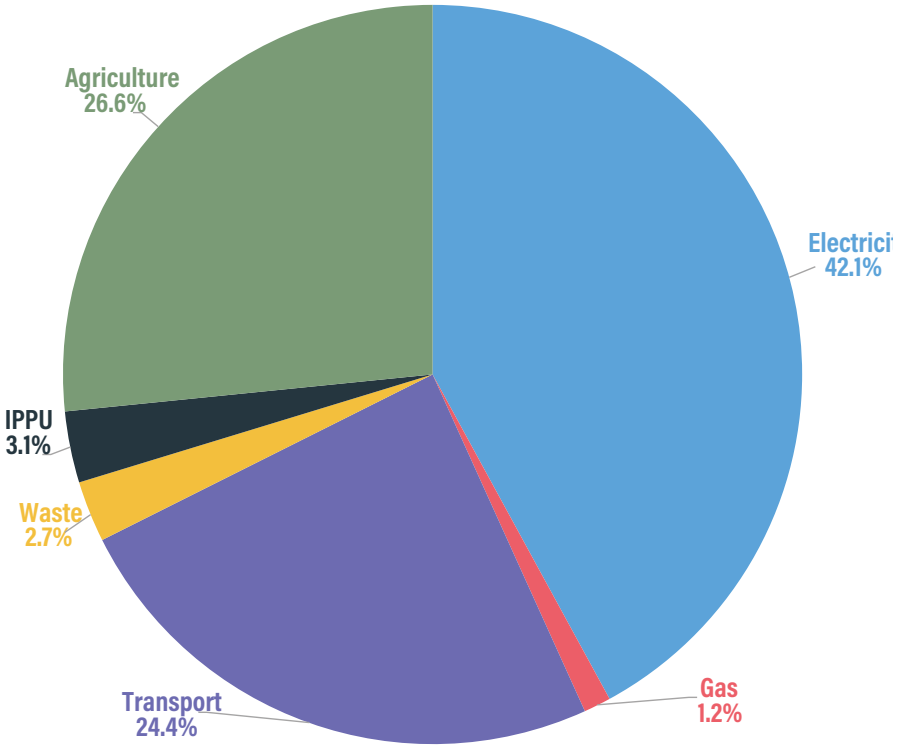


Figure 8 Municipal Emissions Snapshot 2020/2021 (Ironbark Sustainability and Beyond Zero Emissions, 2023)

5. WHAT WE ARE GOING TO DO

Responding to climate change requires a multifaceted approach that includes:

- Adapting to climate change by building resilience in our local communities, built environment, economy and natural systems to reduce our vulnerability to the effects of climate change.
- Mitigating climate change by reducing the levels of heat-trapping greenhouse gases in the atmosphere through: eliminating the sources of these gases (such as the burning of fossil fuels for electricity and transport and from waste emissions); adopting sustainable development solutions in energy, land, infrastructure and industrial systems; and enhancing the sinks that store these gases including vegetation and soils (referred to as carbon drawdown or sequestration)
- Assisting our rural and urban industries to mitigate and adapt to the impacts of climate change

Mitigating and adapting to climate change means transitioning beyond business as usual to making a systemic shift across a range of sectors. The following themes and strategic objectives will support this shift. High-level actions associated with these themes and objectives are listed in the Summary of Actions.

THEME 1: STRONG LEADERSHIP AND GOVERNANCE

1.1 Embed climate change considerations in all aspects of government decision-making (SoI Principles 1,2,3,5,6)

1.2 Strengthen partnerships with governments and stakeholders to take urgent action to achieve a low carbon economy and resilient community (SoI Principals 4,5,7)

1.3 Advocate to all levels of government and encourage the community to drive decisive climate action (SoI Principles 4,5,8)

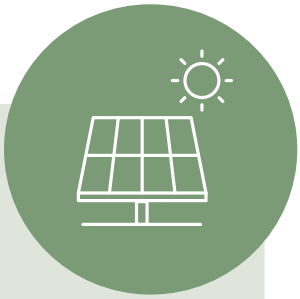
1.4 Pursue sustainable supply chains (SoI Principles 3,6,7)

1.5 Report on Council GHG emissions annually (SoI Principles 1,2,5)

Since the completion of the *Climate Change Adaptation Governance Assessment* (Climate Planning, 2018), Council has made substantial progress towards embedding climate consideration into Council documents and is starting to set an example of positive climate action through the *Climate Change Statement of Intent*. There is still work to be done to ensure climate change is considered in all relevant aspects of Council operations. High level actions in the following section include implementing the recommendations from the *Climate Change Adaptation Governance Assessment*.

Council is currently actively participating in the Queensland Climate Resilient Councils (QCRC) and International Council for Local Environmental Initiatives (ICLEI) and is also an active participant in the Council of Mayors (SEQ) Waste Working Group. This Working Group has a number of shared goals, including the reduction of waste to landfill, the largest source of emissions for Scenic Rim Regional Council.

THEME 2: ENERGY EFFICIENCY AND RENEWABLE ENERGY



2.1 Transition Council to renewable energy and ensure the transition is within the capacity of Council to do so (SoI Themes 1,2,3,6,7,8)
2.2 Transition Council and community to sustainable transport (SoI Themes 3,5,6,7,8)
2.3 Invest in energy efficiency measures within Council and for Council owned buildings (SoI Themes 3,6,7,8)
2.4 Inform community and business on ways to reduce energy consumption (SoI Principles 3,6,7,8)
2.5 Provide information to community groups and businesses on available resources for mid to large scale renewable energy projects (SoI Principles 1,2,4,5,7,8)

The Community Climate Tool (Ironbark Sustainability and Beyond Zero Emissions, 2023) estimates that 283,000 t CO2-e (42% of total regional emissions) is emitted due to electricity use in the Scenic Rim Region. Energy efficiency remains the cheapest form of GHG abatement in many situations.

Council has already taken some measures towards energy efficiency. Further energy efficiency recommendations are provided in the *CCFBIP*.

One opportunity for carbon emission reductions is on-site solar in combination with storage battery systems (behind-the-meter solar) to supply electricity to Council owned buildings and for Council operations. The *CCFBIP* also recommends that Council consider building its own mid-scale solar farm to offset its emissions associated with electricity consumption (100% Renewables, 2022). Both of these options will reduce emissions and provide long-term financial savings.

In addition to the economic advantages of mid-scale and behind-the-meter solar, these systems could have the ability to disconnect from the grid. Bushfires and severe weather events can disrupt power supply by bringing down high voltage transmission lines. The ability to disconnect from the grid will increase the resilience of Council and community electricity networks to potential climate change impacts.

Transport is 4.1% of Council emissions. Moving towards sustainable transport means reducing reliance on car travel, switching to low/zero-emissions vehicles, increasing uptake of active transport like walking and cycling, improved pathway connectivity, and supporting working from home and home-based businesses.

Council has already developed a *Flexible Work Arrangements Policy* and *Procedure* to enable staff to work partially from home. Reducing cars on the road will contribute to mitigation of direct transport emissions as well as decreasing GHG emissions associated with Council's road maintenance and the manufacturing of asphalt and concrete required for road repairs and resurfacing.

Installation of EV charging stations has been taken up by local businesses in the region seeking to provide charging for customers driving EVs. The convenience of well-placed public charging stations may well encourage more visitors to the Scenic Rim and will be useful to Council staff once Council fleet starts transitioning to EVs. As 80 to 90% of tourists are day visitors that drive to and from the region, there will be an increasing demand for EV charging stations with uptake of EVs and hybrid vehicles in Australia.

Revegetation project at Kilmore Reserve, Mount Tamborine

THEME 3: HEALTHY AND RESILIENT NATURAL SYSTEMS AND CARBON SEQUESTRATION

3.1 Undertake revegetation and ecosystem restoration of Council owned and controlled land to support ecosystem and species resilience, and for carbon sequestration (SoI Principles 1,2,5,7)

3.2 Encourage and undertake revegetation and ecosystem restoration of privately owned non- agricultural rural landscapes to support ecosystem and species resilience, and for carbon sequestration (SoI Principles 1,2,5,7)

3.3 Encourage and undertake revegetation and greening in urban and peri-urban spaces and promote use of water-sensitive urban design to reduce urban heating and increase carbon drawdown (SoI 1,2,4,5,7)

3.4 Investigate options regarding the sale and purchase of carbon offsets by Council (SoI 2,6)

3.5 Increase the adaptive capacity of ecosystems and rural water supply sources by improving the condition of regional surface and subsurface catchment water systems (SoI 2,5,7,8)

The Scenic Rim region has a wealth of biodiversity, with a vast array of plants and animals, ecosystems and geology creating an iconic landscape. Within the region there are many recognisable ecosystems such as Brigalow scrub, cloud forests, wet eucalypt forests and blue gum flats providing home for over 2,300 recorded native plants and animals including over 150 rare and threatened species. The region also encapsulates the head waters of four of the major river systems in South East Queensland: the Logan, Albert, Bremer and Coomera Rivers.

Enhancing resilience of natural systems is widely regarded as a key aspect of climate change adaptation and sustainability. Council already has a variety of programs and projects that contribute to carbon sequestration, biodiversity conservation and the improvement of catchment waterways.

High level actions in this Roadmap include the continuation of existing initiatives and the development of new projects that relate to urban and peri-urban greening and carbon offsets.

THEME 4: SUSTAINABLE AGRICULTURE AND FOOD PRODUCTION SYSTEMS

4.1 Support the creation of a sustainable and regenerative food system that includes consideration of and preparation for climate change risks (SoI 1,2,4,5,6,7,8)

4.2 Promote sustainable, locally produced food and improve local food distribution for farmers and access for residents and visitors (SoI 1,5,7,8)

4.3 Support farmers to reduce their emissions through changes in agricultural practices and technology implementation (SoI 2,5,7)

4.4 Encourage farmers to take up opportunities for income generation through carbon sequestration activities (SoI 2,5,7)

The Scenic Rim is a food bowl for Queensland and markets further afield. During winter the alluvial valleys produce vegetables for markets up and down the Australian east coast and overseas (Scenic Rim Regional Council, 2017). The Scenic Rim is also home to leading beef, pork and poultry producers and boasts growing boutique and gourmet food, wine and craft beer industries.

The agriculture and tourism industries in the Scenic Rim together account for over $400 million of the regional economy's Gross Regional Product (GRP) and employ over 3,000 locals (idcommunity, 2021).

In the Scenic Rim Region, Agriculture, Forestry and Fishing, is the second largest employer, generating 1,618 jobs, and a total agricultural output of $276m in 2020/21 (idcommunity, 2021). The largest commodity is livestock, which accounted for 45.3% of the Scenic Rim Region's total agricultural output (idcommunity, 2021). Scenic Rim is also a popular agritourism destination (Scenic Rim Regional Council, 2022). Increasing the resilience of agricultural systems to climate change impacts is of great importance to economic and social sustainability in the Scenic Rim region. In addition, opportunities to reduce emissions through regenerative farming practices and technology, and carbon sequestration activities should have co-benefits for biodiversity and soil health and economic gain for landholders.

2019 Regionality Farm2Plate Exchange

Flying Fox Bridge at Ferny Glen, 2022

THEME 5: RESILIENT COMMUNITIES, BUSINESSES AND BUILT ENVIRONMENTS

5.1 Create a resilient built environment by considering potential climate change impacts (SoI 1,2,3,7,8)

5.2 Build Council and community awareness and preparedness for climate change and extreme weather events (1,2,4,7)

5.3 Educate business and industry on potential climate change impacts and encourage them to take action to increase their resilience to these impacts (SoI 1,2,4,7,8)

Projected climate changes from *Queensland Government Sector Adaptation Plans* (Queensland Government, 2023) and *Queensland Climate Adaptation Strategy (Q-CAS) 2017-2030* (Department of Environment and Heritage Protection, 2017) will be considered for adaptation activities, where necessary, to the Scenic Rim region and Scenic Rim Local Disaster Management Group (Scenic Rim Regional Council, 2019).

Council has already made progress with building community awareness and preparedness for weather-related and other disasters and updating bushfire and flood hazard mapping incorporating climate change assumptions. Further objectives and high-level actions to increase the resilience of communities, businesses and built environments in the region are provided in the SoA.

THEME 6: WASTE EMISSIONS REDUCTION

6.1 Reduce amount of organic material going to landfill

6.2 Manage landfill in accordance with best practice to minimise greenhouse gas emissions

As discussed in Section 4, landfill waste is the largest contributor of GHG emissions in the Council carbon footprint at 82.1%. In June 2021, Council adopted the *Waste Management and Resource Recovery Strategy 2021 - 2026 (WMRRS)* which aims to generate 25 per cent less waste by 2051, with only 10 per cent of all waste disposed in landfill (in alignment with state targets) by increasing the diversion of waste from landfill, increasing the recovery of valuable organic resources from all waste streams, and priority waste resource recovery, amongst other strategies.

High level actions relating to waste emissions reduction are provided in the SoI, although plans and actions relating to this theme lie primarily within the purview of the Waste Services.

The following Summary of Actions lists the strategic objectives above, related high level actions, metrics to measure effectiveness or success, and commencement and completion times. The actions will commence as scheduled in the Action Plans. These are shown in the table below.

Commencement	Timeframe
Action Plan I	2024-2026
Action Plan II	2027-2029
Action Plan III	2030-2032

Signage at the Scenic Rim region's central waste and resource recovery facility at Bromelton

6. SUMMARY OF ACTIONS

THEME 1 – STRONG LEADERSHIP AND GOVERNANCE

STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	**HIGH LEVEL ACTIONS** How will we achieve our strategic objectives or encourage positive change?	**METRICS** How will we measure effectiveness or success of actions?	**COMMENCEMENT** When will the action commence?	**COMPLETION** nticipated year of completion
1.1 Embed climate change considerations in all aspects of government decision-making	1.1.1 Embed climate considerations within all relevant Council policies, plans and strategies, i.e., implement the recommendations from the Climate Change Adaptation Governance Assessment 2018.	Council-wide policies have incorporated a climate response Strategies and plans have incorporated climate response objectives and actions	Action Plan I 2024-2026	2026
	1.1.2 Establish a Council reference group for climate change that periodically meets to provide information and advice to Council on climate issues, required actions, barriers and successes, and ongoing program development.	Number of Council briefings Number of successful action completions	Action Plan I 2024-2026	2032
	1.1.3 Establish a community reference group for climate change that periodically meets to provide information and advice to Council on climate issues, barriers and opportunities, and monitors Council's Roadmap and Action Plan progress.	Number of meetings Number of successful action completions	Action Plan II 2027-2029	2032
	1.1.4 Educate Council staff about energy conservation and proper waste management at home and work so that they can lead by example.	Staff survey indicates an improvement in understanding of energy conservation and waste management	Action Plan I 2024-2026	2032
1.2 Strengthen partnerships with governments and stakeholders to take urgent action to achieve a low carbon economy and resilient community	1.2.1 Collaborate with other local governments to address climate risks and help build a low carbon economy. This includes opportunities for bulk buying of EVs, storage batteries, etc., as well as collaborative community education and carbon reduction initiatives across local government areas in SEQ.	Collaborations with other local governments and progress made Bulk buys leading to Council savings	Action Plan I 2024-2026	2032
	1.2.2 Utilise existing relationships and establish new relationships with the manufacturing industry in the region in order to assess energy efficiency and emissions reduction efforts and provide guidance and support if needed.	Number of assessments made	Action Plan I 2024-2026	2029

THEME 1 – STRONG LEADERSHIP AND GOVERNANCE CONTINUED...

STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	**HIGH LEVEL ACTIONS** How will we achieve our strategic objectives or encourage positive change?	**METRICS** How will we measure effectiveness or success of actions?	**COMMENCEMENT** When will the action commence?	**COMPLETION** nticipated year of completion
1.3 Advocate to all levels of government and encourage the community to drive decisive climate action	1.3.1 Advocate to the Federal and State governments to increase support for renewable energy, transitioning to a low carbon economy, and addressing climate risk impacts from flooding, drought, heat risk, bushfires and biodiversity loss in regional areas.	Climate advocacy actions Available grants, incentives and funding	Action Plan I 2024-2026	2032
	1.3.2 Advocate to State government and transport providers to: Improve and increase public transport services in the Scenic Rim region Provide leadership, direction and incentives regarding EV technologies and investment.	Number of advocacy actions Number of available grants, incentives and funding opportunities	Action Plan I 2024-2026	2032
	1.3.3 Utilise existing events to communicate key climate change messages to communities within the Scenic Rim region.	Events and promotion activities Numbers of attendees at events	Action Plan I 2024-2026	2029
1.4 Pursue sustainable value chains	1.4.1 Develop a new Procurement Policy specifying preferred pathways in relation to sustainability and GHG emission reductions.	Reduction in professional services emissions Number of local suppliers providing goods and services to Council and dollar value of local expenditure (SR RPS)	Action Plan II 2027-2029	2029
1.5 Report on Council GHG emissions annually	1.5.1 Develop a GHG data management system.	Corporate GHG data management system established that enables easy data collection and calculation	Action Plan I 2024-2026	2024
	1.5.2 Calculate Council emissions profile according to GHG Protocol.	Emissions profile for financial year calculated and reported by the end of the corresponding calendar year	Action Plan I 2024-2026	2032

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THEME 2 — ENERGY EFFICIENCY AND RENEWABLE ENERGY

STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	**HIGH LEVEL ACTIONS** How will we achieve our strategic objectives or encourage positive change?	**METRICS** How will we measure effectiveness or success of actions?	**COMMENCEMENT** When will the action commence?	**COMPLETION** nticipated year of completion
2.1 Transition Scenic Rim Council to renewable energy and ensure the transition is within the capacity of Council to do so	2.1.1 Assess opportunities, barriers and financial models for potential Council-based renewable energy projects, such as mid-scale and behind-the-meter solar including batteries for solar power storage.	Pathway identified including next steps for implementation	Action Plan I 2024-2026	2026
	2.1.2 Continue to implement renewable energy measures within Council owned and controlled properties including any public lighting.	kWh of renewable energy generated for Council operations increases Council's grid electricity and stationary fuel use decreases	Action Plan I 2024-2026	2032
2.2 Transition Council and the community to sustainable transport use	2.2.1 Develop a Council EV transition plan that requires the selection of lowest emission vehicles that are fit for purpose to show leadership and to be a positive example of climate action.	Plan developed and next steps for implementation identified	Action Plan I 2024-2026	2024
	2.2.2 Continue to seek funding for Council owned/controlled EV charging stations to increase the availability for residents and visitors in the Scenic rim region and, in the longer term, for Council's own fleet.	Number of EV charging stations installed by Council	Action Plan I 2024-2026	2032
	2.2.3 Encourage businesses to take advantage of co-funding opportunities available through government grants and form partnerships with EV providers to increase the availability of EV charging stations in the Scenic Rim region.	Number of EV charging stations in the Scenic Rim	Action Plan I 2024-2026	2029
	2.2.4 Amend Scenic Rim planning scheme to include requirements for new multi-residential and non- residential developments for carparking areas to be 'EV ready'.	EVs factored into development requirements Number of EV charging stations in Scenic Rim region	Action Plan I 2024-2026	2026
	2.2.5 Investigate biofuels as an interim measure during EV transition.	Sustainability assessment of available biofuels complete	Action Plan I 2024-2026	2024
2.3 Invest in energy efficiency measures within Council and for Council owned buildings	2.3.1 Assess opportunities, barriers and financial models for efficiency measures.	Pathway identified including next steps for implementation	Action Plan I 2024-2026	2026
	2.3.2 Continue to implement energy efficiency measures within Council owned and controlled properties including any public lighting.	Council's grid electricity and stationary fuel use decreases	Action Plan I 2024-2026	2029

THEME 2 — ENERGY EFFICIENCY AND RENEWABLE ENERGY CONTINUED...

STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	HIGH LEVEL ACTIONS How will we achieve our strategic objectives or encourage positive change?	METRICS How will we measure effectiveness or success of actions?	COMMENCEMENT When will the action commence?	COMPLETION nticipated year of completion
2.4 Inform community and business on ways to reduce energy consumption	2.4.1 Make an information toolkit available to assist households and businesses to reduce emissions and energy costs.	Information tool kit developed	Action Plan I 2024-2026	2026
	2.4.2 Provide information on energy efficiency to households and businesses and promote new technologies and tools that assist with sustainable behaviour change, through a web-based platform.	Website and dashboard developed and updated Number of website visits	Action Plan I 2024-2026	2026
	2.4.3 Provide information on solar PV and storage batteries for households and businesses including mechanisms for savings and funding, through a web-based platform.	Website and dashboard developed and updated Number of website visits % of solar PV systems installed annually	Action Plan I 2024-2026	2026
2.5 Provide information to community groups and business on available resources for mid to large scale renewable energy projects	2.5.1 Assess opportunities, barriers and financial models for community owned renewable energy projects, such as solar farms, microgrids, solar gardens, community batteries for solar storage. 2.5.2 Develop a web-based platform and dashboard to provide information on mid to large scale renewable energy projects including regulatory requirements and funding mechanisms.	Assessment complete and next steps identified Website and dashboard developed and updated Number of website visits Number of mid to large scale projects in the region	Action Plan I 2024-2026	2026

Solar panels at Running Creek (Credit: Adam Nicholas, AdNic Photography)

THEME 3 — HEALTHY AND RESILIENT NATURAL SYSTEMS AND CARBON SEQUESTRATION

STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	HIGH LEVEL ACTIONS How will we achieve our strategic objectives or encourage positive change?	METRICS How will we measure effectiveness or success of actions?	COMMENCEMENT When will the action commence?	COMPLETION nticipated year of completion
3.1 Undertake revegetation and ecosystem restoration of Council-owned and controlled land to support ecosystem and species resilience, and for carbon sequestration	3.1.1 Survey Council owned and controlled lands to establish the best sites for revegetation, restoration and carbon sequestration projects.	Number of trees planted by Council Flora and fauna surveys % of Council area managed for its environmental values	Action Plan I	2026
	3.1.2 Revegetate and restore selected Council sites for native species habitat and recreation.	Area of land revegetated	Action Plan I	2032
	3.1.3 Investigate any State/Federal mechanisms for funding carbon sequestration and biodiversity conservation projects.	Investigation complete Funding ($)	Action Plan I	2024
3.2 Encourage and undertake revegetation and ecosystem restoration of privately owned non-agricultural rural landscapes to support ecosystem and species resilience, and for carbon sequestration	3.2.1 Implement initiatives that support ecosystem and species resilience.	One Million Trees program - number of trees distributed Land for Wildlife - number of property registrations Partnerships in other initiatives	Action Plan I 2024-2026	2032
	3.2.2 Implement management plans for priority species.	Protection and condition improvements for threatened plant and animal species	Action Plan I 2024-2026	2029
	3.2.3 Continue to make grants avaiwlable for groups within the community delivering environmental projects that increase the resilience of our natural systems and/or sequester carbon.	Number of environmental grants provided for initiatives with climate change mitigation or adaptation outcomes	Action Plan I 2024-2026	2032
	3.2.4 Hold/promote workshops or events to educate landholders about revegetation and ecosystem restoration and potential funding sources.	Number of events Survey or visit to determine progress	Action Plan I 2024-2026	2029
3.3 Encourage and undertake revegetation and greening in urban and peri-urban spaces and promote use of water- sensitive urban design to reduce urban heating and increase carbon drawdown	3.3.1 Develop and propose an urban greening target (Action 1.1f Biodiversity Strategy Implementation Plan)	Whether action is completed	Action Plan I 2024-2026	2026
	3.3.2 Develop an urban greening program for streets and public spaces that increases tree canopy cover, native vegetation, biodiversity, and carbon drawdown and reduces urban heating.	Number trees planted % urban canopy cover (long term)	Action Plan I 2024-2026	2026
	3.3.3 Ensure Scenic Rim Planning has suitable regulations regarding water sensitive urban design and monitoring compliance.	Whether action is completed	Action Plan II 2027-2029	2029
	3.3.4 Develop a policy for preferred species for biodiversity, shade and carbon drawdown.	Whether action is completed	Action Plan I 2024-2026	2029

THEME 3 — HEALTHY AND RESILIENT NATURAL SYSTEMS AND CARBON SEQUESTRATION CONTINUED...

STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	**HIGH LEVEL ACTIONS** How will we achieve our strategic objectives or encourage positive change?	**METRICS** How will we measure effectiveness or success of actions?	**COMMENCEMENT** When will the action commence?	**COMPLETION** nticipated year of completion
3.4 Investigate options regarding the sale and purchase of carbon offsets by Council	3.4.1 Determine costs and benefits of purchasing different types of carbon offsets.	Investigation is completed and next steps identified	Action Plan I 2024-2026	2024
	3.4.2 Investigate requirements for Council to receive ACCUs for restoration/revegetation projects through ERF and LRF.	Investigation is completed and next steps identified	Action Plan I 2024-2026	2026
3.5 Increase the adaptive capacity of ecosystems and rural water supply sources by improving the condition of regional surface and subsurface catchment water systems	3.5.1 Continue to implement initiatives that help landholders to restore and rehabilitate riparian vegetation and other practices that improve catchment water quality.	Number of landholders involved in Resilient Rivers Initiative and related programs. % of mapped vegetated riparian zones (long term) Aquatic biota surveys	Action Plan I 2024-2026	2032
	3.5.2 Educate non-agricultural landholders about water sensitive design and other measures to preserve or improve water quality through information toolkits and web-based platforms.	Website and toolkit developed Number of website visits Number of toolkits distributed	Action Plan I 2024-2026	2032

Blue Gum (*Eucalyptus tereticornis*) grassy woodland

THEME 4 — SUSTAINABLE AGRICULTURE AND FOOD PRODUCTION SYSTEMS

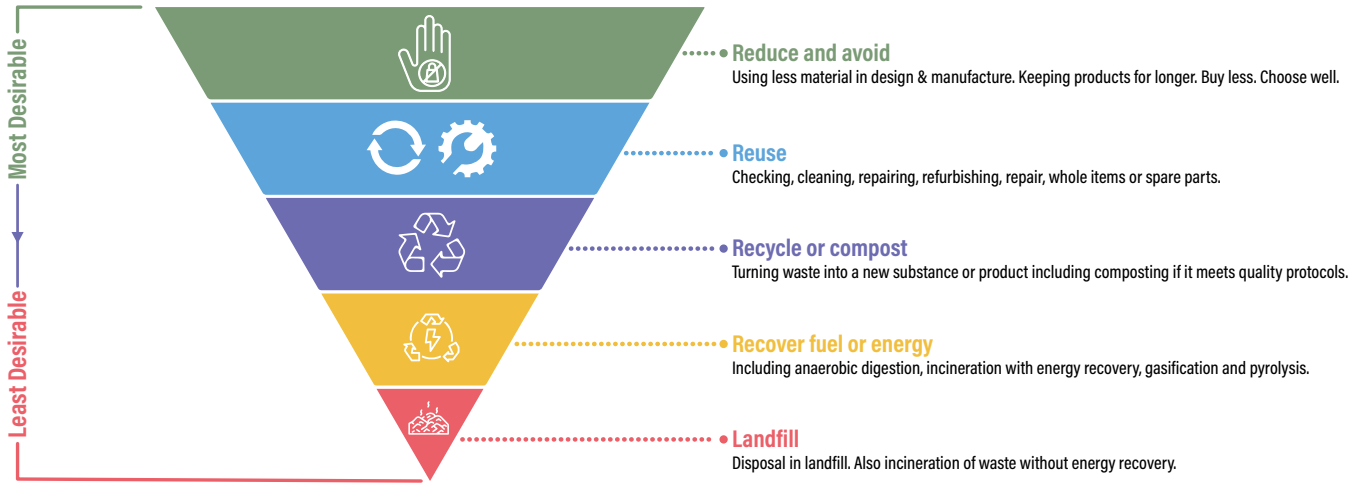
STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	HIGH LEVEL ACTIONS How will we achieve our strategic objectives or encourage positive change?	METRICS How will we measure effectiveness or success of actions?	COMMENCEMENT When will the action commence?	COMPLETION nticipated year of completion
4.1 Support the creation of a sustainable and regenerative food system that includes consideration of and preparation for climate change risks	4.1.1 Promote Landcare and other workshops and programs, grants, and guidance material, including access to climate projections, that encourage and inform the adaptation of farming practices for future climate conditions and improve the resilience of crops and livestock.	Number of farmers participating in on-ground actions through land management programs	Action Plan I 2024-2026	2032
	4.1.2 Through the Scenic Rim Agribusiness and Agritourism Three-Year Action Plan and 10-Year Roadmap: Diversified and Sustainable Agribusinesses: Initiative 1.8 Promote existing agribusiness sustainability practices and encourage industry leading sustainability practices and innovation	Increased diversity in agribusiness products and services within the region Carbon reduction in agribusiness activities Research and development grants	Action Plan I 2024-2026	2032
4.2 Promote sustainable, locally produced food and improve local food access for farmers, residents and visitors	Through the Scenic Rim Agribusiness and Agritourism Three-Year Action Plan and 10-Year Roadmap: Continue to support industry through popular events and initiatives such as the Scenic Rim Farm Gate Trail, Eat Local Month, and agriculture industry events	Survey/phone call to determine if there is an associated increase in revenue due to promotion Increased visitors at key events	Action Plan I 2024-2026	2032
	4.2.2 Through the Scenic Rim Agribusiness and Agritourism Three-Year Action Plan and 10-Year Roadmap: Identify strategic locations for hub-and-spoke model farm doors, or centralised outlets for local food, beverage and other products, and support industry led development of collective farm-to-shop distribution facilities which support the vibrancy and sustainability of existing towns and villages.	Increased availability and sales of local agri-products	Action Plan I 2024-2026	2026
4.3 Support farmers to reduce their emissions through changes in agricultural practices and technology implementation	4.3.1 Promote platforms and programs for farmers to access training, workshops, grants and guidance material for reducing agricultural emissions including current technology, regenerative farming, water sensitive design.	Number of workshop/ training attendees Website visits	Action Plan I 2024-2026	2032
4.4 Encourage farmers to take up opportunities for income generation through carbon sequestration activities	4.4.1 Investigate opportunities to encourage rural landowners to sequester soil carbon and accrue carbon credits through agricultural and revegetation methods (e.g. ERF, LRF, Carbon Farmers of Australia) and disseminate information through workshops and information toolkits.	Number of carbon sequestration projects	Action Plan I 2024-2026	2026

THEME 5 — RESILIENT COMMUNITIES, BUSINESSES AND BUILT ENVIRONMENTS

STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	**HIGH LEVEL ACTIONS** How will we achieve our strategic objectives or encourage positive change?	**METRICS** How will we measure effectiveness or success of actions?	**COMMENCEMENT** When will the action commence?	**COMPLETION** nticipated year of completion
5.1 Create a resilient built environment by considering potential climate change impacts	5.1.1 Research best practice in climate responsive urban planning and design and develop materials for Council planning, asset management, place making, design and construction, to increase climate resilience and liveability within Council's public areas, streetscapes and buildings.	Best practice information made available to relevant areas of Council	Action Plan I 2024-2026	2024
	5.1.2 Apply climate responsive best practice to Council planning, asset management, place making, design and construction, to increase climate resilience and liveability within Council's public areas, streetscapes and buildings.	Best practice incorporated into Council planning, design and construction	Action Plan I 2024-2026	2032
	5.1.3 Update Council Planning Scheme using best available hazard information to manage the impacts of climate change on new developments and public spaces including the effects of bushfire, drought, heatwaves, increased rainfall intensity and flooding.	Climate change and heat risks factored into land use planning	Action Plan II 2027-2029	2032
	5.1.4 Advocate to State and Federal governments to lift standards across the building and development sectors to climate adaptation best practice for cooling of heat island effects, improved amenity, and reducing energy demand.	Climate advocacy actions Changes to construction and development standards that address predicted temperature increases	Action Plan I	2026
5.2 Build Council and community awareness and preparedness for climate change and extreme weather events	5.2.1 Continue to educate the community through awareness programs including information toolkits, events, and web resources, to raise awareness and understanding of disaster management and preparedness.	Number of information toolkits distributed Number of events Website visits (Disaster Dashboard)	Action Plan I 2024-2026	2032
	5.2.2 Monitor disaster management research and development to ensure the latest information, methods, and technologies, are incorporated into the Scenic Rim Local Disaster Management Plan and/or associated sub plans and disaster management standard operating procedures.	Scenic Rim disaster management plans are current in relation to developments and trends	Action Plan I 2024-2026	2032
5.3 Educate business and industry on potential climate change impacts and encourage them to take action to increase their resilience to these impacts	5.3.1 Leverage existing relationships and/or establish new relationships with businesses in order to assess levels of disaster preparedness and climate resilience. If they require assistance, connect them with programs for disaster preparedness and building adaptive capacity within their business.	Number of assessments made	Action Plan I 2024-2026	2029
	5.3.2 Develop an information toolkit, carry out workshops, and possibly mentor to educate businesses about the physical and financial impacts and opportunities that may arise due to climate change.	Number of positive responses from businesses regarding usefulness of toolkit Changes to operations and plans as a result	Action Plan II 2027-2029	2032

THEME 6 — WASTE EMISSIONS REDUCTION

STRATEGIC OBJECTIVES What are our objectives over the 10 year life of this Roadmap?	HIGH LEVEL ACTIONS How will we achieve our strategic objectives or encourage positive change?	METRICS How will we measure effectiveness or success of actions?	COMMENCEMENT When will the action commence?	COMPLETION nticipated year of completion
Minimise organic matter going to landfill	Minimise organic matter going to landfill through actions related to the Waste Management & Resource Recovery Strategy 2021-2026: Strategic Outcome 6: Increase knowledge of waste reduction by residents and businesses Strategic Outcome 7: Reduce food waste generated by residents and businesses	Website, workshops and toolkits developed Feedback from workshop participants Bin waste audit results	Action Plan I 2024-2026	2026
	6.1.2 Minimise organic matter going to landfill through actions related to the Waste Management & Resource Recovery Strategy 2021-2026: Strategic Outcome 10: Promote recovery of resources and discourage disposal to landfill Strategic Outcome 11: Increase recovery of organic waste	Amount or organic waste diverted for re-use	Action Plan I 2024-2026	2026
	6.1.3 Promote Scenic Rim as a suitable area for waste to energy, recycling and reuse projects.	Number of interactions with investors	Action Plan I 2024-2026	2029
6.2 Manage the landfill in accordance with best practice to minimise greenhouse gas emissions	6.2.1 Continue to install landfill gas wells and improve the quality of the landfill cap to increase capture of landfill gas.	Increase in captured and flared methane	Action Plan I 2024-2026	2026
	6.2.2 Continue to explore power generation from landfill gas.	Investigation complete and next steps identified	Action Plan II 2027-2029	2029



Waste Hierachy Diagram

7. IMPLEMENTATION

Council has developed a *Scenic Rim Climate Change 3-Year Action Plan* (Action Plan) to drive and manage implementation of the high level actions identified in this Roadmap, and to ensure the objectives are achieved.

The Action Plan focuses on short to medium-term actions that initiate and progress the overarching 10-year Roadmap. The Action Plan Summary of Actions includes information listed in Section 6 as well as lead and additional stakeholders, related objectives or actions, and anticipated year of completion for those high level actions in this Roadmap that have already commenced or are due to commence 2024-2026. Information relating to stakeholders, roles and responsibilities, and potential funding sources for these actions is also included in the Action Plan.

Green-thighed Tree Frog in Tamborine

8. MONITORING AND REVIEW

Understanding how climate actions are actually reducing vulnerability or emissions or increasing the adaptive capacity of communities and organisations is complex. Monitoring and reporting on progress are critical to understanding the effectiveness of actions and to ensure delivery of the objectives and high level actions in this Roadmap. A review of progress against the objectives, actions and metrics will occur at the end of each 3-Year Action Plan to allow Council to assess progress and the effectiveness of actions taken and to inform subsequent Action Plans. Smaller interim reporting will also occur as required to inform Council budget process and planning.

Another key performance indicator is Council's carbon footprint which will be recalculated on an annual basis and reported to Council. Further municipal emissions profiles for the Scenic Rim will also be available through the Snapshot Community Climate Tool.

At the conclusion of the third Action Plan, in 2033, progress of the overall Roadmap will be reviewed and reported to Council. This review will inform the development of any further Roadmaps, Strategies or Plans going forwards. However, an adaptive approach should be taken with respect to actions overall.

Keeping abreast of new developments in the sphere of climate change is essential. Our understanding of climate change is evolving in terms of what makes people, communities and environments vulnerable to climate impacts, and what to do about it. Actions that reflect new climate change mitigation and adaptation knowledge, technology, legislation, ideas or lessons learnt may need to be added or substituted at any time.

9. COUNCIL REFERENCE GROUP

The Climate Change and Sustainability Taskforce (CCST) was formed in 2022 and is made up of representatives from Council's key portfolios.

The purpose of the CCST is to provide a collaborative forum to address climate change and sustainability matters in the Scenic Rim Region. The CCST will facilitate a coordinated economically, environmentally and socially responsible approach in guiding the delivery of the *Scenic Rim Interim Climate Change Statement of Intent*.

The functions of the CCST include:

- Understanding the range of current knowledge, studies, policies and actions in relation to climate change that apply to the group and its function
- Ongoing learning development through relevant emerging information relating to climate change matters
- Developing an improved understanding of the energy and resources consumed by Council (baseline inventory) in the conduct of its business
- Developing an improved understanding of community use (baseline inventory) of energy and resources
- Seeking sustainability, emissions and carbon lowering opportunities (reduction and offsets) available for both corporate and community action
- Developing a range of recommendations on regulatory, policy and planning measures to improve sustainability and climate change response
- Developing a range of initiatives for both Council and the wider community regarding carbon lowering, emission reduction and sustainable practices
- Developing climate change and sustainability pathways for consideration by the Executive Leadership Team and Council

10. DEFINITIONS

Adaptation — Regarding climate change, adaptation is the process of adjustment to actual or expected climate and its effects. It seeks to moderate or avoid harm or take advantage of beneficial opportunities.

Adaptive capacity — The ability of a system to adjust, modify or change its characteristics or actions to moderate potential damage, take advantage of opportunities, or cope with consequences of shock or stress. Low adaptive capacity generally leads to increased vulnerability, but resilience can increase adaptive capacity.

Carbon sequestration — The removal of carbon from the atmosphere by capturing or storing it through biological, chemical and physical processes. Otherwise referred to as 'carbon drawdown.'

Circular economy — In a circular economy, things are made and consumed in a way that minimizes our use of the world's resources, cuts waste, and reduces carbon emissions. Products are kept in use for as long as possible, through repairing, recycling and redesign – so they can be used again and again

Climate — Relates to the average weather over various timescales, including over a period of months up to millions of years.

Climate Change — Any change in the climate lasting for several decades, including changes in temperature, rainfall and wind patterns. It refers to the average weather conditions over a period of 30 years or longer. Climate change is different from weather. Weather refers to what you seen and feel outside from day to day (e.g. sunny, rainy).

CO_2-e — An amount in units of CO_2-e is simply the combination of GHGs (CH_4, N_2O, CFCs, etc.) that contribute to climate change adjusted using their global warming potential. This can be calculated by manually summing the mass of the pollutants multiplied by their global warming potentials. For example, CH_4 (methane) is 28 (global warming potential = 28) times more potent as a greenhouse gas than carbon dioxide, so the CH_4 equivalent in CO_2 would be the amount of CH_4 multiplied by 28.

Ecosystem services — Ecosystem services are defined as the direct and indirect contributions of ecosystems to human well-being, and have an impact on our survival and quality of life. There are four types of ecosystem services: provisioning, regulating, cultural and supporting services.

Hazard — The potential occurrence of a natural or human-induced event, trend or impact that may cause damage, including loss to property, infrastructure, livelihoods, service provision, and ecosystems.

Intergovernmental — Established by the United Nations, the IPCC is the leading

Panel on Climate Change — International body for the assessment of climate change, with representatives from 195 countries.

Mitigation — In relation to climate change - a human intervention to reduce the sources or enhance the sinks of greenhouse gases.

Resilience — The capacity of social, economic, and environmental systems to cope with a hazardous event, trend, or disturbance, responding or reorganising in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.

Risk — Is the potential for consequences where something of value is at stake and where the outcome is uncertain, recognising the diversity of values. Risk is often represented as probability of occurrence of hazardous events (likelihood) multiplied by the impacts (or consequences) should these events or trends occur.

t CO_2-e — Metric tonnes of CO2-e

Vulnerability — The quality or state of being exposed to the possibility of being attacked or harmed, either physically or emotionally. Climate change vulnerability (or climate vulnerability or climate risk vulnerability) is a concept that describes how strongly people or ecosystems are likely to affected by climate change. This can be thought of as the opposite of adaptive capacity.

Water Sensitive Urban Design — 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

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PO Box 25 | 82 Brisbane Street,
Beaudesert QLD 4285

mail@scenicrim.qld.gov.au
07 5540 5111 | scenicrim.qld.gov.au

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REGIONAL COUNCIL